



**INVITATION FOR BID  
(IFB) #10-2318-OV  
Lake Manatee Dam Tainter Gates  
Bradenton, FL (Project Number: 6026073)**

Manatee County, a political subdivision of the State of Florida, (hereinafter the "County") will receive sealed bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

**NON-MANDATORY INFORMATION CONFERENCE**

In order to insure that all prospective bidders have sufficient information and understanding of the County's needs, an **Information Conference** will be held **June 14, 2010 @ 10:00 AM.** **Location: Manatee County Public Works Department, 1022 26<sup>th</sup> Avenue East, Conference Room "A", Bradenton, FL 34208.** Attendance is not mandatory, but is highly encouraged.

**A Site Inspection shall take place on June 14, 2010 from 1:00 PM to 3:00 PM at the Manatee County Water Treatment Plant located at 17915 Waterline Rd., Bradenton, FL 34212 (Ref: B.04, Site Visitation). A Site Inspection is a requirement for this Project.**

**The Site Inspection shall be acknowledged in Section 00300, Bid Form, Page 00300-1.**

**DEADLINE FOR CLARIFICATION REQUESTS: June 23, 2010 @5:00 PM**  
(Reference Bid Article A.06)

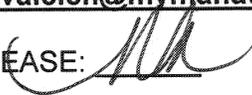
**TIME AND DATE DUE: July 9, 2010 @ 2:00 PM**  
Manatee County Purchasing, 1112 Manatee Avenue West, Bradenton, FL 34205

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**Important Note:** Lobbying is prohibited (reference Bid Article A.08)

**FOR INFORMATION CONTACT:**  
**Olga Valcich (941) 708-7527/olga.valcich@mymanatee.org**

AUTHORIZED FOR RELEASE: 

SECTION 00010  
**INFORMATION TO BIDDERS**

**A.01 OPENING LOCATION**

These bids will be **publicly opened** at **Manatee County Purchasing, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of County officials at the time and date stated, or soon thereafter. All bidders or their representatives are invited to be present.

Any bids received after the stated time and date will not be considered. It shall be the sole responsibility of the bidder to have their bid delivered to the Manatee County Purchasing Division for receipt on or before the stated time and date. If a bid is sent by U.S. Mail, the bidder shall be responsible for its timely delivery to the Purchasing Division. Bids delayed by mail shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the respondent's request and expense.

**A.02 SEALED & MARKED**

**One original and two copies** of your **signed bid** shall be submitted in one **sealed package**, clearly marked on the outside "**Sealed Bid #10-2318-OV Lake Manatee Dam Tainter Gates**."

Address package to:           Manatee County Purchasing Division  
  1112 Manatee Avenue West, Suite 803  
  Bradenton, Florida 34205

**A.03 SECURING OF DOCUMENTS**

Complete individual copies of the bidding documents for the project and/or products can be obtained, free of charge, at the Manatee County Public Works Department located at: 1022 26<sup>th</sup> Avenue East, Bradenton, FL 34208: 941-708-7450, Extension 7463 between the hours of 8:00 AM to 4:00 PM, Monday through Friday, exception of holidays. Complete set of the bidding document must be used in preparing bids. The County assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of bidding document.

**A.04 BID DOCUMENTS**

**Bids** on <http://www.mymanatee.org> , Bid documents and the Notices of Source Selection related to those Bids are available for download in a portable document format (.PDF) file on the Manatee County web page on the Purchasing tab under "Bids." You may view and print these files using Adobe Acrobat software. You may download a free copy of this software (Adobe) from the County's web page if you do not have it. **Manatee County collaborates with the Manatee Chamber of Commerce** on distributing solicitations using the RFP Tool web page on the Chambers website: <http://www.Manateechamber.com> to post Bid documents in a portable document

#### A.04 BID DOCUMENTS (Continued)

format (.PDF) file. This step is in addition to the posting on Manatee County Government web pages.

Manatee County may also use an internet service provider to distribute Bids. A link to that service, <http://www.DemandStar.com>, is provided on this website under the Tab "DemandStar". Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Note: The County posts the Notice of Source Selection seven calendar days prior to the effective date of the award.

IT IS THE RESPONSIBILITY OF EACH VENDOR, PRIOR TO SUBMITTING THEIR BID, TO CONTACT THE MANATEE COUNTY PURCHASING OFFICE (see contact information on page one of this document) TO DETERMINE IF ADDENDA WERE ISSUED AND TO MAKE SUCH ADDENDA A PART OF THEIR BID .

#### A.05 MODIFICATION OF BID SPECIFICATIONS

If a bidder wishes to recommend changes to the bid specifications, the bidder shall furnish in writing, data and information necessary to aid the County in evaluating the request to modify the specifications. The County is not obligated to make any changes to the bid specifications. Unless an addendum is issued, the bid specifications shall remain unaltered. **Bidders must fully comply with the bid specifications, terms, and conditions.**

#### A.06 DEADLINE FOR CLARIFICATION REQUESTS

**June 23, 2010 at 5:00 PM** shall be the deadline to submit all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids to the Manatee County Purchasing Office.

This deadline has been established to maintain fair treatment for all potential bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this work may achieve.

#### A.07 CLARIFICATION & ADDENDA

Each bidder shall examine all Invitation for Bids documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids shall be made through the Manatee County Purchasing Office. The County shall not be responsible for oral interpretations given by any County employee, representative, or others. The issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

A.07 CLARIFICATION & ADDENDA (Continued)

If any addenda are issued to this Invitation for Bid, the County will Broadcast the addenda on the Demand Star distribution system to "Planholders" on this web service, and post the documents on the Purchasing Division's web page at <http://www.mymanatee.org> which can be accessed by clicking on the "Purchasing" button and then clicking on the "Bids" button. It shall be the responsibility of each bidder, prior to submitting their bid, to contact Manatee County Purchasing (see contact on page 1) to determine if addenda were issued and to make such addenda a part of their bid.

A.08 LOBBYING

After the issuance of any Invitation For Bid, prospective bidders, or any agent, representative or person acting at the request of such bidder shall not contact, communicate with or discuss any matter relating in any way to the Invitation For Bid with any officer, agent or employee of Manatee County other than the Purchasing Director or as directed in the Invitation For Bid. This prohibition begins with the issuance of any Invitation For Bid, and ends upon execution of the final contract or when the invitation has been canceled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Purchasing Code.

The County reserves the right to amend or to add to the names listed as persons to contact. All amendments or additions to the names listed as persons to contact shall be issued by the Purchasing Division, in writing.

A.09 UNBALANCED BIDDING PROHIBITED

Manatee County recognizes that large and/or complex projects will often result in a variety of methods, sources and prices; however, where in the opinion of the County such variation does not appear to be justified, given bid specifications and industry and market conditions, the bid will be presumed to be unbalanced. Examples of unbalanced bids will include:

1. Bids showing omissions, alterations of form, additions not specified or required conditional or unauthorized alternate bids.
2. Bids quoting prices that substantially deviate, either higher or lower, from those included in the bids of competitive bidders for the same line item unit costs.
3. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

In the event the County determines that a bid is presumed unbalanced, it will request the opportunity to, and reserves the right to, review all sources quotes, bids, price lists, letters of intent, etc., which the bidder obtained and upon which the bidder relied upon to develop the bid. The County reserves the right to reject as non-responsive any

A.09 UNBALANCED BIDDING PROHIBITED (Continued)

presumptive unbalanced bids where the bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.10 FRONT END LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities to occur early in the project schedule, such as: mobilization, clearing and grubbing; or maintenance of traffic, that are substantially higher than pricing of competitive bidders within the same portion of the project schedule, will be presumed to be front end loaded. Front end loaded bids could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the Contractor to complete the work or otherwise creating an appearance of an under-capitalized bidder.

In the event the County determines that a bid is presumed to be front end loaded, it will request the opportunity to, and reserves the right to, review all source quotes, bids, price lists, letters of intent, etc., which the bidder obtained and upon which the bidder relied upon to develop the pricing or acquisition timing for these bid items. The County reserves the right to reject as non-responsive any presumptive front end loaded bids where the bidder is unable to demonstrate the validity and/or necessity of the front end loaded costs.

A.11 WITHDRAWAL OF OFFERS

Vendors may withdraw offers as follows: a) Mistakes discovered before the opening of a solicitation may be withdrawn by written notice from the bidder submitting the offer. This request must be received in the office designated for receipt of offers in the solicitation document prior to the time set for delivery and opening of the offers. A copy of the request shall be retained and the unopened offer returned to that vendor. b) After the responses to a solicitation are opened or a selection has been determined, but before a contract is signed, a vendor alleging a material mistake of fact may be permitted to withdraw their offer if: (1) the mistake is clearly evident on the solicitation document; or (2) the bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw and offer must be in writing and approved by the Purchasing Official.

A.12 IRREVOCABLE OFFER

Any bid may be withdrawn up until the date and time set for opening of the bid. Any bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of 90 days to sell to Manatee County the goods or services set forth in the attached specifications until one or more of the bids have been duly accepted by the County.

A.13 BID EXPENSES

All expenses for making bids to the County are to be borne by the bidder.

#### A.14 RESERVED RIGHTS

The County reserves the right to accept or reject any and/or all bids, to waive irregularities and technicalities, and to request resubmission. Also, the County reserves the right to accept all or any part of the bid and to increase or decrease quantities to meet additional or reduced requirements of the County. Any sole response received by the first submission date may or may not be rejected by the County depending on available competition and current needs of the County. For all items combined, the bid of the lowest responsive, responsible bidder will be accepted, unless all bids are rejected. The lowest responsible bidder shall mean **that bidder who makes the lowest bid to sell goods and/or services of a quality which** conforms closest to or most exceeds the quality of goods and/or services set forth in the attached specifications or otherwise required by the County, and who is fit and capable to perform the bid as made.

To be responsive, a bidder shall submit a bid which conforms in all material respects to the requirements set forth in the Invitation For Bid. To be a responsible bidder, the bidder shall have the capability in all respects to perform fully the contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance. Also, the County reserves the right to make such investigation as it deems necessary to determine the ability of any bidder to furnish the service requested. Information the County deems necessary to make this determination shall be provided by the bidder. Such information may include, but shall not be limited to: current financial statements, verification of availability of equipment and personnel, and past performance records.

#### A.15 APPLICABLE LAWS

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting agreement. Any involvement with any Manatee County procurement shall be in accordance with Manatee County Purchasing Code of Laws as amended. Any actual or prospective bidder who is aggrieved in connection with the solicitation or award of a contract may protest to the Board of County Commissioners of Manatee County as required in Section 2-26/61 of the Purchasing Code.

A protest with respect to this Invitation For Bid shall be submitted in writing prior to the scheduled opening date of this bid, unless the aggrieved person did not know and could not have been reasonably expected to have knowledge of the facts giving rise to such protest prior to the scheduled opening date of this bid. The protest shall be submitted within seven calendar days after such aggrieved person knows or could have reasonably been expected to know of the facts giving rise thereto.

#### A.16 COLLUSION

By offering a submission to this Invitation For Bid, the bidder certifies that he has not divulged, discussed or compared their bid with other bidder, and has not colluded with any other bidder or parties to this bid whatsoever. Also, bidder certifies, and in the case

A.16 COLLUSION (Continued)

of a joint bid each party thereto certifies as to their own organization, that in connection with this bid:

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other bidder or with any competitor;
- b. any prices and/or cost data quoted for this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder, prior to the scheduled opening, directly or indirectly to any other bidder or to any competitor;
- c. no attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition;
- d. the only person or persons interested in this bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this bid or in the contract to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure this contract upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee excepting bona fide employees or established commercial agencies maintained by bidder for purpose of doing business.

A.17 CODE OF ETHICS

With respect to this bid, if any bidder violates or is a party to a violation of the Code of Ethics of Manatee County per Manatee County Purchasing Code Ordinance 08-43, Article 3, Ethics in Public Contracting, and/or the State of Florida per Florida Statutes, Chapter 112, Part III, Code of Ethics for Public Officers and Employees, such bidder may be disqualified from performing the work described in this bid or from furnishing the goods or services for which the bid is submitted and shall be further disqualified from submitting any future bids for work or for goods or services for Manatee County. The County anticipates that all statements made and materials submitted in a bid will be truthful. If a bidder is determined to be untruthful in its bid or any related presentation, such bidder may be disqualified from further consideration regarding this Invitation For Bid.

**A.18 BID FORMS**

Bids must be submitted on attached County forms, although additional pages may be attached. **Bidders must fully complete all pages of the Bid Forms for both Bid A and Bid B. Bid Forms must be executed by an authorized signatory who has the legal authority to make the offer and bind the company. Bidders must fully comply with all specifications, terms and conditions.**

**A.19 LEGAL NAME**

Bids shall clearly indicate the legal name, address and telephone number of the bidder. Bids shall be signed above the typed or printed name and title of the signer. The signer must have the authority to bind the bidder to the submitted bid.

**A.20 DRUG FREE WORK PLACE**

The Manatee County Board of County Commissioners adopted a policy regarding bidders maintaining a Drug Free Work Place, prohibiting the award of bids to any person or entity that has not submitted written certification to the County that it has complied with those requirements. A Drug Free Work Place Certification Form is attached to this bid for this purpose.

**A.21 BE GREEN**

All Bidders are encouraged to use as many environmentally preferable "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. Environmentally preferable are products or services that have a reduced adverse effect on the environment. Provide detail of your organization's initiative and its ability to meet the goal of environmental sustainability.

**A.22 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES**

A person or affiliate who has been placed on the State's convicted vendor list following a conviction for a public entity crime, as that term is defined in Florida Statute § 287.133, may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Florida Statute § 287.017 for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted list.

In addition, the Manatee County Code prohibits the award of any contract to any person or entity who/which has, within the past 5 years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the purchasing official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter.

A.22 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES (Continued)

To insure compliance with the foregoing, the Code requires all persons or entities desiring to contract with the County to execute and file with the purchasing official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with the County.

In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification is attached for this purpose.

A.23 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the bid and not shown separately. The prices as shown on the bid form shall be the price used in determining award.

A.24 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Exempt Cert. No. 59-78-0089K; FL Sales Tax Exempt Cert. NO 85-8012622206C-6); therefore, the vendor is prohibited from delineating a separate line item in his bid for any sales or service taxes. Nothing herein shall affect the vendor's normal tax liability.

A.25 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the work covered by this contract shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.26 AMERICANS WITH DISABILITIES ACT

The Board of County Commissioners of Manatee County, Florida, does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the County's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation for an **Information Conference** or **Bid Opening** should contact the person named on the first page of this bid document at least twenty-four (24) hours in advance of either activity.

**A.27 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE**

Manatee County, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 and the Regulations of the Department of Commerce (15 CFR, Part 8) issued pursuant to such Act, hereby notifies all vendors that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this advertisement and will not be discriminated against on the grounds of race, color or national origin in consideration for an award.

**A.28 MBE/WBE**

The State of Florida, **Office of Supplier Diversity** provides the certification process and the database for identifying certified MBE/WBE firms. This service may be directly accessed at: <http://www.osd.dms.state.fl.us/iframe.htm>

If you have any questions regarding this State service, please contact their office at (850) 487-0915.

**A.29 MATHEMATICAL ERRORS**

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. All bids shall be reviewed mathematically and corrected, if necessary, using these standards, prior to additional evaluation.

**A.30 DISCLOSURE**

Upon receipt, all inquires and responses to inquires related to this Invitation for Bid become "Public Records" and are subject to public disclosure consistent with Chapter 119, Florida Statutes.

**Bids become "Public Records" ten (10) days after the bid opening or if an award decision is made earlier than this time as provided by Florida Statue 119.071.** No announcement or review of the bid documents shall be conducted at the public opening of the bids.

Based on the above, Manatee County will receive bids at the date and time stated, and will make public at the opening the names of the business entities of all that submitted an offer and any amount presented as a total offer without any verification of the mathematics or the completeness of the offer. Upon the expiration of the statutory term for exemption the actual documents may be inspected or copied. When County staff have completed a mathematic validation and inspected the completeness of the offers, tabulation shall be posted on [www.mymanatee.org](http://www.mymanatee.org).

**NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SECTIONS: BASIS OF AWARD, TERMS AND CONDITIONS OF THE CONTRACT, OR SPECIFICATIONS, WHICH VARY FROM THE INFORMATION TO BIDDERS, SHALL HAVE PRECEDENCE.**

**END OF SECTION**

SECTION 00020  
**BASIS OF AWARD**

**B.01 BASIS OF AWARD**

Award shall be to the most responsive, responsible bidder meeting specifications and having the lowest Total Bid Price for **Bid "A"**, or the lowest Total Bid Price for **Bid "B"**, for the requirements listed on the Bid Form for the Work as set forth in this Invitation For Bid. Bid Prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work in accordance with and in the manner set forth and described in the Contract Documents to the County's satisfaction within the prescribed time.

**Two schedules for Completion of the Work shall be considered. Each bid for completion by the specified stated time shall be offered as a separate "Total Bid Price". The County has the sole authority to select the bid based on the Completion Time which is in the best interest of the County. Only one award shall be made.**

In evaluating bids, the County shall consider the qualifications of the bidders; and if required, may also consider the qualifications of the subcontractors, suppliers, and other persons and organizations proposed. County may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Whenever two or more bids are equal with respect to price, quality and service, the bid received from a local business shall be given preference in award. Whenever two or more bids which are equal with respect to price, quality and service are received, and both bids and neither of these bids are received from a local business, the award shall be determined by a chance drawing conducted by the Purchasing Office and open to the public.

Local business is defined as a business duly licensed and authorized to engage in the sale of goods and/or services to be procured, which has a place of business in Manatee County with full time employees at that location.

**B.02 SUBCONTRACTORS**

Subcontractors shall be bound by the terms and conditions of this contract insofar as it applies to their Work, but this shall not relieve the prime contractor from the full responsibility of the County for the proper completion of all Work to be executed under this contract.

The employment of unauthorized aliens by any vendor is considered a violation of Section 274 (e) of the Immigration and Employment Act. If the vendor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this agreement.

**B.03 QUALIFICATIONS OF BIDDERS**

Each bidder must secure all licenses required (in accordance with Chapter 489 Florida Statutes) for the Work which is the subject of this bid; and, upon request, shall submit a true copy of all applicable licenses. The License requirement for this project is: **General Contractor.**

To demonstrate qualifications to perform the Work, each bidder must be prepared to submit within five days of County's request; written evidence such as financial data, previous experience, present commitments and other such data as may be requested. Bidder must be able to provide evidence of Bidder's qualification to do business in the state of Florida. Each bidder shall submit as a portion of their bid, a completed Contractor's Questionnaire included as Section 00430.

A complete list of all subcontractors proposed for any portion of the Work may be requested of any Bidder deemed necessary by the Owner. Subcontracts shall be awarded only to those subcontractors considered satisfactory by the Owner.

**B.04 INSPECTION OF SITE**

**An Inspection of the Project Site shall take place on June 14, 2010 at 1:00 PM to 3:00 PM** in order for the bidder(s) to become familiar with all conditions that may affect services that are required to completely execute the full intent of these specifications.

**Location of Project Site / Inspection Site:** Manatee County Water Treatment Plant, 17915 Waterline Rd., Bradenton, FL 34212. Security Guard(s) are located at the Water Treatment Plant and will direct the Bidders to the parking area and gathering location. All Bidders will be required to sign the Site Inspection Attendance Record.

**Bidders Note:** A Site Inspection is a requirement in order to submit a bid. Bidders shall acknowledge Inspection of the Project Site in Section 00300, Bid Form, Page 00300-1.

**B.05 PREPARATION OF CONTRACT**

A written notice confirming award or recommendation thereof will be forwarded to the Successful Bidder accompanied by the required number of unsigned counterparts of the Agreement. Within 10 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement with any other required documents to County. (Note: Contract must be approved in accordance with the Manatee County Code of Laws, Chapter 2-26, Manatee County Purchasing Ordinance and the Standard and Procedures approved by the County Administrator).

**END OF SECTION**

SECTION 00030  
**GENERAL TERMS AND CONDITIONS OF THE CONTRACT**

**C.01 CONTRACT FORMS**

The agreement resulting from the acceptance of a bid shall be in the form of the agreement stated in this bid.

**C.02 ASSIGNMENT OF CONTRACT**

Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due there under to any other person, firm or corporation unless first obtaining the written consent of the County. The giving of such consent to a particular subcontractor assignment shall not dispense with the necessity of such consent to any further or other assignment.

**C.03 COMPLETION OF WORK**

The Work will be completed and ready for final inspection within the specified calendar days from the date the Contract Time commences to run. Two bids shall be considered based on **Bid "A" 395 calendar days** and **Bid "B" based on 330 calendar days**. The County has the sole authority to select the bid based on the Completion Time which is in the best interest of the County. Only one award shall be made.

**C.04 LIQUIDATED DAMAGES**

If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will hinder its completion within the time specified, the County may seek damages. The actual damages for delay will be impossible to determine and in lieu thereof, the Contractor shall pay to the Owner the sum of **\$2,121.00** as fixed, agreed, and liquidated damages for each calendar day of the delay until the Work is finally accepted by the County and the Contractor and his Surety shall be liable for the amount thereof.

**C.05 PAYMENT**

Contractor may apply for partial payment on monthly estimates, based on the amount of Work done or completed in compliance with the provisions of the Contract. Contractor shall submit an application, on a form provided or approved by the County, of an approximate estimate of the proportionate value of the Work done, items and locations of the Work performed up to and including the last day of the period then ending. The County will then review said estimate and make any necessary revisions so that the estimate can receive approval for payment. If the Contractor and the County do not agree on the approximate estimate of the proportionate value of the Work done for any pay period, the determination of the County will be binding. The amount of said estimate after deducting any required retainage and all previous payments shall be due and payable to the Contractor within 20 days after the pay estimate has been approved by the County. It is the Contractor's responsibility for the care of the materials.

#### C.05 PAYMENT (Continued)

Any damage to or loss of said materials is the full responsibility of the Contractor. Any Periodical Pay Estimate signed by the Contractor shall be final as to the Contractor for any or all work covered by the Periodical Pay Estimate. Any requests for payment of materials stored on site must be accompanied with a paid receipt. The Contractor warrants and guarantees that title to all work, materials and equipment covered by any application for payment, whether incorporated in the project or not, will pass to the County at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter referred to as "Liens").

The Contractor agrees to furnish an affidavit stating that all laborers, material men, and subcontractors have been paid on the project for Work covered by the application for payment and that a partial or complete release of lien, as may be necessary, be properly executed by the material men, laborers, subcontractors on the project for Work covered by the application for payment, sufficient to secure the County from any claim whatsoever arising out of the aforesaid Work.

When the Contractor has completed the Work in compliance with the terms of the Contract Documents, he shall notify the County in writing that the project is ready for final inspection. The County will then advise the Contractor as to the arrangements for final inspection and what Work, if any, is required to prepare the project or a portion thereof for final inspection. When the County determines the project or portion thereof is ready for final inspection, the County shall perform same. Upon completion of final inspection, the County will notify Contractor of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. When all such errors have been corrected, a final re-inspection will be made. The process will be repeated until, in the opinion of the County, the project has been completed in compliance with the terms of the Contract Documents.

When final acceptance has been made by the County, the County will make final payment of the Contract amount, plus all approved additions, less approved deductions and previous payments made. The Contract will be considered complete when all work has been finished, the final inspection made, approved as-builts received, and the project finally accepted in writing by the County. The Contractor's responsibility shall then terminate except as otherwise stated.

#### C.06 RETAINAGE

A **retainage** of 2.5% of the total contract amount shall be withheld from payments after 75% completion of the Work. Upon substantial completion, this retainage shall be reduced to 1% of the total contract amount plus such amount as the Owner may reasonably deem necessary to repair, replace, complete or correct any damaged, defective, incorrect or incomplete work. Upon final acceptance, the remaining retainage shall be included in the final payment.

**C.07 WARRANTY AND GUARANTEE PROVISIONS**

All work, materials, and equipment furnished as defined herein shall be guaranteed and warranted by the contractor for a minimum period of three (3) years, unless otherwise specified, from final acceptance by the Owner to be free from defects due either to faulty materials or equipment or faulty workmanship.

All materials, equipment, and workmanship furnished and installed by the contractor is warranted and guaranteed by the contractor to be such as to meet the required standards and to accomplish the purpose and function of the project as defined, detailed, and specified herein.

The Owner shall, following discovery thereof, promptly give written notice to the contractor of faulty materials, equipment, or workmanship within the period of the guarantee and the contractor shall promptly replace any part of the faulty equipment, material, or workmanship at his own cost. These warranty and guarantee provisions create no limitations on the Owner as to any claims or actions for breach of guaranty or breach of warranty that the Owner might have against parties other than the contractor, and do not constitute exclusive remedies of the Owner against the contractor.

**C.08 ROYALTIES AND PATENTS**

The contractor shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Contractor shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save the County harmless from loss on account thereof, including costs and attorney's fees.

**C.09 AUTHORIZED PRODUCT REPRESENTATION**

The contractor, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to perform accordingly may, in the County's sole discretion, be deemed a breach of contract, and shall constitute grounds for the County's immediate termination of the contract.

**C.10 REGULATIONS**

It shall be the responsibility of the bidder to assure compliance with any OSHA, EPA and/or other federal or state of Florida rules, regulations or other requirements, as each may apply.

C.11 CANCELLATION

Any failure of the contractor to furnish or perform the Work (including, but not limited to, commencement of the Work, failure to supply sufficient skilled workers or suitable materials or equipment) in accordance with the contract, the County may order the stop of the Work, or any portion thereof, until the cause for such order has been eliminated. If the contractor persistently fails to perform the Work in accordance with the contract, the County reserves the right to terminate the contract and select the next qualified bidder or re-advertise this procurement in part or in whole. The County reserves the right to cancel all or any undelivered or unexecuted portion of this contract with or without cause.

C.12 INDEMNIFICATION

The contractor covenants and agrees to indemnify and save harmless the County, its agents and employees, from and against all claims, suits, actions, damages, causes of action, or judgments arising out of the terms of the resulting agreement for any personal injury, loss of life, or damage to the property sustained as a result of the performance or non-performance of services or delivery of goods; from and against any orders, judgments, or decrees, which may be entered against the County, its agents or employees; and from and against all costs, attorney's fees, expenses and other liabilities incurred in the defense of any such claim, suit or action, and the investigation thereof. Nothing in the award, resulting agreement, contract or Purchase Order shall be deemed to affect the rights, privileges and immunities of the County as set forth in Florida Statute Section 768.28.

C.13 MANUALS, SCHEMATICS, HANDBOOKS

All manuals, schematics and handbooks shall be provided which are applicable to the equipment delivered. An operators manual, parts manual and technician manual must also be provided. Parts lists (manuals) must include OEM part numbers for items not manufactured by the bidder. Vendor shall furnish two (2) copies of each.

C.14 INSURANCE

The contractor will not commence work under a contract until all insurance under this section and such insurance coverage as might be required by the County has been obtained. The contractor shall obtain, and submit to Purchasing within 10 calendar days of request, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

- a. Workers' Compensation/Employers' Liability  
Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the contract documents which are customarily insured under Part One of the standard Workers' Compensation Policy.

C.14 INSURANCE (Continued)

Part Two - The minimum amount of coverage required by the contract documents which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

<u>\$100,000</u>	(Each Accident)
<u>\$500,000</u>	(Disease-Policy Limit)
<u>\$100,000</u>	(Disease-Each Employee)

b. Commercial General Liability

The limits are to be applicable only to work performed under this contract and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 25 03) a Commercial General Liability Policy with the following minimum limits.

General Aggregate:

Products/Completed Operations Aggregate	<u>\$1,000,000</u>
Personal and Advertising Injury	<u>\$300,000</u>
Each Occurrence	<u>\$300,000</u>
Fire Damage (Any One Fire)	<u>\$Nil</u>
Medical Expense (Any One Person)	<u>\$Nil</u>

c. Business Auto Policy

Each Occurrence Bodily Injury and Property Damage Liability Combined	<u>\$300,000</u>
Annual Aggregate (if applicable):	<u>\$1,000,000</u>

d. Owners Protective Liability Coverage

The minimum OPC Policy limits per occurrence and, if subject to an aggregate, annual aggregate to be provided by the contractor shall be the same as the amounts shown above as the minimum per occurrence and general policy aggregate limits respectively required for the Commercial General Liability coverage. The limits afforded by the OPC Policy and any excess policies shall apply only to the Owner and the Owner's officials, officers, agents and employees and only to claims arising out of or in connection with the work under this contract.

e. Property Insurance

**If this contract includes** construction of or additions to above ground buildings or structures, contractor shall provide "**Builder's Risk**" insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

**C.14** INSURANCE (Continued)f. Installation Floater

**If this contract does not include** construction of or additions to above ground building or structures, **but does involve** the installation of machinery or equipment, contractor shall provide an "**Installation Floater**" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

g. Certificates of Insurance and Copies of Policies

Certificates of Insurance in triplicate evidencing the insurance coverage specified in the six above paragraphs a., b., c., d., e., and f., shall be filed with the Purchasing Director before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the bid number, project title and location of project. Insurance shall remain in force at least one year after completion and acceptance of the project by the County, in the amounts and types as stated herein, with coverage for all products and services completed under this contract.

**ADDITIONAL INSURED: The contractor shall name Manatee County as additional insured in each of the applicable policies.**

If the initial insurance expires prior to the completion of operations and/or services by the contractor, renewal certificates of insurance and required copies of policies shall be furnished by the contractor and delivered to the Purchasing Director thirty (30) days prior to the date of their expiration.

Nothing herein shall in any manner create any liability of the County in connection with any claim against the contractor for labor, services, or materials, or of subcontractors; and nothing herein shall limit the liability of the contractor or contractor's sureties to the County or to any workers, suppliers, material men or employees in relation to this contract.

**C.15** BID BOND/CERTIFIED CHECK

By offering a submission to this Invitation For Bid, the bidder agrees should the bidder's bid be accepted, to execute the form of contract and present the same to Manatee County for approval within 10 days after being notified of the awarding of the contract. The bidder further agrees that failure to execute and deliver said form of contract **within 10 days** will result in damages to Manatee County and as guarantee of payment of same a bid bond/certified check shall be enclosed within the submitted sealed bid in the amount of five (5%) percent of the total amount of the bid.

C.15 BID BOND/CERTIFIED CHECK (Continued)

The bidder further agrees that in case the bidder fails to enter into a contract, as prescribed by Manatee County, the bid bond/certified check accompanying the bid shall be forfeited to Manatee County as agreed liquidated damages. If the County enters into a contract with a bidder, or if the County rejects any and/or all bids, accompanying bond will be promptly returned.

C.16 PERFORMANCE AND PAYMENT BONDS

The successful bidder shall furnish surety bonds as security for faithful performance of the contract awarded as a result of this bid, and for the payment of all persons performing labor and/or furnishing material in connection therewith. Surety of such bonds shall be in an amount equal to the bid award (100% each) and from a duly authorized and nationally recognized surety company, authorized to do business in Florida, satisfactory to this County. The attorney-in-fact who signs the bonds must file with the bonds a certificate and effective dated copy of power-of-attorney. (Reference Florida Statute 255.05)

Furnishing the performance and payment bonds shall be requisite to execution of a contract with the County. Said performance and payment bonds will remain in force for the duration of the contract with the premiums paid by the contractor. Failure of successful bidder to execute such contract and to supply the required bonds shall be just cause for annulment of the award.

The County may then contract with another acceptable bidder or re-advertise this Invitation For Bid. If another bidder is accepted, and notice given within 90 days after the opening of bids, this acceptance shall bind the bidder as though they were originally the successful bidder.

Failure of the County at any time, to require performance by the contractor of any provisions set out in the contract will in no way affect the right of the County, thereafter, to enforce the provisions. Bonds to remain in effect for one year after final payment becomes due.

C.17 NO DAMAGES FOR DELAY

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County by reason of any delays. The Contractor shall not be entitled to an increase in the Total Contract Price or payment or compensation of any kind from the County or direct, indirect, consequential impact or other costs, expenses for damages, including but not limited to costs of acceleration or inefficiency arising because of delay, disruption, interference or hindrance from any

C.17 NO DAMAGES FOR DELAY (Continued)

cause whatsoever; provided, however, that this provision shall not preclude recovery or damages by the Contractor for hindrance or delays due solely to fraud, bad faith, or active interference on part of the County or its agents. Otherwise, the Contractor shall only be entitled to extensions of the Contract Time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extend specifically provided above.

C.18 NO INTEREST

Any monies not paid by the County when claimed to be due to the Contractor under this Contract shall not be subject to interest including prejudgment interest. Any monies not paid by the County when claimed to be due to the Contractor for damages awarded in the case of construction delays shall not be subject to prejudgment interest.

C.19 CONSTRUCTION OF CONTRACT

This Contract and the rights and responsibilities hereunder shall not be construed more strongly against either party, regardless of the extent to which such party may have participated in the preparation hereof.

**END OF SECTION**

SECTION 00100  
BID SUMMARY

D.01 THE WORK

**The Work** included in this contract consists of the repairs to the Lake Manatee Dam and Tainter Gates, including repairs to the upstream embankment soil cement, the installation of a cofferdam and associated dewatering and bypass pumping, repairs to the approach walls, footers, apron and interface with soil cement including repairing the scouring and undermining, repairing the submerged concrete surfaces and coating concrete surfaces, repairs and coating of the stop log, steel embeds and Tainter Gates, repair gates bottom and side seals, re-grading, stabilizing and resodding the upstream north embankment slopes and installing a new railing along concrete steps, repair downstream concrete apron, training walls joints and submerged coating, downstream south embankment sheet pile wall, downstream embankments, installation of a new stop log support structure with access platform, and improvements to the grounding, lighting protection system, and lighting.

The Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all work required by these Specifications and as shown on the Contract Drawing.

The Contractor shall perform the work complete, in place and ready for continuous service and shall include any repairs, replacements, and / or restoration required as a result of damages caused prior to acceptance by the Owner.

The Contractor shall furnish and install all materials equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the Contract Documents or not.

Construct all work under a single contract.

D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS

The identity of subcontractors, suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) may be requested by the County for each bid item from any of the Bidders; and the Bidder shall respond within five days after the date of such request. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such subcontractor, supplier, persons or organization if requested by County. If County, after due investigation, has reasonable objection to any proposed subcontractor, supplier, other person or organization, County may, before the Notice of Award is given, request the apparent successful Bidder to submit an acceptable substitute without an increase in Contract Price or Contract Time.

**D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS (Continued)**

If apparent successful Bidder declines to make any such substitution, County may award the contract to the next lowest qualified Bidder that proposes to use acceptable subcontractors, suppliers, and other persons who County does not make written objection to. Contractor shall not be required to employ any subcontractor, supplier, other person or organization who Contractor has reasonable objection to.

Subcontractors shall be bound by the terms and conditions of this contract insofar as it applies to their Work, but this shall not relieve the prime contractor from the full responsibility to the County for the proper completion of all Work to be executed under this contract.

**D.03 BIDS**

Bids are to be submitted in triplicate, one original and two copies, upon the County supplied forms. All blank spaces must be filled in as noted with amounts extended and totaled and no changes shall be made in the wording of the forms or in the items mentioned therein. In the event a change is made in your submittal, the Bidder shall write its initials by the change. Any bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which shall in any manner fail to conform to bid requirements.

A bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the bid shall be executed by two or more of the general partners. If made by a corporation, the bid shall be executed by its President or other legally authorized corporate officer or agent.

**D.04 EXAMINATION OF CONTRACT DOCUMENTS AND SITE**

It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Bid Documents thoroughly; (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work; (c) consider federal, state, and local codes, laws, and regulations that may affect costs, progress, performance, or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the Bid Documents; and (e) notify County of all conflicts, errors, or discrepancies in the Bid Document.

The accuracy of the existing utility locations shown on the plans is approximate and without express or implied warranty. Each Bidder may, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine his Bid for performing and furnishing the Work in accordance with the time price and other terms and conditions of the Contract Documents

**D.04 EXAMINATION OF CONTRACT DOCUMENTS AND SITE (Continued)**

County will provide each Bidder access to the site to conduct such explorations and tests. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by County unless otherwise provided in the Contract Documents.

**D.05 MATERIALS AND WORKMANSHIP**

All materials and apparatus required for this Work, except as specifically specified otherwise, shall be new, of first class quality, and shall be furnished, delivered, connected and finished in every detail. Construction shall be prescribed by good industry practice and in accordance with manufacturer's recommendations for the type being installed.

Use skilled workman trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this section.

**D.06 REGULATIONS AND MATERIAL DISPOSAL**

It shall be the responsibility of the contractor to assure compliance with any OSHA, EPA, federal, state, and/or local rules, regulations or other requirements as each may apply.

**D.07 DISCRETIONARY WORK**

This Bid Item entails minor increases (that may be directed by staff) to existing bid item quantities or minor modification items not bid which were unforeseen and necessary during the construction to provide a safe, complete project in accordance with Bid Documents. (This will not affect the requirement for change orders involving major modifications to the project.) Payment for all Work under this item shall be made only at the County's discretion in order to satisfactorily complete the project. In general, this item is for unanticipated conflicts and/or design changes required during construction which are necessary to complete the project without changing the initial scope of Work and without costly delays.

**D.08 MILESTONE REQUIREMENTS**

Bidders shall take notice of milestone requirements detailed in the Technical Specifications, Section 01010, Summary of Work, Article 1.03; Work Sequence, page 01010-2.

**END OF SECTION**

## SECTION 00150

**MANATEE COUNTY LOCAL PREFERENCE LAW AND VENDOR REGISTRATION****E.01 Vendor Registration**

All vendors are encouraged to register with Manatee County using the on-line "Vendor Registration" web page on [www.mymanatee.org](http://www.mymanatee.org).

Enclosed are a copy of the current Manatee County law that details the County's Local Preference and the County's definition of a Local Business.

If you assert that your firm meets the stated definition of a Local Business, we ask that in addition to registering on the County's Web page, you fill out the attached "**Affidavit As To Local Business Form**" that is included in this section, have the completed document notarized, and mail the original to the following address: Manatee County Administration Center, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

Your cooperation in registering your business with Manatee County will enhance our opportunities to identify sources for goods and services, plus identify Local Businesses. This information is used for soliciting quotations up to \$250,000.00 and for competitive solicitations of larger purchases.

You will note that Manatee County collaborates with the Manatee Chamber of Commerce, posting bids on [www.manateechamber.com](http://www.manateechamber.com) as well as using the same vendor categories for registration.

Our staff can assist you with your registration as needed. Our office hours are 8:00 A.M. to 5:00 P.M., Monday through Friday on regular business days. Please call (941) 749-3014 if you wish to have a purchasing staff member assist you.

**Quick steps to registration:**                      **[www.mymanatee.org](http://www.mymanatee.org)**

A link to "Purchasing" is listed under "Quick Links" on page one of the County Web Site.

On the left hand side of the Purchasing Web page, click on "Vendor Registration".

This will bring up the Vendor Registration form for on-line input. Please note that the definition of a "Local Business" changed on March 17, 2009. The Web page will be updated to include the current Law which has been provided in this section of the bid.

Thank you for reviewing this information and considering registering your business with Manatee County. Registration is not mandatory; however, by taking the time to register, you are helping the County to provide timely notifications of quotation, bid and proposal opportunities to your business.

**E.02 Section 2-26-6. Local preference, tie bids, local business defined.**

(a) Whenever a responsible local business bidder and a responsible non-local business bidder are found, upon the opening of bids, to have both submitted the lowest responsive bid, the bid of the local bidder shall be awarded the contract. Should more than one responsible local business bidder match the responsible non-local business bidder's lowest responsive bid, or should no responsible local business bidder match the lowest responsive bid but two or more responsible non-local business bidders submit lowest responsive bids for equal amounts, then the award of the contract shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the purchasing office and open to the public. Any bidders seeking to be recognized as local businesses for purposes of this local business preference provision may be required by the terms of the bid announcement to certify they meet the definition of local business set forth in this section, and to register as a local business with the county in the manner prescribed by the county to facilitate the county's ability to track the award of contracts to local businesses and to allow the county to provide future notifications to its local businesses concerning other bidding opportunities.

(b) Nothing herein shall be deemed to prohibit the inclusion of requirements with respect to operating and maintaining a local place of business in any invitation for bids when the bidder's location materially affects the provisions of the services or supplies that are required by the invitation.

**(c) Local business is defined as a business legally authorized to engage in the sale of the goods and/or services to be procured, and which certifies within its bid that for at least six (6) months prior to the announcement of the solicitation of bids it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employees at that location.**

(d) **Each solicitation for bids made by the county shall contain terms expressly describing the local business preference policies of the county, and shall provide that by electing to submit a bid pursuant to a request for bids, all bidders are deemed to understand and agree to those policies.**

(e) For all contracts for architecture, professional engineering, or other professional services governed by Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, the county shall include the local business status of a firm among the factors considered when selecting which firms are "most highly qualified." In determining which firm is the "most qualified" for purposes of negotiating a satisfactory contract, preference shall be given to a local business where all other relevant factors are equal.

(f) Local preference shall not apply to the following categories of contracts:

1. Goods or services provided under a cooperative purchasing agreement or similar "piggyback" contract;
2. Contracts for professional services subject to Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, except as provided for in subsection (e) above;

E.02 Section 2-26-6. Local preference, tie bids, **local business defined.** (Continued)

3. Purchases or contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
  4. Purchases or contracts made pursuant to a non-competitive award process, unless otherwise provided by this section;
  5. Any bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the county commission or county administrator, or where such suspension is, in the opinion of the county attorney, required by law.
- (g) To qualify for local preference under this section, **a local business must certify to the County that it:**
1. Has not within the five years prior to the bid announcement admitted guilt or been found guilty by any court or state or federal regulatory enforcement agency of violation of any criminal law, or a law or administrative regulation regarding fraud;
  2. Is not currently subject to an unresolved citation or notice of violation of any Manatee County Code provision, except citations or notices which are the subject of a current legal appeal, as of the date of the bid announcement;
  3. Is not delinquent in the payment of any fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, except any such sums which are the subject of a current legal appeal.

Ref: Ordinance 09-21 and 09-23 **PASSED AND DULY ADOPTED** in open session, with a quorum present and voting, on the 17<sup>th</sup> day of March, 2009.

**Contractors Note:** Contractors who have previously submitted an **AFFIDAVIT AS TO LOCAL BUSINESS** are not required to resubmit an AFFIDAVIT, provided that any and all information has remained unchanged.

**END OF SECTION**

**MANATEE COUNTY GOVERNMENT  
AFFIDAVIT AS TO LOCAL BUSINESS  
(Complete and Initial Items B-F)**

A. Authorized Representative

I, [name] \_\_\_\_\_, am the [title] \_\_\_\_\_

and the duly authorized representative of: [name of business] \_\_\_\_\_  
\_\_\_\_\_, and that I possess direct personal knowledge to make informed responses to these certifications and the legal authority to make this Affidavit on behalf of myself and the business for which I am acting; and by electing to submit a bid pursuant to this Invitation for Bids, shall be deemed to understand and agree to the local business preference policies of Manatee County; and that I have the direct knowledge to state that this firm complies with all of the following conditions to be considered to be a Local Business as required by the Manatee County Code of Law, Section 2-26-6.

B. Place of Business: I certify that the above business is legally authorized to engage in the sale of goods and/or services and has a physical place of business in Manatee, DeSoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one (1) fulltime employee at that location. The physical address of the location which meets the above criteria is: \_\_\_\_\_ [Initial] \_\_\_\_\_

C. Business History: I certify that business operations began at the above physical address with at least one fulltime employee on [date] \_\_\_\_\_ [Initial] \_\_\_\_\_

D. Criminal Violations: I certify that within the past five years of the date of this Bid announcement, this business has not admitted guilt nor been found guilty by any court or local, state or federal regulatory enforcement agency of violation of any criminal law or administrative regulation regarding fraud. [Initial] \_\_\_\_\_

E. Citations or Code Violations: I certify that this business is not currently subject to any unresolved citation or notice of violation of any Manatee County Code provision, with the exception of citations or notices which are the subject of a legal current appeal within the date of this bid announcement. [Initial] \_\_\_\_\_

F. Fees and Taxes: I certify that within this business is not delinquent in the payment of fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, with the exception of those which are the subject of a legal current appeal. [Initial] \_\_\_\_\_

*Each of the above certifications is required to meet the qualification of "Local Business" under Manatee County Code of Law, 2-26-6.*

Signature of Affiant \_\_\_\_\_

STATE OF FLORIDA

COUNTY OF \_\_\_\_\_

Sworn to (or affirmed) and subscribed before me this \_\_\_\_ day of \_\_\_\_, 20 \_\_, by (name of person making statement).

(Notary Seal) Signature of Notary: \_\_\_\_\_

Name of Notary (Typed or Printed) \_\_\_\_\_

Personally Known \_\_\_\_ OR Produced Identification \_\_\_\_ Type of Identification Produced \_\_\_\_\_

**Submit executed copy to Manatee County Purchasing, Suite 803, 1112 Manatee Avenue W., Bradenton, FL 34205.**

**BID FORM  
SECTION 00300**

**For: IFB #10-2318-OV Lake Manatee Dam Tainter Gates, Manatee County, FL  
(Project No. 6026073)**

<b>TOTAL BID PRICE "A": \$ _____</b>
Based on a Completion Time of <b>395</b> calendar days
<b>TOTAL BID PRICE "B": \$ _____</b>
Based on a Completion Time of <b>330</b> calendar days

**Two schedules for Completion of the Work shall be considered. Each bid for completion by the specified stated time shall be offered as a separate "Total Bid Price". The County has the sole authority to select the bid based on the Completion Time which is the best interest of the County. Only one award shall be made.**

We, the undersigned, hereby declare that we have carefully reviewed the bid documents, and with full knowledge and understanding of the aforementioned herewith submit this bid, meeting each and every specification, term, and condition contained in the Invitation for Bids.

We understand that the bid technical specifications, terms, and conditions in their entirety shall be made a part of any agreement or contract between Manatee County and the successful bidder. Failure to comply shall result in contract default, whereupon, the defaulting contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

Communications concerning this Bid shall be addressed as follows:

Person's Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Date: \_\_\_\_\_ FLContractorLicense# \_\_\_\_\_

Bidder is a WBE/MBE Vendor? \_\_\_\_\_ Certification \_\_\_\_\_

COMPANY'S NAME: \_\_\_\_\_

AUTHORIZED SIGNATURE(S): \_\_\_\_\_

Name and Title of Above Signer(s) \_\_\_\_\_

CO. MAILING ADDRESS: \_\_\_\_\_

STATE OF INCORPORATION \_\_\_\_\_ (if applicable)

TELEPHONE: (\_\_\_\_) \_\_\_\_\_ FAX: (\_\_\_\_) \_\_\_\_\_

Email address: \_\_\_\_\_

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

**SIGN AND CONFIRM DATE OF PROJECT SITE INSPECTION: \_\_\_\_\_ DATE: \_\_\_\_\_**

**BID FORM**  
(Submit in Triplicate)  
**SECTION 00300**

**BID "A"**

**IFB #10-2318-OV / Lake Manatee Dam Tainter Gates, Manatee County, FL**  
**(Project No. 6076073 6.2)**

**(Bid "A" Base on a Completion Time of 395 calendar days)**

ITEM NO.	DESCRIPTION	U/M	QTY.	UNIT PRICE	EXTENDED PRICE
1	Mobilization (Not to Exceed 10% of the Total Bid)	LS	1	\$	\$
2	Repair to Upstream Soil Cement Embankment Cracks	LS	1	\$	\$
3	Installation of Cofferdam	LS	1	\$	\$
<b>4</b>	<b>Repair to Approach Concrete Surfaces</b>				
4a	Blast & Clean Surface Area	LS	1	\$	\$
<b>4b</b>	<b>Surface Repair &amp; Leveling</b>				
4b1	Dam Floor (Stop Log to Tainter Gate)	CF	30	\$	\$
4b2	Dam Floor (Beginning of Spillway to Stop Log)	CF	30	\$	\$
4b3	Dam Walls to Elevation 41.00 (Begin Spillway to Tainter Gate)	CF	35	\$	\$
<b>4c</b>	<b>Approach Slab &amp; Approach Walls Spot Repairs</b>				
4c1	Primer	SF	120	\$	\$
4c2	Concrete Repair Material	CF	20	\$	\$
<b>4d</b>	<b>Coating Systems</b>				
4d1	Dam Floor (Stop Log to Tainter Gate)	LS	1	\$	\$
4d2	Dam Floor (Beginning of Spillway to Stop Log)	LS	1	\$	\$
4d3	Dam Walls to Elevation 41.00 (Begin Spillway to Tainter Gate)	LS	1	\$	\$
4d4	Approach Slab and Approach Walls	LS	1	\$	\$
5	Repair Scoured and Undermined Subgrade Material around Approach Walls and Soil Cement Interface	LS	1	\$	\$

Bidder: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_

Bid "A"

00300-2

**BID FORM**  
(Submit in Triplicate)  
**SECTION 00300**

**BID "A"**

**IFB #10-2318-OV / Lake Manatee Dam Tainter Gates, Manatee County, FL**  
**(Project No. 6076073 6.2)**

**(Bid "A" Base on a Completion Time of 395 calendar days)**

ITEM NO.	DESCRIPTION	U/M	QTY.	UNIT PRICE	EXTENDED PRICE
6	North Sheet Pile Observation Port	LS	1	\$	\$
7	Repair and Coating of Stop Log	LS	1	\$	\$
8	Recoat of Tainter Gates	LS	1	\$	\$
9	Repair to Tainter Gates Seal Plates and Seals	LS	1	\$	\$
10	Repair to Downstream Embankment Slopes and Access of the Dam Wall	LS	1	\$	\$
11	Repair of Concrete Apron Void	LS	1	\$	\$
12	Repair to Training Walls Joints and Coating	LS	1	\$	\$
13	Repair to the South Downstream Sheet Pile Wall	LS	1	\$	\$
14	Repair to Downstream Embankments	LS	1	\$	\$
15	Stop Log Lay Down Support	LS	1	\$	\$
16	Bypass Pumping	LS	1	\$	\$
17	<b>Modifications to the Emergency Spillway</b>				
17a	Cribbing Work	LS	1	\$	\$
17b	Removal and Replacement of 4 Earthen Plugs	LS	1	\$	\$
18	Improvements to Electrical System	LS	1	\$	\$
19	Recoat of Miscellaneous Metals	LS	1	\$	\$
20	Miscellaneous Work and Cleanup	LS	1	\$	\$
21	DISCRETIONARY	LS	1		\$340,000.00
<b>Bid "A" Lake Manatee Dam Tainter Gates, Manatee County, FL (Based on 395 Calendar Completion Time)</b>					\$

Bidder: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Bid "A"

00300-3

**BID FORM**  
(Submit in Triplicate)  
**SECTION 00300**

**BID "B"**

**IFB #10-2318-OV / Lake Manatee Dam Tainter Gates, Manatee County, FL**  
**(Project No. 6076073 6.2)**

**(Bid "B" Base on a Completion Time of 330 calendar days)**

ITEM NO.	DESCRIPTION	U/M	QTY.	UNIT PRICE	EXTENDED PRICE
1	Mobilization (Not to Exceed 10% of the Total Bid)	LS	1	\$	\$
2	Repair to Upstream Soil Cement Embankment Cracks	LS	1	\$	\$
3	Installation of Cofferdam	LS	1	\$	\$
<b>4</b>	<b>Repair to Approach Concrete Surfaces</b>				
4a	Blast & Clean Surface Area	LS	1	\$	\$
<b>4b</b>	<b>Surface Repair &amp; Leveling</b>				
4b1	Dam Floor (Stop Log to Tainter Gate)	CF	30	\$	\$
4b2	Dam Floor (Beginning of Spillway to Stop Log)	CF	30	\$	\$
4b3	Dam Walls to Elevation 41.00 (Begin Spillway to Tainter Gate)	CF	35	\$	\$
<b>4c</b>	<b>Approach Slab &amp; Approach Walls Spot Repairs</b>				
4c1	Primer	SF	120	\$	\$
4c2	Concrete Repair Material	CF	20	\$	\$
<b>4d</b>	<b>Coating Systems</b>				
4d1	Dam Floor (Stop Log to Tainter Gate)	LS	1	\$	\$
4d2	Dam Floor (Beginning of Spillway to Stop Log)	LS	1	\$	\$
4d3	Dam Walls to Elevation 41.00 (Begin Spillway to Tainter Gate)	LS	1	\$	\$
4d4	Approach Slab and Approach Walls	LS	1	\$	\$
5	Repair Scoured and Undermined Subgrade Material around Approach Walls and Soil Cement Interface	LS	1	\$	\$

Bidder: \_\_\_\_\_

Authorized  
Signature: \_\_\_\_\_

Bid "B"

00300-4

**BID FORM**  
(Submit in Triplicate)  
**SECTION 00300**

**BID "B"**

**IFB #10-2318-OV / Lake Manatee Dam Tainter Gates, Manatee County, FL**  
**(Project No. 6076073 6.2)**

**(Bid "B" Base on a Completion Time of 330 calendar days)**

ITEM NO.	DESCRIPTION	U/M	QTY.	UNIT PRICE	EXTENDED PRICE
6	North Sheet Pile Observation Port	LS	1	\$	\$
7	Repair and Coating of Stop Log	LS	1	\$	\$
8	Recoat of Tainter Gates	LS	1	\$	\$
9	Repair to Tainter Gates Seal Plates and Seals	LS	1	\$	\$
10	Repair to Downstream Embankment Slopes and Access of the Dam Wall	LS	1	\$	\$
11	Repair of Concrete Apron Void	LS	1	\$	\$
12	Repair to Training Walls Joints and Coating	LS	1	\$	\$
13	Repair to the South Downstream Sheet Pile Wall	LS	1	\$	\$
14	Repair to Downstream Embankments	LS	1	\$	\$
15	Stop Log Lay Down Support	LS	1	\$	\$
16	Bypass Pumping	LS	1	\$	\$
17	<b>Modifications to the Emergency Spillway</b>				
17a	Cribbing Work	LS	1	\$	\$
17b	Removal and Replacement of 4 Earthen Plugs	LS	1	\$	\$
18	Improvements to Electrical System	LS	1	\$	\$
19	Recoat of Miscellaneous Metals	LS	1	\$	\$
20	Miscellaneous Work and Cleanup	LS	1	\$	\$
21	DISCRETIONARY	LS	1		\$340,000.00
<b>Bid "B" Lake Manatee Dam Tainter Gates, Manatee County, FL (Based on 330 Calendar Completion Time)</b>					\$

Bidder: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Bid "B"

00300-5

**SWORN STATEMENT  
THE FLORIDA TRENCH SAFETY ACT**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR BY AN OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with IFB No. #10-2318-OV
2. This Sworn Statement is submitted by \_\_\_\_\_  
whose business address is \_\_\_\_\_  
and, if applicable, its Federal Employer Identification Number (FEIN) is \_\_\_\_\_. If  
the entity has no FEIN, include the Social Security Number of the individual signing this  
sworn statement \_\_\_\_\_.
3. Name of individual signing this Sworn Statement is: \_\_\_\_\_,  
Whose relationship to the above entity is: \_\_\_\_\_.
4. The Trench Safety Standards that will be in effect during the construction of this project shall include, but are not limited to: Laws of Florida, Chapters 90-96, TRENCH SAFETY ACT, and OSHA RULES AND REGULATIONS 29 CFR 1926.650 Subpart P, effective October 1, 1990.
5. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless the Owner and Engineer, and any of their agents or employees from any claims arising from the failure to comply with said standard.
6. The undersigned has appropriated the following costs for compliance with the applicable standards:

<u>Trench Safety Measure (Description)</u>	<u>Units of Measure (LF, SY)</u>	<u>Unit Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>
a. _____	_____	_____	\$ _____	_____
b. _____	_____	_____	\$ _____	_____
c. _____	_____	_____	\$ _____	_____
d. _____	_____	_____	\$ _____	_____

7. The undersigned intends to comply with these standards by instituting the following procedures:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

THE UNDERSIGNED, in submitting this Bid, represents that they have reviewed and considered all available geotechnical information and made such other investigations and tests as they may deem necessary to adequately design the trench safety system(s) to be utilized on this project.

\_\_\_\_\_  
(AUTHORIZED SIGNATURE / TITLE)

SWORN to and subscribed before me this \_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
(impress official seal)

\_\_\_\_\_  
Notary Public, State of Florida  
My commission expires: \_\_\_\_\_

SECTION 00430  
**CONTRACTOR'S QUESTIONNAIRE**  
 (Submit in Triplicate)

The Bidder warrants the truth and accuracy of all statements and answers herein contained.  
 (Include additional sheets if necessary.)

THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID.

1. LICENSE # and COMPANY'S NAME: \_\_\_\_\_  
 CO. PHYSICAL ADDRESS: \_\_\_\_\_  
 TELEPHONE NUMBER: (\_\_\_\_) \_\_\_\_\_ FAX (\_\_\_\_) \_\_\_\_\_

2. Bidding as an; individual; a partnership; a corporation; a joint venture; \_\_\_\_

3. If a partnership: list names and addresses of partners; if a corporation: list names of officers, directors, shareholders, and state of incorporation; if joint venture: list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. Your organization has been in business (under this firm's name) as a \_\_\_\_\_  
 For how many years? \_\_\_\_\_

5. Describe and give the date and owner of the last three government projects you've completed which are similar in cost, type, size, and nature as the one proposed (for a public entity). Include contact name and phone number:

\_\_\_\_\_  
 \_\_\_\_\_

6. Have you ever been assessed liquidated damages under a contract during the past five (5) years? If so, state when, where (contact name, address, and phone number) and why.

\_\_\_\_\_  
 \_\_\_\_\_

7. Have you ever failed to complete work awarded to you? If so, state when, where (Contact name, address, phone number) and why?

\_\_\_\_\_  
 \_\_\_\_\_

8. Have you ever been debarred or prohibited from bidding on a governmental entity's construction project? If yes, name the entity and describe the circumstances:

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9. Name three individuals, governmental entities, or corporations for which you have performed similar work and to which you refer. Include contact name and phone number:

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

10. What specific steps have you taken to examine the physical conditions at or contiguous to the site, including but not limited to, the location of existing underground facilities?

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11. What specific physical conditions, including, but not limited to, the location of existing underground facilities have you found which will, in any manner, affect cost, progress, performance, or finishing of the work?

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12. Will you subcontract any part of this Work? If so, describe which major portion(s):

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13. If any, list (with contract amount) WBE/MBE to be utilized:

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14. What equipment do you own to accomplish this Work?

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15. What equipment will you purchase/rent for the Work? (Specify which)

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16. Provide detail of your organization's initiative to meet the goal of encouraging and promoting environmentally preferable "green" products. **Reference Article A.22, "Be Green", Section 00010 "Information To Bidders"**.

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17. List the following in connection with the Surety which is providing the Bond(s):

Surety's Name: \_\_\_\_\_

Surety's Address: \_\_\_\_\_

Name, address and phone number of Surety's resident agent for service of process in Florida:

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Phone: (\_\_\_\_\_) \_\_\_\_\_

SECTION 00491  
**Drug Free Work Place Certification**  
SWORN STATEMENT PURSUANT TO RESOLUTION R-93-22  
DRUG FREE WORK PLACES

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

This sworn statement is submitted to the Manatee County Board of County Commissioners by \_\_\_\_\_  
[Print individual's name and title]

\_\_\_\_\_ for \_\_\_\_\_

Whose business address is \_\_\_\_\_?

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

I understand that no person or entity shall be awarded or receive a county contract for public improvements, procurement of goods or services (including professional services) or a county lease, franchise, concession or management agreement, or shall receive a grant of county monies unless such person or entity has submitted a written certification to the County that it will provide a drug free work place by:

(1) providing a written statement to each employee notifying such employee that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance as defined by . 893.02(4), Florida Statutes, as the same may be amended from time to time, in the person's or entity's work place is prohibited specifying the actions that will be taken against employees for violation of such prohibition. Such written statement shall inform employees about:

- (i) the dangers of drug abuse in the work place;
- (ii) the person's or entity's policy of maintaining a drug free environment at all its work places, including but not limited to all locations where employees perform any task relating to any portion of such contract, business transaction or grant;
- (iii) any available drug counseling, rehabilitation, and employee assistance programs; and
- (iv) the penalties that may be imposed upon employees for drug abuse violations.

2) Requiring the employee to sign a copy of such written statement to acknowledge his or her receipt of same and advice as to the specifics of such policy. Such person or entity shall retain the statements signed by its employees. Such person or entity shall also post in a prominent place at all of its work places a written statement of its policy containing the foregoing elements (i) through (iv).

(3) Notifying the employee in the statement required by subsection (1) that as a condition of employment the employee will:

- (i) abide by the terms of the statement; and
- (ii) notify the employer of any criminal drug statute conviction for a violation occurring in the work place no later than five (5) days after such a conviction.

(4) Notifying the County within ten (10) days after receiving notice under subsection (3) from an employee or otherwise receiving actual notice of such conviction.

(5) Imposing appropriate personnel action against such employee up to and including termination; or requiring such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency.

(6) Making a good faith effort to continue to maintain a drug free work place through implementation of sections (1) through (5) stated above.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR THE COUNTY ADMINISTRATOR DETERMINES THAT:

- (1) Such person or entity has made false certification.
- (2) Such person or entity violates such certification by failing to carry out the requirements of sections (1), (2), (3), (4), (5), or (6) or Resolution R-01-36 Section 4, E (1) (a) or
- (3) Such a number of employees of such person or entity have been convicted of violations occurring in the work place as to indicate that such person or entity has failed to make a good faith effort to provide a drug free work place as required by Resolution R-01-36 Section 4, E (1) (a).

\_\_\_\_\_  
(Signature)

STATE OF FLORIDA

COUNTY OF \_\_\_\_\_

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 2009  
by \_\_\_\_\_.

Personally known \_\_\_\_\_ OR produced identification \_\_\_\_\_

\_\_\_\_\_ My commission expires \_\_\_\_\_

Notary Public Signature

[Print, type or stamp Commissioned name of Notary Public]

**PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION**

**SWORN STATEMENT PURSUANT TO ARTICLE 5,  
MANATEE COUNTY PURCHASING CODE**

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

This sworn statement is submitted to the Manatee County Board of County Commissioners by

\_\_\_\_\_ [print individual's name and title]

\_\_\_\_\_ for \_\_\_\_\_ [print name of entity submitting sworn statement]

Whose business is: \_\_\_\_\_

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

I understand that no person or entity shall be awarded or receive a county contract for public improvements, procurement of goods or services (including professional services) or a county lease, franchise, concession or management agreement, or shall receive a grant of county monies unless such person or entity has submitted a written certification to the County that it has not:

(1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or

(2) been convicted of an agreement or collusion among bidders or prospective bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or

(3) been convicted of a violation of an environmental law that, in the sole opinion of the County's Purchasing Director, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or

(4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or

(5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such and entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the

business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

Any person or entity, who claims that this Article is inapplicable to him/her's/it because a conviction or judgement has been reversed by a court of competent jurisdiction, shall prove the same with documentation satisfactory to the County's Purchasing Director. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with the County.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR THE COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

\_\_\_\_\_  
[Signature]

STATE OF FLORIDA  
COUNTY OF \_\_\_\_\_

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 2009 by \_\_\_\_\_.

Personally known \_\_\_\_\_ OR produced \_\_\_\_\_  
[Type of identification]

\_\_\_\_\_ My commission expires \_\_\_\_\_  
Notary Public Signature

\_\_\_\_\_  
[Print, type or stamp Commissioned name of Notary Public]

**Signatory Requirement** - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.

**SECTION 00500  
FORM OF AGREEMENT  
BETWEEN THE  
COUNTY OF MANATEE, FLORIDA  
AND THE CONTRACTOR AS IDENTIFIED BELOW  
ON THE BASIS OF A STIPULATED UNIT COST CONTRACT PRICE**

THIS AGREEMENT is made and entered into by and between the COUNTY OF MANATEE, a political subdivision of the state of Florida, hereinafter referred to as the "COUNTY" and \_\_\_\_\_, hereinafter referred to as the "CONTRACTOR," duly authorized to transact business in the state of Florida, with offices located at \_\_\_\_\_.

**Article 1. WORK**

CONTRACTOR shall furnish all labor, materials, supplies, and other items required to complete the Work for IFB No. IFB#10-2318-OV, Lake Manatee Dam Tainter Gates, Bradenton, Manatee County, FL in strict accordance with Contract Documents and any duly authorized subsequent addenda thereto, all of which are made a part hereof.

**Article 2. ENGINEER**

The County of Manatee, Project Management Department, is responsible as the COUNTY and URS hereinafter referred to as "ENGINEER," designed this project and is responsible for technical/engineering reviews and decisions. The ENGINEER is a member of the COUNTY'S project management team which is collectively responsible in ensuring the Work is completed in accordance with the Contract Documents. All communications involving this project will be addressed to:

County of Manatee  
Public Works Department  
Project Management Division  
Attn: Mr. Jeff Streitmatter,  
IFB#10-2318-OV  
1022 26<sup>th</sup> Avenue East  
Bradenton, FL 34208  
Phone (941) 708-7450, Ext. 7335

URS  
Engineer of Record  
7650 W. Courtney Campbell Causeway  
Suite 700  
Tampa, FL 33607  
Phone (813) 286-1711

Where the terms ENGINEER and/or COUNTY are used in the Contract Documents, it shall mean the COUNTY'S project management team.

### **Article 3. CONTRACTOR'S REPRESENTATIONS**

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

- 3.1 CONTRACTOR has familiarized itself with the nature and extent of the Bid Documents, Work, site, locality and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 3.2 CONTRACTOR has studied carefully all drawings of the physical conditions upon which CONTRACTOR is entitled to rely.
- 3.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the physical conditions at or contiguous to the site or which otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Bid Documents; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 3.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Bid Documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. Any additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities conducted by the CONTRACTOR will be done at the CONTRACTOR'S expense.

- 3.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Bid.
- 3.6 CONTRACTOR has given COUNTY written notice of all conflicts, errors or discrepancies that have been discovered in the Bid Documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 3.7 CONTRACTOR shall schedule and perform the Work subject to COUNTY'S approval and shall hold COUNTY harmless from all liabilities incurred due to CONTRACTOR'S failure to coordinate with the COUNTY.

**Article 4. CONTRACT DOCUMENTS**

The Contract Documents which comprise the entire Agreement between COUNTY and CONTRACTOR concerning the Work consist of the following:

- 4.1 This Agreement and Bid Document **IFB#10-2318-OV**
- 4.2 Performance and/or other Bonds and Insurance Certificate(s)
- 4.3 Drawings (not attached)
- 4.4 Addenda numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive.
- 4.5 CONTRACTOR'S Bid Form and any other information submitted by Contractor prior to Notice of Award.

- 4.6 The following which may be delivered or issued after the effective date of the Agreement and are not attached hereto: all written Change Orders and other documents amending, modifying, or supplementing the Contract Documents.
- 4.7 The documents listed in paragraphs above are attached to this Agreement (except as noted otherwise above). There are no Contract Documents other than those listed above in this Article 4.

#### **Article 5. MISCELLANEOUS**

- 5.1 Terms used in this Agreement are defined in Article 1 of the General Conditions.
- 5.2 No assignment by a party hereto of any rights under or interest in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignee from any duty or responsibility under the Contract Documents.
- 5.3 COUNTY and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

The OWNER will pay, and the CONTRACTOR will accept in full consideration for the performance of the Work (IFB No. #10-2318-OV – Lake Manatee Dam Tainter Gates, Bradenton, Manatee County, FL) subject to additions and deductions as provided therein, the sum of \_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_) for Bid “\_\_\_\_” based on Completion Time of \_\_\_\_ calendar days and the sum of **\$2,121.00** as liquidated damages for each calendar day of delay.

\_\_\_\_\_  
CONTRACTOR

BY: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title of Signer (printed)

Date: \_\_\_\_\_

MANATEE COUNTY GOVERNMENT

BY: \_\_\_\_\_ For the County  
Signature

R. C. “Rob” Cuthbert, CPM, CPPO, Purchasing Official  
Name and Title of Signer

Date: \_\_\_\_\_

SECTION 00700  
GENERAL CONDITIONS

ARTICLE I - DEFINITIONS

Whenever used in the Bid Documents, the following terms have the meaning indicated which are applicable to both the singular and plural thereof:

Addendum - Written or graphic instruments issued prior to the opening of bids which clarify or change the bidding documents or the contract documents.

Agreement - The written Agreement between County and Contractor covering the Work to be performed; other contract documents are attached to the Agreement and made a part thereof as provided therein.

Written Amendment - A written amendment of the contract documents, signed by County and Contractor on or after the effective date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly work related aspects of the contract documents.

Application for Payment - The form accepted by Project Representative which is to be used by Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the contract documents.

Award - Acceptance of the bid from the person, firm, or corporation which in the County's sole and absolute judgment will under all circumstances best serve the public interest. Award shall be made by a majority vote of a quorum of Manatee County Board of County Commissioners in open session; or by the Purchasing Official in accordance with Ordinance 09-52, Manatee County Purchasing Ordinance.

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

Bidder - One who submits a bid directly to the County, as distinct from a sub-bidder, who submits a bid to a Bidder.

Bidding Documents - Consists of the Invitation For Bid, which includes but is not limited to: the bid form, drawings, Contract Documents, terms and conditions, and the proposed contract documents (including all Addenda issued prior to receipt of bids); and becomes a part of the Agreement.

Bonds - Performance and payment bonds and other instruments of security.

Change Order - A document recommended by Project Representative which is signed by Contractor and County and authorizes an addition, deletion, or revision in the Work or an adjustment in the contract price or the contract time, issued on or after the effective date of the Agreement.

Compensable Delay - Any delay beyond the control and without the fault or negligence of the Contractor resulting from County-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by County.

Contract Documents - The Agreement, Addenda (which pertain to the contract documents), Contractor's bid (including documentation accompanying the bid and any post-bid documentation submitted prior to the Notice of Award), the bonds, the specifications and the drawings, together with all amendments, modifications and supplements issued on or after the effective date of the Agreement.

Contract Price - The monies payable by County to Contractor under the contract documents as stated in the Agreement.

Contract Time - The number of days or the date stated in the Notice to Proceed for the completion of the Work.

Contractor - The person, firm or corporation with whom County has entered into an Agreement.

Days - All references to days are to be considered calendar days except as specified differently.

Defective - An adjective which when modifying the 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 Project Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by County).

Discretionary – Payment for all work that shall be made only at the County's discretion in order to satisfactorily complete the project in accordance with the Plans and Specifications.

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 bidding and contract documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective (date of execution).

Excusable Delay - Any delay beyond the control and without the negligence of the Contractor, the County, or any other contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, fires, floods, freight embargoes, acts of government other than County, or epidemics. Labor disputes and above average rainfall shall give rise only to excusable delays.

Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Inexcusable Delay - Any delay caused by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor.

Non-prejudicial Delay - Any delay impacting a portion of the Work within the available total float or slack time and not necessarily preventing completion of the Work within the contract time.

Notice of Award - The written notice to the successful bidder stating Award has been approved by the Board of County Commissioners; or by the Purchasing Official in accordance with Ordinance 09-52, Manatee County Purchasing Code.

Notice of Intent to Award - The written notice to the apparent low bidder stating Award has been recommended with final Award to be authorized by the Board of County Commissioners.

Notice to Proceed - Written notice by County (after execution of contract) to Contractor fixing the date on which the contract time will commence to run and on which Contractor shall start to perform (ten (10) days from date of such notice) Contractor's obligations under the contract documents.

County - Manatee County, Florida, Board of County Commissioners.

Preconstruction Conference - Prior to starting the Work, a meeting scheduled by County with Contractor to review the Work schedules, to establish procedures for handling shop drawings and other submissions, for processing periodical pay estimates, and such other matters as may be pertinent to the project.

Prejudicial Delay - Any excusable or compensable delay impacting the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the contract time unless the Work is accelerated.

Pre-operation Testing - All field inspections, installation checks, water tests, performance tests and necessary corrections required of Contractor to demonstrate that individual components of the work have been properly constructed and do operate in accordance with the contract documents for their intended purposes.

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

Project Representative - The authorized representative of County who is assigned to the project or any part thereof.

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

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

Subcontractor - An individual or corporation having a direct contact with Contractor or with any other subcontractor for the performance of a part of the Work at the site. Such person or firm has contractual relations with the Contractor, not with the County.

Substantial Completion - The Work (or a specified part thereof) has progressed to the point when, in the opinion of the Engineer as evidenced by Engineer's definitive certificate of Substantial Completion, it is sufficiently complete in accordance with contract documents so that the work can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due.

Successful Bidder - The lowest qualified, responsible and responsive bidder to whom an award is made.

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

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

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

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

Work Directive Change - A written directive to contractor, issued on or after the effective date of the Agreement and signed by County and recommended by Project Representative ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or to emergencies. A work directive change may not change the contract price or the contract time; but is evidence that the parties expect that the change directed or documented by a work directive change will be incorporated in a subsequently issued change order following negotiations by the parties as to its effect, if any, on the contract price or contract time.

## ARTICLE 2 - PRELIMINARY MATTERS

Computation of Time: When time is referred to in the contract documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day will be omitted from the computation.

- 2.1 The Contractor must submit a proposed schedule of the Work at the preconstruction conference. The purpose of this schedule is to enable the County to govern the Work, to protect the functions of the local government and its citizens and to aid in providing appropriate surveillance. The County shall have the right to reschedule work provided such rescheduling is in accord with the remainder of terms of the contract. The schedule shall show, as a minimum, the approximate dates on which each segment of the work is expected to be started and finished, the proposed traffic flows during each month, the anticipated earnings by the Contractor for each month and the approximate number of crews and equipment to be used. The County, after necessary rescheduling and obtaining additional information for specific purposes, shall review and approve the schedule. The Contractor shall also forward to the County, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the work under the contract, in fabrication and in the field, stating the existing status, estimated time of completion and cause of delay, if any. Together with the summary report, the Contractor shall submit any necessary revisions to the original schedule for the County's review and approval. In addition, more detailed schedules may be required by the County for daily traffic control.
- 2.2 A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. The contract time will commence at the time specified in such notice. Contractor shall start to perform the Work on the date specified in the notice to proceed, but no work shall be done at the site prior to the date on which the contract time commences to run.
- 2.3 If at any time the materials and appliances to be used appear to the County as insufficient or improper for securing the quality of work required or the required rate of progress, the County may order the Contractor to increase his efficiency or to improve the character of his work and the Contractor shall conform to such an order. The failure of the County to demand any increase of such efficiency of any improvement shall not release the County from his obligation to secure the quality of work or the rate of progress necessary to complete the Work within the limits imposed by the contract. The County may require the Contractor to remove from the Work such employees as the County deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Work is deemed to be contrary to the County's interest.
- 2.4 The County reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and execution of their Work, and promptly connect and coordinate the Work with theirs.

## ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, RE-USE

- 3.1 The contract documents comprise the entire Agreement between County and Contractor concerning the work. The contract documents are complementary; what is called for by one is as binding as if called for by all. The contract documents will be construed in accordance with the laws and ordinances of the State of Florida and the County of Manatee.

Should a conflict exist within the contract documents, the precedence in ascending order of authority are as follows: 1) Standard Printed Contract Documents, 2) Special Conditions, 3) General Conditions and 4) Drawings. Note: Computed dimensions shall govern over scaled dimensions.

- 3.2 It is the intent of the contract documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the contract documents. Any work, materials or equipment that may reasonably be inferred from the contract documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the contract documents) shall be effective to change the duties and responsibilities of County, Contractor or Engineer, or any of their agents or employees from those set forth in the Contract Documents.

- 3.3 The contract documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

- 3.3.1 A Formal Written Amendment
- 3.3.2 A Change Order
- 3.3.3 Administrative Contract Adjustment (ACA)

- 3.4 In addition, the requirements of the contract documents may be supplemented and minor variations and deviations in the Work may be authorized in one or more of the following ways:

- 3.4.1 Discretionary Work – Field Directive
- 3.4.2 Engineer's approval of a Shop Drawing or sample.

## ARTICLE 4 - CONTRACTOR'S RESPONSIBILITIES

- 4.1 Contractor shall keep on the Work at all times during its progress a competent resident superintendent; who shall be the Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.
- 4.2 Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the contract documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto and except as otherwise indicated in the contract documents, all Work at the site shall be performed during regular working hours and Contractor will not permit overtime work or the performance of work on Saturday, Sunday or legal holiday without County's written consent given after prior notice to Engineer (at least 72 hours in advance).
- 4.2.1 Contractor shall pay for all additional engineering charges to the County for any overtime work which may be authorized. Such additional engineering charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by County on account of such overtime work. At County's option, overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.
- 4.3 Unless otherwise specified, Contractor shall furnish and assume full responsibility for all bonds, insurance, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.
- 4.4 All materials and equipment shall be of good quality and new, except as otherwise provided in the contract documents. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable supplier except as otherwise provided in the contract documents.
- 4.5 Contractor shall be fully responsible to County for all acts and omissions of the subcontractors, suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between County or Engineer and any such subcontractor, supplier or other person or organization, nor shall it create any obligation on the part of County to pay or to see to the payment of any monies due any such subcontractor, supplier or other person or organization.

- 4.6 Permits: Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. County shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.
- 4.7 During the progress of the Work, Contractor shall keep the premises free from accumulation of waste materials rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials and shall leave the site clean and ready for occupancy by County. Contractor shall restore to original conditions all property not designated for alteration by the Contract Documents.
- 4.8 Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.
- 4.9 Safety and Protection: Contractor shall comply with the Florida Department of Commerce Safety Regulations and any local safety regulations. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:
- 4.9.1 all employees on the work and other persons and organizations who may be affected thereby;
  - 4.9.2 all the work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
  - 4.9.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority or local conditions. Contractor shall provide reasonable maintenance of traffic way for the public and preservation of the County's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for the safety and protection of the work shall continue until such time as all the work is completed.

- 4.10 **Emergencies:** In emergencies affecting the safety or protection of persons or the work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Engineer or County, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give County prompt written notice if Contractor believes that any significant changes in the work or variations from the contract documents have been caused thereby. If Owner determines that a change in the contract documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variation.
- 4.11 For substitutes not included with the bid, but submitted after the effective date of the Agreement, Contractor shall make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from review, acceptance and provisions of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed substitute. In rendering a decision, County/Engineer and Contractor shall have access to any available float time in the construction schedule. In the event that substitute materials or equipment not included as part of the bid, but proposed after the effective date of the agreement, are accepted and are less costly than the originally specified materials or equipment, then the net difference in cost shall be credited to the County and an appropriate change order executed.
- 4.11.1 If a specific means, method, technique, sequence of procedure of construction is indicated in or required by the contract documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Engineer if Contractor submits sufficient information to allow Engineer to determine that the substitute proposed is equivalent to that indicated or required by the contract documents.
- 4.11.2 Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability and no substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a change order or an approved shop drawing. County may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- 4.11.3 Contractor shall reimburse County for the charges of Engineer and Engineer's Consultants for evaluating each proposed substitute submitted after the effective date of the Agreement and all costs resulting from any delays in the work while the substitute was undergoing review.

- 4.12 The Contractor shall furnish, free of charge, all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the construction work. Where rights-of-way, easements, property lines or any other conditions which make the lay-out of the project or parts of the project critical are involved, the Contractor will employ a competent surveyor who is registered in the State of Florida for lay-out and staking. These stakes and marks shall constitute the field control by and in accord with which the Contractor shall govern and execute the work. The Contractor will be held responsible for the preservation of all stakes, marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they will be immediately and accurately replaced by the Contractor.
- 4.13 The Contractor has, by careful examination, satisfied himself as to the nature and location of the work and all other matters which can in any way affect the work under this contract, including, but not limited to details pertaining to boring, as shown on the drawings, are not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the work, approximately at the locations indicated. The Contractor shall examine boring data, where available, and make his own interpretation of the subsoil investigations and other preliminary data, and shall base his bid on his own opinion of the conditions likely to be encountered. In no event shall an extension of time be considered for any conditions that existed at the time of bidding, nor shall the Contractor receive extra compensation for completion of the project as intended by the drawings and in keeping with the contact documents. No verbal agreement or conversation with any officer, agent or employee of the County, before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.
- 4.14 If the Contractor, in the course of the work, finds that the drawings and/or Contract Documents cannot be followed, he shall immediately inform the County in writing, and the County shall promptly check the accuracy of the information. Any work done after such discovery, until any necessary changes are authorized, will be done at the Contractor's risk.

#### ARTICLE 5 - OWNER'S RESPONSIBILITIES

- 5.1 County shall furnish the data required of County under the contract documents promptly and shall make payments to the Contractor within a reasonable time (no more than 45 days) after the Work has been accepted by the County. The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the contract documents shall be determined by the County/Engineer. Standard County forms shall be utilized.
- 5.2 The County shall provide the lands upon which the Work under this contract is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.

- 5.3 The County shall have the right to take possession of and use any completed portions of the work, although the time for completing the entire work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents.

#### ARTICLE 6 - CHANGES IN THE WORK

- 6.1 Without invalidating the Agreement and without notice to any surety, County may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a change order, or a work directive change. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the contract documents (except as otherwise specifically provided).
- 6.2 Contractor shall not be entitled to an increase in the contract price or an extension of the contract time with respect to any Work performed that is not required by the contract documents as amended, modified and supplemented.
- 6.3 County and Contractor shall execute appropriate change orders (or written amendments) covering changes in the Work which are ordered by County, or which may be required because of acceptance of defective Work.
- 6.4 At any time Engineer may request a quotation from Contractor for a proposed change in the Work and within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the contract price or contract time for the proposed change. Engineer shall have 21 calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Engineer of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Contractor shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

#### ARTICLE 7 - CHANGE OF CONTRACT PRICE

- 7.1 The contract price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at his expense without change in the contract price.
- 7.2 The contract price may only be changed by change order or by a written amendment. Any claim for an increase or decrease in the contract price shall be based on written notice delivered by the party making the claim to the other party. Notice of the amount of the claim with supporting data shall be delivered within ten (10) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.

- 7.3 The value of any Work covered by a change order or of any claim for an increase or decrease in the contract price shall be determined in one of the following ways (at County's discretion):
- 7.3.1 Where the Work involved is covered by unit prices contained in the contract documents, cost will be determined by application of such unit prices to the quantities of the items involved.
  - 7.3.2 By mutual acceptance of lump sum.
  - 7.3.3 On the basis of the cost of the Work, plus a 20% Contractor's fee for overhead and profit. (Contractor shall submit an itemized cost breakdown together with supporting data.)
- 7.4 Either County or Contractor may make a claim for an adjustment in the contract price. The unit price of an item of unit price Work shall be subject to re-evaluation and adjustment under the following conditions:
- 7.4.1 If the total cost of a particular item of unit price Work amounts to 5% or more of the contract price and the variation in the quantity of the particular item of unit price Work performed by Contractor differs by more than 15% from the estimated quantity of such item indicated in the Agreement; and
  - 7.4.2 If there is no corresponding adjustment with respect to any other item of Work; and
  - 7.4.3 If a Contractor believes that it has incurred additional expense as a result thereof; or
  - 7.4.4 If County believes that the quantity variation entitles it to an adjustment in the unit price; or
  - 7.4.5 If the parties are unable to agree as to the effect of any such variations in the quantity of unit price Work performed.

## ARTICLE 8 - CHANGE OF CONTRACT TIME

- 8.1 Contract time may only be changed by a change order or a written amendment. Any claim for an extension or shortening of the contract time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.

- 8.2 The contract time will be extended in an amount equal to time lost due to delays beyond the control of Contractor. Such delays shall include, but not be limited to, acts or neglect by County or others performing additional work; or to fires, floods, epidemics, abnormal weather conditions or acts of God.
- 8.3 All time limits stated in the contract documents are of the essence.

#### ARTICLE 9 - WARRANTY, TEST/INSPECTION, CORRECTION

- 9.1 Contractor warrants (for a minimum period of three years or as otherwise stated herein) and guarantees to County that all work will be in accordance with the contract documents and will not be defective; that County, representatives of County, governmental agencies with jurisdictional interests will have access to the work at reasonable time for their observation, inspecting and testing (Contractor shall give Engineer timely notice of readiness of the work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by County).
- 9.2 If any work (including work of others) that is to be inspected, tested, or approved is covered without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice. Neither observations by Engineer nor inspections, tests, or approvals by others shall relieve Contractor from Contractor's obligations to perform the work in accordance with the contract documents.
- 9.3 If the work is defective, or Contractor fails to supply sufficient skilled workers, or suitable materials or equipment, or fails to furnish or perform the work in such a way that the completed work will conform to the contract documents, County may order Contractor to stop the work, or any portion thereof and terminate payments to the Contractor until the cause for such order has been eliminated. Contractor shall bear all direct, indirect and consequential costs for satisfactory reconstruction or removal and replacement with non-defective work, including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and any additional expenses experienced by County due to delays to other Contractors performing additional work and an appropriate deductive change order shall be issued. Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to an extension of the contract time and the recovery of delay damages due to correcting or removing defective work.
- 9.3.1 If Contractor fails within seven (7) days after written notice to correct defective work, or fails to perform the work in accordance with the contract documents, or fails to comply with any other provision of the contract documents, County may correct and remedy any such deficiency. To the extent necessary to complete corrective and remedial action, County may exclude Contractor from all or part of the site, take possession of all or part of the work, Contractor's tools, construction equipment and machinery at the site or for which County has paid

Contractor but which are stored elsewhere. All direct, indirect and consequential costs of County in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Engineer and a change order will be issued incorporating the necessary revisions.

- 9.3.2 If within three years after the date of completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the contract documents, any work is found to be defective, Contractor shall promptly, without cost to County and in accordance with County's written instructions, either correct such defective work or if it has been rejected by County, remove it from the site and replace it with non-defective work. If Contractor does not promptly comply with the terms of such instruction, County may have the defective work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor.

#### ARTICLE 10 - SUSPENSION/TERMINATION OF WORK

- 10.1 County may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) days by written notice to Contractor, which will fix the date on which work will be resumed. Contractor shall be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to any suspension if Contractor makes an approved claim therefore.
- 10.2 County may terminate the contract if Contractor commences a voluntary case under any chapter of the Bankruptcy Code or any similar action by filing a petition under any other federal or state law relating to the bankruptcy or insolvency; if a petition is filed against the Contractor under any chapter of the Bankruptcy Code or similar relief under any other federal or state law; if Contractor persistently fails to perform the work in accordance with the contract documents; if Contractor disregards laws or regulations of any public body having jurisdiction or the Engineer; or otherwise violates in any substantial way any provisions of the contract.
- 10.2.1 County may, after giving Contractor (and the surety, if there is one) seven (7) days written notice and to the extent permitted by laws and regulations, terminate the services of Contractor; exclude Contractor from the site and take possession of the work and of all Contractor's tools, construction equipment and machinery at the site and use the same to the full extent they could be used (without liability to Contractor for trespass or conversion); incorporate in the work all materials and equipment stored at the site or for which county has paid Contractor but which are stored elsewhere, and finish the work as County may deem expedient. In such case, Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of material and equipment not incorporated in the work, but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the work exceed the unpaid balance of the contract price, Contractor shall pay the difference to County. Such costs incurred by County shall be verified by County and incorporated in

a change order; but in finishing the work, County shall not be required to obtain the lowest figure for the work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement.

- 10.3 If, through no act or fault of Contractor, the work is suspended for a period of more than ninety (90) days by County or under an order of court or other public authority, or Engineer fails to act on any application or fails to pay Contractor any sum finally determined to be due; then Contractor may, upon seven (7) days written notice to County terminate the Agreement and recover from County payment for all work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Engineer has failed to act on any application of payment or County has failed to make any payment as aforesaid, Contractor may upon seven (7) days written notice to County stop the work until payment of all amounts then due.

#### ARTICLE 11 - CONTRACT CLAIMS

- 11.1 The rendering of a decision by Engineer with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by County or Contractor of such right or remedies as either may otherwise have under the contract documents or by laws or regulations in respect of any such claim, dispute or other matter. No action, either at law or at equity, shall be brought in connection with any such claim, dispute or other matter later than thirty (30) days after the date on which County/Engineer has rendered such written decision in respect thereof. Failure to bring an action within said thirty (30) day period shall result in Engineer's decision being final and binding on the Contractor. In no event may any such action be brought after the time at which instituting such proceedings would be otherwise barred by the applicable statute of limitations.
- 11.2 Before bringing any action in court pertaining to any claim, dispute or other matter in question(s) arising out of or relating to the contract documents or the breach thereof, or Engineer's final decision, except for claims which have been waived by the making and acceptance of final payment, the Contractor shall first submit written notice(s) of contract claims to the Purchasing Official for a decision; the Contractor may request a conference with the Purchasing Official. Claims include, without limitation, disputes arising under the contract and those based upon breach of contract, mistake, misrepresentation, or other cause for modification or revision. Contract claims shall use the process detailed in Section 2-26-63, Manatee County Purchase Code, Ordinance 09-52.

#### ARTICLE 12 - RESIDENT PROJECT REPRESENTATIVE - DUTIES, RESPONSIBILITIES

- 12.1 Resident Project Representative is Engineer/County's Agent, who will act as directed by and under the supervision of the Engineer, and who will confer with County/Engineer regarding his actions. Resident Project Representative's dealing in matters pertaining to the on-site work shall, in general, be only with the

County/Engineer and Contractor and dealings with subcontractors shall only be through or with the full knowledge of Contractor.

12.2 Resident Project Representative will:

- 12.2.1 Review the progress schedule, schedule of shop drawing submissions and schedule of values prepared by Contractor and consult with County/Engineer concerning their acceptability.
- 12.2.2 Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with County/Engineer and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
- 12.2.3 Serve as County/Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist him in understanding the intent of the contract documents. As requested by County/Engineer, assist in obtaining additional details or information when required at the job site for proper execution of the Work.
- 12.2.4 Receive and record date of receipt of shop drawings and samples, receive samples which are furnished at the site by Contractor and notify County/Engineer of their availability for examination.
- 12.2.5 Advise County/Engineer and Contractor or his superintendent immediately of the commencement of any work requiring a shop drawing or sample submission if the submission has not been approved by the County/Engineer.
- 12.2.6 Conduct on-site observations of the work in progress to assist County/Engineer in determining if the work is proceeding in accordance with the contract documents and that completed work will conform to the contract documents.
- 12.2.7 Report to County/Engineer whenever he believes that any work is unsatisfactory, faulty or defective or does not conform to the contract documents, or does not meet the requirements of any inspections, tests or approvals required or if work has been damaged prior to final payment; and advise County/Engineer when he believes work should be corrected or rejected or should be uncovered of observation or requires special testing, inspection or approval.
- 12.2.8 Verify that tests, equipment and system start-ups and operating and maintenance instructions are conducted as required by the contract documents and in the presence of the required personnel, and that Contractor maintains adequate records thereof; observe, record and report to Engineer appropriate details relative to the test procedures and start-ups.

- 12.2.9 Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to County/Engineer.
- 12.2.10 Transmit to Contractor, County/Engineer's clarifications and interpretations of the contract documents.
- 12.2.11 Consider and evaluate Contractor's suggestions or modifications in drawings or Contract Documents and report them with recommendations to County/Engineer.
- 12.2.12 Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original contract documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the contract, County/Engineer's clarifications and interpretations of the contract documents, progress reports and other project related documents.
- 12.2.13 Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions; list of visiting officials and representatives or manufacturers, fabricators, suppliers and distributors; daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to County/Engineer.
- 12.2.14 Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.
- 12.2.15 Furnish County/Engineer periodic reports as required of progress of the work and Contractor's compliance with the approved progress schedule and schedule of shop drawing submissions.
- 12.2.16 Consult with County/Engineer in advance of scheduling major tests, inspections or start of important phases of the work.
- 12.2.17 Report immediately the occurrence of any accident.
- 12.2.18 Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to County/Engineer, noting particularly their relation to the schedule of values, work completed and materials and equipment delivered at the site but not incorporated in the work.
- 12.2.19 During the course of the work, verify that certificates, maintenance and operations manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed, and deliver this material to County/Engineer for his review prior to final acceptance of the work.

- 12.2.20 Before County/Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
- 12.2.21 Conduct final inspection in the company of County/Engineer and Contractor and prepare a final list of items to be completed or corrected.
- 12.2.22 Verify that all items on final list have been completed or corrected and make recommendations to County/Engineer concerning acceptance.
- 12.3 Except upon written instructions of County/Engineer, Resident Project Representative.
  - 12.3.1 Shall not authorize any deviation from the contract documents or approve any substitute materials or equipment;
  - 12.3.2 Shall not exceed limitations on County/Engineer's authority as set forth in the contract documents;
  - 12.3.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors or Contractor's Superintendent, or expedite the work;
  - 12.3.4 Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the contract documents;
  - 12.3.5 Shall not advise on or issue directions as to safety precautions and programs in connection with the work;
  - 12.3.6 Shall not authorize County to occupy the project in whole or in part; and
  - 12.3.7 Shall not participate in specialized field or laboratory tests.

#### ARTICLE 13 - APPRENTICES

- 13.1 If Successful Contractor employs Apprentices, he shall be governed and shall fully comply with the provisions of Florida State Statute 446.011.

**END OF SECTION**

**TECHNICAL SPECIFICATIONS**  
**Bid Submittal**

**Lake Manatee Dam Tainter Gates**

*Prepared for:*  
Manatee County  
Project Number 6026073

May 2010

*Prepared by:*

**URS**

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**Manatee County  
Lake Manatee Dam Tainter Gates**

**Engineers of Record**

Civil Engineer:

URS Corporation

David A. Wilcox, PE  
#34942

Structural Engineer:

URS Corporation

William N. Hausheer, PE  
#31715

Electrical Engineer:

URS Corporation

Glenn H. Davis, PE  
#66443

**MANATEE COUNTY  
LAKE MANATEE DAM TAITER GATES**

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**MANATEE COUNTY  
LAKE MANATEE DAM TAITER GATES**

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**DIVISION 01**  
**GENERAL REQUIREMENTS**

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## SECTION 01005

### GENERAL REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SCOPE AND INTENT

###### A. Description

The work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all work included in this Contract.

###### B. Work Included

The Contractor shall furnish all labor, superintendence, materials, plant, power, light, heat, fuel, water, tools, appliances, equipment, supplies, shop drawings, working drawings and other means of construction necessary or proper for performing and completing the work. He shall obtain and pay for all required permits necessary for the work, other than those permits such as the DEP permit and railroad permit which may have already been obtained. He shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the Engineer, and in strict accordance with the Contract Documents. The Contractor shall clean up the work and maintain it during and after construction, until accepted, and shall do all work and pay all costs incidental thereto. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the work.

The cost of incidental work described in these General Requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the work and shall be included in the prices for the various Contract Items. No additional payment will be made therefore.

The Contractor shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the Engineer, to perform in a satisfactory and acceptable manner all the work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The Contractor shall be solely responsible for the adequacy of his workmanship,

materials and equipment, prior approval of the Engineer notwithstanding.

C. Public Utility Installations and Structures

Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, house service connections, vaults, manholes and all other appurtenances and facilities pertaining thereto whether owned or controlled by the Owner, other governmental bodies or privately owned by individuals, firms or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone, sewage, drainage, water or other public or private property which may be affected by the work shall be deemed included hereunder.

The Contractor shall protect all public utility installations and structures from damage during the work.

Access across any buried public utility installation or structure shall be made only in such locations and by means approved by the Engineer. The Contractor shall so arrange his operations as to avoid any damage to these facilities. All required protective devices and construction shall be provided by the Contractor at his expense. All existing public utilities damaged by the Contractor which are shown on the Plans or have been located in the field by the utility shall be repaired by the Contractor, at his expense, as approved by the Engineer. No separate payment shall be made for such protection or repairs to public utility installations or structures.

Public utility installations or structures owned or controlled by the Owner or other governmental body, which are required by this contract to be removed, relocated, replaced or rebuilt by the Contractor not identified in any separate bid item shall be considered as a part of the general cost of doing the work and shall be included in the prices bid for the various contract items. No separate payment shall be made therefore.

Where public utility installations or structures owned or controlled by the Owner or other governmental body are encountered during the course of the work, and are not indicated on the Plans or in the Specifications, and when, in the opinion of the Engineer, removal, relocation, replacement or rebuilding is necessary to complete the work under this Contract, such work shall be accomplished by the utility having jurisdiction, or such work may be ordered, in writing by the Engineer, for the

contractor to accomplish. If such work is accomplished by the utility having jurisdiction, it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to complete the removal, relocation, replacement or rebuilding as required. If such work is accomplished by the Contractor, it will be in accordance with the General and Supplemental General Conditions.

All Owner and other governmental utility departments and other owners of public utilities which may be affected by the work will be informed in writing by the Engineer within two weeks after the execution of the Contract or Contracts covering the work. Such notice will set out, in general, and direct attention to, the responsibilities of the Owner and other governmental utility departments and other owners of public utilities for such installations and structures as may be affected by the work and will be accompanied by one set of Plans and Specifications covering the work under such Contract or Contracts.

In addition to the general notice given by the Engineer, the Contractor shall give written notice to Owner and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least forty-eight hours in advance of breaking ground in any area or on any unit of the work. This can be accomplished by making the appropriate contact with the "Sunshine State One-Call of Florida, Inc. Call Center ("Call Sunshine") and per all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).

The maintenance, repair, removal, relocation or rebuilding of public utility installations and structures, when accomplished by the Contractor as herein provided, shall be done by methods approved by the Engineer.

## **1.02 PLANS AND SPECIFICATIONS**

### **A. Plans**

When obtaining data and information from the Plans, figures shall be used in preference to scaled dimensions, and large scale drawings in preference to small scale drawings.

B. Copies Furnished to Contractor

The Contractor shall furnish each of the subcontractors, manufacturers, and material men such copies of the Contract Documents as may be required for their work. Additional copies of the Plans and Specifications, when requested, may be furnished to the Contractor at cost of reproduction.

C. Supplementary Drawings

When, in the opinion of the Engineer, it becomes necessary to explain more fully the work to be done or to illustrate the work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the Engineer and five paper prints thereof will be given to the Contractor.

D. Contractor to Check Plans and Data

The Contractor shall verify all dimensions, quantities and details shown on the Plans, Supplementary Drawings, Schedules, Specifications or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting therefrom nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the Engineer, should such errors or omissions be discovered. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

E. Specifications

The Technical Specifications consist of three parts: General, Products and Execution. The General Section contains General Requirements which govern the work. Products and Execution modify and supplement these by detailed requirements for the work and shall always govern whenever there appears to be a conflict.

F. Intent

All work called for in the Specifications applicable to this Contract, but not shown on the Plans in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Plans or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the work, is required and shall be performed by the Contractor as though it were specifically delineated or described.

The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.

The inclusion of the Related Requirements (or work specified elsewhere) in the General part of the specifications is only for the convenience of the Contractor, and shall not be interpreted as a complete list of related Specification Sections.

**1.03 MATERIALS AND EQUIPMENT**

A. Manufacturer

The names of proposed manufacturers, material men, suppliers and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings shall be submitted to the Engineer for approval. Such approval must be obtained before shop drawings will be checked. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation and have a plant of ample capacity. He shall, upon the request of the Engineer, be required to submit evidence that he has manufactured a similar product to the one specified and that it has been previously used for a like purpose for a sufficient length of time to demonstrate its satisfactory performance.

All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the Engineer, that the manufacturer or subcontractor deal directly with the Engineer. Any such transactions shall not in any way

release the Contractor from his full responsibility under this Contract.

Any two or more pieces or material or equipment of the same kind, type or classification, and being used for identical types of services, shall be made by the same manufacturer.

B. Delivery

The Contractor shall deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the work so as to complete the work within the allotted time. The Contractor shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related Contractor.

C. Tools and Accessories

The Contractor shall, unless otherwise stated in the Contract Documents, furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled and equipped with good grade cylinder locks and duplicate keys.

Spare parts shall be furnished as specified.

Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.

D. Installation of Equipment.

The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character.

Equipment shall be erected in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the Engineer during installation. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.

The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the Engineer and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall, at his own expense, furnish all materials and labor for, and shall properly bed in non-shrink grout, each piece of equipment on its supporting base that rests on masonry foundations.

Grout shall completely fill the space between the equipment base and the foundation. All metal surfaces coming in contact with concrete or grout shall receive a coat of coal tar epoxy equal to Koppers 300M.

E. Service of Manufacturer's Engineer

The Contract prices for equipment shall include the cost of furnishing (as required by equipment specifications sections) a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the Contractor, when required, to install, adjust, test and place in operation the equipment in conformity with the Contract Documents. After the equipment is placed in permanent operation by the Owner, such engineer or superintendent shall make all adjustments and tests required by the Engineer to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the Owner in the proper operation and maintenance of such equipment.

**1.04 INSPECTION AND TESTING**

A. General

Inspection and testing of materials will be performed by the Owner unless otherwise specified.

For tests specified to be made by the Contractor, the testing personnel shall make the necessary inspections and tests and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Three (3) copies of the reports shall be submitted and authoritative certification thereof must be furnished to the Engineer as a

prerequisite for the acceptance of any material or equipment.

If, in the making of any test of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract, the Contractor will be notified thereof and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the work and replace it with acceptable material, without cost to the Owner.

Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

The Contractor shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the Owner formally takes over the operation thereof.

#### B. Costs

All inspection and testing of materials furnished under this Contract will be performed by the Owner or duly authorized inspection engineers or inspections bureaus without cost to the Contractor, unless otherwise expressly specified.

The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the Contractor and such costs shall be deemed to be included in the Contract price.

Materials and equipment submitted by the Contractor as the equivalent to those specifically named in the Contract may be tested by the Owner for compliance. The Contractor shall reimburse the Owner for the expenditures incurred in making such tests on materials and equipment which are rejected for non-compliance.

#### C. Inspections of Materials

The Contractor shall give notice in writing to the Engineer, at least two weeks in advance of his intention to commence the manufacture or preparation of materials especially manufactured or prepared for use in or as part of the permanent construction. Such notice shall contain

a request for inspection, the date of commencement and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Engineer will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials or he will notify the Contractor that the inspection will be made at a point other than the point of manufacture, or he will notify the Contractor that inspection will be waived. The Contractor must comply with these provisions before shipping any material. Such inspection shall not release the Contractor from the responsibility for furnishing materials meeting the requirements of the Contract Documents.

D. Certificate of Manufacture

When inspection is waived or when the Engineer so requires, the Contractor shall furnish to him authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the work have been manufactured and tested in conformity with the Contract Documents. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

E. Shop Tests of Operating Equipment

Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents. No such equipment shall be shipped to the work until the Engineer notifies the Contractor, in writing, that the results of such tests are acceptable.

Five copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company, shall be forwarded to the Engineer for approval.

The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the Contractor.

F. Preliminary Field Tests

As soon as conditions permit, the Contractor shall furnish all labor, materials, and instruments and shall make preliminary field tests of equipment. If the preliminary field tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the Contractor shall, prior to the acceptance tests, make all changes, adjustments and replacements required. The furnishing Contractor shall assist in the preliminary field tests as applicable.

G. Final Field Tests

Upon completion of the work and prior to final payment, all equipment and piping installed under this Contract shall be subjected to acceptance tests as specified or required to prove compliance with the Contract Documents.

The Contractor shall furnish labor, fuel, energy, water and all other materials, equipment and instruments necessary for all acceptance tests, at no additional cost to the Owner. The Supplier shall assist in the final field tests as applicable.

H. Failure of Tests

Any defects in the materials and equipment or their failure to meet the tests, guarantees or requirements of the Contract Documents shall be promptly corrected by the Contractor by replacement or otherwise. The decision of the Engineer as to whether or not the Contractor has fulfilled his obligations under the Contract shall be final and conclusive. If the Contractor fails to make these corrections or if the improved materials and equipment, when tested, shall again fail to meet the guarantees of specified requirements, the Owner, notwithstanding its partial payment for work, and materials and equipment, may reject the materials and equipment and may order the Contractor to remove them from the site at his own expense.

In case the Owner rejects any materials and equipment, then the Contractor shall replace the rejected materials and equipment within a reasonable time. If he fails to do so, the Owner may, after the expiration of a period of thirty (30) calendar days after giving him notice in writing, proceed to replace such rejected materials and equipment, and the cost thereof shall be deducted from

any compensation due or which may become due the Contractor under his Contract.

I. Final Inspection

During such final inspections, the work shall be clean and free from water. In no case will the final pay application be prepared until the Contractor has complied with all requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed in accordance with the requirements of the Contract Document.

**1.05 TEMPORARY STRUCTURES**

A. Temporary Fences

If, during the course of the work, it is necessary to remove or disturb any fence or part thereof, the Contractor shall, at his own expense, if so ordered by the Engineer, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The Engineer shall be solely responsible for the determination of the necessity for providing a temporary fence and the type of temporary fence to be used.

**1.06 TEMPORARY SERVICES**

A. First Aid

The Contractor shall keep upon the site, at each location where work is in progress, a completely equipped first aid kit and shall provide ready access thereto at all times when people are employed on the work.

**1.07 LINES AND GRADES**

A. Grade

All work under this Contract shall be constructed in accordance with the lines and grades shown on the Plans, or as given by the Owner/Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.

B. Safeguarding Marks

The Contractor shall safeguard all points, stakes, grade marks, monuments and bench marks made or established on the work, bear the cost of reestablishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes and marks.

The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the work and, if required, shall bear the cost of reestablishing them if disturbed or destroyed.

C. Datum Plane

All elevations indicated or specified refer to the Mean Sea Level Datum of the NGVD 1929 Datum and/or NAVD 1988.

**1.08 ADJACENT STRUCTURES AND LANDSCAPING**

A. Responsibility

The Contractor shall also be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, structures of any kind and appurtenances thereto met with during the progress of the work. The cost of protection, replacement in their original locations and conditions or payment of damages for injuries to such adjacent public and private property and structures affected by the work, whether or not shown on the Plans, and the removal, relocation and reconstruction of such items called for on the Plans or specified shall be included in the various Contract Items and no separate payments will be made therefor. Where such public and private property, structures of any kind and appurtenances thereto are not shown on the Plans and when, in the opinion of the Engineer, additional work is deemed necessary to avoid interference with the work, payment therefore will be made as provided for in the General Conditions.

Contractor is expressly advised that the protection of buildings, structures, tunnels, tanks, pipelines, etc. and related work adjacent and in the vicinity of his operations, wherever they may be, is solely his responsibility. Conditional inspection of buildings or structures in the immediate vicinity of the project which

may reasonably be expected to be affected by the Work shall be performed by and be the responsibility of the Contractor.

Contractor shall, before starting operations, make an examination of the interior and exterior of the adjacent structures, buildings, facilities, etc., and record by notes, measurements, photographs, etc., conditions which might be aggravated by open excavation and construction.

Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the Owner and to the satisfaction of the Engineer. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the Engineer.

Prior to the beginning of any excavations, the Contractor shall advise the Engineer of all buildings or structures on which he intends to perform work or which performance of the project work will affect.

#### B. Protection of Trees

1. All trees and shrubs shall be adequately protected by the Contractor with boxes and otherwise and in accordance with ordinances governing the protection of trees. No excavated materials shall be placed so as to injure such trees or shrubs. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season and at the sole expense of the Contractor.
2. Beneath trees or other surface structures, where possible, pipelines may be built in short tunnels, backfilled with excavated materials, except as otherwise specified, or the trees or structures carefully supported and protected from damage.
3. The Owner may order the Contractor, for the convenience of the Owner, to remove trees along the line or trench excavation. If so ordered, the Owner will obtain any permits required for removal of trees. Such tree removal ordered shall be paid for under the appropriate Contract Items.

#### C. Lawn Areas

Lawn areas shall be left in as good condition as before the starting of the work. Where sod is to be removed, it shall be carefully removed, and later replaced, or the area where sod has been removed shall be restored with

new sod in the manner described in the Workmanship and Materials Paragraph in Section 02485, Seeding & Sodding.

D. Restoration of Fences

Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor and shall be left in as good a condition as before the starting of the work. The manner in which the fence is repaired or replaced and the materials used in such work shall be subject to the approval of the Engineer. The cost of all labor, materials, equipment, and work for the replacement or repair of any fence shall be deemed included in the appropriate Contract Item or items, or if no specific Item is provided therefore, as part of the overhead cost of the work, and no additional payment will be made therefore.

**1.09 PROTECTION OF WORK AND PUBLIC**

A. Barriers and Lights

During the prosecution of the work, the Contractor shall put up and maintain at all times such barriers and lights as will effectually prevent accidents. The Contractor shall provide suitable barricades, red lights, "danger" or "caution" or "street closed" signs and watchmen at all places where the work causes obstructions to the normal traffic or constitutes in any way a hazard to the public, in accordance with state and local requirements.

B. Smoke Prevention

A strict compliance with ordinances regulating the production and emission of smoke will be required. No open fires will be permitted.

C. Noise

The Contractor shall eliminate noise to as great an extent as practicable at all times. Air compressing plants shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.

Except in the event of an emergency, no work shall be done between the hours of 7:00 P.M. and 7:00 A.M., or on weekends. If the proper and efficient prosecution of the work requires operations during the night or weekends, the written permission of the Owner shall be obtained before starting such items of the work.

D. Access to Public Services

Neither the materials excavated nor the materials or plant used in the construction of the work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.

E. Dust prevention

The Contractor shall prevent dust nuisance from his operations or from traffic by keeping the roads and/or construction areas sprinkled with water at all times.

**1.10 CUTTING AND PATCHING**

The Contractor shall do all cutting, fitting or patching of his portion of the work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the Engineer and in accordance with the Plans and Specifications. The work must be done by competent workmen skilled in the trade required by the restoration.

**1.11 CLEANING**

A. During Construction

During construction of the work, the Contractor shall, at all times, keep the site of the work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.

The Contractor shall remove from the site all of his surplus materials and temporary structures when no further need therefore develops.

B. Final Cleaning

At the conclusion of the work, all equipment, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall

remove and promptly dispose of all water, dirt, rubbish or any other foreign substances.

The Contractor shall thoroughly clean all equipment and materials installed by him and shall deliver such materials and equipment undamaged in a bright, clean, polished and new operating condition.

**1.12 MISCELLANEOUS**

A. Protection Against Siltation and Bank Erosion

1. The Contractor shall arrange his operations to minimize siltation and bank erosion on construction sites and on existing or proposed water courses and drainage ditches.
2. The Contractor, at his own expense, shall remove any siltation deposits and correct any erosion problems as directed by the Engineer which results from his construction operations.

B. Protection of Wetland Areas

The Contractor shall properly dispose of all surplus material, including soil, in accordance with Local, State and Federal regulations. Under no circumstances shall surplus material be disposed of in wetland areas as defined by the Florida Department of Environmental Protection or Southwest Florida Water Management District.

C. Existing Facilities

The work shall be so conducted to maintain existing facilities in operation insofar as is possible. Requirements and schedules of operations for maintaining existing facilities in service during construction shall be as described in the Special Provisions.

D. Use of Chemicals

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01010**

**SUMMARY OF WORK**

**PART 1 GENERAL**

**1.01 WORK COVERED BY CONTRACT DOCUMENTS/REQUIREMENTS INCLUDED**

- A. The work included in this contract consists of the repairs to the Lake Manatee Dam and tainter gates, including repairs to the upstream embankment soil cement, the installation of a cofferdam and associated dewatering and bypass pumping, repairs to the approach walls, footers, apron and interface with soil cement including repairing the scouring and undermining, repairing the submerged concrete surfaces and coating concrete surfaces, repairs and coating of the stop log, steel embeds and tainter gates, repair gates bottom and side seals, regrading, stabilizing and resodding the upstream north embankment slopes and installing a new railing along concrete steps, repair downstream concrete apron, training walls joints and submerged coating, downstream south embankment sheet pile wall, downstream embankments, installation of a new stop log support structure with access platform, and improvements to the grounding, lighting protection system, and lighting.
- B. The Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all work required by these Specifications and as shown on the Contract Drawings.
- C. The Contractor shall perform the work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the Owner.
- D. The Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the work, whether specifically indicated in the Contract Documents or not.

**1.02 CONTRACTS**

Construct all the Work under a single contract.

**1.03 WORK SEQUENCE**

- A. All work done under this Contract shall be done with a minimum of inconvenience to the users of the system or facility. The Contractor shall coordinate his work with private property owners such that existing utility services are maintained to all users to the maximum extent possible.
- B. The Contractor shall, if necessary and feasible, construct the work in stages to accommodate the Owner's use of the premises during the construction period; coordinate the construction schedule and operations with the Owner's Representative.
- C. The Contractor shall, where feasible, construct the Work in stages to provide for public convenience and not close off public use of any facility until completion of construction to provide alternative usage.
- D. Contract is estimated to be awarded by October 2010. The Contractor shall be mobilized, have all necessary materials at the site, and be ready to start work by December 1, 2010.
- E. The spillway and the emergency spillway must be tested and made operational by April 30, 2011.
- F. Cofferdam systems must be removed by May 15, 2011.

**1.04 CONSTRUCTION AREAS**

- A. The Contractor shall: Limit his use of the construction areas for work and for storage, to allow for:
  - 1. Work by other Contractors.
  - 2. Owner's Use.
  - 3. Public Use.
- B. Coordinate use of work site under direction of Engineer or Owner's Representative.
- C. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- D. Move any stored products under the Contractor's control, which interfere with operations of the Owner or separate contractor.
- E. Obtain and pay for the use of additional storage of work areas needed for Contractor operations.

**1.05 OWNER OCCUPANCY**

- A. It is assumed that portions of the Work will be completed prior to completion of the entire Work. Upon completion of construction of each individual facility, including testing, if the Owner, at its sole discretion, desires to accept the individual facility, the Contractor will be issued a dated certificate of completion and acceptance for each individual facility. The Owner will assume ownership and begin operation of the individual facility on that date and the three-year guaranty period shall commence on that date. The Owner has the option of not accepting the entire work as a whole until it is completed, tested and approved by the Engineer and Owner.

**1.06 PARTIAL OWNER OCCUPANCY**

The Contractor shall schedule his operations for completion of portions of the Work, as designated, for the Owner's occupancy prior to substantial completion of the entire work.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01015**

**CONTROL OF WORK**

**PART 1 GENERAL**

**1.01 WORK PROGRESS**

The Contractor shall furnish personnel and equipment which will be efficient, appropriate and adequately sized to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract. If at any time such personnel appears to the Engineer to be inefficient, inappropriate, or insufficient for securing the quality of work required for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character, or increase the personnel and equipment and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

**1.02 PRIVATE LAND**

The Contractor shall not enter or occupy private land outside of easements, except by permission of the adjacent property owner.

**1.03 WORK LOCATIONS**

Work shall be located substantially as indicated on the drawings, but the Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons.

**1.04 OPEN EXCAVATIONS**

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access to private property during construction shall be removed when no longer required. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of open trench, prohibiting stacking excavated material in the street and requiring that the trench shall not remain open overnight.
- B. The Contractor shall take precautions to prevent injury

to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be barricaded and well lighted at all times when construction is not in progress.

**1.05 DISTRIBUTION SYSTEMS AND SERVICES**

- A. The Contractor shall avoid interruptions to water, telephone, cable TV, sewer, gas, or other related utility services. He shall notify the Engineer and the appropriate agency well in advance of any requirement for dewatering, isolating, or relocating a section of a utility, so that necessary arrangements may be made.
- B. If it appears that utility service will be interrupted for an extended period, the Engineer may order the Contractor to provide temporary service lines at the Contractor's expense. Inconvenience of the users shall be kept to the minimum, consistent with existing conditions. The safety and integrity of the systems are of prime importance in scheduling work.

**1.06 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES**

- A. The Contractor shall assume full responsibility for the protection of all buildings, structures and utilities, public or private, including poles, signs, services to building utilities, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables and other similar facilities, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operation shall be repaired by the Contractor at his expense.
- B. The Contractor shall bear full responsibility for obtaining locations of all underground structures and utilities (including existing water services, drain lines and sewers). Services to buildings shall be maintained and all costs or charges resulting from damage thereto shall be paid by the Contractor.
- C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit prices established in the Bid.
- D. If, in the opinion of the Engineer, permanent relocation of a utility owned by the Owner is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the Contract unit prices, if applicable, or as extra work as classified in the General Conditions. If relocation of a privately

owned utility is required, the Owner will notify the utility to perform the work as expeditiously as possible.

The Contractor shall fully cooperate with the Owner and utility and shall have no claim for delay due to such relocation. The Contractor shall notify public utility companies in writing at least 48 hours (excluding Saturdays, Sundays and legal holidays) before excavating near their utilities.

**1.07 TEST PITS**

Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor at the direction of the Engineer. Test pits shall be backfilled immediately after the utility location and the surface shall be restored in a manner equal or better than the original condition. No separate payment will be made.

**1.08 CARE AND PROTECTION OF PROPERTY**

- A. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition equal or better to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the Engineer.
- B. All sidewalks which are disturbed by the Contractor's operations shall be restored to their original or better condition by the use of similar or comparable materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the best modern practice.
- C. Along the location of this work, all fences, walks, bushes, trees, shrubbery and other physical features shall be protected and restored in a thoroughly workmanlike manner unless otherwise shown on the drawings. Fences and other features removed by the Contractor shall be replaced in the location indicated by the Engineer as soon as conditions permit. All grass areas beyond the limits of construction which have been damaged by the Contractor shall be regraded and sodded to equal or exceed original conditions.
- D. Trees close to the work which drawings do not specify to be removed, shall be boxed or otherwise protected against injury. The Contractor shall trim all branches that are liable to damage because of his operations, but in no

case shall any tree be cut or removed without prior notification to the Engineer. All injuries to bark, trunk, limbs and roots of trees shall be repaired by dressing, cutting and painting according to approved methods, using only approved tools and materials.

- E. The protection, removal and replacement of existing physical features along the line of work shall be a part of the work under the Contract and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Bid.

#### **1.09 MAINTENANCE OF TRAFFIC**

- A. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage, for any reason, shall be minimized. In the event an extended construction stoppage is found to be necessary, Contractor shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the Engineer.
- B. All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Contractor's operations cause traffic hazards, he shall repair the road surface, provide temporary roadways, erect wheel guards or fences, or take other safety measures which are satisfactory to the Engineer and Owner.
- C. Detours around construction areas will be subject to the approval of the Owner and the Engineer. Where detours are permitted, the contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, the Contractor shall expedite construction operations and periods when traffic is being detoured, will be strictly controlled by the Owner.

#### **1.10 WATER FOR CONSTRUCTION PURPOSES**

- A. In locations where public water supply is available, the Contractor may purchase water for all construction purposes.
- B. The Contractor shall be responsible for paying for all water tap fees incurred for the purpose of obtaining a potable water service or hydrant meter.

#### **1.11 MAINTENANCE OF FLOW**

The Contractor shall at his own cost, provide for the flow of sewers, drains and water courses interrupted during the progress of the work and shall immediately

cart away and remove all offensive matter. The entire procedure of maintaining existing flow shall be fully discussed with the Engineer and Owner well in advance of the interruption of any flow.

**1.12 CLEANUP**

During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures and any other refuse remaining from the construction operations and shall leave the entire site of the work in a neat and orderly condition.

**1.13 COOPERATION WITHIN THIS CONTRACT**

- A. All firms or person authorized to perform any work under this Contract shall cooperate with the General Contractor and his subcontractors or trades and shall assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or directed by the Engineer.

**1.14 PROTECTION OF CONSTRUCTION AND EQUIPMENT**

- A. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions injured shall be reconstructed by the Contractor at his own expense.
- B. All structures shall be protected in a manner approved by the Engineer. Should any of the floors or other parts of the structures become heaved, cracked, or otherwise damaged, all such damaged portions of the work shall be completely repaired and made good by the Contractor, at his own expense and to the satisfaction of the Engineer. If, in the final inspection of the work, any defects, faults, or omissions are found, the Contractor shall cause the same to be repaired or removed and replaced by proper materials and workmanship without extra compensation for the materials and labor required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and repair of the construction and other work undertaken herein, for at least the warranty period described in the Contract.
- C. Further, the Contractor shall take all necessary precautions to prevent damage to any structure due to

water pressure during and after construction and until such structure is accepted and taken over by the Owner.

**1.15 CONSTRUCTION WITHIN RIGHT-OF-WAY**

Where pipe lines are installed within FDOT right-of-way, all excavation backfill and compaction for the purpose of reconstructing roadways and/or adjacent slopes contiguous thereto shall be in accordance with FDOT or Manatee County Standards and Specifications, whichever is applicable. Contractor shall satisfy the authorized representative of the FDOT with respect to proper safety procedures, construction methods, required permitting, etc., within the FDOT right-of-way.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01030**

**SPECIAL PROJECT PROCEDURES**

**PART 1 GENERAL**

**1.01 PERMITS**

Upon notice of award, the Contractor shall immediately apply for all applicable permits not previously obtained by the Owner to do the work from the appropriate governmental agency or agencies. No work shall commence until all applicable permits have been obtained and copies delivered to the Engineer. The costs for obtaining all permits shall be borne by the Contractor.

**1.02 CONNECTIONS TO EXISTING SYSTEM**

The Contractor shall perform all work necessary to locate, excavate and prepare for connections to the terminus of the existing systems all as shown on the Drawings or where directed by the Owner/Engineer. The cost for this work and for the actual connection to the existing systems shall be included in the price bid for the project and shall not result in any additional cost to the Owner. The termination point for each contract shall be as shown on the Contract Drawings.

**1.03 RELOCATIONS**

The Contractor shall be responsible for the coordination of the relocation of structures, including but not limited to light poles, power poles, signs, sign poles, fences, piping, conduits and drains that interfere with the positioning of the work as set out on the Drawings. No relocation of the items under this Contract shall be done without approval from the Engineer.

**1.04 EXISTING UNDERGROUND PIPING, STRUCTURES AND UTILITIES**

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various water, sewer, gas, telephone, electrical, or other utility lines not shown on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines as to avoid damage to the existing lines. Cost for relocation of all existing lines shall be included in the price bid for the project. Should damage occur to an existing line, the Contractor shall bear the cost of all repairs.
- B. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be

endangered by the close proximity of excavation, are temporarily stayed in position while work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

- C. The existing utility locations are shown without express or implied representation, assurance, or guarantee that they are complete or correct or that they represent a true picture of underground piping to be encountered. The Contractor shall be responsible for notifying the various utility companies to locate their respective utilities in advance of construction in conformance with all requirements provided for in the Florida Underground Facilities Damage Prevention and Safety Act (Florida Statutes, Title XXXIII, Chapter 556).
- D. The existing piping and utilities that interfere with new construction shall be rerouted as shown, specified, or required. Before any piping and utilities not shown on the Drawings are disturbed, the Contractor shall notify the Engineer of the location of the pipeline or utility and shall reroute or relocate the pipeline or utility as directed. Cost for relocation of existing pipelines or utilities shall be included in the price bid for the project.
- E. The Contractor shall exercise care in any excavation to locate all existing piping and utilities. All utilities which do not interfere with complete work shall be carefully protected against damage. Any existing utilities damaged in any way by the Contractor shall be restored or replaced by the Contractor at his expense as directed by the Engineer and/or the owner of the utility.
- F. It is intended that wherever existing utilities such as water, sewer, gas, telephone, electrical, or other service lines must be crossed, deflection of the pipe within recommended limits and cover shall be used to satisfactorily clear the obstruction unless otherwise indicated in the Drawings. However, when in the opinion of the Engineer this procedure is not feasible, he may direct the use of fittings for a utilities crossing as detailed on the Drawings. No deflections will be allowed in gravity sanitary sewer lines or in existing storm sewer lines.

**1.05 SUSPENSION OF WORK DUE TO WEATHER**

Refer to FDOT Standards and Specifications Book, Section 8.

**1.06 HURRICANE PREPAREDNESS PLAN**

- A. Within 30 days of the date of Notice to Proceed, the Contractor shall submit to the Engineer and Owner a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the Owner in case of a hurricane warning.
- B. In the event of inclement weather, or whenever Engineer shall direct, Contractor shall insure that he and his Subcontractors shall carefully protect work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any portion of work or materials is damaged due to the failure on the part of the Contractor or Subcontractors to protect the work, such work and materials shall be removed and replaced at the expense of the Contractor.

**1.07 POWER SUPPLY**

Electricity as may be required for construction and permanent power supply, shall be secured and purchased by the Contractor.

**1.08 SALVAGE**

Any existing equipment or material, including, but not limited to, valves, pipes, fittings, couplings, etc., which is removed or replaced as a result of construction under this project may be designated as salvage by the Engineer or Owner and if so shall be protected for a reasonable time until picked up by the Owner. Any equipment or material not worthy of salvaging, as directed by the Engineer, shall be disposed of by the Contractor at no additional cost.

**1.09 DEWATERING**

- A. The Contractor shall do all groundwater pumping necessary to prevent flotation of any part of the work during construction operations with his own equipment.
- B. The Contractor shall pump out water and wastewater which may seep or leak into the excavations for the duration of the Contract and with his own equipment. He shall dispose of this water in an appropriate manner.

**1.10 ADDITIONAL PROVISIONS**

- A. Before commencing work on any of the existing pipelines, structures or equipment, the Contractor shall notify the Engineer, in writing, at least 10 calendar days in advance of the date he proposes to commence such work.

- B. The Contractor shall provide, at his own expense, all necessary temporary facilities for access to and for protection of, all existing facilities. The Owner's personnel must have ready access at all times to the existing facilities. The Contractor is responsible for all damage to existing structures, equipment and facilities caused by his construction operations and must repair all such damage when and as ordered by the Engineer.

**1.11 CONSTRUCTION CONDITIONS**

The Contractor shall strictly adhere to the specific requirements of the governmental unit(s) and/or agency(ies) having jurisdiction over the work. Wherever there is a difference in the requirements of a jurisdictional body and these Specifications, the more stringent shall apply.

**1.12 PUBLIC NUISANCE**

- A. The Contractor shall not create a public nuisance including but not limited to encroachment on adjacent lands, flooding of adjacent lands, excessive noise or dust.
- B. Sound levels must meet Manatee County Ordinance #87-34, (which amends Ordinance 81-3, The Manatee County Noise Control Ordinance). Sound levels in excess of such ordinance are sufficient cause to have the work halted until equipment can be quieted to these levels. Work stoppage by the Engineer or County for excessive noise shall not relieve the Contractor of the other portions of this specification including, but not limited to contract time and contract price.
- C. No extra charge may be made for time lost due to work stoppage resulting from the creation of a public nuisance.

**1.13 WARRANTIES**

- A. All material supplied under these Specifications shall be warranted by the Contractor and the manufacturers for a period of three (3) years. Warranty period shall commence on the date of Owner acceptance.
- B. The material shall be warranted to be free from defects in workmanship, design and materials. If any part of the system should fail during the warranty period, it shall be replaced at no expense to the Owner.
- C. The manufacturer's warranty period shall run concurrently with the Contractor's warranty or guarantee period. No exception to this provision shall be allowed. The

Contractor shall be responsible for obtaining warranties from each of the respective suppliers or manufacturers for all the material specified under these contract specifications.

- D. In the event that the manufacturer is unwilling to provide a three-year warranty commencing at the time of Owner acceptance, the Contractor shall obtain from the manufacturer a four (4) year warranty starting at the time of equipment delivery to the job site. This four-year warranty shall not relieve the Contractor of the three-year warranty starting at the time of Owner acceptance of the equipment.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01045

### CUTTING AND PATCHING

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for all cutting, fitting and patching, including excavation and backfill, required to complete the work or to:
1. Make its several parts fit together properly.
  2. Uncover portions of the work to provide for installation of ill-timed work.
  3. Remove and replace defective work.
  4. Remove and replace work not conforming to requirements of Contract Documents.
  5. Provide penetrations of non-structural surfaces for installation of piping and electrical conduit.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

Comply with specifications and standards for each specific product involved.

#### PART 3 EXECUTION

##### 3.01 INSPECTION

- A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Engineer. Do not proceed with work until Engineer has provided further instructions.

**3.02 PREPARATION**

- A. Provide adequate temporary support as necessary to assure structural value to integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of project from damage.
- C. Provide protection from elements for that portion of the project which may be exposed by cutting and patching work and maintain excavations free from water.

**3.03 PERFORMANCE**

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute excavating and backfilling by methods which will prevent settlement or damage to other work.
- C. Fit and adjust products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- D. Restore work which has been cut or removed; install new products to provide completed work in accordance with the requirements of the Contract Documents.
- E. Replace surfaces airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- F. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.

**END OF SECTION**

## SECTION 01050

### FIELD ENGINEERING AND SURVEYING

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall provide and pay for field surveying service required for the project.
- B. The Contractor shall furnish and set all necessary stakes to establish the lines and grades as shown on the Contract Drawings and layout each portion of the Work of the Contract.
  - 1. All survey work required in execution of Project.
  - 2. All costs of construction layout shall be included in the unit and lump sum prices contained in the respective divisions of the Contract Bid Form.
  - 3. Civil, structural or other professional engineering services specified or required to execute Contractor's construction methods.

##### 1.02 QUALIFICATION OF SURVEYOR AND ENGINEER

All construction staking shall be conducted by or under the supervision of a Florida Registered Professional Surveyor and Mapper approved by the Owner. The Contractor shall be responsible for the layout of all such lines and grades, which will be subject to verification by the Engineer.

##### 1.03 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are designated on the Contract Drawings.
- B. Locate and protect all survey monumentation, property corners and project control points prior to starting work and preserve all permanent reference points during construction. All costs associated with the replacement of all survey monumentation, property corners and project control points shall be borne by the Contractor.
  - 1. Make no changes or relocations without prior written notice to Engineer.

2. Report to Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
3. Require surveyor to replace project control points which may be lost or destroyed.
4. Establish replacements based on original survey control.

**1.04 PROJECT SURVEY REQUIREMENTS**

The Contractor shall establish temporary bench marks as needed, referenced to data established by survey control points.

**1.05 RECORDS**

Maintain a complete, accurate log of all control and survey work as it progresses.

The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings on mylar and 3-1/2" diskettes. The Record Drawings, together with two copies, shall be certified by the licensed professional and shall be submitted to the Owner/Engineer.

**1.06 SUBMITTALS**

- A. Submit name and address of Professional Surveyor and Mapper to Engineer for Owner's approval.
- B. Submit certificate signed by the Professional Surveyor and Mapper certifying that elevations and locations of improvements are in conformance, or nonconformance, with Contract Documents.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01090**

**REFERENCE STANDARDS**

**PART 1 GENERAL**

**1.01 REQUIREMENTS**

Abbreviations and acronyms used in Contract Documents to identify reference standards.

- 1.02**
- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes established stricter standards.
  - B. Publication Date: The most recent publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

**1.03 ABBREVIATIONS, NAMES AND ADDRESSES OR ORGANIZATIONS**

Obtain copies of reference standards direct from publication source, when needed for proper performance of work, or when required for submittal by Contract Documents.

AA Aluminum Association  
818 Connecticut Avenue, N.W.  
Washington, DC 20006

AASHTO American Association of State Highway  
and Transportation Officials  
444 North Capital Street, N.W.  
Washington, DC 20001

ACI American Concrete Institute  
Box 19150  
Reford Station  
Detroit, MI 48219

AI Asphalt Institute  
Asphalt Institute Building  
College Park, MD 20740

AISC American Institute of Steel Construction  
1221 Avenue of the Americas  
New York, NY 10020

AISI American Iron and Steel Institute  
1000 16th Street NW  
Washington, DC 20036

ANSI American National Standards Institute  
1430 Broadway  
New York, NY 10018

ASHRAE American Society of Heating, Refrigerating  
and Air Conditioning Engineers  
1791 Tullie Circle, N.E.  
Atlanta, GA 30329

ASME American Society of Mechanical Engineers  
345 East 47th Street  
New York, NY 10017

ASTM American Society for Testing and Materials  
1916 Race Street  
Philadelphia, PA 19103

AWWA American Water Works Association  
6666 West Quincy Avenue  
Denver, CO 80235

AWS American Welding Society  
2501 N.W. 7th Street  
Miami, FL 33125

CRSI Concrete Reinforcing Steel Institute  
180 North LaSalle Street, Suite 2110  
Chicago, IL 60601

FDEP Florida Department of Environmental Protection  
3900 Commonwealth Blvd. Tallahassee, Florida  
32399

FDOT Florida Department of Transportation  
Standards Specifications for Road and  
Bridge Construction  
Maps & Publication Sales - Mail Station 12  
605 Suwannee St.  
Tallahassee, FL 32399-0450

FS Federal Specification  
General Services Administration  
Specifications and Consumer Information  
Distribution Section (WFSIS)  
Washington Navy Yard, Bldg. 197  
Washington, DC 20407

MCUOD Manatee County Utility Operations Department  
4410 66th St. W.  
Bradenton, FL 34210

MLSFA Metal Lath/Steel Framing Association  
221 North LaSalle Street  
Chicago, IL 60601

MMA Monorail Manufacturer's Association  
1326 Freeport Road  
Pittsburgh, PA 15238

NAAMM National Association of Architectural  
Metal Manufacturers  
221 North LaSalle Street  
Chicago, IL 60601

NEMA National Electrical Manufacturer's Assoc.  
2101 L Street N.W.  
Washington, DC 20037

OHSA Occupational Safety and Health Assoc.  
5807 Breckenridge Pkwy., Suite A  
Tampa, FL 33610-4249

PCA Portland Cement Association  
5420 Old Orchard Road  
Skokie, IL 20076

PCI Prestressed Concrete Institute  
20 North Wacker Drive  
Chicago, IL 60606

SDI Steel Door Institute  
712 Lakewood Center North  
Cleveland, OH 44107

SMACNA Sheet Metal and Air Conditioning  
Contractor's National Association  
8224 Old Court House Road  
Vienna, VA 22180

SSPC Steel Structures Painting Council  
402 24<sup>th</sup> Street, Suite 600  
Pittsburgh, PA 15213

SWFWMD Southwest Florida Water Management District  
2379 Broad Street  
Brooksville, FL 34604-6899

UL Underwriter's Laboratories, Inc.  
333 Pfingston Road  
Northbrook, IL 60062

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

## SECTION 01150

### MEASUREMENT AND PAYMENT

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.

##### **1.02 ESTIMATED QUANTITIES**

The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The Owner/Engineer does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

##### **1.03 WORK OUTSIDE AUTHORIZED LIMITS**

No payment will be made for work constructed outside the authorized limits of work.

##### **1.04 MEASUREMENT STANDARDS**

Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

##### **1.05 AREA MEASUREMENTS**

In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions

measured along the surface of the completed work within the neat lines shown or designated.

**1.06 LUMP SUM ITEMS**

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment.

**1.07 UNIT PRICE ITEM**

Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the Owner until as-built (record) drawings have been submitted and approved by the Engineer.

1. Shop Drawings, Working Drawings.
2. Clearing, grubbing and grading except as hereinafter specified.
3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
4. Dewatering and disposal of surplus water.
5. Structural fill, backfill, and grading.
6. Replacement of unpaved roadways, and shrubbery plots.
7. Cleanup and miscellaneous work.
8. Foundation and borrow materials, except as hereinafter specified.
9. Testing and placing system in operation.
10. Any material and equipment required to be installed and utilized for the tests.
11. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
12. Maintaining the existing quality of service during construction.
13. Maintaining or detouring of traffic.
14. Appurtenant work as required for a complete and operable system.
15. Seeding and hydromulching.
16. As-built Record Drawings.

**BID ITEM #1 - Mobilization**

Measurement and payment for this Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project and the Contractor's mobilization and demobilization costs as shown in the Bid Form.

Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the Owner that his actual mobilization cost exceeds 10 percent (10%).

**BID ITEM #2 - Repair to Upstream Soil Cement Embankment Cracks of the Dam Wall**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs to the cracks in the upstream embankment soil cement. The upstream embankment cracks shall be cleaned, existing grout removed and sealed with an elastomeric joint sealant. Lump sum bid shall be based on 100 gallons of joint sealant product.

**BID ITEM #3 - Installation of Cofferdam**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the installation and later removal of a cofferdam upstream of the approach walls to allow for work on the approach walls and spillway. Installation of the cofferdam shall include continuous dewatering so that dam repair work can be performed.

**BID ITEM #4 - Repair to Approach Concrete Surfaces**

Payment for all work included under this Bid Item shall be made at the applicable contract unit price per the schedule of prices for the repairs and coating to the concrete surfaces of the approach walls, approach walls base slabs, spillway, and concrete approach slab. Repairs shall include surface preparation, build up of the degraded submerged concrete surfaces, and application of a protective coating system to the entire concrete surfaces up to elevation 41.00.

**BID ITEM #5 - Repair Scoured and Undermined Subgrade Material around Approach Walls and Soil Cement Interface**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs of the scoured and undermined compacted subgrade material around the approach walls, the approach slab and at the interface of the approach walls with the soil cement. Repairs shall include building back up to grade scoured subgrade areas and installing a protective mat, filter stone, and riprap to prevent future scouring as shown in the plans. Include 3,000 cubic yards of imported and compacted fill material to build up scoured subgrade area.

**BID ITEM #6 - North Sheet Pile Observation Port**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the cutting of an observation port in the north sheet pile enclosure to monitor subsidence of the material below.

**BID ITEM #7 - Repair and Coating of Stop Log**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs and coating of the stop log, embedded steel guide tracks, slide plates and seals. Repairs to the stop log and embedded guide tracks shall include surface preparation and complete coating system. The existing stop log teflon slide plates and bottom seal shall be replaced. The existing slide plates mounted on the steel concrete embeds shall be replaced with stainless steel slide plates.

**BID ITEM #8 - Recoat of Tainter Gates**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the application of a protective coating to the tainter gates. This work shall include surface preparation, complete coating system, and elimination of five (5) MIC occurrences.

**BID ITEM #9 - Repair to Tainter Gates Seal Plates and Seals**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs to the tainter gates seal plates and replacement of the gates bottom and side seals. Repairs to the voids under the seal plates shall include hydro-blasting, chipping out and filling of the area under the plates and filling it with a water tolerant grout.

**BID ITEM #10 - Repair to Downstream Embankment Slopes and Access of the Dam Wall**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs to the slope of the north and south downstream embankments on either side of the training walls. Repairs shall include regrading, slope stabilization and resodding of both disturbed areas. This work shall be based on 5,600 square feet and 3,100 square feet of area at the north and south slopes respectively. In addition a hand railing shall be installed along the concrete steps.

**BID ITEM #11 - Repair of Concrete Apron Void**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repair to the concrete apron. Repairs shall include grouting of the void in the concrete apron. Lump sum bid shall be based on 10 gallons of water tolerant grout.

**BID ITEM #12 - Repair to Training Walls Joints and Coating**

Payment for all work included under this Bid Item shall be made at the applicable contract unit price per the schedule of prices for the repairs to the vertical joints and coating system at the base of the training walls. Repairs shall include surface preparation, spot repairs, and replacing the bottom six feet of the coating system on the training walls and the complete refurbishing of all vertical joints. Lump sum bid shall be based on 2,400 square feet for surface preparation and coating and also include surface profiling, 10 square feet of primer, and 2 cubic feet of fill material for spot repairs.

**BID ITEM #13 - Repair to the South Downstream Sheet Pile Wall**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs to the downstream south sheet pile retaining wall. Repairs to the sheet pile wall shall include removal of rubble and debris currently used as backfill for the wall, replacement of the sheet pile wall, new compacted soil backfill, new concrete slab, new slab edge, new slab taper, new concrete wall cap, grading of the area, and applying sod. Lump sum bid shall include 300 cubic yards of compacted soil backfill.

**BID ITEM #14 - Repair to Downstream Embankments**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the repairs to the downstream south and north embankments. Repairs to the embankments shall include removal of the existing cable concrete, rip-rap, vegetation, and broken concrete revetment and replacement as shown in the plans. Repairs shall include grading of the area and applying filter fabric, filter stone, and riprap as shown on the plans. Repair also includes backfilling and compacting a void at the concrete paving at the toe of the dam. Lump sum bid shall include required backfill and type of cofferdam system required to install the specified repairs.

**BID ITEM #15 - Stop Log Lay Down Support**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the construction of a new stop log lay down support, including access platform, surface preparation, and complete coating system.

**BID ITEM #16 - Bypass Pumping**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the operation and maintenance of the contractor supplied 275,000 gallons per day (over a 4 hour per day timeframe) bypass pumping system for the duration of time the spillway is out of service.

**BID ITEM #17 - Modifications to the Emergency Spillway**

Payment for all work included under this Bid Item shall be made at the applicable contract unit price per the schedule of prices for the modifications to the emergency spillway fuse plugs during construction activities. Modifications include removal of four (4) of the earthen plugs and installation of wood cribbing. Reconstruction of the fuse plugs and removal of cribbing will follow the removal of the cofferdam.

**BID ITEM #18 - Improvements to Electrical System**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the improvements to the electrical system. The work shall include improvements to the grounding, lightning protection and lighting.

**BID ITEM #19 - Recoat of Miscellaneous Metals**

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the application of a protective coating to the existing miscellaneous metals: handrails, ladders, barrel ladders, safety posts (bollards), gate stems, and three (3) tainter gate lifting devices. This work shall include surface preparation and complete coating system.

**BID ITEM #20 - Miscellaneous Work and Cleanup**

Payment for all work under this Bid Item shall be made at the Contract lump sum price bid listed in the Bid Form and shall represent full compensation for all labor, materials and equipment required to perform all the work as shown on the Contract Drawings and specified herein and any other miscellaneous work not specifically included for payment under other Bid Items obviously necessary to complete the Contract. Partial payments will be based on the breakdown of the Bid Item in accordance with the Schedule of Values submitted by the Contractor and approved by the Engineer. Payment shall also include full compensation for project photographs, as-built record drawings, permits, project signs, traffic control, rubbish and spoil removal, repair, replacement or relocation of all signs, sidewalks, stormwater pipes and structures, water and sewer services, walls and any and all other items required to complete the project in accordance with the Contract Documents.

**BID ITEM #21 - Discretionary Work**

Payment for all work under this Bid Item and listed in the Bid Form shall be made only at the Owner's discretion in order to satisfactorily complete the project in accordance with the Plans and Specifications.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01152**

**REQUESTS FOR PAYMENT**

**PART 1 GENERAL**

**1.01 REQUIREMENTS INCLUDED**

Submit Applications for Payment to the Project Manager or as directed at the preconstruction meeting, in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.

**1.02 FORMAT AND DATA REQUIRED**

- A. Submit payment requests in the form provided by the Owner with itemized data typed in accordance with the Bid Form.
- B. Provide construction photographs in accordance with Contract Documents.

**1.03 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS**

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information with a cover letter.
- B. Submit one copy of data and cover letter for each copy of application.

**1.04 PREPARATION OF APPLICATION FOR FINAL PAYMENT**

Fill in application form as specified for progress payments.

**1.05 SUBMITTAL PROCEDURE**

- A. Submit applications for payment at the times stipulated in the Agreement.
- B. Number: Three (3) copies of each application; all signed and certified by the Contractor.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01153**

**CHANGE ORDER PROCEDURES**

**PART 1 GENERAL**

**1.01 DEFINITION**

- A. Change Order: See General Conditions.
- B. Field Directive Change: See General Conditions.

**1.02 REQUIREMENTS INCLUDED**

- A. The Contractor shall promptly implement change order procedures:
  - 1. Provide full written data required to evaluate changes.
  - 2. Maintain detailed records of work done on a time-and-material/force account basis.
  - 3. Provide full documentation to Engineer on request.
- B. The Contractor shall designate a member of the Contractor's organization who:
  - 1. Is authorized to accept changes to the Work.
  - 2. Is responsible for informing others in the Contractor's employ of the authorized changes into the Work.
- C. The Board of County Commissioners executes all Change Orders.

**1.03 PRELIMINARY PROCEDURES**

- A. Project Manager may initiate changes by submitting a Request to Contractor. Request will include:
  - 1. Detailed description of the change, products, costs and location of the change in the Project.
  - 2. Supplementary or revised Drawings and Specifications.
  - 3. The projected time extension for making the change.
  - 4. A specified period of time during which the requested price will be considered valid.
  - 5. Such request is for information only and is not an

instruction to execute the changes, nor to stop work in progress.

- B. Contractor may initiate changes by submitting a written notice to the Project Manager, containing:
  - 1. Description of the proposed changes.
  - 2. Statement of the reason for making the changes.
  - 3. Statement of the effect on the Contract Sum and the Contract Time.
  - 4. Statement of the effect on the work of separate contractors.
  - 5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

**1.04 FIELD DIRECTIVE CHANGE**

- A. In lieu of a Change Order, the Project Manager may issue a Field Directive change for the Contractor to proceed with additional work within the original intent of the Project.
- B. Field Directive change will describe changes in the work, with attachments of backup information to define details of the change.
- C. Contractor must sign and date the Field Directive change to indicate agreement with the terms therein.

**1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS**

- A. Support each quotation for a lump sum proposal and for each unit price which has not previously been established, with sufficient substantiating data to allow the Engineer/Owner to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations:
  - 1. Labor required.
  - 2. Equipment required.
  - 3. Products required.
    - a. Recommended source of purchase and unit cost.
    - b. Quantities required.
  - 4. Taxes, insurance and bonds.
  - 5. Credit for work deleted from Contract, similarly

documented.

6. Overhead and profit.
  7. Justification for any change in Contract Time.
- C. Support each claim for additional costs and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal, plus additional information.
1. Name of the Owner's authorized agent who ordered the work and date of the order.
  2. Date and time work was performed and by whom.
  3. Time record, summary of hours work and hourly rates paid.
  4. Receipts and invoices for:
    - a. Equipment used, listing dates and time of use.
    - b. Products used, listing of quantities.
    - c. Subcontracts.

**1.06 PREPARATION OF CHANGE ORDERS**

- A. Project Manager will prepare each Change Order.
- B. Form: see Section 00550 for sample form.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments as necessary to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

**1.07 LUMP SUM/FIXED PRICE CHANGE ORDER**

- A. Project Manager initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by the Contractor, or requests from the Owner, or both.
- B. Once the form has been completed, all copies should be sent to Contractor for approval. After approval by Contractor, all copies should be sent to Owner for approval. The Owner will distribute executed copies after approval by the Board of County Commissioners.

**1.08 UNIT PRICE CHANGE ORDER**

- A. Contents of Change Orders will be based on, either:

1. Owner's definition of the scope of the required changes.
  2. Contractor's Proposal for a change, as approved by the Owner.
  3. Survey of completed work.
- B. The amounts of the unit prices to be:
1. Those stated in the Agreement.
  2. Those mutually agreed upon between Owner and Contractor.

**1.09 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/CONSTRUCTION CHANGE AUTHORIZATION**

- A. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- B. Engineer will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- C. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- D. Owner and Contractor will sign and date the Change Order to indicate their agreement therewith.

**1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS**

- A. Periodically revise Schedule of Values and Application for Payment forms to record each change as a separate item of work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
  1. Revise sub schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01200**

**PROJECT MEETINGS**

**PART 1 GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Owner or Engineer shall schedule the pre-construction meeting, periodic progress meetings and special meetings, if required, throughout progress of work.
- B. Representatives of contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. The Contractor shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

**1.02 PRE-CONSTRUCTION MEETING**

- A. Attendance:
  - 1. Owner's Engineer.
  - 2. Owner's Project Manager
  - 3. Contractor.
  - 4. Resident Project Representative.
  - 5. Related Labor Contractor's Superintendent.
  - 6. Major Subcontractors.
  - 7. Major Suppliers.
  - 8. Others as appropriate.
- B. Suggested Agenda:
  - 1. Distribution and discussion of:
    - a. List of major subcontractors.
    - b. Projected Construction Schedules.
    - c. Coordination of Utilities
  - 2. Critical work sequencing.
  - 3. Project Coordination.
    - a. Designation of responsible personnel.
    - b. Emergency contact persons with phone numbers.
  - 4. Procedures and processing of:
    - a. Field decisions.
    - b. Submittals.
    - c. Change Orders.

- d. Applications for Payment.
- 5. Procedures for maintaining Record Documents.
- 6. Use of premises:
  - a. Office, work and storage areas.
  - b. Owner's REQUIREMENTS.
- 7. Temporary utilities.
- 8. Housekeeping procedures.
- 9. Liquidated damages.
- 10. Equal Opportunity Requirements.
- 11. Laboratory testing.
- 12. Job meetings.

**1.03        PROGRESS MEETINGS**

- A. Schedule regular meetings. The progress meetings may be held every 30 days or less with the first meeting 30 days after the pre-construction meeting.
- B. Hold special meetings as required.

**PART 2        PRODUCTS (NOT USED)**

**PART 3        EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01310

### CONSTRUCTION SCHEDULE & PROJECT RESTRAINTS

#### PART 1 GENERAL

##### 1.01 GENERAL

- A. Construction under this contract must be coordinated with the Owner and accomplished in a logical order to maintain utilization and flow through existing facilities and public properties and rights-of-way and to allow construction to be completed within the time allowed by Contract Documents and in the manner set forth in the Contract.

##### 1.02 CONSTRUCTION SCHEDULING GENERAL PROVISIONS

- A. No work shall be done between 7:00 p.m. and 7:00 a.m. nor on weekends or legal holidays without written permission of the Owner. However, emergency work may be done without prior permission.
- B. Night work may be established by the Contractor as regular procedure with the written permission of the Owner. Such permission, however, may be revoked at any time by the Owner if the Contractor fails to maintain adequate equipment and supervision for the proper execution and control of the work at night.
- C. Due to potential health hazards and requirements of the State of Florida and the U.S. Environmental Protection Agency, existing facilities must be maintained in operation.
- D. The Contractor shall be fully responsible for providing all temporary piping, plumbing, electrical hook-ups, lighting, temporary structure, or other materials, equipment and systems required to maintain the existing facility's operations. All details of temporary piping and temporary construction are not necessarily shown on the Drawings or covered in the Specifications. However, this does not relieve the Contractor of the responsibility to insure that construction will not interrupt proper facility operations.
- E. The Contractor shall designate an authorized representative of his firm who shall be responsible for development and maintenance of the schedule and of progress and payment reports. This representative of the Contractor shall have direct project control and complete authority to act on behalf of the Contractor in

fulfilling the commitments of the Contractor's schedule.

**1.03            PROGRESS OF THE WORK**

The work shall be executed with such progress as may be required to prevent any delay to the general completion of the work. The work shall be executed at such times and in or on such parts of the project and with such forces, materials and equipment to assure completion of the work in the time established by the Contract and in the manner set forth in the Contract.

**PART 2        PRODUCTS**

**2.01            GENERAL REQUIREMENTS**

- A. The Contractor shall submit a critical path schedule as described herein.
- B. The planning, scheduling, management and execution of the work is the sole responsibility of the Contractor. The progress schedule requirement is established to allow Engineer to review Contractor's planning, scheduling, management and execution of the work; to assist Engineer in evaluating work progress and make progress payments and to allow other contractors to cooperate and coordinate their activities with those of the Contractor.

**2.02            FORM OF SCHEDULES**

- A. Prepare schedules in the form of a horizontal bar chart diagram. The diagram shall be time-scaled and sequenced by work areas. Horizontal time scale shall identify the first work day of each week.
- B. Activities shall be at least as detailed as the Schedule of Values. Activity durations shall be in whole working days. In addition, man-days shall be shown for each activity or tabulated in an accompanying report.
- C. Diagrams shall be neat and legible and submitted on sheets at least 8-1/2 inches by 11 inches suitable for reproduction. Scale and spacing shall allow space for notations and future revisions.
- D. The schedules shall be prepared and submitted using the latest version of Microsoft Project, or other Owner approved software.

**2.03            CONTENT OF SCHEDULES**

- A. Each monthly schedule shall be based on data as of the last day of the current pay period.

- B. Description for each activity shall be brief, but convey the scope of work described.
- C. Activities shall identify all items of work that must be accomplished to achieve substantial completion, such as items pertaining to Contractor's installation and testing activities; items pertaining to the approval of regulatory agencies; contractor's time required for submittals, fabrication and deliveries; the time required by Engineer to review all submittals as set forth in the Contract Documents; items of work required of Owner to support pre-operational, startup and final testing; time required for the relocation of utilities. Activities shall also identify interface milestones with the work of other contractors performing work under separate contracts with Owner.
- D. Schedules shall show the complete sequence of construction by activities. Dates for beginning and completion of each activity shall be indicated as well as projected percentage of completion for each activity as of the first day of each month.
- E. Submittal schedule for shop drawing review, product data, and samples shall show the date of Contractor submittal and the date approved submittals will be required by the Engineer, consistent with the time frames established in the Specifications.
- F. For Contract change orders granting time extensions, the impact on the Contract date(s) shall equal the calendar-day total time extension specified for the applicable work in the Contract change orders.
- G. For actual delays, add activities prior to each delayed activity on the appropriate critical path(s). Data on the added activities of this type shall portray all steps leading to the delay and shall further include the following: separate activity identification, activity description indicating cause of the delay, activity duration consistent with whichever set of dates below applies, the actual start and finish dates of the delay or, if the delay is not finished, the actual start date and estimated completion date.
- H. For potential delays, add an activity prior to each potentially delayed activity on the appropriate critical path(s). Data for added activities of this type shall include alternatives available to mitigate the delay including acceleration alternatives and further show the following: separate activity identification, activity description indicating cause of the potential delay and

activity duration equal to zero work days.

**2.04 SUPPORTING NARRATIVE**

- A. Status and scheduling reports identified below shall contain a narrative to document the project status, to explain the basis of Contractor's determination of durations, describe the Contract conditions and restraints incorporated into the schedule and provide an analysis pertaining to potential problems and practical steps to mitigate them.
- B. The narrative shall specifically include:
1. Actual completion dates for activities completed during the monthly report period and actual start dates for activities commenced during the monthly report period.
  2. Anticipated start dates for activities scheduled to commence during the following monthly report period.
  3. Changes in the duration of any activity and minor logic changes.
  4. The progress along the critical path in terms of days ahead or behind the Contract date.
  5. If the Monthly Status Report indicates an avoidable delay to the Contract completion date or interim completion dates as specified in the Agreement, Contractor shall identify the problem, cause and the activities affected and provide an explanation of the proposed corrective action to meet the milestone dates involved or to mitigate further delays.
  6. If the delay is thought to be unavoidable, the Contractor shall identify the problem, cause, duration, specific activities affected and restraints of each activity.
  7. The narrative shall also discuss all change order activities whether included or not in the revised/current schedule of legal status. Newly introduced change order work activities and the CPM path(s) that they affect, must be specifically identified. All change order work activities added to the schedule shall conform with the sequencing and Contract Time requirements of the applicable Change Order.

8. Original Contract date(s) shall not be changed except by Contract change order. A revision need not be submitted when the foregoing situations arise unless required by Engineer. Review of a report containing added activities will not be construed to be concurrence with the duration or restraints for such added activities; instead the corresponding data as ultimately incorporated into the applicable Contract change order shall govern.
9. Should Engineer require additional data, this information shall be supplied by Contractor within 10 calendar days.

**2.05 SUBMITTALS**

- A. Contractor shall submit estimated and preliminary progress schedules (as identified in the Terms and Conditions of the Contract and the General Conditions), monthly status reports, a start-up schedule and an as-built schedule report all as specified herein.
- B. All schedules, including estimated and preliminary schedules, shall be in conformance with the Contract Documents.
- C. The finalized progress schedule discussed in the Contract Documents shall be the first monthly status report and as such shall be in conformance with all applicable specifications contained herein.
- D. Monthly Status Report submittals shall include three copies of a time-scaled (days after notice to proceed) diagram showing all contract activities and supporting narrative. The initial detailed schedule shall use the notice to proceed as the start date. The finalized schedule, if concurred with by Owner, shall be the work plan to be used by the contractor for planning, scheduling, managing and executing the work.
- E. The schedule diagram shall be formatted as above. The diagram shall include (1) all detailed activities included in the preliminary and estimated schedule submittals, (2) calendar days prior to substantial completion, (3) summary activities for the remaining days. The critical path activities shall be identified, including critical paths for interim dates, if possible.
- F. The Contractor shall submit monthly progress schedules with each month's application for payment.
- G. Contractor shall submit three monthly status reports which will be retained by the Owner and Engineer.

## 2.06 MONTHLY STATUS REPORTS

- A. Contractor shall submit three copies of detailed schedule status reports on a monthly basis with the Application for Payment. The first such status report shall be submitted with the first Application for Payment and include data as of the last day of the pay period. The Monthly Report shall include a "marked-up" copy of the latest detailed schedule of legal status and a supporting narrative including updated information as described above. The Monthly Report will be reviewed by Engineer and Contractor at a monthly schedule meeting and Contractor will address Engineer's comments on the subsequent monthly report. Monthly status reports shall be the basis for evaluating Contractor's progress.
- B. The "marked-up" diagram shall show, for the latest detailed schedule of legal status, percentages of completion for all activities, actual start and finish dates and remaining durations, as appropriate. Activities not previously included in the latest detailed schedule of legal status shall be added, except that contractual dates will not be changed except by change order. Review of a marked-up diagram by Engineer will not be construed to constitute concurrence with the time frames, duration, or sequencing for such added activities; instead the corresponding data as ultimately incorporated into an appropriate change order shall govern.

## 2.07 STARTUP SCHEDULE

- A. At least 60 calendar days prior to the date of substantial completion, Contractor shall submit a time-scaled (days after notice to proceed) diagram detailing the work to take place in the period between 60 days prior to substantial completion, together with a supporting narrative. Engineer shall have 10 calendar days after receipt of the submittal to respond. Upon receipt of Engineer's comments, Contractor shall make the necessary revisions and submit the revised schedule within 10 calendar days. The resubmittal, if concurred with by Owner, shall be the Work Plan to be used by Contractor for planning, managing, scheduling and executing the remaining work leading to substantial completion.
- B. The time-scaled diagram shall use the latest schedule of legal status for those activities completed ahead of the last 60 calendar days prior to substantial completion and detailed activities for the remaining 60-day period within the time frames outlined in the latest schedule of

legal status.

- C. Contractor will be required to continue the requirement for monthly reports, as outlined above. In preparing this report, Contractor must assure that the schedule is consistent with the progress noted in the startup schedule.

## **2.08 REVISIONS**

- A. All revised Schedule Submittals shall be made in the same form and detail as the initial submittal and shall be accompanied by an explanation of the reasons for such revisions, all of which shall be subject to review by Engineer and concurrence by Owner. The revision shall incorporate all previously made changes to reflect current as-built conditions. Minor changes to the approved submittal may be approved at monthly meetings; a minor change is not considered a revision in the context of this paragraph.
- B. A revised schedule submittal shall be submitted for review, when required by Engineer, for one of the following reasons:
  - 1. Owner or Engineer directs a change that affects the date(s) specified in the Agreement or alters the length of a critical path.
  - 2. Contractor elects a change that affects the date(s) specified in the Agreement or alters the length of a critical path.
- C. If, prior to agreement on an equitable adjustment to the Contract time, Engineer requires revisions to the schedule in order to evaluate planned progress, Contractor shall provide an interim revised submittal for review with change effect(s) incorporated as directed. Interim revisions to the documents which are recommended to the Owner for concurrence will be incorporated in the next Monthly Status Report.

## **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01340

### SHOP DRAWINGS, PROJECT DATA AND SAMPLES

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall submit to the Engineer for review and approval: working drawings, shop drawings, test reports and data on materials and equipment (hereinafter in this section called data), and material samples (hereinafter in this section called samples) as are required for the proper control of work, including, but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
- B. Within thirty (30) calendar days after the effective date of the Agreement, the Contractor shall submit to the Engineer, a complete list of preliminary data on items for which Shop Drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items and the date on which each Shop Drawing shall be submitted. Review of this list by the Engineer shall in no way relieve the Contractor from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.
- C. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log should include the following items:
1. Submittal description and number assigned.
  2. Date to Engineer.
  3. Date returned to Contractor (from Engineer).
  4. Status of Submittal (No exceptions taken, returned for confirmation or resubmittal, rejected).
  5. Date of Resubmittal and Return (as applicable).
  6. Date material released (for fabrication).
  7. Projected date of fabrication.
  8. Projected date of delivery to site.
  9. Projected date and required lead time so that product installation does not delay contact.
  10. Status of O&M manuals submitted.

### 1.03

### CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the Contractor to check all drawings, data and samples prepared by or for him before submitting them to the Engineer for review. Each and every copy of the Drawings and data shall bear Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the contract Documents.
- B. Determine and verify:
  - 1. Field measurements.
  - 2. Field construction criteria.
  - 3. Catalog numbers and similar data.
  - 4. Conformance with Specifications and indicate all variances from the Specifications.
- C. The Contractor shall furnish the Engineer a schedule of Shop Drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.
- D. The Contractor shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the Engineer, with No Exceptions Taken or Approved As Noted.
- E. The Contractor shall submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than twenty-one (21) calendar days for checking and appropriate action from the time the Engineer receives them.
- F. The Contractor shall submit five (5) copies of descriptive or product data submittals to complement shop drawings for the Engineer plus the number of copies which the Contractor requires. The Engineer shall retain five (5) sets. All blueprint shop drawings shall be submitted with one (1) set of 3 mil thick polyester film reproducibles. The Engineer will review the blueprints and return to the Contractor the set of marked-up sepias with appropriate review comments.
- G. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of work prior

to the completion of the review by Engineer of the necessary Shop Drawings.

**1.04 ENGINEER'S REVIEW OF SHOP DRAWINGS AND WORKING DRAWINGS**

- A. The Engineer's review of drawings, data and samples submitted by the Contractor shall cover only general conformity to the Specifications, external connections and dimensions which affect the installation.
- B. The review of drawings and schedules shall be general and shall not be construed:
  - 1. As permitting any departure from the Contract requirements.
  - 2. As relieving the Contractor of responsibility for any errors, including details, dimensions and materials.
  - 3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting any exception.
- D. When reviewed by the Engineer, each of the Shop and Working Drawings shall be identified as having received such review being so stamped and dated. Shop Drawings stamped "REJECTED" and with required corrections shown shall be returned to the Contractor for correction and resubmittal.
- E. Resubmittals will be handled in the same manner as first submittals. On resubmittals, the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.
- F. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.
- G. The Engineer shall review a submittal/resubmittal a maximum of three (3) times after which cost of review shall be borne by the Contractor. The cost of engineering shall be equal to the Engineer's actual payroll cost.

- H. When the Shop and Working Drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- I. No partial submittals shall be reviewed. Incomplete submittals shall be returned to the Contractor and shall be considered not approved until resubmitted.

**1.05 SHOP DRAWINGS**

- A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean Contractor's plans for material and equipment which become an integral part of the Project. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, drawings, setting drawings, schedule drawings, manufacturer's scale drawings and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above.
- B. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval and original signature as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval and original signature shall be returned to the Contractor for resubmission.
- C. Each Shop Drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, located adjacent to the title block. The title block shall display the following:
  - 1. Number and title of the drawing.
  - 2. Date of Drawing or revision.
  - 3. Name of project building or facility.
  - 4. Name of contractor and subcontractor submitting drawing.
  - 5. Clear identification of contents and location of the work.
  - 6. Specification title and number.
- D. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility of executing the work in accordance with the Contract, even though such drawings have been reviewed.

- E. Data on materials and equipment shall include, without limitation, materials and equipment lists, catalog sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.
- F. For all mechanical and electrical equipment furnished, the Contractor shall provide a list including the equipment name and address and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- G. All manufacturers or equipment suppliers who proposed to furnish equipment or products shall submit an installation list to the Engineer along with the required shop drawings. The installation list shall include at least five installations where identical equipment has been installed and have been in operation for a period of at least one (1) year.
- H. Only the Engineer will utilize the color "red" in marking shop drawing submittals.
- I. Before final payment is made, the Contractor shall furnish to Engineer project as-built drawings.

**1.06 WORKING DRAWINGS**

- A. When used in the Contract Documents, the term "working drawings" shall be considered to mean the Contractor's fabrication and erection drawings for structures such as roof trusses, steelwork, precast concrete elements, bulkheads, support of open cut excavation, support of utilities, groundwater control systems, forming and false work; underpinning; and for such other work as may be required for construction of the project.
- B. Copies of working drawings as noted above, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer and shall be submitted at least thirty (30) days (unless otherwise specified by the Engineer) in advance of their being required for work.
- C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been

reviewed without specific exceptions by the Engineer, which review will be for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the Contractor; the Owner and Engineer shall not have responsibility therefor.

**1.07 SAMPLES**

- A. The Contractor shall furnish, for the review of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until reviewed by the Engineer.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
  - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
  - 2. Full range of color, texture and pattern.
  - 3. A minimum of two samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
  - 1. Name of product.
  - 2. Name of Contractor and Subcontractor.
  - 3. Material or equipment represented.
  - 4. Place of origin.
  - 5. Name of Producer and Brand (if any).
  - 6. Location in project.  
(Samples of finished materials shall have additional markings that will identify them under the finished schedules.)
  - 7. Reference specification paragraph.
- D. The Contractor shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the Engineer. Review of a sample shall be only for the characteristics or use named in such and shall not be construed to change or modify any Contract requirements.
- E. Reviewed samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Reviewed samples of the hardware in good condition will be marked for identification and may be used in the work.

Materials and equipment incorporated in work shall match the reviewed samples. If requested at the time of submission, samples which failed testing or were rejected shall be returned to the Contractor at his expense.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

**SECTION 01370**

**SCHEDULE OF VALUES**

**PART 1 GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. The Contractor shall submit to the Engineer a Schedule of Values allocated to the various portions of the work, within 10 days after date of Notice to Proceed.
- B. Upon request of the Engineer, the Contractor shall support the values with data which will substantiate their correctness.
- C. The Schedule of Values shall be used only as the basis for the Contractor's Applications for Payment.

**1.02 FORM AND CONTENT OF SCHEDULE OF VALUES**

- A. Schedule of Values will be considered for approval by Engineer upon Contractor's request. Identify schedule with:
  - 1. Title of Project and location.
  - 2. Project number.
  - 3. Name and address of Contractor.
  - 4. Contract designation.
  - 5. Date of submission.
- B. Schedule of Values shall list the installed value of the component parts of the work in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Follow the table of contents for the Contract Document as the format for listing component items for structures:
  - 1. Identify each line item with the number and title of the respective major section of the specification.
  - 2. For each line item, list sub values of major products or operations under item.
- D. Follow the bid sheets included in this Contract Documents as the format for listing component items for pipe lines.
- E. The sum of all values listed in the schedule shall equal the total Contract sum.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01381

### PHOTOGRAPHIC DOCUMENTATION

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall employ a competent photographer to take construction record photographs or perform video taping, including furnishing all labor, materials, equipment and incidentals necessary to obtain photographs and/or video tapes of all construction areas.
- B. Preconstruction record information shall consist of both photographs and video tapes.
- C. Construction progress information shall consist of photographs and digital photographs on a recordable compact disc (CD-R).

##### 1.02 QUALIFICATIONS

- A. All photography shall be done by a competent camera operator who is fully experienced and qualified with the specified equipment.
- B. For the video recording, the audio portion should be done by a person qualified and knowledgeable in the specifics of the Contract, who shall speak with clarity and diction so as to be easily understood.

##### 1.03 PROJECT PHOTOGRAPHS

- A. Provide two prints of each photograph with each pay application.
- B. Provide one recordable compact disc with digital photographs with each pay application.
- C. Negatives:
  - 1. All negatives shall remain the property of photographer. The Contractor shall require that photographer maintain negatives for a period of two years from date of substantial completion of the project.
  - 3. Photographer shall agree to furnish additional prints to Owner and Engineer at commercial rates applicable at time of purchase. Photographer shall also agree to participate as required in any litigation requiring the photographer as an expert witness.
- D. The Contractor shall pay all costs associated with the required photography and prints. Any parties requiring

additional photography or prints shall pay the photographer directly.

- E. All project photographs shall be a single weight, color image. All finishes shall be smooth surface and glossy and all prints shall be 8 inches x 10 inches.
- F. Each print shall have clearly marked on the back, the name of the project, the orientation of view, the date and time of exposure, name and address of the photographer and the photographer's numbered identification of exposure.
- G. All project photographs shall be taken from locations to adequately illustrate conditions prior to construction, or conditions of construction and state of progress. The Contractor shall consult with the Engineer at each period of photography for instructions concerning views required.

**1.04 VIDEO TAPE RECORDINGS**

- A. Video taping shall be done within the limits of construction. Video taping shall include full taping of the area including the condition of adjacent buildings, adjacent equipment, structures, sidewalks, driveways, etc. All video taping shall be in full color.
- B. A complete view, in sufficient detail with audio description of the exact location shall be provided.
- C. The engineering plans shall be used as a reference for orientation in the audio portion of the tapes.
- D. Two complete sets of video tapes shall be delivered to the Engineer for the permanent and exclusive use of the Engineer prior to the start of any construction on the project.
- E. All video tapes shall contain the name of the project, the date and time of the video taping, the name and address of the photographer and any other identifying information required.
- F. Construction shall not start until preconstruction video tapes are completed, submitted and accepted by the Engineer. In addition, no progress payments shall be made until the preconstruction video tapes are accepted by the Engineer.

**PART 2 PRODUCTS (NOT USED)**  
**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01410

### TESTING AND TESTING LABORATORY SERVICES

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Owner shall employ and pay for the services of an independent testing laboratory to perform testing specifically indicated on the Contract Documents or called out in the Specifications. Owner may elect to have materials and equipment tested for conformity with the Contract Documents at any time.
1. Contractor shall cooperate fully with the laboratory to facilitate the execution of its required services.
  2. Employment of the laboratory shall in no way relieve the Contractor's obligations to perform the work of the Contract.

##### 1.02 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. 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.

##### 1.03 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel; provide access to Work and/or to Manufacturer's operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacture or fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that the materials and

equipment provided by them are manufactured or fabricated in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor and no extra charge to the Owner shall be allowed on account of such testing and certification.

- E. Furnish incidental labor and facilities:
  - 1. To provide access to work to be tested.
  - 2. To obtain and handle samples at the project site or at the source of the product to be tested.
  - 3. To facilitate inspections and tests.
  - 4. For storage and curing of test samples.
  
- F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
  - 1. When tests or inspections cannot be performed due to insufficient notice, Contractor shall reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.
  
- G. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the Engineer.
  
- H. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the contractor shall pay for the laboratory costs directly to the testing firm or the total of such costs shall be deducted from any payments due the Contractor.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01510**

**TEMPORARY AND PERMANENT UTILITIES**

**PART 1 GENERAL**

**1.01 REQUIREMENTS INCLUDED**

The Contractor shall be responsible for furnishing all requisite temporary utilities, i.e., power, water, sanitation, etc. The Contractor shall obtain and pay for all permits required as well as pay for all temporary usages. The Contractor shall remove all temporary facilities upon completion of work.

**1.02 REQUIREMENTS OF REGULATORY AGENCIES**

- A. Comply with National Electric Code.
- B. Comply with Federal, State and Local codes and regulations and with utility company requirements.
- C. Comply with County Health Department regulations.

**PART 2 PRODUCTS**

**2.01 MATERIALS, GENERAL**

Materials for temporary utilities may be "used". Materials for electrical utilities shall be adequate in capacity for the required usage, shall not create unsafe conditions and shall not violate requirements of applicable codes and standards.

**2.02 TEMPORARY ELECTRICITY AND LIGHTING**

Arrange with the applicable utility company for temporary power supply. Provide service required for temporary power and lighting and pay all costs for permits, service and for power used.

**2.03 TEMPORARY WATER**

- A. The Contractor shall arrange with Manatee County Utilities Customer Service office to provide water for construction purposes, i.e., meter, pay all costs for installation, maintenance and removal, and service charges for water used.
- B. The Contractor shall protect piping and fitting against freezing.

**2.04 TEMPORARY SANITARY FACILITIES**

- A. The Contractor shall provide sanitary facilities in compliance with all laws and regulations.
- B. The Contractor shall service, clean and maintain facilities and enclosures.

**PART 3 EXECUTION**

**3.01 GENERAL**

- A. The Contractor shall maintain and operate systems to assure continuous service.
- B. The Contractor shall modify and extend systems as work progress requires.

**3.02 REMOVAL**

- A. The Contractor shall completely remove temporary materials and equipment when their use is no longer required.
- B. The Contractor shall clean and repair damage caused by temporary installations or use of temporary facilities.

**END OF SECTION**

## SECTION 01570

### TRAFFIC REGULATION

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall be responsible for providing safe and expeditious movement of traffic through construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the Contractor and which interfere with the driving or walking public.
- B. The Contractor shall remove temporary equipment and facilities when no longer required, restore grounds to original or to specified conditions.

##### 1.02 TRAFFIC CONTROL

- A. The necessary traffic control shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, markings, barricades, channelization and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and detour routes and signage for the duration of the construction period. The Contractor shall utilize the appropriate maintenance of traffic plan from the FDOT Maintenance of Traffic Standards, Series 600 of the FDOT Roadway & Traffic Design Standards, Latest Edition.
- B. The Contractor shall provide at least 72 hours notification to the affected highway department of the necessity to close any portion of a roadway carrying vehicles or pedestrians so that final approval of such closings can be obtained at least 48 hours in advance. At no time will more than one (1) lane of a roadway be closed to vehicles and pedestrians without an approved road closure from the County Transportation Department. With any such closings, adequate provision shall be made for the safe expeditious movement of each. It shall also be the Contractor's responsibility to notify the School Board, police, fire and emergency departments whenever roads are impassable.
- C. The Contractor shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal preconstruction traffic control scheme. Any such actions shall be performed by the Contractor under the supervision and in accordance with the instructions of the applicable highway department unless otherwise

specified.

- D. The Engineer will consult with the Owner immediately on any vehicular or pedestrian safety or efficiency problem incurred as a result of construction of the project.
- E. The Contractor shall provide ready access to businesses and homes in the project area during construction. The Contractor shall be responsible for coordinating this work with affected homeowners.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01580

### PROJECT IDENTIFICATION AND SIGNS

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Furnish, install and maintain County project identification signs.
- B. Remove signs on completion of construction.
- C. Allow no other signs to be displayed.

##### 1.02 PROJECT IDENTIFICATION SIGN (COUNTY)

- A. One painted sign, of not less than 32 square feet (3 square meters) area, with painted graphic content to include:
  - 1. Title of Project.
  - 2. Name of Owner.
  - 3. Names and titles of authorities as directed by Owner.
  - 4. Prime Contractor.
- B. Graphic design, style of lettering and colors: As approved by the Engineer and subject to approval of the Owner.
- C. Erect on the site at a lighted location of high public visibility, adjacent to main entrance to site, as approved by the Engineer and the Owner

##### 1.03 INFORMATIONAL SIGNS

- A. Painted signs with painted lettering, or standard products.
  - 1. Size of signs and lettering: as required by regulatory agencies, or as appropriate to usage.
  - 2. Colors: as required by regulatory agencies, otherwise of uniform colors throughout project.
- B. Erect at appropriate locations to provide required information.

**1.04           QUALITY ASSURANCE**

- A. Sign Painter: Professional experience in type of work required.
- B. Finishes, Painting: Adequate to resist weathering and fading for scheduled construction period.

**PART 2        PRODUCTS**

**2.01         SIGN MATERIALS**

- A. Structure and Framing: May be new or used, wood or metal, in sound condition structurally adequate to work and suitable for specified finish.
- B. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints.
  - 1. Thickness: As required by standards to span framing members, to provide even, smooth surface without waves or buckles.
- C. Rough Hardware: Galvanized.
- D. Paint: Exterior quality, as specified in the Contract Documents.

**PART 3        EXECUTION**

**3.01         PROJECT IDENTIFICATION SIGN**

- A. Paint exposed surface or supports, framing and surface material; one coat of primer and one coat of exterior paint.
- B. Paint graphics in styles, size and colors selected.

**3.02         MAINTENANCE**

The Contractor shall maintain signs and supports in a neat, clean condition; repair damages to structures, framing or sign.

**3.03         REMOVAL**

The Contractor shall remove signs, framing, supports and foundations at completion of project.

**END OF SECTION**

**SECTION 01600**

**MATERIAL AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Material and equipment incorporated into the work:
1. Conform to applicable specifications and standards.
  2. Comply with size, make, type and quality specified, or as specifically approved in writing by the Engineer.
  3. Manufactured and Fabricated Products:
    - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
    - b. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
    - c. Two or more items of the same kind shall be identical and manufactured by the same manufacturer.
    - d. Products shall be suitable for service conditions.
    - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
  4. Do not use material or equipment for any purpose other than that for which it is specified.
  5. All material and equipment incorporated into the project shall be new.

**1.02 MANUFACTURER'S INSTRUCTIONS**

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Engineer.
1. Maintain one set of complete instructions at the job site during installation and until completion.

- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
  - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer prior to proceeding.
  - 2. Do not proceed with work without clear instructions.
- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the Contract Documents.

**1.03 TRANSPORTATION AND HANDLING**

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.
  - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
  - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

**1.04 STORAGE AND PROTECTION**

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible
  - 1. Store products subject to damage by the elements in weather tight enclosures.
  - 2. Maintain temperature and humidity within the ranges required by manufacture's instructions.
- B. Exterior Storage
  - 1. Store fabricated products above the ground, on blocking or skids to prevent 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. Make periodic inspections of stored products to assure that products are maintained under specified conditions and free from damage or deterioration.
- D. Protection After Installation
  - 1. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

**1.05 SUBSTITUTIONS AND PRODUCT OPTIONS**

- A. Products List
  - 1. Within 30 days after Contract date, submit to Engineer a complete list of major products proposed to be used.
- B. Contractor's Options
  - 1. For products specified only by reference standard, select any product meeting that standard.
  - 2. For products specified by naming one or more products or manufacturers and "or equal", Contractor must submit a request for substitutions of any product or manufacturer not specifically named.
  - 3. Requests for substitutions of products and "or equal" by the Contractor shall be submitted in a timely manner so as not to adversely affect the construction schedule.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01620

### STORAGE AND PROTECTION

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

Provide secure storage and protection for products to be incorporated into the work and maintenance and protection for products after installation and until completion of Work.

##### 1.02 STORAGE

- A. Store products immediately on delivery and protect until installed in the Work.
  - 1. Store in accord with manufacturer's instructions, with seals and labels intact and legible.
- B. Store products subject to damage by elements in substantial weather tight enclosures.
  - 1. Maintain temperatures within ranges required by manufacturer's instructions.
  - 2. Provide humidity control for sensitive products, as required by manufacturer's instructions.
  - 3. Store unpacked products on shelves, in bins or in neat piles, accessible for inspection.
- C. Exterior Storage
  - 1. Provide substantial platform, blocking or skids to support fabricated products above ground to prevent soiling or staining.
    - a. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
    - b. Prevent mixing of refuse or chemically injurious materials or liquids.
- D. Arrange storage in manner to provide easy access for inspection.

1.03      **MAINTENANCE OF STORAGE**

- A.    Maintain periodic system of inspection of stored products on scheduled basis to assure that:
1.    State of storage facilities is adequate to provide required conditions.
  2.    Required environmental conditions are maintained on continuing basis.
  3.    Surfaces of products exposed to elements are not adversely affected.
    - a.    Any weathering of products, coatings and finishes is not acceptable under requirements of these Contract Documents.
- B.    Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.
1.    Equipment shall not be shipped until approved by the Engineer. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer.
  2.    All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by the Engineer until such time as the equipment is to be installed.
  3.    All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
  4.    Manufacturer's storage instructions shall be carefully studied by the Contractor and reviewed with the Engineer. These instructions shall be carefully followed.
  5.    Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate from lack of use.

6. Lubricants shall be changed upon completion of installation and as frequently as required, thereafter during the period between installation and acceptance.
7. Prior to acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.

**1.04 PROTECTION AFTER INSTALLATION**

- A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.
- C. Provide coverings to protect finished surfaces from damage.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01700

### CONTRACT CLOSEOUT

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the work.

##### 1.02 SUBSTANTIAL COMPLETION

- A. The Contractor shall submit the following items when the Contractor considers the work to be substantially complete:
  - 1. A written notice that the work, or designated portion thereof, is substantially complete.
  - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the Engineer and Owner shall make an inspection to determine the status of completion.
- C. Project record documents and operations and maintenance manuals must be submitted before the project shall be considered substantially complete.
- D. If the Engineer determines that the work is not substantially complete:
  - 1. The Engineer shall notify the Contractor in writing, stating the reasons.
  - 2. The Contractor shall remedy the deficiencies in the work and send a second written notice of substantial completion to the Engineer.
  - 3. The Engineer shall reinspect the work.
- E. When the Engineer finds that the work is substantially complete:
  - 1. He shall prepare and deliver to the Owner a tentative Certificate of Substantial Completion (Manatee County Project Management Form PMD-8) with a tentative list of the items to be completed

or corrected before final payment.

2. The Engineer shall consider any objections made by the Owner as provided in Conditions of the Contract. When the Engineer considers the work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion (Manatee County Project Management Form PMD-8) with a revised tentative list of items to be completed or corrected.

### **1.03 FINAL INSPECTION**

- A. When the Contractor considered the work to be complete, he shall submit written certification stating that:
  1. The Contract Documents have been reviewed.
  2. The work has been inspected for compliance with Contract Documents.
  3. The work has been completed in accordance with Contract Documents.
  4. The equipment and systems have been tested in the presence of the Owner=s representative and are operational.
  5. The work is completed and ready for final inspection.
- B. The Engineer shall make an inspection to verify the status of completion after receipt of such certification.
- C. If the Engineer determines that the work is incomplete or defective:
  1. The Engineer shall promptly notify the Contractor in writing, listing the incomplete or defective work.
  2. The Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to Engineer that the work is complete.
  3. The Engineer shall reinspect the work.

- D. Upon finding the work to be acceptable under the Contract Documents, the Engineer shall request the Contractor to make closeout submittals.
- E. For each additional inspection beyond a total of three (3) inspections for substantial and final completion due to the incompleteness of the work, the Contractor shall reimburse the Owner for the Engineer=s fees.

**1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER**

- A. Project Record Documents (prior to substantial completion).
- B. Operation and maintenance manuals (prior to substantial completion).
- C. Warranties and Bonds.
- D. Evidence of Payment and Release of Liens: In accordance with requirements of General and Supplementary Conditions.
- E. Certification letter from Florida Department of Transportation and Manatee County Department of Transportation, as applicable.
- F. Certificate of Insurance for Products and Completed Operations.
- G. Final Reconciliation, Warranty Period Declaration, and Contractor=s Affidavit (Manatee County Project Management Form PMD-8).

**1.05 FINAL ADJUSTMENT OF ACCOUNTS**

- A. Submit a final statement of accounting to the Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
  - 1. The original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a Previous Change Orders
    - b Unit Prices
    - c Penalties and Bonuses
    - d Deductions for Liquidated Damages
    - e Other Adjustments

3. Total Contract Sum, as adjusted.
  4. Previous payments.
  5. Sum remaining due.
- C. Project Management shall prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

**1.06 FINAL APPLICATION FOR PAYMENT**

Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

## SECTION 01710

### CLEANING

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

Execute cleaning during progress of the work and at completion of the work, as required by the General Conditions.

##### 1.02 DISPOSAL REQUIREMENTS

Conduct cleaning and disposal operations to comply with all Federal, State and Local codes, ordinances, regulations and anti-pollution laws.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

#### PART 3 EXECUTION

##### 3.01 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulation of waste materials, rubbish and wind-blown debris, resulting from construction operations.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

**3.02 DUST CONTROL**

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

**3.03 FINAL CLEANING**

- A. Employ skilled workmen for final cleaning.
- B. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- C. Prior to final completion or Owner occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas to verify that the entire work is clean.

**END OF SECTION**

**SECTION 01720**

**PROJECT RECORD DOCUMENTS**

**PART 1 GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Contractor shall maintain at the site for the Owner one record copy of:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Engineer's field orders or written instructions.
  - 6. Approved shop drawings, working drawings and samples.
  - 7. Field test records.
  - 8. Construction photographs.

**1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES**

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
  - 1. Provide files and racks for storage of documents.
  - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes
- D. Make documents and samples available at all times for inspection by the Engineer.

**1.03 MARKING DEVICES**

- A. Provide felt tip marking pens for recording information in the color code designated by the Engineer.

**1.04 RECORDING**

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress.
- C. Do not conceal any work until required information is recorded.
- D. Drawings; Legibly mark to record actual construction:
  - 1. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc. Locations of drainage ditches, swales, water lines and force mains shall be shown every 200 feet (measured along the centerline) or alternate lot lines, whichever is closer. Dimensions at these locations shall indicate distance from centerline of right-of-way to the facility.
  - 2. Field changes of dimension and detail.
  - 3. Changes made by Field Order or by Change Order.
  - 4. Details not on original contract drawings.
  - 5. Equipment and piping relocations.
  - 6. Locations of all valves, fire hydrants, manholes, water and sewer services, water and force main fittings, underdrain cleanouts, catch basins, junction boxes and any other structures located in the right-of-way or easement, shall be located by elevation and by station and offset based on intersection P.I.'s and centerline of right-of-way. For facilities located on private roads, the dimensioning shall be from centerline of paving or another readily visible baseline.
  - 7. Elevations shall be provided for all manhole rim and inverts; junction box rim and inverts; catch basin rim and inverts; and baffle, weir and invert elevations in control structures. Elevations shall also be provided at the PVI's and at every other lot line or 200 feet, whichever is less, of drainage swales and ditches. Bench marks and elevation datum shall be indicated.

8. Slopes for pipes and ditches shall be recalculated, based on actual field measured distances, elevations, pipe sizes, and type shown. Cross section of drainage ditches and swales shall be verified.
  9. Centerline of roads shall be tied to right-of-way lines. Elevation of roadway centerline shall be given at PVI's and at all intersections.
  10. Record drawings shall show bearings and distances for all right-of-way and easement lines, and property corners.
  11. Sidewalks, fences and walls, if installed at the time of initial record drawing submittal, shall be located every 200 feet or alternate lot lines, whichever is closer. Dimensions shall include distance from the right-of-way line and the back of curb and lot line or easement line.
  12. Sanitary sewer mainline wyes shall be located from the downstream manhole. These dimensions shall be provided by on-site inspections or televiewing of the sewer following installation.
  13. Elevations shall be provided on the top of operating nuts for all water and force main valves.
  14. Allowable tolerance shall be + 6.0 inches for horizontal dimensions. Vertical dimensions such as the difference in elevations between manhole inverts shall have an allowable tolerance of + 1/8 inch per 50 feet (or part thereof) of horizontal distance up to a maximum tolerance of + 1/2 inch.
  15. The Contractor shall submit to the Owner/Engineer, properly prepared redline drawings marked up by the Contractor and survey data certified by a design professional (Engineer and/or Surveyor registered in the State of Florida), employed by the Contractor.
- E. Specifications and Addenda; Legibly mark each Section to record:
1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
  2. Changes made by field order or by change order.

F. Shop Drawings (after final review and approval):

1. Five sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

1.05 SUBMITTAL

- A. Prior to substantial completion, deliver Record Documents (redline drawings and survey drawing) to the Engineer.
- B. The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data. The Contractor shall supply the record documents to the Engineer for preparation of the record drawings. Record drawings shall be certified by the design professionals, the Engineer (licensed in Florida), as stipulated by the Land Development Ordinance and submitted on signed and dated mylar drawings together with CDs, AutoCad Release 12 or later for review and the use of the County in the following format:

The CD shall contain media in AutoCad Version 12 or later, or in any other CAD program compatible with AutoCad in DWG or DXF form. Where large projects or exceptionally large files prohibit the use of CDs, the files will be accepted on a CD ROM. All fonts, line types, shape files or other pertinent information used in the drawing and not normally included in AutoCad shall be included on the media with a text file or attached noted as to its relevance and use.

- C. All record drawing requirements must be submitted to the Engineer prior to starting the bacteria testing of water lines.
  1. Accompany submittal with transmittal letter in duplicate, containing:
    - a. Date.
    - b. Project title and number.
    - c. Contractor's name and address.
    - d. Title and number of each Record Document.
    - e. Signature of Contractor or his authorized representative.

Note: The data required to properly prepare these record drawings shall be obtained at the site, at no cost to the County by the responsible design professional or his/her duly appointed representative. The appointed representative shall be a qualified employee of the responsible design professional or a qualified

inspector retained by the responsible design professional on a project-by-project basis.

**PART 2      STANDARDS**

**2.01      MINIMUM RECORD DRAWING STANDARDS FOR ALL RECORD DRAWINGS SUBMITTED TO MANATEE COUNTY**

- A. All valves, fire hydrants, manholes, water, reclaim water and sewer services, water and force main fittings, underdrain cleanouts, catch basins, junction boxes and any other structures located in the right-of-way or an easement, shall be located by elevation and by station and offset based on intersection PI's and centerline of right-of-way. For facilities located on private roads, the dimensioning shall be from centerline of paving or another readily visible baseline.
- B. Elevations shall be provided as listed above and for all manhole rim and inverts; junction box rim and inverts; catch basin rim and inverts; and baffle, weir and invert elevations in control structures. Elevations shall also be provided at the PVI's and at every other lot line or 200 feet, whichever is less, of drainage swales and ditches. Bench marks and elevation datum shall be indicated.
- C. Slopes for pipe and ditches shall be recalculated, based on actual field measured distances, elevations, pipe size and type shown. Cross section of drainage ditches and swales shall be verified.
- D. Centerline of roads shall be tied to right-of-way lines. Elevation of roadway centerline shall be given at PVI's and at all intersections.
- E. Record drawings shall show bearings and distances for all right-of-way and easement lines, and property corners.
- F. Locations of drainage ditches, swales, water lines and force mains shall be shown every 200 feet (measured along the centerline) or alternate lot lines, whichever is closer. Dimensions at these locations shall indicate distance from the centerline of right-of-way to the facility.
- G. Sidewalks, fences and walls, if installed at the time of initial record drawing submittal, shall be located every 200 feet or alternate lot lines, whichever is closer. Dimensions shall include distance from the

right-of-way line and the back of curb and lot line or easement line.

- H. Underdrain cleanouts for retention systems outside right-of-way shall be located by station and offset from an appropriate baseline.
- I. Sanitary sewer mainline wyes shall be located from the downstream manhole. These dimensions shall be provided by on-site inspections or televising of the sewer following installation.
- J. Elevations shall be provided on the top of operating nuts for water and force main valves at major intersections connecting to County and/or State roads at proposed or existing arterial highways and at drain crossings.
- K. Allowable tolerance shall be + 6 inches for horizontal dimensions. Vertical dimensions such as the difference in elevations between manhole inverts shall have an allowable tolerance of + 1/8 inch per 50 feet (or part thereof) of horizontal distance up to a maximum of + 1/2 inch.

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 01721  
REDLINE DRAWINGS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Contractor shall provide Redline Drawings to the Engineer for preparation of the Record Drawings.
  - 1. The provisions of this Section apply to the maintaining, marking, recording, and submitting of Redline Drawings.
  - 2. The Contractor shall maintain a set of Redline Drawings at the job site. These shall be kept legible and current and shall be available for inspection during normal working hours by the Owner/Engineer. Do not use redline drawings for construction purposes, protect from deterioration and loss in a secure, fire-resistive location. Show all changes or Work added on these Record Drawings in a contrasting color.

**1.02 RELATED WORK**

- A. Section 01700, Contract Closeout.
- B. Section 01720, Project Record Instruments

**1.03 SUBMITTALS**

- A. Redline Drawings: At completion of all Work under this Contract, deliver a complete set of Redline Drawings and a scanned set on high-density CD to the Engineer with transmittal, containing as a minimum, the following:
  - 1. Date.
  - 2. Project title and numbers.
  - 3. Contractor's name and address. Include final list of all subcontractors.
  - 4. Title and number of each record document.
  - 5. Certification that each document as submitted is complete and accurate.
  - 6. Contractor's signature or that of the Contractor's authorized representative.

**1.04 REDLINE DRAWINGS**

- A. The redline drawings shall be current and included with each month's pay estimate application, and subject to the Engineer's review for acceptability, as a prerequisite to monthly payment.

- B. In particular, show changes in the Work in relation to way in which shown and specified by original Contract Documents; and show additional information of value to Owner's records, but not indicated by original Contract Documents.
- C. In showing changes in the Work, use the same legends as used on the original drawings. Indicate exact locations by dimensions and exact elevations by job datum. Give dimensions from a permanent point.
- D. Mark whichever drawings are most capable of showing conditions fully and accurately.
- E. Use a red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
- F. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Do not conceal any work until required information is recorded.
- G. Mark-up important additional information which was either shown schematically or omitted from original drawings.
- H. Note related RFI, Field Directive, and Change Order numbers where applicable.
- I. Do not revise the prints by attaching the actual sketches issued by the Engineer. Where the work was installed exactly as shown on the Contract Drawings, the prints shall not be disturbed other than being marked "PROJECT RECORD".
- J. Each sheet shall be clearly marked "PROJECT RECORD".
- K. Review the completed Redline Drawings and ascertain that all data furnished on the prints is accurate and truly represents the work as actually installed.
- L. The redline drawing prints, including those changed and unchanged, shall be submitted to the Engineer for compliance review.
- M. Any deviations from the method of executing Redline Drawings as described above will be considered just cause for rejection by the Engineer and the Contractor will be required to conform and resubmit.
- N. Maintain a clean, undamaged, updated set of blue or black line white-prints of Contract Drawings, including sheets issued as part of County authorized changes. The set shall be marked to scale by a competent draftsman to indicated the actual installation and/or location where the installation and/or location varies substantially from the Work as originally shown due to Addenda, Alternates, Change Orders, Field Orders, etc.

**END OF SECTION**

## SECTION 01730

### OPERATING AND MAINTENANCE DATA

#### PART 1 GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Contract.

Prepare operating and maintenance data as specified in this and as referenced in other pertinent sections of Specifications.

- B. Instruct Owner's personnel in maintenance of products and equipment and systems.
- C. Provide three (3) sets of operating and maintenance manuals for each piece of equipment provided within this Contract.

##### 1.02 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by Owner's personnel.

B. Format:

1. Size: 8-1/2 inch x 11 inch
2. Paper: 20 pound minimum, white, for typed pages
3. Text: Manufacturer's printed data or neatly typewritten
4. Drawings:
  - a. Provide reinforced punched binder tab, bind in with text.
  - b. Fold larger drawings to size of text pages.
5. Provide fly-leaf for each separate product or each piece of operating equipment.
  - a. Provide typed description of product and major component parts of equipment.
  - b. Provide indexed tabs.

6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS".  
List:
  - a. Title of Project.
  - b. Identity of separate structures as applicable.
  - c. Identity of general subject matter covered in the manual.

C. Binders:

1. Commercial quality three-ring binders with durable and cleanable plastic covers.
2. Maximum ring size: 1 inch.
3. When multiple binders are used, correlate the data into related consistent groupings.

**1.03 MANUAL FOR EQUIPMENT AND SYSTEMS**

- A. Submit three copies of complete manual in final form.
- B. Content for each unit of equipment and system, as appropriate:
  1. Description of unit and component parts.
    - a. Function, normal operating characteristics and limiting conditions.
    - b. Performance curves, engineering data and tests.
    - c. Complete nomenclature and commercial number of replaceable parts.
  2. Operating Procedures:
    - a. Start-up, break-in, routine and normal operating instructions.
    - b. Regulation, control, stopping, shut-down and emergency instructions.
    - c. Summer and winter operating instructions.
    - d. Special operating instructions.
  3. Maintenance Procedures:
    - a. Routine operations.

- b. Guide to "trouble-shooting".
    - c. Disassembly, repair and reassembly.
    - d. Alignment, adjusting and checking.
  - 4. Servicing and lubricating schedule.
    - a. List of lubricants required.
  - 5. Manufacturer's printed operating and maintenance instructions.
  - 6. Description of sequence of operation by control manufacturer.
  - 7. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
    - a. List of predicted parts subject to wear.
    - b. Items recommended to be stocked as spare parts.
  - 8. As installed control diagrams by controls manufacturer.
  - 9. Each contractor's coordination drawings.
    - a. As installed color coded piping diagrams.
  - 10. Charts of valve tag numbers, with location and function of each valve.
  - 11. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
  - 12. Other data as required under pertinent sections of specifications.
- C. Content, for each electric and electronic system, as appropriate:
  - 1. Description of system and component parts.
    - a. Function, normal operating characteristics and limiting conditions.
    - b. Performance curves, engineering data and tests.
    - c. Complete nomenclature and commercial number of replaceable parts.

2. Circuit directories of panelboards.
    - a. Electrical service.
    - b. Controls.
    - c. Communications.
  3. As-installed color coded wiring diagrams.
  4. Operating procedures:
    - a. Routine and normal operating instructions.
    - b. Sequences required.
    - c. Special operating instructions.
  5. Maintenance procedures:
    - a. Routine operations.
    - b. Guide to "trouble-shooting".
    - c. Disassembly, repair and reassembly.
    - d. Adjustment and checking.
  6. Manufacturer's printed operating and maintenance instructions.
  7. List of original manufacture's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
  8. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction on Owner's personnel.
  - E. Additional requirements for operating and maintenance data: Respective sections of Specifications.

**1.04 SUBMITTAL SCHEDULE**

- A. Submit one copy of completed data in final form fifteen days prior to substantial completion.
  1. Copy will be returned after substantial completion, with comments (if any).
- B. Submit two copies of approved data in final form. Final

acceptance will not be provided until the completed manual is received and approved.

**1.05 INSTRUCTION OF OWNER'S PERSONNEL**

- A. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.
  - 1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when so specified.
- D. Review submittals to verify compliance with Contract Documents.
- E. Submit to Engineer for review and transmittal to Owner.

1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
- B. Number of original signed copies required: Two each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
  - 1. Product or work item.
  - 2. Firm, with name of principal, address and telephone number.
  - 3. Scope.
  - 4. Date of beginning of warranty, bond or service and maintenance contract.
  - 5. Duration of warranty, bond or service maintenance contract.
  - 6. Provide information for Owner's personnel:
    - a. Proper procedure in case of failure.
    - b. Instances which might affect the validity of warranty or bond.
  - 7. Contractor, name of responsible principal, address and telephone number.

**1.03 FORM OF SUBMITTALS**

- A. Prepare in duplicate packets.
- B. Format:
  - 1. Size 8-1/2 inch x 11 inch punched sheets for standard 3-ring binder.
    - a. Fold larger sheets to fit into binders.
  - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
    - a. Title of Project.
    - b. Name of Contractor.
- C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

**1.04 TIME OF SUBMITTALS**

- A. Make submittals within ten days after date of substantial completion and prior to final request for payment.
- B. For items of work, where acceptance is delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

**1.05 SUBMITTALS REQUIRED**

- A. Submit warranties, bonds, service and maintenance contracts as specified in respective sections of Specifications.
- B. Approval by the Owner of all documents required under this section is a pre-requisite to requesting a final inspection and final payment

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**DIVISION 02**  
**SITE WORK**

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**SECTION 02064**

**MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

Furnish all labor, materials, equipment and incidentals required to modify, alter and/or convert existing structures as shown or specified and as required for the installation of piping, mechanical equipment and appurtenances. Existing piping and equipment shall be removed and dismantled as necessary for the performance of facility alterations in accordance with the requirements herein specified.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 GENERAL**

- A. The Contractor shall cut, repair, reuse, excavate, demolish or otherwise remove parts of the existing structures or appurtenances, as indicated on the Contract Drawings, herein specified, or necessary to permit completion of the work under this Contract. The Contractor shall dispose of surplus materials resulting from the above work in an approved manner. The work shall include all necessary cutting and bending of reinforcing steel, structural steel, or miscellaneous metal work found embedded in the existing structures.
- B. The Contractor shall dismantle and remove all existing equipment, piping, and other appurtenances required for the completion of the work. Where called for or required, the contractor shall cut existing pipelines for the purpose of making connections thereto. Anchor bolts for equipment and structural steel removed shall be cut off one inch below the concrete surface. Surface shall be finished as specified in the Contract Documents.
- C. At the time that a new connection is made to an existing pipeline, additional new piping, extending to and including a new valve, shall be installed. Pipe anchorage, if required, shall also be installed as directed by the Engineer.
- D. No existing structure, equipment, or appurtenance shall be shifted, cut, removed, or otherwise altered except

with the express approval of and to the extent approved by the Engineer.

- E. When removing materials or portions of existing utility pipelines and/or structures or when making openings in walls and partitions, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work, and not to damage the structures or contents by falling or flying debris. Unless otherwise permitted, line drilling will be required in cutting existing concrete.
- F. Materials and equipment removed in the course of making alterations and additions shall remain the property of the Owner, except that items not salvageable, as determined by the Engineer and the Owner, shall become the property of the Contractor to be disposed of by him off the work site at his own place of disposal. Operating equipment shall be thoroughly cleaned, lubricated, and greased for protection during prolonged storage.
- G. All alterations to existing utility pipes and structures shall be done at such time and in such manner as to comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.
- H. All workmanship and new materials involved in constructing the alterations shall conform to the General Specifications for the classes of work insofar as such specifications are applicable.
- I. All cutting of existing concrete or other material to provide suitable bonding to new work shall be done in a manner to meet the requirements of the respective section of these Specifications covering the new work. When not covered, the work shall be carried on in the manner and to the extent directed by the Resident Project Representative.
- J. Surfaces of seals visible in the completed work shall be made to match as nearly as possible the adjacent surfaces.
- K. Non-shrink grout shall be used for setting wall castings, sleeves, leveling pump bases, doweling anchors into existing concrete and elsewhere as shown.
- L. Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where

required, he shall use flanges, or provide Dresser Couplings, all as required.

- M. The Contractor shall provide flumes, hoses, piping and other related items to divert or provide suitable plugs, bulkheads, or other means to hold back the flow of water or other liquids, all as required in the performance of the work under this Contract.
- N. Care shall be taken not to damage any part of existing buildings or foundations or outside structures.

**3.02 CONNECTING TO EXISTING PIPING AND EQUIPMENT**

The Contractor shall verify exact location, material, alignment, joint, etc. of existing piping and equipment prior to making the connections called out in the Drawings. The verifications shall be performed with adequate time to correct any potential alignment or other problems prior to the actual time of connection. A Manatee County representative must be present for all tie-ins for a visual inspection.

**3.03 REMOVAL AND ABANDONMENT OF ASBESTOS CEMENT PIPE AND APPURTENANCES**

- A. All work associated with the removal or abandonment of existing asbestos cement pipe and appurtenances shall be performed by a licensed asbestos abatement contractor or subcontractor registered in the State of Florida.
- B. The asbestos abatement contractor or subcontractor shall contact the appropriate regulatory agencies prior to removal or abandonment of any asbestos material and shall obtain all required permits and licenses and issue all required notices. The Contractor shall be responsible for all fees associated with permits, licenses and notices to the governing regulatory agencies.
- C. All work associated with removal or abandonment of asbestos cement pipe and appurtenances shall be performed in accordance with the standards listed below and all other applicable local, State, or Federal standards.
  - 1. Florida Administrative Code, Chapter 17-251, "Asbestos".
  - 2. National Emission Standards Hazardous Air Pollution (NESHAP), 40 CFR, Part 61, Subpart M, latest revision.
  - 3. Occupational Safety and Health Act, 29 CFR
  - 4. The Environmental Protection Agency (EPA) Asbestos Abatement Worker Protection Rule.
  - 5. Florida Statute 455.300.

### **3.04 ASBESTOS CEMENT PIPE REMOVAL**

- A. All asbestos cement pipe sections shown on the Drawings to be removed, and all related valves, fittings and appurtenances shall be removed in their entirety and disposed of by the Contractor in accordance with this Section. After removal of the facilities, all trenches shall be backfilled in accordance with the Contract Documents. The cost of disposing of the removed materials shall be borne by the Contractor.
- B. The Contractor shall make necessary provisions for the Engineer's representative to monitor all removal operations.
- C. The cutting of existing asbestos-cement (A/C, aka "Transite") pipe shall be by hand saw only. No machine cutting shall be allowed. Removal of all portions of pipe shall be double bagged prior to shipment. Longer sections of pipe removed may be shipped without double bagging. An asbestos manifest form must accompany each and every shipment of such pipe or pipe material waste to the Manatee County Lena Road Landfill. Prior to each shipment, a minimum of 24 hours notice to the Landfill field office (Phone #748-5543) is required.

### **3.05 IN-PLACE GROUTING OF EXISTING PIPE**

- A. Where water and wastewater utility pipes are to be abandoned in place, they shall be filled with a sand/cement grout as specified herein. When such pipes are constructed with asbestos cement materials, the abandonment activities shall be performed by a licensed asbestos abatement contractor as specified in these Specifications.
- B. Grout shall be injected within the pipe sections indicated on the Drawings. The ends of these sections shall be capped and/or plugged. The grouting program shall consist of pumping sand-cement grout with suitable chemical additives at pressures necessary to fill the pipe sections shown on the Drawings to prevent the potential for future collapse.
- C. The pump used for grouting should be a continuous flow, positive displacement model with a pugmill type mixing vat having a minimum shaft speed of 60 rpm and incorporated as an integral part of the equipment. Alternate equipment may be used subject to the approval of the Engineer. The rate of pumping shall not exceed six (6) cubic feet per minute. The pumping pressures shall be in the range of 100 to 150 psi.
- D. The Contractor shall provide standpipes and/or additional means of visual inspection as required by the Engineer to

determine if adequate grout material has filled the entire pipe section(s). The Contractor shall make necessary provisions for the Engineer's representative to monitor all grouting operations.

- E. All pipe to be abandoned shall be capped or plugged with a fitting or material that will prevent soil or other material from entering the pipe. All caps and plugs shall be subject to approval by the Engineer.

**END OF SECTION**

**SECTION 02100**

**SITE PREPARATION**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. This Section covers clearing, grubbing and stripping of the project site and/or along the pipeline route.
- B. The Contractor shall clear and grub all of the area within the limits of construction or as required, which includes, but is not limited to utility easements. The width of the area to be cleared shall be reviewed by the Engineer prior to the beginning of any clearing.
- C. The Contractor's attention is directed to any Soil Erosion and Sediment Control Ordinances in force in Manatee County. The Contractor shall comply with all applicable sections of these ordinances.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION**

**3.01 CLEARING**

The surface of the ground, for the area to be cleared and grubbed shall be completely cleared of all timber, brush, stumps, roots, grass, weeds, rubbish and all other objectionable obstructions resting on or protruding through the surface of the ground. However, trees shall be preserved as hereinafter specified unless otherwise designated by the Engineer. Clearing operations shall be conducted so as to prevent damage to existing structures and installations and to those under construction, so as to provide for the safety of employees and others. Soil erosion control devices such as hay bales and silt fences shall be installed to satisfy all Federal, State and County requirements.

**3.02 GRUBBING**

Grubbing shall consist of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs and any other organic or metallic debris not suitable for foundation purposes, resting on, under or protruding through the surface of the ground to a depth of 18 inches below the subgrade. All depressions excavated below the original ground surface for or by the removal of such objects, shall be refilled with

suitable materials and compacted to a density conforming to the surrounding ground surface.

**3.03 STRIPPING**

In areas so designated, topsoil shall be stockpiled. Topsoil so stockpiled shall be protected until it is placed as specified. The Owner shall have the option to receive all excess topsoil materials. The Contractor shall pay all equipment and labor cost to deliver excess top soil material to a remote site chosen by the Owner within a five mile radius of the construction site. Should Owner not choose to receive any or all excess topsoil materials, the Contractor shall dispose of said material at no additional cost to Owner.

**3.04 DISPOSAL OF CLEARED AND GRUBBED MATERIAL**

The Contractor shall dispose of all material and debris from the clearing and grubbing operation by hauling such material and debris off site. The cost of disposal (including hauling) of cleared and grubbed material and debris shall be considered a subsidiary obligation of the Contractor; the cost of which shall be included in the prices bid for the various classes of work.

**3.05 PRESERVATION OF TREES**

Those trees which are not designated for removal by the Engineer shall be carefully protected from damage. The Contractor shall erect such barricades, guards and enclosures as may be considered necessary by him for the protection of the trees during all construction operation.

**3.06 PRESERVATION OF DEVELOPED PRIVATE PROPERTY**

- A. The Contractor shall exercise extreme care to avoid unnecessary disturbance of developed private property adjacent to proposed project site. Trees, shrubbery, gardens, lawns and other landscaping, which are not designated by the Engineer to be removed, shall be replaced and replanted to restore the construction easement to the condition existing prior to construction.
- B. All soil preservation procedures and replanting operations shall be under the supervision of a nursery representative experienced in such operations.
- C. Improvements to the land such as fences, walls, outbuildings and other structures which of necessity must be removed, shall be replaced with equal quality materials and workmanship.
- D. The Contractor shall clean up the construction site across

developed private property directly after construction is completed upon approval of the Engineer.

3.07

**PRESERVATION OF PUBLIC PROPERTY**

The appropriate paragraphs of these Specifications shall apply to the preservation and restoration of public lands, parks, rights-of-way, easements and all other damaged areas. This includes, but is not limited to the trimming of trees damaged by contractor's equipment.

**END OF SECTION**

**SECTION 02220**

**EXCAVATION, BACKFILL, FILL AND GRADING FOR STRUCTURES**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. Structural excavation shall consist of the removal of material for the construction of foundations for structures and other excavation designated on the drawings or in these specifications.
- B. Structural excavation and backfill shall consist of furnishing material, if necessary and placing and compacting backfill material around structures to the lines and grades designated on the drawings, as specified or directed by the Engineer.
- C. Structural excavation and backfill shall include the furnishing of all materials, equipment and other facilities which may be necessary to perform the excavations, place and compact the backfill, install sheeting and bracing, and carry out any necessary dewatering. It shall also include the wasting or disposal of surplus excavated material in a manner and in locations approved by the Engineer.
- D. The Contractor is responsible for the protection of every tree which is scheduled to remain in the project area. This includes trees which may or may not be shown on the plans. Every tree shall be adequately protected in place at no additional cost to the County. This includes, but is not limited to, protecting the root systems and adjusting grades as necessary for tree/root protection.

**1.02 QUALITY ASSURANCE**

- A. Testing Agency:
  - 1. In place soil compaction tests shall be performed by a qualified testing laboratory.
  - 2. Compaction tests shall be taken every 500 feet, except in the road crossings or road shoulders. Tests are to be taken according to current FDOT Standards.
- B. Reference Standards:
  - 1. American Society for Testing and Materials (ASTM):

- a. ASTM D1557, Moisture-Density Relations of Soils Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop.

**1.03 JOB CONDITIONS**

- A. The Contractor shall provide, operate and maintain all necessary pumps, discharge lines, well points, etc., in sufficient number and capacity to keep all excavation, bases, pits, etc., free from seepage, sanding or running water at all times throughout the period of construction.
- B. The Contractor shall assume all responsibility for the security of the excavation required, employing bracing, lining or other accepted means necessary to accomplish same.
- C. Excavated areas shall be cleared of all debris, water, slush, muck, clay and soft or loose earth and shall be conditioned to the entire satisfaction of the Engineer.
- D. All excavated material unsuitable for use or which will not be used shall be disposed of in a manner consistent with State and County regulation.
- E. All unsuitable organic materials, roots, logs, etc., found during excavation shall be removed by the Contractor and the trench shall be refilled with suitable material.

**PART 2 PRODUCTS**

**2.01 MATERIAL FOR CONTROLLED FILL**

- A. Composition: Only approved material free from organic matter and lumps of clay, shall be used for backfill. Excavated earth free from debris or organic material may be used for backfilling foundations or fill.
- B. Crushed stone and shell shall meet or exceed current FDOT Standards.

**2.02 UNSUITABLE MATERIAL**

Unsuitable material shall be defined as highly organic soil per ASTM D2487 Group PT. This includes, but is not limited to, such items as topsoil, roots, vegetable matter, trash, debris, and clays that cannot be dried sufficiently to obtain specified compaction.

**PART 3 EXECUTION**

**3.01 INSPECTION**

- A. The Contractor shall verify that work preceding the affected work of this Section has been satisfactorily completed.
- B. Conditions adversely affecting the work of this Section shall be corrected to the satisfaction of the Engineer.

**3.02 REMOVAL OF UNSUITABLE MATERIALS**

- A. The Contractor shall remove unsuitable material from within the limits of the Work.
- B. Materials meeting requirements for controlled fill shall be stockpiled as necessary and in such a manner satisfactory to the Engineer.
- C. All material excavated shall be placed so as to minimize interference with public travel and to permit proper access for inspection of the work.

**3.03 EXCAVATION**

- A. When concrete or shell subbase footing is to rest on an excavated surface, care shall be taken not to disturb the natural soil. Final removal and replacement of the foundation material and subbase compaction to grade shall not be made until just before the concrete or masonry is placed.
- B. When any structural excavation is completed, the Contractor shall notify the Engineer who will make an inspection of the excavation. No concrete or masonry shall be placed until the excavation has been approved by the Engineer.
- C. The elevations of the footing bottom and the base slab as shown on the Drawings, shall be considered as approximate and the Engineer may order in writing, such changes in dimensions or elevations of the footings and slab base as necessary to secure satisfactory foundations.
- D. All excavation shall be made within an area bounded by lines five feet outside and parallel to the exterior walls of the structure to allow for correct forming, shoring and inspection of foundation work. Pouring of concrete against earth side walls shall not be permitted.
- E. If the ground is excavated below the grade called for by the Drawings or becomes unstable due to the Contractor's carelessness or operations, the ground shall be excavated

to undisturbed native soil before continuing concreting operations.

- F. If in the opinion of the Engineer, the material at or below the normal grade of the bottom of the trench is unsuitable for pipe or structure foundation, it shall be removed to the depth directed by the Engineer and if so directed, replaced by crushed stone or washed shell.

### **3.04 STRUCTURAL BACKFILL**

- A. Structural backfill shall not be placed until the footings or other portions of the structure or facility have been inspected by the Engineer and approved for backfilling.
- B. A minimum of 1-1/2" layer of lean concrete shall be placed as a working mat for the concrete base slabs and footings.
- C. Fill shall be placed in uniform layers not more than 12" thick and compacted to a minimum of 98 percent of the maximum density determined by ASTM D1557, Method A or C, or as directed by the Engineer. The Contractor shall securely tamp the backfill with pneumatic rammer around all wall foundations. The method of compaction shall be satisfactory to the Engineer.
- D. Compaction of structural backfill by ponding and jetting shall be permitted when, as determined by the Engineer: the backfill material is of such character that it will be self-draining when compacted; foundation materials will not soften or be otherwise damaged by the applied water; no damage from hydrostatic pressure will result to the structure. Ponding and jetting within two feet below finished subgrade shall not be permitted in roadway areas. At the discretion of the Engineer, ponding and jetting may be permitted with compaction layers not to exceed four feet. The work shall be performed without damage to the structure or embankment and in such a manner that water will not be impounded.
- E. Surplus material not used on-site shall be removed and disposed of off-site by the Contractor. In no case shall surplus material be deposited on adjacent lands. Fill used for grading shall be placed in layers not to exceed 12 inches in thickness and shall be compacted to a density equal or greater to that of the surrounding natural ground.

### **3.05 BACKFILLING AROUND STRUCTURES**

- A. Common fill and structural fill are specified for use as backfill against the exterior walls of the structures. Fill shall be placed in layers having a maximum thickness of eight (8) inches in loose state and shall be compacted sufficiently to prevent settlement. If compaction is by rolling or ramming, material shall be wetted down as

required. Where material can be suitably compacted by jetting or puddling, the Contractor shall use one of these methods. No boulders shall be allowed to roll down the slopes and hit the walls.

- B. Backfilling shall be carried up evenly on all walls of an individual structure simultaneously. A variation of two (2) feet in elevation will be the maximum allowable. No backfill shall be allowed against walls until the walls and their supporting slabs, if applicable, have attained sufficient strength. Backfilling shall be subjected to approval by the Engineer.
- C. In locations where pipes pass through building walls, the Contractor shall take the following precautions to consolidate the refill up to an elevation of at least one foot above the bottom of the pipes:
  - 1. Place structural fill in such areas for a distance of not less than three feet either side of the center line of the pipe in level layers not exceeding 6-inches in depth.
  - 2. Wet each layer to the extent directed and thoroughly compact each layer with a power tamper to the satisfaction of the Engineer.
  - 3. Structural fill shall be of the quality specified under Part 2 of this Section.
- D. The surface of filled areas shall be graded to smooth true lines, strictly conforming to grades indicated on the grading plan. No soft spots or uncompacted areas shall be allowed in the work.
- E. Temporary bracing shall be provided as required during construction of all structures to protect partially completed structures against all construction loads, hydraulic pressure and earth pressure. The bracing shall be capable of resisting all loads applied to the walls as a result of backfilling.

**3.06 FIELD QUALITY CONTROL**

- A. The density of soil in place shall be a minimum of 98 percent in accordance with ASTM test 1557-70T, Method A or C.

**END OF SECTION**

**SECTION 02260**

**FINISH GRADING**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A. The Contractor shall finish grade sub-soil.
- B. The Contractor shall cut out areas to receive stabilizing base course materials for paving and sidewalks.
- C. The Contractor shall place, finish grade and compact top soil.

**1.02 PROTECTION**

The Contractor shall prevent damage to existing fencing, trees, landscaping, natural features, bench marks, pavement and utility lines. Damage shall be corrected at no cost to the Owner.

**PART 2 PRODUCTS**

- A. Topsoil: Shall be friable loam free from subsoil, roots, grass, excessive amount of weeds or other organics, stones, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of 4 percent and a maximum of 25 percent organic matter. The Contractor may use topsoil stockpiles on site if they conform to these requirements.

**PART 3 EXECUTION**

**3.01 SUB-SOIL PREPARATION**

- A. The Contractor shall rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Uneven areas and low spots shall be eliminated. Debris, roots, branches or other organics, stones, and sub-soil shall be removed by the Contractor and disposed of in a manner consistent with the latest Manatee County Standards as well as any affected regulatory agency. Should contaminated soil be found, the Contractor shall notify the Engineer.
- B. The Contractor shall cut out areas to sub-grade elevation to stabilize base material for paving and sidewalks.
- C. The Contractor shall bring sub-soil to required profiles and contour grades gradually; and blend slopes into level

areas.

- D. The Contractor shall slope the structure grade a minimum of two (2) inches in ten (10) feet unless indicated otherwise on the Drawings.
- E. The Contractor shall cultivate sub-grade to a depth of 3 inches where the topsoil is to be placed. He shall repeat cultivation in areas where equipment use has compacted sub-soil.
- F. The Contractor shall not make grade changes which causes water to flow onto adjacent lands.

**3.02 PLACING TOPSOIL**

- A. The Contractor shall place topsoil in areas where seeding, sodding and planting is to be performed. He shall place from the following minimum depths, up to finished grade elevations:
  - 1. 6 inches for seeded areas
  - 2. 4-1/2 inches for sodded areas
  - 3. 24 inches for shrub beds
  - 4. 18 inches for flower beds
- B. The Contractor shall use topsoil in a dry state as determined by the Engineer. He shall place the material during dry weather.
- C. The Contractor shall use fine grade topsoil eliminating rough and low areas to ensure positive drainage. He shall maintain levels, profiles and contours of the sub-grades.
- D. The Contractor shall remove stone, roots, grass, weeds, debris, and other organics or foreign material while spreading the material.
- E. The Contractor shall manually spread topsoil around trees, plants and structures to prevent damage which may be caused by grading equipment.
- F. The Contractor shall lightly compact and place the topsoil.

**3.03 SURPLUS MATERIAL**

- A. The Contractor shall remove surplus sub-soil and topsoil from site at his expense.
- B. The Contractor shall leave stockpile areas and entire job site clean and raked, ready for landscaping operations.

**END OF SECTION**

**SECTION 02276**

**TEMPORARY EROSION AND SEDIMENTATION CONTROL**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. The work specified in this Section consists of the design, provision, maintenance and removal of temporary erosion and sedimentation controls as necessary.
- B. Temporary erosion controls include, but are not limited to: grassing, mulching, netting, watering, and the reseeded of on-site surfaces and spoil and borrow area surfaces, interceptor ditches at ends of berms and other such work at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the Owner/Engineer.
- C. Temporary sedimentation controls include, but are not limited to: silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which shall ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the Owner/Engineer.
- D. The Contractor is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

**1.02 REFERENCE DOCUMENTS**

- A. South Florida Building Code and Standard Building Code.
- B. FDEP/COE Dredge and Fill Regulations and/or Permit as applicable.
- C. SWFWMD Permit Regulations and/or Permit as applicable.
- D. Florida Stormwater, Erosion and Sedimentation Control Inspector's Manual.

**PART 2 PRODUCTS**

**2.01 EROSION CONTROL**

- A. Netting - fabricated of material acceptable to the Owner.
- B. Seed and sod.

**2.02 SEDIMENTATION CONTROL**

- A. Bales - clean, seedfree cereal hay type.
- B. Netting - fabricated of material acceptable to the Owner.
- C. Filter stone - crushed stone conforming to Florida Dept of Transportation specifications.
- D. Concrete block - hollow, non-load-bearing type.
- E. Concrete - exterior grade not less than one inch thick.

**PART 3 EXECUTION**

**3.01 EROSION CONTROL**

- A. Minimum procedures for grassing shall be:
  - 1. Scarify slopes to a depth of not less than six inches and remove large clods, rock, stumps, roots larger than 1/2 inch in diameter and debris.
  - 2. Sow seed within twenty-four (24) hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.
  - 3. Apply mulch loosely and to a thickness of between 3/4-inch and 1-1/2 inches.
  - 4. Apply netting over mulched areas on sloped surfaces.
  - 5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

**3.02 SEDIMENTATION CONTROL**

- A. The Contractor shall install and maintain silt dams, traps, barriers, and appurtenances as shown on the approved descriptions and working drawings. Deteriorated hay bales and dislodged filter stone shall be replaced by the Contractor at his expense.

**3.03 PERFORMANCE**

- A. The Contractor, at his own expense, shall immediately take whatever steps are necessary to correct any deficiencies of the temporary erosion and sediment control measures employed if they fail to produce results or do not comply with the requirements of the State of Florida or any other federal, governmental or regulatory agency.

**END OF SECTION**

## SECTION 02366

### TEMPORARY STEEL SHEET PILES

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Extent of Work of this Section includes temporary steel sheet piles and batter HP piles as indicated on the Drawings.

##### 1.02 RELATED WORK

- A. Section 05120 - Structural Steel

##### 1.03 QUALITY ASSURANCE

- A. Reference Standards:
  - 1. All materials and/or operations specified by reference to the published specifications of a manufacturer, The American Society for Testing and Materials (ASTM), American Welding Society (AWS), Steel Structures Painting Council (SSPC) and/or other published standards shall comply with requirements of the current specification standard listed.
- B. Qualifications for Welding Work:
  - 1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."
  - 2. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests within previous twelve (12) months.
    - a. If re-certification of welders is required, re-testing will be Contractor's responsibility.

##### 1.04 SUBMITTALS

- A. Shop Drawings:
  - 1. Detailed shop drawings shall be prepared for this Work to include details of top protection, lagging, splices, fabricated additions to plain piles and driving, cut-off method, and extraction.

2. Shop drawings for steel sheet piling and batter HP piles including fabricated sections shall show complete dimensions including minimum section properties and details of piling and the driving sequence and location of piling. Include details and dimensions of templates and other temporary guide structures for installing the piling. Provide details of the method for handling piling to prevent permanent deflection, distortion or damage to piling interlocks.
3. Submit a plan for extraction of piles and related materials after the Work is complete.

**B. Pile Driving Equipment Description:**

1. Submit descriptions of pile driving equipment to be employed in this Work to the Design and Specialty Engineer for review. Description information shall include manufacturer's name, model numbers, capacity, rated energy, hammer details, cushion material, helmet and templates.

**C. Certified Test Reports:**

1. Materials Test Certificates: Submit for each shipment, certificates identified with specific lots prior to installing piling. Identification data shall include piling type, dimensions, chemical composition, mechanical properties, section properties, heat number, and mill identification mark.

**D. Alternate Construction Method:**

1. If the Contractor requests an alternate construction method, submit design calculations, methods of construction, and detail drawings all bearing the seal of a Professional Engineer currently licensed in the State of Florida.

**1.05 DELIVERY, STORAGE AND HANDLING**

- A.** Handle piling using handling holes or lifting devices. Handle long length piles with care to prevent damage. Support on level blocks or racks spaced not more than 10-feet apart and not more than 2-feet from the ends. Supports between multiple lifts shall be in a vertical plane. Protect piling to prevent damage prior to installation.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

#### **A. Steel Sheet Piling:**

1. Basis of Design: Arbed, Skyline Steel, or approved equal, heavy gauge, hot-rolled steel sheet piling conforming to the requirements shown on the Drawings.
2. Interlocks of steel sheet piling shall; be free-sliding, allow a swing angle of at least 5-degrees when threaded, and maintain continuous interlocking when installed.
3. Steel sheet piling shall be sections of the dimensions indicated. Fabricated sections shall conform to the requirements specified herein and piling manufacturer's recommendations for fabricated sections.
4. Provide sheet piling with standard pulling holes.

#### **B. Structural Steel Wales, Steel HP Shaped Piles, HSS Bracing and Other Items:**

1. Structural steel wales, steel HP shaped piles, HSS bracing, tie rods, plates for splices, and other fabricated appurtenances shall conform to the requirements shown on the Drawings.

## **PART 3 - EXECUTION**

### **3.01 EARTHWORK AND WATER REMOVAL**

- A. Perform all required earthwork operations in accordance with requirements shown on Drawings. Pre-excavation may be required.
- B. Remove water as indicated on the Drawings.

### **3.02 ALIGNMENT AND SUPPORT**

#### **A. Templates:**

1. Prior to driving, provide templates or driving frame suitable for aligning, supporting, and maintaining piling in the correct position during setting and driving. Use a system of structural framing sufficiently rigid to resist lateral and driving forces and to adequately support the piling until design tip elevation is achieved. Provide as a minimum, two (2) levels of support, at

third points.

2. Templates shall not move when supporting piling. Fit templates with wood blocking to bear against the web of each alternate sheet pile and hold the sheet pile at the design location alignment. Mark template for the location of the leading edge of each alternate sheet pile. If in view, also mark the second level to assure that the piles are in proper position. If two guide marks cannot be seen, other means shall be used to keep the pile in proper position.

### 3.03 INSTALLATION

#### A. Pile Hammer:

1. Use a pile hammer having a delivered force or energy suitable for the total weight of the pile and the character of subsurface material to be encountered. Operate hammer at the rate(s) recommended by the manufacturer throughout the driving period. Repair damage to piling caused by use of a pile hammer with excessive delivered force or energy.

#### B. Pile Protection:

1. Use a protecting cap during driving to prevent damage to the top of the piling.

#### C. Pile Driving:

1. Maintain sheet piling vertical during driving. Maintain batter piles as indicated on the Drawings. Drive piles in such a manner as to prevent damage to the piles and to pile protective coating, and to provide a continuous closure. Where possible, drive Z-pile with the ball end leading. If an open socket is leading, a bolt or similar object placed in the bottom of the interlock will minimize packing material into it and ease driving for the next sheet.
2. Incrementally sequence driving of individual piles such that the tip of any sheet pile is not more than 4-feet below that of any adjacent sheet pile. When the penetration resistance exceeds five (5) blows per inch, the tip of the sheet pile shall not be more than 2-feet below any adjacent sheet pile.

#### D. Cutting and Splicing:

1. Piles driven to refusal or to the point where additional penetration cannot be attained and are extending above the required top elevation in excess of the specified tolerance, shall be cut off to the required elevation.

2. Piles driven below the tip elevation indicated resulting in top elevation falling below that required, and piles damaged by driving and cut off to permit further driving shall be extended as required to reach the top elevation by splicing. Splice piles as necessary to drive them to depths greater than shown on Drawings and extend them up to the required top elevation.
3. Piles adjoining spliced piles shall be full length unless otherwise approved.
4. Welding of splices shall conform to the requirements of AWS D1.1.
5. Ends of piles to be spliced shall be squared before splicing to eliminate dips or camber. Splice piles with concentric alignment of the interlocks so that there are no discontinuities, dips or camber at the abutting interlocks. Spliced piles shall be free sliding and able to obtain the maximum swing with contiguous piles.
6. Trim the tops of piles excessively battered during driving. Use a straight edge in cutting by burning to avoid abrupt nicks. Bolt holes shall be drilled or burned and reamed by approved methods which will not damage the surrounding metal.
7. DO NOT use explosives for cutting.
8. Holes shall be reasonably smooth and the proper size for rods or other items to be inserted. Make holes watertight by welding steel plates over the holes after the piling installation is completed.
9. Pile cut-offs shall become the property of the Contractor and shall be removed from the Site.

E. Pile Extraction:

1. Extract piles and related materials as shown in the approved extraction plans.
2. All extracted piles and related materials shall become property of the Contractor and shall be removed from the Site.

### 3.04 FIELD QUALITY CONTROL

A. Tolerances in Driving:

1. Drive all piles with a variation from vertical or battered (as indicated on the Plans) of not more than 1/4-inch per foot, maintained at 1-inch in 10-feet, or a maximum of 4-inches measured when the piles are above ground. Place the pile so that the face will not be more than 4-inches from alignment at any

point. Top of pile at elevation of cut-off shall be within 1/2-inch horizontally and 2-inches vertically of the location indicated. Manipulation of piles to force them into position is not permitted. Check all piles for heave. Redrive all heaved piles to the required tip elevation.

B. Batter Piles:

1. Provide methods to prevent deflection of battered piles due to their own weight and to maintain their as-driven position until connection to the wale beam as shown on the Drawings is complete.

C. Inspection:

1. Perform continuous inspection during pile driving. Inspect all piles for compliance with tolerance requirements. Bring any unusual problems which may occur to the attention of the Engineer.
2. Inspection of Driven Piling: Inspect the interlocks of the portion of driven piles that extend above ground. Remove and replace piles found to be out of interlock.

D. Underground Utilities, Embankment, and Existing Structures:

1. Verify locations of all underground utilities before driving all piling. Disturbance and/or damage to existing structures, embankment, utilities or other property caused by temporary sheet piling operations shall be repaired and/or replaced by the Contractor in a manner satisfactory to the Owner at no additional cost.

**END OF SECTION**

**SECTION 02485**

**SEEDING AND SODDING**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. The Contractor shall furnish all labor, materials and equipment necessary to satisfactorily return all construction areas to their original conditions or better.
- B. Work shall include furnishing and placing seed or sod, fertilizing, planting, watering and maintenance until acceptance by Engineer/Owner.

**1.02 RELATED WORK NOT INCLUDED**

- A. Excavation, filling and grading required to establish elevation shown on the Drawings are included under other sections of these Specifications.

**1.03 QUALITY ASSURANCE**

- A. Requirements

It is the intent of this Specification that the Contractor is obliged to deliver a satisfactory stand of grass as specified. If necessary, the Contractor shall repeat any or all of the work, including grading, fertilizing, watering and seeding or sodding at no additional cost to the Owner until a satisfactory stand is obtained. For purposes of grassing, a satisfactory stand of grass is herein defined as a full lawn cover over areas to be sodded or seeded, with grass free of weeds, alive and growing, leaving no bare spots larger than 3/4 square yard within a radius of 8 feet.

All previously grassed areas where pipelines are laid shall be sodded. All sodding and grassing shall be installed in accordance with these Specifications or as directed by the Engineer.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Fertilizer

The fertilizer shall be of the slow-release type meeting the following minimum requirements: 12 percent nitrogen, 8 percent phosphorus, 8 percent potassium; 40 percent

other available materials derived from organic sources. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or other container. Fertilizer shall be uniform in composition, dry and free flowing delivered to sites in original unopened containers bearing manufacturer's statement or guarantee.

B. Seeding/Grassing

The Contractor shall grass all unpaved areas disturbed during construction which do not require sod. All grassing shall be completed in conformance with FDOT Specifications, Sections 570 and 981. The grassed areas shall be mulched and fertilized in accordance with FDOT Specifications, except that no additional payment will be made for mulching, fertilizing and/or watering.

C. Sodding

Sod shall be provided as required on the construction drawings or at locations as directed by the Engineer in accordance with Florida Department of Transportation, Specifications Section 575 and 981. The Contractor shall furnish bahia grass sod or match existing sod. Placement and watering requirements shall be in accordance with FDOT Specifications Section 575, except that no additional payment will be made for placement and/or watering. This cost shall be included in the Contract price bid for sodding.

D. Topsoil

Topsoil stockpiled during excavation may be used as necessary. If additional topsoil is required to replace topsoil removed during construction, it shall be obtained off site at no additional cost to the Owner. Topsoil shall be fertile, natural surface soil, capable of producing all trees, plants and grassing specified herein.

E. Water

It is the Contractor's responsibility to supply all water to the site, as required during seeding and sodding operations and through the maintenance period and until the work is accepted. The Contractor shall make whatever arrangements that may be necessary to ensure an adequate supply of water to meet the needs for his work. He shall also furnish all necessary hose, equipment, attachments and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful

to plant life.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

A. When the trench backfill has stabilized sufficiently, the Contractor shall commence work on lawns and grassed areas, including fine grading as necessary and as directed by the Engineer.

B. Finish Grading

Areas to be seeded or sodded shall be finish graded, raked, and debris removed. Soft spots and uneven grades shall be eliminated. The Engineer shall approve the finish grade of all areas to be seeded or sodded prior to seed or sod application.

C. Protection

Seeded and sodded areas shall be protected against traffic or other use by placing warning signs or erecting barricades as necessary. Any areas damaged prior to acceptance by the Owner shall be repaired by the Contractor as directed by the Engineer.

**3.02 CLEANUP**

Soil or similar materials spilled onto paved areas shall be removed promptly, keeping those areas as clean as possible at all times. Upon completion of seeding and sodding operations, all excess soil, stones and debris remaining shall be removed from the construction areas.

**3.03 LANDSCAPE MAINTENANCE**

Any existing landscape items damaged or altered during construction by the Contractor shall be restored or replaced as directed by the Engineer.

Maintain landscape work for a period of 90 days immediately following complete installation of work or until Owner accepts project. Watering, weeding, cultivating, restoration of grade, mowing and trimming, protection from insects and diseases, fertilizing and similar operations as needed to ensure normal growth and good health for live plant material shall be included at no additional cost to the Owner.

3.04

**REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S  
OPERATORS**

Lawn areas planted under this Contract and all lawn areas damaged by the Contractor's operation shall be repaired at once by proper soil preparation, fertilizing and sodding, in accordance with these Specifications.

**END OF SECTION**

**SECTION 02513**

**ASPHALT CONCRETE PAVING**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

The Contractor shall furnish all labor, materials and equipment necessary to complete all milling asphalt pavement and asphalt concrete paving as called out on the Contract Documents or as shown on the Drawings.

**1.02 QUALITY ASSURANCE**

- A. Qualifications of Asphalt Concrete Producer: The only materials permitted shall be furnished by a bulk asphalt concrete producer exclusively engaged in the production of hot-mix, hot-laid asphalt concrete.
- B. Qualification of Testing Agency: The Owner may employ a commercial testing laboratory to conduct tests and evaluations of asphalt concrete materials and design. The Contractor shall:
  - 1. Provide asphalt concrete testing and inspection service acceptable to Engineer.
  - 2. Include sampling and testing asphalt concrete materials proposed, and tests and calculations for asphalt concrete mixtures.
  - 3. Provide field testing facilities for quality control testing during paving operations.
- C. Requirements of Regulatory Agencies: The Contractor shall comply with the applicable requirements of:
  - 1. Manatee County Utility Operations Department
  - 2. Manatee County Transportation Department
  - 3. State of Florida Dept. of Transportation

**1.03 PAVING QUALITY REQUIREMENTS**

- A. General: In addition to other specified conditions, the Contractor shall comply with the following minimum requirements:
  - 1. In-place asphalt concrete course shall be tested for compliance with requirements for density, thickness and surface smoothness.
  - 2. Final surface shall be provided of uniform texture, conforming to required grades and cross sections.
  - 3. A minimum of four inch diameter pavement specimens for each completed course shall be taken from

- locations as directed by the Engineer.
4. Holes from test specimens shall be repaved as specified for patching defective work.

B. Density:

1. When subjected to 50 blows of standard Marshall hammer on each side of an in place material specimen, densities shall be comparable to a laboratory specimen of same asphalt concrete mixture.
2. The minimum acceptable density of in-place course material shall be 98% of the recorded laboratory specimen density.

C. Thickness: In-place compacted thicknesses shall not be acceptable if less than the minimum thicknesses shown on the Drawings.

D. Surface Smoothness:

1. Finished surface of each asphalt concrete course shall be tested for smoothness, using a 10 ft. straightedge applied parallel to and at right angles to centerline of paved areas.
2. Surface areas shall be checked at intervals directed by Engineer.
3. Surfaces shall not be acceptable if they exceed the following:
  - a. Base Course: 1/4 in. in 10 ft.
  - b. Surface Course: 3/16 in. in 10 ft.
  - c. Crowned Surfaces:
    - (1) Test crowned surfaces with a crown template, centered and at right angles to the crown.
    - (2) Surfaces will not be acceptable if varying more than 1/4 in. from the template.

**1.04 SUBMITTALS**

- A. Samples: The Contractor shall provide samples of materials for laboratory testing and job-mix design.
- B. Test Reports: The Contractor shall submit laboratory reports for following materials tests:
  1. Coarse and fine aggregates from each material source and each required grading:
    - a. Sieve Analysis: ASTM C 136 (AASHTO T 27).
    - b. Unit Weight of Slag: ASTM C29 (AASHTO T 19).
    - c. Soundness: ASTM C 88 (AASHTO T 104) for

- surface course aggregates only.
  - d. Sand Equivalent: ASTM D 2419 (AASHTO T 176).
  - e. Abrasion of Coarse Aggregate: ASTM C131 (AASHTO T 96), for surface course aggregates only.
2. Asphalt cement for each penetration grade:
- a. Penetration: ASTM D5 (AASHTO T49).
  - b. Viscosity (Kinematic): ASTM D2170 (AASHTO T 201).
  - c. Flash Point: ASTM D92 (AASHTO T 48).
  - d. Ductility: ASTM D 113 (AASHTO T 51).
  - e. Solubility: ASTM D 4 (AASHTO T 44).
  - f. Specific Gravity: ASTM D 70 (AASHTO T 43).
3. Job-mix design mixtures for each material or grade:
- a. Bulk Specific Gravity for Coarse Aggregate: ASTM C 117 (AASHTO T 85).
  - b. Bulk Specific Gravity for Fine Aggregate: ASTM C 128 (AASHTO T 84).
4. Uncompacted asphalt concrete mix: Maximum Specific Gravity: ASTM D 2041 (AASHTO T 209).
5. Compacted asphalt concrete mix:
- a. Bulk Density: ASTM D 1188 (AASHTO T 166).
  - b. Marshall Stability and Flow: ASTM D 1559.
6. Density and voids analysis:
- a. Provide each series of asphalt concrete mixture test specimens, in accordance with A.I. MS-2 "Mix Design Methods for Asphalt Concrete".
  - b. Use Marshall method of mix design unless otherwise directed or acceptable to the Engineer.
  - c. Report the quantity of absorbed asphalt cement in pounds of dry aggregate, percent air voids, and percent voids in mineral aggregate.
7. Sampling and testing of asphalt concrete mixtures for quality control during paving operations:
- a. Uncompacted asphalt concrete mix.
    - (1) Asphalt Cement Content: ASTM D 2172 (AASHTO T 164).
    - (2) Penetration of Recovered Asphalt Cement: ASTM D 5 (AASHTO T 49).
    - (3) Ductibility of Recovered Asphalt Cement:

- ASTM D 113 (AASHO T 51).
- b. Compacted asphalt concrete mix:
    - (1) Bulk Density: ASTM D 1188 (AASHO T 166).
    - (2) Marshall Stability and Flow: ASTM D 1559).
  - c. Perform at least one test for each day's paving.
  - 8. Asphalt plant inspection: ASTM D 290.
  - 9. Additional testing:
    - a. Retesting shall be required if previous tests indicate insufficient values, or if directed by the Engineer.
    - b. Testing shall continue until specified values have been attained.
  - 10. Asphalt concrete materials which do not comply with specified requirements shall not be permitted in the work.

**1.05 JOB CONDITIONS**

**A. Weather Limitations:**

- 1. Apply bituminous prime and tack coats only when the ambient temperature in the shade is 50 degrees F. and when the temperature has not been below 35 degrees F. for 12 hours immediately prior to application.
- 2. Do not apply when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
- 3. Construct asphalt concrete surface course only when atmospheric temperature is above 40 degrees F., when the underlying base is dry, and when weather is not rainy.
- 4. Base course may be placed when air temperature is not below 30 degrees F. and rising, when acceptable to the Engineer.

**B. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.**

**C. Traffic Control:**

- 1. Maintain vehicular and pedestrian traffic during paving operations, as required for other construction activities.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Soil Cement Base Course: as specified in FDOT Section 270, "Material for Base and Stabilized Base", and as called for in the Contract Documents.
- B. Aggregate for Asphalt Concrete, General:
  - 1. Sound, angular crushed stone, crushed gravel, or crushed slag: ASTM D 692.
  - 2. Sand, stone, or slag screening: ASTM D 1073.
  - 3. Provide aggregate in gradations for various courses to comply with local highway standards.
- C. Surface Course Aggregates:
  - 1. Provide natural sand, unless sand prepared from stone, slag, or gravel or combinations are required to suit local conditions.
- D. Asphalt Cement: Comply with ASTM D 946 for 85-100 penetration grade.
- E. Prime Coat:
  - 1. Cut-back liquid asphalt.
  - 2. Medium-Curing type: ASTM D 2027, Grade MC-70.

**2.02 ASPHALT-AGGREGATE MIXTURES**

- A. Job-mix criteria:
  - 1. Provide job-mix formulas for each required asphalt-aggregate mixture.
  - 2. Establish a single percentage of aggregate passing each required sieve size, a single percentage of asphalt cement to be added to aggregate, and a single temperature at which asphalt concrete is to be produced.
  - 3. Comply with the mix requirements of local governing highway standards.
  - 4. Maintain material quantities within allowable tolerances of the governing standards.

**2.03 TRAFFIC AND PARKING MARKING MATERIALS**

- A. Traffic lane marking paint with chlorinated rubber base.
- B. Factory mixed, quick drying and non bleeding, FS TT-P-115C, Type III.

- C. Color: Driving Lane Dividers - White  
No Parking Zone - Yellow  
Parking Dividers - White

**PART 3 EXECUTION**

**3.01 SURFACE PREPARATION**

**A. Subbase Preparation:**

1. The Contractor shall remove from the area all organic substance encountered to a depth of six or eight inches (6" or 8"), or to such depth and width as directed by the Engineer. The entire area shall be plowed and dragged prior to placing a stabilizing additive, if required to meet minimum bearing value.
2. Subbase shall be compacted to a minimum density of 98 percent of the maximum as determined by the Modified Proctor Density AASHTO T180, and shall have a minimum bearing value of 40 pounds per square inch as determined by the Florida Bearing Test.

**B. Base Course:**

1. Check subgrade for conformity with elevations and section immediately before placing base material.
2. Place base material in compacted layers not more than 6 inches thick, unless continuing tests indicate the required results are being obtained with thicker layers.
3. In no case will more than 8-inches of compacted base be placed in one lift.
4. Spread, shape, and compact all base material deposited on the subgrade during the same day.
5. Compact base course material to be not less than 95% of maximum density: ASTM D 1557, Method D (98 percent maximum density: AASHTO T-180).
6. Test density of compacted base course: ASTM D 2167.
7. Conduct one test for each 250 sq. yds. of in-place material, but in no case not less than one daily for each layer.

**C. Loose and Foreign Material:**

1. Remove loose and foreign material from compacted subbase surface immediately before application of paving.
2. Use power brooms or blowers, and brooming as required.
3. Do not displace subbase material.

D. Prime Coat:

1. Uniformly apply at rate of 0.20 to 0.5 gal. per sq. yd. over compacted and cleaned subbase surface.
2. Apply enough material to penetrate and seal, but not flood the surface.
3. Allow to cure and dry as long as required to attain penetration and evaporation of volatile, and in no case less than 24 hours unless otherwise acceptable to the Engineer.
4. Blot excess asphalt with just enough sand to prevent pick-up under traffic.
5. Remove loose sand before paving.

E. Tack Coat:

1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or portland cement concrete and similar surfaces.
2. Apply at rate of 0.05 to 0.15 gal. per sq. yd. of surface.
3. Apply tack coat by brush to contact surfaces of structures projecting into or abutting asphalt concrete pavement.
4. Allow surfaces to dry until material is at condition of tackiness to receive pavement.

**3.02 MANHOLE FRAME ADJUSTMENTS (IF APPLICABLE)**

A. Placing Manhole frames:

1. Surround manhole frames set to elevation with a ring of compacted asphalt concrete base prior to paving.
2. Place asphalt concrete mixture up to 1 in. below top of frame, slope to grade, and compact by hand tamping.

B. Adjust manhole frames to proper position to meet paving.

C. If permanent covers are not in place, provide temporary covers over openings until completion of rolling operations.

D. Set cover manhole frames to grade, flush with surface of adjacent pavement.

**3.03 PREPARING THE MIXTURE**

A. Comply with ASTM D 995 for material storage, control, and mixing, and for plant equipment and operation.

B. Stockpiles:

1. Keep each component of the various-sized combined aggregates in separate stockpiles.
2. Maintain stockpiles so that separate aggregate sizes shall not be intermixed.

C. Heating:

1. Heat the asphalt cement at the mixing plant to viscosity at which it can be uniformly distributed throughout mixture
2. Use lowest possible temperature to suit temperature-viscosity characteristics of asphalt.
3. Do not exceed 350 degrees F. (176.6 degrees C.).

D. Aggregate:

1. Heat-dry aggregates to reduce moisture content to not more than 2.0%.
2. Deliver dry aggregate to mixer at recommended temperature to suit penetration grade and viscosity characteristics of asphalt cement, ambient temperature, and workability of mixture.
3. Accurately weigh or measure dry aggregates and weigh or meter asphalt cement to comply with job-mix formula requirements.

E. Mix aggregate and asphalt cement to achieve 90-95% of coated particles for base mixtures and 85-90% of coated particles for surface mixture, when tested in accordance with ASTM D 2489.

F. Transporting:

1. Transport asphalt concrete mixtures from mixing site in trucks having tight, clean compartments.
2. Coat hauling compartments with a lime-water mixture to prevent asphalt concrete mixture from sticking.
3. Elevate and drain compartment of excess solution before loading mix.
4. Provide covers over asphalt concrete mixture when transporting to protect from weather and to prevent loss of heat.
5. During periods of cold weather or for long-distance deliveries, provide insulation around entire truck bed surfaces.

### 3.04 EQUIPMENT

- A. Provide size and quantity of equipment to complete the work specified within project time schedule.

- B. Bituminous Pavers: Self-propelled that spread hot asphalt concrete mixtures without tearing, shoving or gouging surfaces, and control pavement edges to true lines without use of stationary forms.
- C. Rolling Equipment:
  - 1. Self-propelled, steel-wheeled and pneumatic-tired rollers that can reverse direction without backlash.
  - 2. Other type rollers may be used if acceptable to the Engineer.
- D. Hand Tools: Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools to complete the work specified.

### 3.05 PLACING THE MIX

- A. Place asphalt concrete mixture on prepared surface, spread and strike-off using paving machine.
- B. Spread mixture at a minimum temperature of 225 degrees F. (107.2 degrees C.).
- C. Inaccessible and small areas may be placed by hand.
- D. Place each course at thickness so that when compacted, it will conform to the indicated grade, cross-section, finish thickness, and density indicated.
- E. Paver Placing:
  - 1. Unless otherwise directed, begin placing along centerline of areas to be paved on crowned section, and at high side of sections on one-way slope, and in direction of traffic flow.
  - 2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
  - 3. Complete base courses for a section before placing surface courses.
  - 4. Place mixture in continuous operation as practicable.
- F. Hand Placing:
  - 1. Spread, tamp, and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to Engineer.
  - 2. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than

acceptable working temperature.

G. Joints:

1. Carefully make joints between old and new pavements, or between successive days' work, to ensure a continuous bond between adjoining work.
2. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.
3. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
4. Offset transverse joints in succeeding courses not less than 24 inches.
5. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.
6. Offset longitudinal joints in succeeding courses not less than 6 inches.
7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

3.06 COMPACTING THE MIX

- A. Provide sufficient rollers to obtain the required pavement density.
- B. Begin rolling operations as soon after placing when the mixture will bear weight of roller without excessive displacement.
- C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.
- D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.
- F. Do not roll centers of sections first under any circumstances.
- G. Breakdown Rolling:
  1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
  2. Operate rollers as close as possible to paver without causing pavement displacement.

3. Check crown, grade, and smoothness after breakdown rolling.
4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

H. Second Rolling:

1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
2. Continue second rolling until mixture has been thoroughly compacted.

I. Finish Rolling:

1. Perform finish rolling while mixture is still warm enough for removal of roller marks.
2. Continue rolling until roller marks are eliminated and course has attained specified density.

J. Patching:

1. Remove and replace defective areas.
2. Cut-out and fill with fresh, hot asphalt concrete.
2. Compact by rolling to specified surface density and smoothness.
4. Remove deficient areas for full depth of course.
5. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
6. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

**3.07 MARKING ASPHALT CONCRETE PAVEMENT**

A. Cleaning:

1. Sweep surface with power broom supplemented by hand brooms to remove loose material and dirt.
2. Do not begin marking asphalt concrete pavement until acceptable to the Engineer.

B. Apply paint with mechanical equipment.

1. Provide uniform straight edges.
2. Not less than two separate coats in accordance with manufacturer's recommended rates.

**3.08 CLEANING AND PROTECTION**

- A. Cleaning: After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the Engineer.

B. Protection:

1. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened, and in no case sooner than 6 hours.
2. Provide barricades and warning devices as required to protect pavement.
3. Cover openings of structures in the area of paving until permanent coverings are placed (if applicable).

**END OF SECTION**

**SECTION 02575**

**PAVEMENT REPAIR AND RESTORATION**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

The Contractor shall furnish all labor, materials, equipment, obtain County or State right-of-way permits and incidentals required and remove and replace pavements over trenches excavated for installation of water lines and appurtenances as shown on the Contract Drawings.

**1.02 GENERAL**

- A. The Contractor shall take before and after photographs.
- B. The Contractor shall repair in a manner satisfactory to the County or State, all damage done to existing structures, pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, conduits, drains, catch basin, flagstones, or stabilized areas or driveways and including all obstructions not specifically named herein, which results from this Project.
- C. The Contractor shall keep the surface of the backfilled area of excavation in a safe traffic bearing condition and firm and level with the remaining pavement until the pavement is restored in the manner specified herein. All surface irregularities that are dangerous or obstructive to traffic are to be removed. The repair shall conform to applicable requirements of Manatee County Transportation Department requirements for pavement repair and as described herein, including all base, subbase and asphalt replacement.
- D. All materials and workmanship shall meet or exceed the County requirements and as called for in the Contract Documents and nothing herein shall be construed as to relieve the Contractor from this responsibility.
- E. All street, road and highway repair shall be made in accordance with the FDOT and County details indicated on the Drawings and in accordance with the applicable requirements and approval of affected County and State agencies.

**PART 2 PRODUCTS**

**2.01 PAVEMENT SECTION**

- A. Asphaltic concrete shall consist of asphalt cement, coarse aggregate, fine aggregate and mineral filler conforming to FDOT Type S-III Asphalt. Pavement replacement thickness shall match that removed but in no case shall be less than 1-1/2" compacted thickness. All asphalt concrete pavement shall be furnished, installed and tested in accordance with FDOT Specifications for Road and Bridge Construction.
- B. Asphalt or crushed concrete or approved equal base material shall be furnished and installed under all pavement sections restored under this Contract. Asphalt base shall have a minimum 6" compacted thickness, meet requirements for FDOT ABC III (Minimum Marshall Stability of 1000) and be furnished, installed and tested in accordance with the requirements of the FDOT Standards. Crushed concrete base shall be 10" minimum compacted thickness. Crushed concrete aggregate material shall have a minimum LBR of 140 compacted to 99% T-180 AASHTO density. Asphalt base and crushed concrete base are acceptable. Other bases shall be submitted for approval.
- C. Prime and tack will be required and applied in accordance with Section 300 - FDOT Specifications: Prime and Tack Coat for Base Courses.

**PART 3 EXECUTION**

**3.01 CUTTING PAVEMENT**

- A. The Contractor shall saw cut in straight lines and remove pavement as necessary to install the new pipelines and appurtenances and for making connections to existing pipelines.
- B. Prior to pavement removal, the Contractor shall mark the pavement for cuts nearly paralleling pipe lines and existing street lines. Asphalt pavement shall be cut along the markings with a rotary saw or other suitable tool. Concrete pavement shall be scored to a depth of approximately two (2) inches below the surface of the concrete along the marked cuts. Scoring shall be done by use of a rotary saw, after which the pavement may be broken below the scoring with a jackhammer or other suitable equipment.
- C. The Contractor shall not machine pull the pavement until it is completely broken and separated along the marked cuts.

- D. The pavement adjacent to pipe line trenches shall neither be disturbed or damaged. If the adjacent pavement is disturbed or damaged, irrespective of cause, the Contractor shall remove and replace the pavement. In addition, the base and sub-base shall be restored in accordance with these Specifications, Florida Dept. of Transportation Standard Specifications and as directed by the Engineer.

### **3.02 PAVEMENT REPAIR AND REPLACEMENT**

- A. The Contractor shall repair, to meet or exceed original surface material, all existing pavement cut or damaged by construction under this Contract. He shall match the original grade unless otherwise specified or shown on the Drawings. Materials and construction procedures for base course and pavement repair shall conform to those of the Florida Dept. of Transportation.
- B. The Contractor's repair shall include the preparation of the subbase and base, place and maintain the roadway surface, any special requirements whether specifically called for or implied and all work necessary for a satisfactory completion of this work. Stabilized roads and drives shall be finished to match the existing grade. Dirt roads and drives shall have the required depth of backfill material as shown on the Contract Drawings.
- C. The width of all asphaltic concrete repairs shall extend the full width and length of the excavation or to the limits of any damaged section. The edge of the pavement to be left in place shall be cut to a true edge with a saw or other approved method so as to provide a clean edge to abut the repair. The line of the repair shall be reasonably uniform with no unnecessary irregularities.

### **3.03 MISCELLANEOUS RESTORATION**

Sidewalks cut or damaged by construction shall be restored in full sections or blocks to a minimum thickness of four inches. Concrete curb or curb and gutter shall be restored to the existing height and cross section in full sections or lengths between joints. RCP pipe shall be repaired or installed in accordance with manufacturer's specifications. Grassed yards, shoulders and parkways shall be restored to match the existing sections with grass sod of a type matching the existing grass.

### **3.04 SPECIAL REQUIREMENTS**

The restoration of all surfaces, as described herein, disturbed by the installation of pipelines shall be completed as soon as is reasonable and practical. The complete and final restoration of both paved and shell

stabilized roads within a reasonable time frame is of paramount importance. To this end, the Contractor shall, as part of his work schedule, complete the restoration of any area of road within five weeks after removing the original surface. Successful leak testing shall be performed prior to restoring any area of road. All restoration and replacement or repairs are the responsibility of the Contractor.

**3.05 CLEANUP**

After all repair and restoration or paving has been completed, all excess asphalt, dirt and other debris shall be removed from the roadways. All existing storm sewers and inlets shall be checked and cleaned of any construction debris.

**3.06 MAINTENANCE OR REPAIR**

All wearing surfaces shall be maintained by the Contractor in good order suitable for traffic prior to completion and acceptance of the work.

**END OF SECTION**

**SECTION 02999**

**MISCELLANEOUS WORK AND CLEANUP**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. This Section includes items and operations which are not specified in detail as separate items, but may be sufficiently described as to the kind and extent of work involved. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to complete all work under this Section.
- B. The work of this Section may include, but is not limited to the following:
  - 1. Restoration of roads, sidewalks, driveways, curbing and gutters, fences, guardrails, lawns, shrubbery and any other existing items damaged or destroyed.
  - 2. Crossing utilities.
  - 3. Relocation of existing water, reclaim water, or sewer lines less than four inches diameter, water and sanitary sewer services, low pressure gas lines, telephone lines, electric lines, cable TV lines as shown on the Contract Drawings.
  - 4. Restoring easements (servitudes) and rights-of-way.
  - 5. Clean up.
  - 6. Incidental work (project photographs, testing, shop drawings, traffic control, record drawings, etc.).
  - 7. Excavation and Embankment - As defined in the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (1991 Edition or latest revision).

**1.02 SUBMITTAL OF LUMP SUM BREAKDOWN**

Contractor shall submit to the Owner/Engineer, a breakdown of the lump sum bid for Miscellaneous Work and Cleanup Item in the Proposal within 10 days after date of Notice to Proceed.

**1.03 WORK SPECIFIED UNDER OTHER SECTIONS**

All work shall be completed in a workmanlike manner by competent workmen in full compliance with all applicable sections of the Contract Documents.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

Materials required for this Section shall equal or exceed materials that are to be restored. The Contractor may remove and replace or reuse existing materials with the exception of paving.

**PART 3 EXECUTION**

**3.01 RESTORING OF ROADS, CURBING, FENCES AND GUARDRAILS**

- A. The Contractor shall protect existing curbing. If necessary, curbing shall be removed from joint to joint and replaced after backfilling. Curbing damaged during construction because of the Contractor's negligence or convenience, shall be replaced with curbing of equal quality and dimension at no cost to the Owner.
- B. At the locations necessary for the Contractor to remove, store and replace existing fences and guardrails during construction, the sections removed shall be only at the direction of the Engineer. If any section of fence is damaged due to the Contractor's negligence, it shall be replaced at no cost to the Owner with fencing equal to or better than that damaged and the work shall be satisfactory to the Engineer.
- C. Guardrails in the vicinity of the work shall be protected from damage by the Contractor. Damaged guardrails shall be replaced in a condition equal to those existing.
- D. Road crossings shall be restored in accordance with the Contract Documents and current FDOT Standards. Compensation for road restoration shall be included under the Road Restoration Bid Item if specified or under Miscellaneous Cleanup if it is not specified.

**3.02 CROSSING UTILITIES**

This item shall include any extra work required in crossing culverts, water courses, drains, water mains and other utilities, including all sheeting and bracing, extra excavation and backfill, or any other work required or implied for the proposed crossing, whether or not shown on the Drawings.

**3.03 RELOCATIONS OF EXISTING GAS LINES, TELEPHONE LINES, ELECTRIC LINES AND CABLE TV LINES**

The Contractor shall notify the proper utility involved when relocation of these utility lines is required. The Contractor shall coordinate all relocation work by the utility so that construction shall not be hindered.

**3.04****RESTORING THE EASEMENTS AND RIGHTS-OF-WAY**

The Contractor shall be responsible for all damage to private property due to his operations. He shall protect from injury all walls, fences, cultivated shrubbery, pavement, underground facilities, including water, sewer and reclaimed water lines and services, or other utilities which may be encountered along the easement. If removal and replacement is required, it shall be done in a workmanlike manner, at his expense, so that the replacement are equivalent to that which existed prior to construction.

**END OF SECTION**

**DIVISION 03**  
**CONCRETE WORK**

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## SECTION 03310

### CONCRETE WORK

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

###### A. Scope:

1. The extent of concrete work is shown on the Drawings.

##### 1.2 RELATED WORK

- ###### A. Section 09703 – Concrete Resurfacing and Coating System

##### 1.3 SUBMITTALS

- ###### A. Product Data: Submit product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, and others as requested by the Engineer.
- ###### B. Shop Drawings, Reinforcement: Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Conform to ACI 315, showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required at formed openings through concrete structures.
- ###### C. Laboratory Test Reports: Submit copies of laboratory test reports for concrete materials and mix design test as specified.
- ###### D. Material Certificates: It is preferable to provide copies of materials certificates in lieu of materials laboratory test reports when permitted by the Engineer. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

##### 1.4 REFERENCE STANDARDS

- ###### A. Codes and Standards: Conform to provisions of the following, except as otherwise indicated or specified:
1. American Concrete Institute (ACI):
    - a. ACI 301 Specifications for Structural Concrete for Buildings.

- b. ACI 304 Guide for Measuring, Mixing, Transporting, and Placing Concrete.
  - c. ACI 305 Hot Weather Concreting.
  - d. ACI 306 Standard Specification for Cold Weather Concreting.
  - e. ACI 311.4R Guide for Concrete Inspection
  - f. ACI 315 Manual of Standard Practice for Detailing Reinforced Concrete Structures.
  - g. ACI 318 Building Code Requirements for Reinforced Concrete.
  - h. ACI 347 Recommended Practice for Concrete Formwork.
  - i. ACI 504R-90 Guide to Sealing Joints in Concrete Structures.
2. American Society for Testing and Materials (ASTM):
    - a. Referenced Standards.
  3. Concrete Reinforcing Steel Institute (CRSI):
    - a. Manual of Standard Practice.
  4. U.S. Army Corps of Engineers (CE):
    - a. CE CRD-C 513 Specification for Rubber Waterstop.
    - b. CE CRD-C 572 Specification for Polyvinyl-Chloride Waterstops.
  5. United States Department of Commerce, National Institute of Standards and Technology; Product Standards (PS):
    - a. PS-1 U.S. Product Standard for Construction and Industrial Plywood.
- B. Concrete Testing Service:
1. Materials and installed work may require testing and retesting, as directed by the Engineer, at any time during progress of work. Contractor shall retain an independent testing laboratory to perform testing.

## **PART 2 - PRODUCTS**

### **2.1 FORM MATERIALS**

- A. The design and removal of all formwork is solely the responsibility of the Contractor.
- B. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct

formwork, for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Cardboard tube forms are not acceptable. Furnish in largest practicable sizes to minimize number of joints. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

1. Use medium density overlay (MDO) plywood conforming to PS-1 M.D. Overlay, Group 1, Exterior Grade.
- C. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- D. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 mg/l volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- E. Form Ties: Use factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
1. Unless otherwise indicated and except as noted, provide ties so portion remaining within concrete after removal is 1-1/2 inches inside concrete and will not leave holes larger than 1 inch diameter in concrete surface.

## 2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- D. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports conforming to CRSI Specifications, unless otherwise acceptable.
1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
  2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI,

Class 1) or stainless steel protected (CRSI, Class 2).

3. Where underside of lintels are exposed, bars shall be suspended such that chairs which cause spalling are not used.

## 2.3 CONCRETE MATERIALS

### A. General:

1. Portland Cement: ASTM C 150, Type I or II.
2. Aggregates: ASTM C 33, except as modified herein. Furnish aggregates for exposed concrete surfaces from one source. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalies in the cement.
3. Water: Potable, or free from foreign material in amounts harmful to concrete and embedded steel.
4. Admixtures: Provide admixtures for concrete that contain not more than 0.1-percent of chloride ions.
5. Slag, Fly Ash, and Other Pozzolanic Materials: ASTM C 618, Type C or Type F.
6. The materials used in concrete shall contain no hardened lumps, crusts, or frozen matter and shall not be contaminated with dissimilar material.

B. Types of Cement: Unless a specific type of cement is designated elsewhere, cement used in concrete shall be Type I, Type IP, Type IS, Type IP(MS), Type II, or Type III.

C. Fly Ash, Slag, and Other Pozzolanic Materials: Fly ash, slag, or other pozzolanic materials may be used as a cement replacement or as an admixture in concrete when Type I, Type II, or Type III cement is used.

D. Mixing Different Coarse Aggregates: Substitution of aggregate of the same type and grade from a different source in an approved concrete mix may be permitted at the discretion of the Engineer.

### E. Admixtures:

1. Air Entraining Admixture: ASTM C 260.
2. Water Reducing Admixture: ASTM C 494, Type A, and contain not more

than 0.1 percent chloride ions.

3. High Range Water Reducing Admixture (Superplasticizer): ASTM D 495, Type D, and contain not more than 0.1 percent chloride ions.
4. Water Reducing Non-Chloride Accelerator Admixture: ASTM C 494, Type D, and contain not more than 0.1 percent chloride ions.
5. Water Reducing Retarding Admixture: ASTM C 494, Type D, and contain not more than 0.1 percent chloride ions.
6. Chemical admixtures or additives containing calcium chloride shall not be permitted. Provide admixture manufacturer's written certification that chloride ion content is zero percent.

## 2.4 RELATED MATERIALS

- A. Waterstops: Provide flat, dumbbell type or centerbulb type waterstops at construction joints and other joints as indicated. Size to suit joints. Provide either rubber or PVC waterstops as follows:
  1. Rubber Waterstops: CE CRD-C 513.
    - a. Products: Provide rubber waterstops by one of the following:
      - (1) The Burke Co.
      - (2) Progress Unlimited.
      - (3) Williams Products, Inc.
  2. Polyvinyl Chloride Waterstops: CE CRD-C 572.
    - a. Products: Provide polyvinyl chloride waterstops by one of the following:
      - (1) Afco Products.
      - (2) The Burke Co.
      - (3) W.R. Meadows, Inc.
      - (4) Progress Unlimited.
      - (5) Vinylex Corp.
- B. Nonshrink, Nonmetallic Grout: Factory packaged nonstaining grout conforming to ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

1. Products: Provide one of the following products:
  - a. "Euco-NS"; Euclid Chemical Co.
  - b. "Vibropruf #11"; Lambert Corp.
  - c. "Masterflow 928"; Master Builders Technologies, Inc.
  - d. "SonogROUT 14"; Sonneborn Building Products-Chemrex Inc.
  
- C. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd., conforming to AASHTO M 182, Class 2.
  
- D. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
  1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.
  
- E. Liquid Membrane Forming Curing Compound: Liquid type membrane-forming curing compound conforming to ASTM C 309, Type 1-D. Moisture loss not more than 0.55 gr./sq. cm. when applied at 200 sq. ft./gal. Compound to be clear and colorless at time of application and not change to a yellow or amber color over time and exposure.
  1. Products: Provide one of the following products:
    - a. "Clear Seal"; Tamms Div., LaPorte Construction Chemicals.
    - b. "Masterkure 200W"; Master Builders Technologies, Inc.
    - c. "Klearseal"; Setcon Industries.
    - d. "Kure-N-Seal"; Sonneborn Building Products-Chemrex, Inc.
  
- F. Bonding Compound: ASTM C 1059. Where concrete placement will be protected (interior) or delayed, use rewettable Type 1 bonding agent. Where concrete will be placed immediately after application of bonding agent, use non-rewettable acrylic Type II.
  1. Products, Rewettable Type: Provide one of the following products:
    - a. "Euco Weld"; Euclid Chemical Co.
    - b. "Hibond"; Lambert Corp.
    - c. "Everweld"; L&M Construction Chemicals, Inc.
  
  2. Products, Non-Rewettable Type: Provide one of the following products:
    - a. "Acrylic Bondcrete"; The Burke Co.
    - b. "SBR Latex"; Euclid Chemical Co.

- c. "Acrylbond"; Lambert Corp.
  - d. "Sonocrete"; Sonneborn Building Products-Chemrex, Inc.
- G. Epoxy Adhesive: ASTM C 881, Type IV, two component 100 percent solids material suitable for use on dry or damp surfaces. Provide material grade and class to suit project requirements.
  - 1. Products: Provide one of the following products:
    - a. "Burke Epoxy M.V."; The Burke Co.
    - b. "Euco Epoxy System #452 or #620"; Euclid Chemical Co.
    - c. "Sikadur 32 Hi-Mod"; Sika Chemical Corp.
- H. Joint Filler Material: Preformed strips of asphalt saturated fiberboard, conforming to ASTM D 1751.
- I. Hardener/Sealer/Dustproofer:
  - 1. Products: Provide one of the following products:
    - a. "Burk-O-Lith"; The Burke Co.
    - b. "Surfhard"; Euclid Chemical Co.
    - c. "Saniseal"; Master Builders Technologies, Inc.
    - d. "Lapidolith"; Sonneborn Building Products-Chemrex, Inc.
- J. Sealer for Form-Lined Concrete and Adjacent Vertical Concrete: Colorless, proprietary solution for sealing concrete surfaces.
  - 1. Product: "Clear Pruf"; The Burke Co.

## 2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency, acceptable to Engineer, at Contractor's expense for preparing and reporting proposed mix designs.
  - 1. Do not use the same testing agency for field quality control testing.
  - 2. Limit use of fly ash to not exceed 20 percent of cement content by weight.
- B. Submit written reports to the Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by the Engineer.

- C. Design mixes to provide normal weight concrete, as indicated on Drawings. Maximum w/c ratio shall be as specified in ACI 301.
- D. Slump Limits: proportion and design mixes to result in concrete slump at point of placement as follows:
  - 1. Ramps, slabs, and sloping surfaces: Not more than 3-inches.
  - 2. Reinforced foundation systems: Not less than 1-inch and not more than 3-inches.
  - 3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8-inches after adding admixture to site-verified 2-to3-inch slump concrete.
  - 4. Other concrete: Not more than 6-inches.
- E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; as accepted by the Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by the Engineer before using in work.

## 2.6 CONCRETE MIXING

- A. Ready-Mix Concrete: Comply with the requirements of ASTM C94, and as herein specified.
- B. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C94 may be required.
- C. When the air temperature is between 85 degrees F and 90 degrees F, reduce the mixing and delivery time from 1-1/2 hours to 75 minutes, and when the air temperature is above 90 degrees F, reduce the mixing and delivery time to 60 minutes.

## 2.7 ADMIXTURES

- A. Use water reducing admixture of high range water reducing admixture (super plasticizer) in concrete as required for placement and workability.
- B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50-degrees F.
- C. Use high-range water-reducing admixture in pumped concrete, heavy-use slabs,

architectural concrete, concrete required to be watertight, and concrete with water-cement ratios below 0.50.

- D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within the following limits:
  - 1. Concrete not exposed to freezing, thawing, or hydraulic pressure, or to receive a surface hardener: 2 percent to 4 percent air.
- E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

### **PART 3 - EXECUTION**

#### **3.1 FORMS**

- A. The Contractor shall be solely responsible to design, erect, support, shore, reshore, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct form-work so concrete members and structures are of correct size, shape, alignment, elevation and position. Maintain formwork construction tolerances conforming to ACI 347.
- B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms to sizes, shapes, lines, and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, rustications, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for

cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar matrix. Locate temporary openings on forms at inconspicuous locations.

- F. Chamfer exposed corners and edges 3/4 inch unless otherwise indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement as required to eliminate mortar leaks and maintain proper alignment.

### 3.2 PLACING REINFORCEMENT

- A. Comply with CRSI's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.
- C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement as called for on Drawings. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

### 3.3 JOINTS

- A. Construction Joints: Locate and install construction joints, as indicated, or, if not indicated, locate so as not to impair strength and appearance of the structure, as

acceptable to the Engineer.

- B. Provide keyways in all construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs. Construct keyways 1-1/2 inches deep unless otherwise detailed.
- C. Place construction joints perpendicular to the main reinforcement. Continue all reinforcement across construction joints.
- D. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops pursuant to manufacturer's published instructions.
  - 1. Waterstops shall be securely held in position using split form dimensional lumber to hold waterstop rigidly within the casting to a true linear profile. Concrete shall be properly consolidated around the waterstop so that no voids or honeycombing occurs adjacent to the waterstop, thus maintaining sealing integrity. The Contractor shall remove all concrete spillage from the waterstop upon completion of the days concrete pour.
- C. Isolation Joints in Slabs-On-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated. Construct isolation joints using joint filler material herein specified. Maintain top of strips of filler material at 1/4 inch + (maximum) below top of finish slab.
- D. Control Joints in Slabs-on-Ground: Construct control joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/8 to 1/4 inch wide x 1/4 of the slab depth, unless otherwise shown.
- E. Form control joints by inserting a pre-molded plastic, hardboard or fiberboard strip into the fresh concrete until the top surface of the strip is flush with the slab surface. Tool slab edges round on each side of insert. After the concrete has cured, remove inserts and clean groove of loose debris.

### **3.4 INSTALLATION OF EMBEDDED ITEMS**

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.
- B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in

finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

### **3.5 PREPARATION OF FORM SURFACES**

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before concrete is placed.
- C. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions pursuant to form-coating compound manufacturer's published instructions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply pursuant to manufacturer's published instructions.
- D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

### **3.6 CONCRETE PLACEMENT**

- A. **Preplacement Inspection:** Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other trades sufficiently in advance, to permit installation of their work; cooperate with other trades in setting such work. All aforementioned work must be completed and the Engineer and/or Owner notified at least 24 hours prior to concrete placement to allow time for adequate inspection. Moisten wood forms immediately before placing concrete where form coating is not used.
  - 1. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.
  - 2. **Construction Sequence:** Before placing any concrete, complete blasting, heavy earthwork and other construction operations, which might cause damage to concrete structures.
- B. **General:** Conform to ACI 304 and as specified.
  - 1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified.

- Deposit concrete as nearly as practicable to its final location to avoid segregation.
2. Concrete shall NOT drop freely from a height greater than 5-feet.
- C. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
1. Cold joints will not be allowed except as approved by the Engineer.
  2. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete pursuant to ACI recommended practices.
  3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
  3. Maintain reinforcing in proper position during concrete placement operations.
- E. Cold Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 degrees F., uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F and not more than 80 degrees F at point of placement.
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use salt or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs. Do not use calcium chloride.
- F. Hot Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 or as specified in Section 2.06.
1. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
  2. Fog spray forms, reinforcing steel, and subgrade just before placing concrete.
  3. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Engineer.

### **3.7 FINISH OF FORMED SURFACES**

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
- B. Smooth Formed Finish: Provide a smooth form finish on formed concrete surfaces exposed to view or to be covered with a coating materials applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar

unformed surfaces occurring 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.

### 3.8 MONOLITHIC SLAB FINISHES

- A. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified.
1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane so that depressions between high spots do not exceed 1/4 inch under a 10 foot straight edge. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- B. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, paint, tile, or other thin-film finish coating system.
1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface.
  2. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance and with a level surface plane so that depressions between high spots do not exceed 1/8 inch under a 10 foot straightedge. Grind smooth surface defects which would telegraph through applied floor covering system.
- C. Trowel and Fine Broom Finish:
1. Where ceramic tile is to be installed with a thin-set mortar, apply trowel finish as specified, then immediately follow with fine brooming to create a slightly scarified surface.
- D. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete flatwork, steps and ramps, and elsewhere as indicated.
1. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route.

Coordinate required final finish with the Engineer before application.

### 3.9 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
  2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days pursuant to ACI 301 procedures. Avoid rapid drying at end of final curing period.
- B. Curing Methods: Perform curing of concrete by curing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
1. Provide moisture curing by following methods:
    - a. Keep concrete surface continuously wet by covering with water.
    - b. Continuous water-fog spray.
    - c. Covering concrete, surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4 inch lap over adjacent absorptive covers.
  2. Provide moisture-cover curing as follows:
    - a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- C. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- D. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.

1. Final cure concrete surfaces to receive liquid floor sealer/dustproofer/hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.
2. Provide curing compound to exposed interior slabs and to exterior slabs, walks, and curbs; as follows:
  - a. Apply specified curing compound to concrete slabs as soon as final finishing operations are complete (within 2-hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Re-coat areas subjected to heavy rainfall within 3-hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - b. Do not use membrane curing compounds or a sealer on surfaces which are to be covered with coating material applied directly to concrete such as liquid floor hardener, waterproofing, damproofing, membrane roofing, flooring (such as ceramic tile, glue-down carpet), painting, and other coatings and finish materials, unless otherwise acceptable to the Engineer.

### **3.10 REMOVAL OF FORMS**

- A. Formwork not supporting weight of concrete, such as sides of beams, wall, columns, and similar parts of the work, may be removed, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

### **3.11 RE-USE OF FORMS**

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and

secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to the Engineer.

### **3.12 MISCELLANEOUS CONCRETE ITEMS**

- A. Filling-in: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
  - 1. Grout base plates and foundations, using specified non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.
- C. Curbs: Provide monolithic finish to curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

### **3.13 CONCRETE SURFACE REPAIRS**

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to the Engineer.
  - 1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, down to solid concrete but, in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
  - 2. Patch holes left by tie rods and bolts with a mixture of sand and cement which, after curing, closely matches the appearance of the surrounding wall surface.
- B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of the Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- C. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify the surface plane to tolerance specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.
1. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01 inch wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.
  2. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
  3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to the Engineer.
- D. Repair defective areas, except random cracks and single holes not exceeding 1 inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type of class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- E. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

- F. Perform structural repairs with prior approval by the Engineer for method and procedure, using specified epoxy adhesive and mortar.
- G. Repair methods not specified above may be used, subject to acceptance of the Engineer.

### 3.14 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. Employ at Contractor's expense a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by the Engineer.
  - 1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C94.
    - a. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
    - b. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
    - c. Concrete Temperature: Test hourly when air temperature is 40 deg. F. and below, and when 80 deg. F. and above; and each time a set of compression test specimens is made.
    - d. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field cure test specimens are required.
    - e. Compressive Strength Tests: ASTM C 39; one set for each day's pour plus additional set for each 100 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
  - 2. When frequency of testing will provide less than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

3. When total quantity of a given class of concrete is less than 50 cu. yds., Engineer may waive strength test if adequate evidence of satisfactory strength is provided.
  4. When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
  5. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
- C. Test results will be reported in writing to the Engineer, ready-mix producer, and Contractor within 24 hours that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day test and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Engineer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

**END OF SECTION**

**DIVISION 05**  
**METALS**

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## **SECTION 05120**

### **STRUCTURAL STEEL**

#### **PART 1 - GENERAL**

##### **1.01 SCOPE OF WORK**

- A. Extent of structural steel work is shown on the Drawings, including schedules, notes and details to show size and location of members, typical connections, and type of steel required.
- B. Structural steel is that work defined in AISC "Code of Standard Practice for Steel Buildings and Bridges" and as otherwise shown on Drawings.

##### **1.02 RELATED WORK**

- A. Section 02366 - Temporary Steel Sheet Piles
- B. Section 09900 - Painting

##### **1.03 QUALITY ASSURANCE**

- A. Reference Standards: Comply with provisions of the following, unless otherwise indicated or specified:
  - 1. American Institute of Steel Construction (AISC):
    - a. AISC Code of Standard Practice for Steel Buildings and Bridges.
    - b. AISC Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings, including "Commentary" and Supplements.
    - c. AISC Specifications for Structural Joints using ASTM A 325 or A 490 Bolts; approved by the Research Council on Structural Connections (RCSC).
  - 2. American Society for Testing and Materials (ASTM):
    - a. Referenced Standards.
  - 3. American Welding Society (AWS):
    - a. AWS D1.1 Structural Welding Code - Steel.

- B. Qualifications for Welding Work:
1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."
  2. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests within previous twelve (12) months.
    - a. If re-certification of welders is required, re-testing will be Contractor's responsibility.
- C. All structural steel work and material is subject to inspection and testing. The expense of removing and replacing any structural steel for testing purposes shall be borne by the Contractor if it is found to be unsatisfactory. Remove and replace work found to be defective and provide new acceptable work at no additional expense to the Owner.

#### 1.04 SUBMITTALS

- A. Shop Drawings:
1. Submit shop drawings including complete details and schedules for fabrication and assembly of structural steel members procedures and diagrams.
    - a. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.
    - b. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.
- B. Product Data:
1. Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
    - a. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
    - b. High-strength bolts (each type), including nuts and washers.
    - c. Structural steel primer paint.
    - d. Shrinkage-resistant grout.

- C. Welding Certifications:
  - 1. Submit copies of certificates for welding procedures and personnel.

## **1.05 DELIVERY, STORAGE AND HANDLING**

- A. Deliver anchor bolts and anchorage devices in ample time to not delay work.
- B. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.
- C. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed, at no additional cost to the Owner.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Metal Surfaces, General:
  - 1. For fabrication of work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes.
- B. Structural Steel Angles, Channels and Shapes, Plates and Bars: ASTM A 36.
- C. Structural Steel W Shapes: ASTM A 992, Grade 50.
- D. Steel Pipe: ASTM A 53, Type E or S.
- E. Steel Tubes: ASTM A 500, Grade B, 46 ksi.
- F. High-Strength Threaded Fasteners:
  - 1. Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:
    - a. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A 325.

- G. Electrodes for Welding: Comply with AWS Code E70XX. The use of "Jetrod" is not permitted.
- H. Structural Steel Primer Paint: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated, and for capability to provide a sound foundation for field-applied topcoats.
- I. Non-Metallic Shrinkage-Resistant Grout:
  - 1. Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with ASTM C 1107, Type A.
  - 2. Products: Provide one of the following grout products:
    - a. "Euco NS"; Euclid Chemical Co.
    - b. "Crystex"; L&M Construction Chemicals, Inc.
    - c. "Masterflow 713"; Master Builders Technologies, Inc.

## **2.02 FABRICATION**

- A. Shop Fabrication and Assembly:
  - 1. Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on approved shop drawings. Provide camber in structural members where indicated.
- B. Splice members only where indicated and accepted on shop drawings.
- C. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
- D. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- E. Welded Connections:
  - 1. All shop connections shall be seal welded for exposed structural steel.

- F. Bolt field connections, except where welded connections or other connections are indicated.
  - 1. Provide high-strength threaded fasteners for principal bolted connections.
- G. Bolted Connection:
  - 1. Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" (RCSC).
- H. Welded Construction:
  - 1. Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
- I. Assemble and weld built-up sections by methods which will produce true alignment of axes without warp.
- J. Holes for Other Work:
  - 1. Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on approved shop drawings.
- K. Provide threaded nuts welded to framing, and other specialty items as indicated to receive other work.
- L. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

## 2.03 SHOP PAINTING

- A. General:
  - 1. Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only.
  - 2. Do not paint surfaces which are to be welded or high-strength bolted with friction-type connections.
  - 3. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

**B. Surface Preparation:**

1. After inspection and before shipping, clean steel work to be painted. Remove loose rust, loose mill scale, and spatter, slag or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:
  - a. SP-2 "Hand Tool Cleaning."
  - or
  - b. SP-3 "Power Tool Cleaning."

**C. Shop Painting:**

1. Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 2.0 mils. Use painting methods which result in full coverage of joints, corners, edges, and exposed surfaces.
2. Primer shall be compatible with paint products specified in Section 09900, Painting, for structural steel indicated or scheduled to be finish painted.

## **PART 3 - EXECUTION**

### **3.01 ERECTION**

**A. Surveys:**

1. Employ a registered professional land surveyor in the State of Florida for accurate erection of structural steel. Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Engineer. Do not proceed with erection until the surveyor's report has been submitted, corrections have been made, or until compensating adjustments to structural steel work have been agreed upon with Engineer.

**B. Temporary Shoring and Bracing:**

1. Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds. Provide temporary planking and working platforms as necessary to effectively complete work.

- C. Anchor Bolts:
  - 1. Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work.
- D. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations.
- E. Setting Bases and Bearing Plates:
  - 1. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.
- F. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
- G. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
- H. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
  - 1. For proprietary grout materials, comply with manufacturer's instructions.
- I. Field Assembly:
  - 1. Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
- J. Level and plumb individual members of structure within specified AISC tolerances.
- K. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
- L. Splice members only where indicated and accepted on shop drawings.
- M. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

- N. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts only after notification and acceptance by the Engineer.
- O. Gas Cutting:
  - 1. Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Engineer. Finish gas-cut sections equal to a sheared appearance when permitted.
- P. Touch-Up Shop Painting:
  - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
  - 2. Apply by brush or spray to provide minimum dry film thickness of 2.0 mils.

### **3.02 FIELD QUALITY CONTROL**

- A. The Owner will engage an independent testing and inspection agency to visually inspect all of the high-strength bolted connections and welded connections and to perform tests and prepare test reports for all permanent structures..
  - 1. Perform a magnetic particle test on 25 percent of all fillet welds. If more than 20 percent of welds made by a welder contain defects identified by testing, then all welds made by that welder shall be tested at Contractor's expense.
  - 2. Provide a minimum ten (10) day notice to the testing agency prior to commencement of erection work.
- B. Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.
- C. Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.
- D. Testing agency may inspect structural steel at plant before shipment; however, Engineer reserves right, at any time before final acceptance, to reject material not complying with specified requirements.

- E. At Contractor's expense, correct deficiencies in structural steel work which inspections and laboratory tests reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to re-confirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.

### **3.03 CLEAN-UP**

- A. Remove from time to time as directed, all rubbish and debris resulting from the work and upon completion of the work, remove all unused materials, equipment, scaffolding, and similar construction related items, and perform final cleaning services as may be necessary to leave job in a condition acceptable to the Owner.

**END OF SECTION**

**DIVISION 06**  
**WOOD & PLASTIC**

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**SECTION 06600**

**FRP GRATING AND HANDRAIL**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. Furnish all labor, materials, equipment and incidentals necessary to install the fiberglass reinforced plastic (FRP) grating and handrail as shown on the drawings and as specified herein.
- B. The Contractor is responsible for field verifying dimensions.

**1.02 RELATED WORK**

- A. Section 03310 - Concrete Work

**1.03 SUBMITTALS**

- A. Shop drawings of all FRP gratings and handrails shall be submitted to the Engineer for approval in accordance with the requirement of Section 01340, Shop Drawings, Project Data, and Samples.
- B. Manufacturers catalog data showing:
  - 1. Dimensions, spacing and construction of grating.
  - 2. Design tables showing limits for span length and deflection under various uniform and concentrated loads.
  - 3. Materials of construction.
- C. Detail shop drawings showing:
  - 1. Dimensions of grating and handrail.
  - 2. Sectional assembly.
  - 3. Location and identification mark.
  - 4. Size and type of supporting frames required.

**1.04 QUALITY ASSURANCE**

- A. The material covered by these specifications shall be furnished by a reputable and qualified manufacturer of proven ability who has regularly engaged in the manufacture and installation of FRP system.

- B. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. All systems shall be shop fabricated and assembled into the largest practical size suitable for transporting.
- B. All materials and equipment necessary for the fabrication and installation of the grating and handrails shall be stored before, during, and after shipment in a manner to prevent cracking, twisting, bending, breaking, chipping or damage of any kind to the materials or equipment, including damage due to over exposure to the sun. Any material which, has become damaged as to be unfit for use shall be promptly removed from the site of work, and the Contractor shall receive no compensation for the damaged material or its removal.
- C. Identify and match-mark all materials, items, and fabrications for installation and field assembly.

**PART 2 PRODUCTS**

**2.01 GENERAL**

- A. Materials used in the manufacture of the FRP products shall be new stock of the best quality and shall be free from all defects and imperfections that might affect the performance of the finished product.
- B. All materials shall be of the kind and quality specified, and where the quality is not specified, it shall be the best of the respective kinds and suitable for the purpose intended.
- C. After fabrication, all cut ends, holes and abrasions of FRP shapes shall be sealed with a compatible resin coating to prevent intrusion of moisture.
- D. All exposed surfaces shall be smooth and true to form.

**2.02 GRATING**

- A. Grating shall be DURADEX Series I-6000 as manufactured by Strongwell-Chatfield Division, Chatfield, Minnesota or approved equal.
- B. Grating shall support a concentrated load of 300 with a deflection of no more than 1/4 inch.
- C. Bearing bars should traverse from support to support. Cross rods are not intended to

be applied in the span direction.

- D. Resins shall be fire retardant polyester meeting the requirements of a Class 1 rating of 25 or less per ASTM E-84 and meets the self-extinguishing requirements of ASTM D-635.
- E. Color shall be gray.
- F. Resin shall include a veil on all exposed surfaces for added corrosion resistance.
- G. Shall include ultraviolet inhibitor.
- H. Panels shall be assembled into the sizes ordered using a 3-piece pultruded cross-rod system. The cross rods shall consist of a center core wedge and 2 spacer bars that are notched at each bearing bar so that each bearing bar is both mechanically locked and chemically bonded to the web of each bearing bar. The spacer bars shall be continually bonded to the center core wedge. The crossrods shall be spaced a maximum of 6 inches in the panel. The top of the panels shall be covered with bonded anti-skid surface.

### **2.03 HANDRAIL**

- A. Handrail shall be fabricated from pultruded fiberglass components and molded thermoplastic internal connectors. Handrail shall be SAFRAIL fiberglass handrail system as manufactured by Strongwell-Chatfield Division, Chatfield, Minnesota or approved equal.
- B. The pultruded parts shall be made with a fire retardant polyester resin which meets the ASTM E-84 test for flame spread of less than 25 or less.
- C. The color shall be OSHA Safety Yellow.
- D. The handrail shall be designed to meet the configuration and loading requirement of this specification.
  - 1. Handrails shall be designed and constructed for a concentrated load of 200 pounds applied at any point and in any direction.
  - 2. Handrails shall also be designed and constructed for a load of 50 plf applied in any direction.
  - 3. The above loading conditions shall not be applied simultaneously, but each shall be applied to produce maximum stress in each of the respective components or any of the supporting components.

- E. The rails and posts shall be a minimum 1.90" OD and 1.51" ID round tube manufactured by pultrusion process. The kickplate shall be fabricated from pultruded fiberglass resin. Corners (90 degrees) shall be molded to eliminate sharp edges. Internally bonded fiberglass connectors shall be used so that all connectors fit flush and there are no visible rivets or metal parts.
- F. Post locations shall be no greater than 18", nor less than 9" from horizontal or vertical change in handrail direction.
- G. The fabricated handrail system shall be supplied complete with fittings by the FRP manufacturer. The components used to join fabricated sections together shall be shipped loose, to be epoxied and riveted together in the field by the Contractor, per the manufacturer's recommendation.
- H. Shall include ultraviolet inhibitor.

### **PART 3 EXECUTION**

#### **3.01 PREPARATION**

- A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

#### **3.02 INSTALLATION**

- A. Fastening to in-place construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous FRP fabrications to in-place construction; include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, and other connectors as required.
- B. Cutting, fitting, and placement: Perform cutting, drilling, and fitting required for installation of miscellaneous FRP fabrications. Set FRP fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. All field cut and drilled edges, holes and abrasions shall be sealed with a catalyzed resin compatible with the original resin as recommended by the manufacturer. The sealing of the edges shall prevent premature fraying at the field cut edges.
- D. Install items specified as indicated and in accordance with manufacturer's instruction.

**END OF SECTION**

**DIVISION 09**  
**FINISHES**

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**SECTION 09703**

**CONCRETE RESURFACING AND COATING SYSTEM**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. The work performed under this section includes the surface preparation and application of protective coatings for full immersion on both vertical and horizontal concrete surfaces; the Contractor shall furnish all labor, materials, and equipment necessary to perform all operations in connection with the application required for satisfactory completion, in accordance with the standards and practices set forth herein.
- B. Installation of the coating shall be in accordance with the Manufacturer's printed instructions. Literature and label instructions are considered as part of this specification. Should any instructions be in conflict the higher standard applies.

**1.02 RELATED WORK**

- A. Section 03310 – Concrete Work

**1.03 REFERENCES**

- A. ASTM: American Society for Testing Materials
  1. ASTM C 920 - Specification for Elastomeric Joint Sealants.
  2. ASTM D 3960 - Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
  3. ASTM D 4259 - Practice for Abrading Concrete
  4. ASTM E 337 - Standard Practice Test Method for Measuring Humidity with Psychrometer.
  5. ASTM F 710 - Practice for Preparing Concrete Floors and Other Monolithic Surfaces to Receive Resilient Flooring.
  6. ASTM D 4285 - Standard Test Method for Indicating Oil and Water in Compressed Air.
- B. ICRI: International Concrete Restoration Institute
  7. Guideline No. 03732 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

- C. SSPC: The Society for Protective Coatings
  - 8. SSPC-SP12 - Surface Preparation and Cleaning of Steel and Other Hard Materials by High and Ultrahigh Pressure Water Jetting Prior to Recoating.
  - 9. SSPC-SP13 - Surface Preparation of Concrete.
  - 10. SSPC-PA-3 "A Guide to Safety in Paint Application".
  - 11. SSPC-Guide 12 - Guide for Illumination of Industrial Painting Project.
  
- D. OSHA: Occupational Safety and Health Administration
  - 12. OSHA 1915.35 - Standards – 29 CFR – Painting.
  
- E. ANSI: American National Standards Institute
  - 13. ANSI/ASC 29.4 Exhaust Systems: Abrasive Blasting Operations – Ventilation and Safe Practice.
  - 14. ANSI/ASC STD 61

#### **1.04 QUALITY ASSURANCE**

- A. Contractor
  - 1. The coating Contractor shall be listed as an Approved Applicator of the specified material by the Manufacturer. Applicator shall have completed five projects of similar scope, magnitude, and materials specified, with contacts for references, during the past five years.
  - 2. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards and practices. The foreman or supervisor shall be factory trained by the Manufacturer and must present letters of successful completion of such training. This is a requirement to qualify for factory warranties.
  - 3. Contractor shall provide a supervisor at the work site during surface preparation and coating application operations, which meets the above criteria.
  
- B. Requirements
  - 1. Do not use or retain contaminated, outdated, or diluted materials. Do not use materials from previously opened containers.
  - 2. Use only products of the approved Manufacturer. Use products of one manufacturer in any one system with compatible materials.

3. Make available all locations and phases of the work for access by the Engineer or other personnel designated by the Engineer. The Contractor shall provide ventilation and egress to safely access the work areas for inspection.
  4. Submit daily reports to the Engineer or the Engineer's Representative that contain the following information: substrate conditions, application procedures, work completed, location thereof, quality control inspection test findings (batch numbers of materials applied, number of employees on site, hours worked each day), and other information pertinent to the resurfacing and coating system installations.
  5. Remove and re-finish or otherwise correct in a manner approved by the Engineer any and all deficiencies or defective work at no additional cost to the Owner.
  6. Specified System is the minimum standard of quality for this project.
- C. Independent Inspection and Testing
1. The Owner or Project representative for the Owner will obtain and pay for the services of an independent NACE Certified Coating Inspector (LEVEL 3). The inspector shall be present at all preconstruction meetings and during all phases of the work including surface preparation, paint mixing, and application. The inspector will maintain a daily log of all activities associated with the work including dry film thickness readings conducted per SSPC PA2, batch numbers for all materials received, and any other surface test conducted by the contractor, vendor or owner, and daily ambient conditions prior to commencing work or application of any coat and once per four hour period on site. The inspector shall measure:
    - a) Ambient temperature
    - b) Dew point
    - c) Surface temperature
    - d) Wet bulb temperature
    - e) Batch codes being utilized each day
  2. After application and curing of each coating in the specified system, the NACE Inspector will measure its thickness with a properly calibrated Nordson Microtest Dry Film Thickness Gauge or equivalent, following standard method for measurement of dry paint thickness with magnetic gauges as described in SSPC-PA2-73T. Gauges shall be calibrated per manufacturer recommendations. The NACE Inspector will make as many determinations as needed to ensure the specified thickness values in each area. The Contractor shall apply additional coat(s) at no extra cost to the

Owner to all surfaces having less dry film thickness than specified to bring thickness up to specifications.

### 1.05 SUBMITTALS

- A. Submit the following prior to commencing with any phase of the work covered by this Section:
1. Manufacturer's current printed recommendations and product data sheets for products supplied under this section including performance criteria, surface preparation, application, storage requirements, and safety requirements.
  2. Material Safety Data Sheets (MSDS) for any materials brought on-site including all resurfacing and coating system materials, solvents, and abrasive blast media.
  3. Submit letter(s) with associated product data signed by Manufacturer certifying that submitted products are suitable for application on the surfaces to be resurfaced and coated and for the service conditions.
  4. During Shop Drawing review, submit manufacturer's catalog of color chips and finishes for materials proposed. Owner shall select colors and finish from manufacturer's full standard range.
  5. Coating Applicator shall provide a listing, including contact information, for projects of similar scope, magnitude, and materials specified, completed in the last 5 years.

### 1.06 DELIVERY AND STORAGE

- A. Materials shall be stored in accordance with Manufacturer's recommendations.
- B. Store all materials only in area(s) designated by the Engineer solely for this purpose and which allows the material to remain between 60F-80F. Confine mixing, thinning, clean-up and associated operations, and storage of materials-related debris before authorized disposal, to these areas. This enclosed area must protect the mixing operation and materials from direct sunlight, inclement weather, freezing, or other means of damage or contamination. Protect all surfaces from any spillage of material(s) within the mixing area.
- C. Do not use floor drains, dikes, or storm drains for disposal of materials.
- D. The Contractor shall take all precautions and implement all measures necessary to avert potential hazards associated with all materials as described on the pertinent Material Safety Data Sheets or container labels.

- E. Deliver all materials to the jobsite in their original, unopened containers. Each container shall bear the Manufacturer's name and label.
  - 1. Labels on all material containers must show the following information:
    - a. Name or title of product.
    - b. Federal Specification Number if applicable.
    - c. Manufacturer's batch number and date of manufacture.
    - d. Manufacturer's name.
    - e. Generic type of material.
    - f. Application and mixing instructions.
    - g. Hazardous material identification label.
    - h. Shelf life date.
    - i. Storage requirements.
  - 2. All containers shall be clearly marked indicating any personnel safety hazards associated with the use of or exposure to the materials.
  - 3. All materials shall be handled and stored to prevent damage or loss of label.

**1.07 HEALTH AND SAFETY**

- A. All flooring material shall be certified by the Manufacturer (shown on MSDS) to contain no chemicals listed in California Proposition 65, effective Jan. 1, 1988: Chemicals known to cause cancer or reproductive toxicity.
- B. All coatings shall be essentially odorless and non flammable, even during application and storage.
- C. Flammable coatings or solvents shall not be stored at the job site without written permission of Owner.
- D. The Contractor shall provide and require the use of protective life saving equipment for persons working in or about the project site, in accordance with requirements set forth by OSHA or other regulatory agencies applicable to the construction industry, and the Manufacturer's printed instructions.
- E. The Contractor's work forces should comply with the provisions outlined in the following documents:
  - 1. SSPC-PA-3 "A Guide to Safety in Paint Application"
  - 2. NACE Pub. "A Manual for Painter Safety"

- F. Workers doing abrasive blasting operations shall wear a fresh air supplied protective helmet and hood and personal protective clothing acceptable to industry standards and all government regulations.
- G. Workers doing water blasting shall be adequately protected and areas in which flying debris may be a danger be clearly marked with yellow caution tape.

## **PART 2 – PRODUCTS**

### **2.01 MANUFACTURER**

- A. Materials specified are those that have been evaluated for the specific service. Products manufactured by Rust-Oleum CPS are listed to establish a minimum standard of quality for this project. Equivalent materials of other manufacturers may be submitted as Substitutes per the specifications where it can be demonstrated the equivalent has equal or superior equivalency properties as listed below or contained in the technical data sheets.

### **2.02 PRODUCTS GENERAL**

- A. Products selected for this project are manufactured by the Rust-Oleum Corporation and include:
  - 1. OverDrive, Epoxy Grout
  - 2. BlokFil, Epoxy Block Filler, fast dry two component 100% solids formula of epoxy resin polymer and polyamine curative
  - 3. OverFlex, Flexible Epoxy Membrane, special high elongation epoxy, 100% solids
  - 4. Penetrating Prime & Seal, Epoxy Floor Primer, high solids epoxy resin polymer
  - 5. OverKote HD (8200 System), Chemical Resistant Epoxy Heavy-Duty Floor Topping, 100% solids
  - 6. OverKrete Xtra V (8100 System), Smooth Epoxy Floor Coating, 100% solids

- B. Equivalency Properties: Rust-Oleum Concrete Protection materials conform to the following ASTM values.

PHYSICAL TEST	OVERKOTE HD 8200 Series	OVERKOTE E-100 S & V 8200 Series
Compressive Strength - ASTM C-579	14,000 PSI	8,300 PSI
Tensile Strength - ASTM C-307	2,600 PSI	3,500 PSI
Flexural Strength - ASTM C-580	6,550 PSI	9,600 PSI
Module of Elasticity - ASTM C-580	3,000,000 PSI	3,000,000 PSI
Hardness-Shore D - ASTM D-2240	85	85
Impact Resistance -Mil D-3134J	Satisfactory per 3.15	16 ft/lbs no failure
Tabor Abrasion - ASTM D-4060- 2000 Grams 1000 Cycles, CS17 Wheel,	30 mg	30 mg
Bond Strength to Concrete - ASTM-D-4541	Exceeds strength of concrete	Exceeds strength of concrete
Water Absorption - ASTM D-413	0.10% Max	0.10% Max
Linear Shrinkage - ASTM C-531	0.05% Maximum	0.05% Maximum
Linear Coefficient of expansion - ASTM C-53	2.02x10 <sup>-5</sup> in/in/°F	2.02x10 <sup>-5</sup> in/in/°F
Coefficient of Friction - ASTM D-2047	0.6 min.	0.6 min.
Flammability - ASTM D-635	Self Extinguishing	Self Extinguishing
Fungus and Bacteria Section 4.4.2.11 as specified in TT-P-34	Will not support	Will not support
Porosity with no Sealer Coat - NACE Standard- TM- 0174	0.00	0.00

- C. The coating must provide suitable protection from chemical corrosion, mechanical abuse, and surface wear, be seamless and provide a consistent skid-resistant surface through the entire coating.
- D. Coating shall be 100% solids, except where specifically specified, eliminating environmental humidity concerns. The coating shall be capable of being installed over damp concrete, less standing water. At application temperatures above 70 degrees F. coating may be put into full use in 12 hours. Lower application temperatures require a longer cure time before being subject to immersion. Materials may be applied over new concrete 10 days following their pour.
- E. All materials shall be brought to the job site in the original sealed containers. They shall not be used until the Engineer has inspected contents and obtained data from information on containers or labels. Materials exceeding storage life recommended by the Manufacturer shall be rejected.
- F. Where Abrasive Blast Media may be required for surface profiling. If dry or wet abrasive blast cleaning is the selected method of surface preparation, provide slag grit of a sieve size, gradation, and quality necessary to produce the degree of cleanliness and surface profile required herein but not less than 3 mils in depth.

## **2.03 PAINT SCHEDULE**

- A. Coordinate, schedule and confirm the various cleaning, touch-up and finishing operations with the Owner and the Engineer. Ensure the transmission of materials data, color selections, and coating system methods between the coating applicators. Take responsibility for not exceeding exposure and re-coat time limits. Cleaning and resurfacing shall be scheduled so that dust and other contaminants from the cleaning process will not fall on wet, newly resurfaced areas.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. Comply with the Manufacturer's recommendations as to environmental conditions under which materials can be applied.
- B. Cover or otherwise protect finish work or other surfaces not in the work area.
- C. Erect and maintain protective tarps, enclosures and/or masking to contain debris (such as dust or airborne particles resulting from surface preparation) generated during any and all work activities. This includes, but is not limited to, the use of dust/debris collection apparatus as required.
- D. The Contractor shall use only solvents and thinners as recommended by the Manufacturer.

### **3.02 INSPECTION OF SURFACES**

- A. It is the responsibility of the Contractor to inspect and report unacceptable concrete substrate surface conditions to the Engineer prior to the commencement of surface preparation activities. Unacceptable surface conditions are defined as punkey (softened) concrete or the presence of cracked surfaces or concrete deteriorated to a depth of greater than 2" or otherwise unable to withstand surface preparation as specified herein.
- B. Do not proceed with surface preparation or coating application until conditions are suitable.

### **3.03 SURFACE PREPARATION REQUIREMENTS**

- A. Water Blast at a pressure not less than 25,000 PSI to remove the top punkey layer of softened concrete providing a sound concrete substrate. Inspect the all prepared concrete surfaces by means of acoustic testing (sounding) with steel chain, rod, or other suitable tool to determine if there are any areas of softness or poor adhesion.

- B. Where existing coatings exist (outflow side of dam) Grit Blast with 20-30 mesh silica sand to remove all loose non-bonding coatings and provide a sound profiled substrate. A minimal profile of 3 mils is required to support specified coatings. Existing polymer topping and or coating shall be tested for adhesion following preparation. Adhesion shall be in accordance with ASTM-D-4541-85. A Minimum of one (1) test per 1,000-sq. ft. of the total scope of work shall be performed. Rust-Oleum Corporation or their engineers agent shall determine minimum value of adhesion.
- C. Provide terminations cuts 1/4" wide and 1/4" deep at all coatings termination points. All settlement, stress cracks are to be routed to a depth of 1/2" inch and a minimum of 1/4-inch width and filled with Blok Fil. Concrete to metal items intersections shall be cut 1/4" X 1/4" and filled with Overflex E.

**3.04 NEW CONCRETE SURFACE PREPARATION (If needed, at Owner's Discretion)**

- A. New concrete should be cured per ACI-308-81 (R-1986), Recommended Practice for Curing Concrete. No curing agents or sealers shall be used that may interfere with the adhesion of the coating to be applied.
- B. Where oil and grease deposits are present, concrete shall be cleaned by scrubbing with Rust-Oleum 3599 Cleaner/Degreaser solution. Surfaces shall then be flushed clean with fresh water. The contractor is responsible to remove any residue, which may result in poor bonding of subsequent applications.

NOTE: A single scrubbing with a cleaning solution may not be sufficient to remove grease, oil and other contamination.

- C. New Concrete (Type I) shall have a minimum of ten (10) day cure at an average of 73 degrees F., prior to coating application. Concrete shall have a minimum 2500-psi compressive or 270 psi tensile strength. Surface of concrete shall have a light broom, wood trowel or light steel trowel finish. (Do not machine finish or burn in finish).
- D. The concrete surface shall be prepared by mechanical method specified as follows:

Mechanical preparation methods shall conform to ASTM D-4259, Sections 6 (Mechanical Abrading Procedure), 7 (Water Blast Cleaning) or 8 (Abrasive Blast Cleaning Procedures). A 3 to 6 mil profile is to be achieved.

All surfaces shall be free from all laitance, from release agents, curing agents, oil, grease, and other penetrating contaminants. Fins, projection, loose concrete, dirt, dust particles and all previous coatings shall be completely removed, leaving only a sound, firmly bonded substrate. Cracks and voids shall be repaired or filled only with materials approved by the Manufacturer of the floor coating specified.

### 3.05 JOINT AND CRACK TREATMENT

- A. Shrinkage Cracks are normally not a problem requiring additional treatment. Specified materials will transition cracks and prevent further damage to coated surfaces. To remove deviations apply topcoat activated materials and strike smooth with adjoining surfaces. Shrinkage Cracks are defined as less than 1/64<sup>th</sup> inch width.
- B. Structural or Dynamic Cracks: Saw or chase 1/4 or 3/8 inch diamond blade to a depth of 3 inches. Clean, Install backer rod and fill with a minimum of 2" Over Flex E striking flush with the concrete. Allow curing overnight before recoating.
- C. Construction and Contraction joints: Saw or chase 1/4 or 3/8 inch diamond blade to a depth of 3 inches. Clean. Install backer rod and fill with a minimum of 2" Over Flex E before coating. **(Do not use for downstream vertical joints, refer to Drawings.)**
- D. Expansion joint: Any rigid coating over an expansion joint will eventually crack. Backsaw joint edges for a minimum depth of 3" and fill with Over Flex E for over backer rod for a minimum depth of 2". **(Do not use for downstream vertical joints, refer to Drawings.)**

### 3.06 APPLICATION REQUIREMENTS

- A. All coating applications shall be in strict accordance with Manufacturer's printed instructions. Application procedures and acceptable tools, as defined by the Manufacturer, are considered part of this specification.
- B. The Contractor must follow the minimum and maximum recoat limitation times and related temperature range restrictions between successive lifts for all products specified herein per Manufacturer's stated requirements.
- C. Acceptable methods of application are trowel, ranking and spraying. If spraying is employed, the use of a spray unit such as Quickspray Carrousel Pump is acceptable.
- D. Chasing shall be employed at any point where coating does not end at a vertical surface. Chasing shall consist of saw cutting the concrete surface 1/4-inch deep. The chase shall be 3/4 inch wide on the side to be coated, which can be accomplished by sawing the groove and grinding to bevel one edge.

### 3.07 SURFACE REPAIR AND LEVELING APPLICATION

- A. Dam Floor (from Stop Log to Tainter Gate)
1. Surface Leveling. Following removal of all blast media, fill remaining voids and areas of potential ponding (birdbaths) with Rust-Oleum Overdrive fully extended with 30-40 washed silica. Material is to maintain a slump allowing self leveling and shall be toveled flush with the adjacent concrete.
- B. Upstream Portion of Spillway:
- Dam Floor (from beginning of Spillway to Stop Log) &
  - Dam Walls to Elevation 41.00 (from beginning of Spillway to Tainter Gate, including abutment walls and concrete piers)
1. Surface Leveling. Fill with Blok Fil leaving a maximum depth of 1/8". Grind peeks to a point leaving a maximum depth of 1/8".
- C. Approach Slab, Approach Walls, and Training Walls (Downstream)
1. Surface Repair. Surfaces identified and marked for repair shall be further profiled (3 mil minimum across the area requiring repair). The repair surface shall be primed with Penetrating Prime and Seal Primer between 10-12 mils and filled with BlokFil.

### 3.08 COATING SYSTEMS

- A. Dam Floor on Top of Spillway (from Stop Log to Tainter Gate)
1. Apply a full coat of 8200 Overkote HD to a depth of 1/4". Place into slurry using 20/30 sand immediately followed with a full broadcast to refusal with 30 mesh alumina oxide. Allow to cure and remove excess alumina oxide by broom and vacuum method. The end product will provide non-skid for all areas installed to assure full non-skid safety.
- B. Dam Floor on Upstream Face of Spillway (from beginning of Spillway to Stop Log)
1. Apply a full seal coat of Penetrating Prime and Seal Primer between 12-16 mils DFT.
  2. Apply a coat of 8100 OverKrete Xtra V Navy Gray at 12-16 mils DFT. Fully broadcast with 30 mesh Alumina Oxide. Allow to cure for 6-8 hours or until firm by thumb-press test yet before 72 hours at 80F.

3. Apply a second finish coat of 8100 OverKrete Xtra V Light Gray at 12-16 mils DFT. Fully broadcast with 30 mesh Alumina Oxide. Allow to cure for 6-8 hours or until firm by thumb-press test yet before 72 hours at 80F.
  4. Apply a third finish coat of 8100 OverKrete Xtra V Light at 12-16 mils DFT. Allow to cure a minimum of 96 hours prior to subjecting to immersion and use.
- C. Dam Walls to Elevation 41.00 on Upstream Portion of Spillway (from beginning of Spillway to Tainter Gate, including abutment walls and concrete piers)
1. Apply a full seal coat of Penetrating Prime and Seal Primer between 7-8 mils DFT.
  2. Apply a coat of 8100 OverKrete Xtra V Navy Gray mixed with 1150 grams of Ultra-Wear Additive per gallon at 12-16 mils DFT. Allow to cure for 6-8 hours or until firm by thumb-press test.
  3. Apply a second coat of 8100 OverKrete Xtra V Light Gray mixed with 1150 grams of Ultra-Wear Additive per gallon at 12-16 mils DFT.
- D. Approach Slab, Approach Walls (to Elevation 41.00), and Training Walls (bottom 6 feet).
1. Apply a full seal coat of Penetrating Prime and Seal Primer between 7-8 mils DFT.
  2. Apply a coat of 8100 OverKrete Xtra V Navy Gray at 12-16 mils DFT. Allow to cure for 6-8 hours or until firm by thumb-press test yet before 72 hours at 80F.
  3. Apply a second coat of 8100 OverKrete Xtra V Light Gray at 12-16 mils DFT.
- E. The contractor is responsible to check all epoxy coatings for amine blush between any applications which is to be top coated. Removal of amine blush shall be with a mild detergent with brush agitation and pressure washing at a minimum of 3,000 PSI.
- F. Any recoat window missed shall require the surface to be recoated be sweep blasted to provide a profile of 2.0 to 3 mil profile to assure bonding.
- G. Each application must reach all voids regardless of profile. Back rolling may be required to assure all surfaces are fully receiving the specified coatings for each coat.

**3.09 INSPECTION**

- A. The Contractor is ultimately responsible for the quality performance of the applied materials and workmanship. Inspections by the Engineer or the Engineer's representative do not limit this responsibility.
- B. The Contractor is responsible for keeping the Engineer informed of all progress so that inspection for quality can be achieved.
- C. Upon completion of the coating system installation, the coated surface shall be prepared to permit close visual inspection by the Engineer or the Engineer's representative. Any and all deficiencies or defective work will be marked for repair or removal/replacement. Such areas shall be re-cleaned and reworked by the Contractor according to these specifications and the manufacturer's recommendations at no additional cost to the Owner.

**3.10 CLEANUP**

- A. Upon completion of work, the Contractor shall remove surplus materials, equipment, protective coverings, and accumulated rubbish, and thoroughly clean all surfaces and repair any work-related damage. Containers necessary for storage of all spent abrasive and concrete waste shall be supplied by the contractor. Empty can removal from the owner's property is the responsibility of the contractor. The surrounding surface areas including roadways and all other surfaces shall be restored to their pre-project condition.

**3.11 MANUFACTURERS REPRESENTATIVE**

- A. The Contractor shall retain the services of the coating manufacturer to provide inspection of each phase of the application work including surface preparation and each coating application prior to continuing to the next phase in addition to periodic inspection during each phase of the work. The manufacturer shall provide written notice to the engineer that the concrete repair material and protective coating system have been properly applied.

**3.12 WARRANTY**

- A. The Contractor shall provide to the Owner a three year warranty from the Manufacturer that the applied products are free from defects in material and workmanship and will not fail.

**END OF SECTION**

## SECTION 09900

### PAINTING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. This section describes spot microbiological induced corrosion (MIC) removal, surface preparation, field painting of both new and previously painted equipment at the Lake Manatee Dam: including, tainter gates (upstream and downstream sides), stop log, stop log embedded guide tracks, stop log support frame, stop log access platform, handrail, ladders, barrel ladders, safety posts, gate stems, tainter gate lifting devices, and all other items requiring a protective coating. The omission of minor items in the description of work and coatings schedule shall not relieve the Contractor of his obligation to include such items where they come within the general intent of the Specification as stated herein.
- B. The Contractor shall furnish all labor, tools, materials, equipment, and incidentals necessary for satisfactory completion, in accordance with the standards and practices set forth herein.
- C. Complete painting in accordance with Specifications, and paint manufacturer's current surface preparation and application instructions. Should any instructions be in conflict, the higher standard applies
- D. The Contractor shall take all health and safety precautions necessary to prevent accidents during the storage, handling, application, and drying of any of the coatings described. The Contractor shall comply with Federal Public Law 91-596 more commonly known as the "Occupational Safety and Health Act of 1970".
- E. All coating systems furnished shall meet all applicable raw water requirements of the County Health Department and the State Department of Environmental Protection or other regulatory agencies having jurisdiction.
- F. Products used in the surface preparation (such as hydrogen peroxide or bleach) shall meet the applicable requirements of the County Health Department and the State Department of Environmental Protection or other regulatory agencies having jurisdiction.

##### 1.02 COORDINATION

- A. It shall be the responsibility of the Contractor to arrange a meeting prior to the start of painting with mandatory attendance by Owner's Project Representative, Engineer, Contractor, Coatings Manufacturer's Representative, and NACE Certified Coating

Inspector. The purpose of the meeting is to review and clarify specifications, Inspector's responsibility and authority, reporting criteria, hold points, etc. and other pertinent issues not elsewhere addressed.

- B. Clarification shall be requested promptly from the Engineer when instructions are lacking, conflicts occur in the Specifications and/or paint manufacturer's literature, or the procedure is not clearly understood or seems improper or inappropriate for any reason. In the event the Contractor fails to resolve these conflicts which may exist, he shall be responsible for handling the discrepancies in a manner as prescribed by the Engineer at no additional cost to the Owner.
- C. Copies of all manufacturer's instructions and recommendations shall be furnished to the Engineer by the Contractor.
- D. The Contractor shall retain the services of the coatings manufacturer for their factory representative meet in person with the Contractor and Engineer a minimum of three times during the job as a consultant on surface preparation, mil thickness of coating, and proper application of coating, unless meeting is determined to be unnecessary by the Engineer.
- E. The Contractor shall be responsible for coordinating his work with other crafts and contractors working on the same job and with the Engineer. The Contractor shall coordinate activities with Plant Operations and Maintenance Management so as not interfere with plant operation or unduly delay the progression of the work.

### 1.03 QUALITY ASSURANCE

- A. The coating Contractor shall be listed as an Approved Applicator of the specified material by the Manufacturer. Applicator shall have completed five projects of similar scope, magnitude, and materials specified, with contacts for references, during the past five years.
- B. The Contractor is responsible for a satisfactory elimination of all known occurrences of MIC. It is believed all MIC incidents have previously been addressed, however, the awarded Contractor shall deal with any additional occurrences as part of this bid. The Contractor shall include five (5) occurrences as part of this Bid.
- C. Work shall be performed by skilled workmen thoroughly trained in necessary crafts and completely familiar with specific requirements and methods specified herein. The Contractor must show proof that all employees associated with this Project shall have been employed by the Contractor for a period not less than six (6) months. The Contractor will be asked to remove anyone from the work force who is observed performing unsatisfactory or unacceptable work results.

- D. Areas are to be protected as required to guarantee cut-in areas are neat and not recklessly sprayed with various colors. Final appearance is expected to be proper thickness, smoothness, and semi-gloss in appearance. Thin, rough, and flat areas in appearance will be unacceptable. .
- E. All materials shall be from one manufacturer and no cross coating allowed between primers and finish coats. Over thinning of materials (resulting in runs) will not be unacceptable. Contractor will be asked to remove anyone from the work force who creates excessive paint “runs” which requires brushing out, toweling or smoothing out with scraper blades.
- F. Submit daily reports to the Engineer or the Engineer’s Representative that contain the following information: substrate conditions, application procedures, work completed, location thereof, quality control inspection test findings (batch numbers of materials applied, number of employees on site, hours worked each day), and other information pertinent to the resurfacing and coating system installations.
- G. Remove and re-finish or otherwise correct in a manner approved by the Engineer any and all deficiencies or defective work at no additional cost to the Owner.
- H. Specified materials are the minimum standard of quality for this project.

#### **1.04 INDEPENDENT INSPECTION AND TESTING**

- A. Owner or Project representative for the Owner will obtain and pay for the services of an independent NACE Certified Coating Inspector (LEVEL 3). The Inspector shall be present at all preconstruction meetings and during all phases of the work including surface preparation, paint mixing, and application. The NACE Inspector will maintain a daily log of all activities associated with the work including dry film thickness readings conducted per SSPC PA2, batch numbers for all materials received, and any other surface test conducted by the Contractor, Vendor or Owner, and daily ambient conditions.
- B. Prior to commencing work or application of any coat, and once per four hour period on site, the NACE Inspector shall measure:
  - 1. Ambient temperature
  - 2. Dew point
  - 3. Surface temperature
  - 4. Wet bulb temperature
  - 5. Batch codes being utilized each day
- C. After application and curing of each coating in the specified system, the NACE Inspector will measure its thickness with a properly calibrated Nordson Microtest Dry Film Thickness Gauge or equivalent, following standard method for

measurement of dry paint thickness with magnetic gauges as described in SSPC-PA2-73T. Gauges shall be calibrated per manufacturer recommendations. The NACE Inspector will make as many determinations as needed to ensure the specified thickness values in each area. The Contractor shall apply additional coat(s) at no extra cost to the Owner to all surfaces having less dry film thickness than specified to bring thickness up to specifications.

- D. All surfaces which will be in submersion service shall require a pinhole detection test (discontinuity test) as prescribed in **NACE RPO-188**. All pinholes shall be marked with chalk and repaired per the manufacturer instruction and retested. Repairs shall be applied by brush application.
- E. If the composition of the original paint system is unknown, a spot test shall be made to determine the compatibility of the new paint system with the old. The new system is to be applied to a small area and tested for adhesion, lifting, bleeding or other evidence of incompatibility. This is a destructive test; therefore, the area must be touched-up after the test. The **adhesion test** shall be performed in accordance with **ANSI/ASTM D3359**. Method A shall be used for coatings greater than 5 mils total, and Method B for coatings less than 5 mils DFT. Destructive testing must have the approval of the Owner and is reserved for areas believed to have insufficient adhesion. The Elcometer Pull Adhesion Tester, Hate Self Alignment Tester & Patti Pneumatic Adhesion Tester are superior testing mechanisms for adhesion testing and are accepted when conducted as outlined under **ASTM 4541** test methods.
- F. Painting Contractor shall permit Project Representative, Inspector and/or paint & coating Manufacturer (as requested by Owner) to inspect his work for conformance to this specification. The Owner reserves the right to reject all work that does not comply with this specification.

#### **1.05 RELATED WORK**

- A. Section 03310 – Concrete Work
- B. Section 05120 – Structural Steel
- C. Section 09703 – Concrete Resurfacing and Coating System

#### **1.06 SURFACE PREPARATION INSPECTION STANDARDS**

- A. VIS-1 & VIS-3 Joint Standards, provided through NACE and SSPC will govern the approved degree of acceptable preparation. The written definition provided in the joint standard of the SSPC & NACE organizations will be the standard of performance for this specification and will take precedence over the visual standard as media selection and steel contamination can vary surface appearance. An approved blast sample may be required at the start of the project where debate is

anticipated over acceptable blast requirements. The sample should be a minimum of 3' by 3' and clear coated for future reference. WJ (Water Jetting) Standards will apply when published.

- B. Degree of Rusting - Degree of rusting shall be measured under the guidelines provided by ASTM –D-610 evaluating the degree of rust on steel and SSPC VIS – 2 Pictorial Standard of the Degree of Rusting.
- C. The Society for Protective Coatings (SSPC) and the National Association of Corrosion Engineers (NACE), Critical Preparation, Application and Inspection Standards to be used for all awarded work for this specification:

	NACE	SSPC
<b>SURFACE PREPARATION</b>		
Solvent Cleaning		SSPC-SP-1
Hand Tool Cleaning		SSPC-SP-2
Power Tool Cleaning		SSPC-SP-3
White Metal Blast Cleaning	NACE NO. 1	SSPC-SP-5
Near White Metal Blast Cleaning	NACE NO. 2	SSPC-SP-10
Commercial Blast Cleaning	NACE NO. 3	SSPC-SP-6
Industrial Blast Cleaning	NACE NO. 8	SSPC-SP-14
Brush Off Blast Cleaning	NACE NO. 4	SSPC-SP-12
Surface Cleaning and Cleaning of Metals by Water Jetting Prior to Recoating	NACE NO. 5	SSPC-SP-12
<b>SURFACE PREPARATION VISUAL STANDARDS</b>		
Guide to Visual Standard for Abrasive Blast Cleaned Steel		SSPC Guide to VIS 1
Visual Standard for Abrasive Blast Cleaned Steel-ASTM D 2200		SSPC VIS 1
Visual Standard for Degree of Rusting – ASTM D 612		SSPC VIS 2
Visual Standard for Power- and Hand-Tool Cleaned Steel		SSPC VIS 3
Steel Surfaces Prepared by Water Jetting	NACE VIS 7	SSPC-VIS 4
Steel Surfaces Prepared by Wet Abrasive Blast Cleaning		SSPC-VIS 5
<b>PAINT INSPECTION REFERENCES STANDARDS</b>		
Shop, Field and Maintenance Painting		SSPC-PA-1
Measurements of Dry Film Thickness with Magnetic Gauges		SSPC-PA-1
A Guide to Safety in Paint Application.		SSPC-PA-Guide 3
Guide to Maintenance Coating of Steel Structures		SSPC-PA-Guide 5

### **1.07 SUBMITTALS**

- A. Submit the following prior to commencing with any phase of the work covered by this Section:
- 1) Manufacturer's current printed recommendations and product data sheets for products supplied under this section including performance criteria, surface preparation, application, storage requirements, and safety requirements.
  - 2) Material Safety Data Sheets (MSDS) for any materials brought on-site including all resurfacing system materials, solvents, and abrasive blast media.
  - 3) Submit manufacturer's certification that paints and coatings, comply with Federal, State, and Local, whichever is more stringent, requirements for VOC (Volatile Organic Compound).
  - 4) Submit letter(s) with associated product data signed by manufacturer certifying that submitted products are suitable for application on the surfaces to be resurfaced and coated and for the service conditions
  - 5) Where colors are not specified, the Owner shall select colors and finish from manufacturer's full standard range. During Shop Drawing review, submit manufacturer's catalog of color chips and finishes for materials proposed.
  - 6) Submit letter from manufacturer that the coating Contractor is an Approved Applicator of the specified material.
  - 7) Painting Applicator shall provide a listing, including contact information, for projects of similar scope (a minimum of five), magnitude, and materials specified, completed in the last 5 years.

### **1.08 DELIVERY & STORAGE**

- A. Deliver materials to painter's area in original, unbroken, containers with name and analysis of product, manufacturer's name, and shelf life date. Packages shall not be opened until they are inspected by the Engineer and required for use. Do not use or retain contaminated, outdated, prematurely opened, or diluted materials. Rusty or severely damaged containers are not permitted
- B. Protect coated items, whether primed or finished, from damage due to shipping and handling. Store coated items carefully. Avoid damaging or dirtying coatings, by contact with soil, pavement or other harmful contacts, which might necessitate special cleaning. Use suitable blocking during storage. Do not expose factory primed surfaces to weather for more than six months before top coating. Allow less open time if recommended by coating manufacturer.

- C. Materials shall be stored in accordance with manufacturer's recommendations.
- D. All painting materials shall be stored in a clean, temperature controlled, dry, well-ventilated place, approved by the Engineer, and protected from sparks, flame, direct rays of the sun, and excessive heat or cold. Paint susceptible to damage from low temperatures shall be kept in a heated storage space when necessary. The Contractor shall be solely responsible for the protection and safety of the materials stored at the job site.
- E. Confine mixing, thinning, clean-up and associated operations, and storage of materials-related debris before authorized disposal, to these areas. This enclosed area must protect the mixing operation and materials from direct sunlight, inclement weather, freezing, or other means of damage or contamination. Protect all surfaces from any spillage of material(s) within the mixing area
- F. Empty coating cans shall be required to be neatly stacked in an area designated by the Engineer and removed from the job site on a schedule determined by the Engineer.
- G. Do not use plumbing fixtures, piping, dikes, or storm drains for disposal of materials.
- H. Store waste temporarily in closed, nonflammable containers until final disposal. Keep no rubbish in painter's area longer than 24 hours
- I. The Contractor shall take all precautions and implement all measures necessary to avert potential hazards associated with all materials as described on the pertinent Material Safety Data Sheets or container labels.

#### **1.09 SAFETY**

- A. Contractors performing work under this Specification shall abide by all Federal, State, and Local safety and environmental rules and laws as prescribed by the Owner and related governmental agencies.
- B. The Contractor's work forces should comply with the provisions outlined in the following documents:
  - SSPC-PA-3 "A Guide to Safety in Paint Application"
  - NACE Pub. "A Manual for Painter Safety"
- C. Any and all precautions found in the current manufacturer's Product Data Sheets and the Material Safety Data Sheets shall be strictly observed.

- D. Scaffolding can only be installed by an approved scaffold trained personnel.
- E. The Contractor shall provide and require the use of protective life saving equipment for persons working in or about the project site, in accordance with requirements set forth by OSHA or other regulatory agencies applicable to the construction industry, and the manufacturer's printed instructions.
- F. Workers doing abrasive blasting operations shall wear a fresh air supplied protective helmet and hood and personal protective clothing acceptable to industry standards and all government regulations.
- G. Disposal of containers, waste, rags soiled with coating material or solvent, and waste solvent shall be in accordance with all applicable Federal, State and Local regulations.
- H. The Contractor shall fireproof all work areas by maintaining a clean work area and having Underwriter's Laboratories approved fire extinguishers on-hand. The Contractor shall furnish these fire extinguishers.
- I. Keep any flammable materials such as cleaning solvents, thinners, or resurfacing materials away from open flames, sparks or temperatures higher than 150 degrees F. Drums containing flammable materials will be grounded. No solvent in any quantity shall be allowed inside containment enclosures or permitted confined spaces at any time.
- J. Power tools are to be in good working order to avoid open sparking. No spark producing tools shall be utilized in restricted areas as indicated herein.
- K. Dispose of rags used for wiping up resurfacing materials, solvents, and thinners by drenching them with water and placing in a metal container with a tight fitting metal cover. Complete this disposal process at the end of each day. Final disposal of these materials is the Contractor's responsibility.
- L. Matches, smoking, flames, or sparks resulting from any source including welding, must be remote from the work area during coating work.
- M. While working within an existing operating facility, Applicator should be aware that there could be sources of ignition and electrical hazard present. Applicator should take extreme precaution when using any solvents, especially those with a low flash point.

#### **1.10 WARRANTY**

- A. The Contractor shall provide to the Owner a three year warranty from the Manufacturer that the applied products are free from defects in material and workmanship and will

not fail. Failure under this warranty shall include flaking, peeling, delamination and spot rust. The Contractor, at no cost to the Owner, shall correct any failures.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Materials specified are those that have been evaluated for the specific service. Products manufactured by Rust-Oleum Industrial Coating Systems and Duromar are listed to establish a minimum standard of quality for this project. Equivalent materials of other manufacturers may be submitted as Substitutes, per the specifications, where it can be demonstrated the equivalent has equal or superior equivalency properties as listed below or contained in the technical data sheets.

To be considered as a Substitute:

1. The Contractor satisfactorily proves and documents that they are equivalent to the specified item (s) in:
  - a. Quality
  - b. Durability
  - c. Suitability for the Intended Service
  - d. Resistance to Abrasion and Physical Damage
  - e. Efficient corrosion protection of the substrate for extended periods
  - f. Life expectancy
  - g. Recoat cycles
  - h. Solids content per volume
  - i. Dry film thickness per coat
  - j. Mil square feet per gallon
  - k. Compatibility with other coatings
  - l. Resistance to chemical attack
  - m. Submersion application
  - p. Temperature limitations in service and during application
  - q. Recommended surface preparation for maximum coating life
  - r. Type and quality of recommended undercoats and topcoats
  - s. Generic type and,
  - t. Other pertinent criteria.
  
2. The Contractor shall submit to the Project Engineer on the letterhead of the firm manufacturing the proposed substitution certifying that:
  - a. the proposed substitution is the equivalent of the specified material in the qualities specified above
  - b. the list of compared equivalency qualities, as required below, is

- c. accurate, and  
the proposed substitution is suitable for the intended use.

The Contractor shall also submit to the Project Engineer on the letterhead of the firm manufacturing the proposed substitution a list of at least five (5) installations similar to the installation for which the products are being proposed, at which installations the proposed products have performed reliably in similar service for at least five (5) years. The list shall include the name, address, and telephone number of that owner's employee who is responsible for the maintenance and construction.

- 3. The Contractor shall submit to the Project Engineer the coating manufacturer's current printed information and recommendations and product data and MSDS sheets both for the proposed substitutions and specified products, and shall submit a list comparing the differences between the proposed substitution and the specified hereinbefore and between the two coating manufacturer's printed information, recommendations, and product data sheets.

List of Compared Equivalency Qualities:

- a. Chemical Description
  - b. Specific Gravity
  - c. Solid by Weight
  - d. pH Range
  - e. Temperature Limit Wet (degrees F)
  - f. Temperature Limit Dry (degrees F)
  - g. Tensile Strength
  - h. Bending Strength
  - i. Impact Resistance
  - j. Tensile Bond Strength
  - k. Tabor Abrasion Results
  - l. Other
- B. Ready-mixed paints, both exterior and interior, shall be first-line (best quality grade) retail products. Use coatings on ferrous surfaces of protective paint coating quality.
  - C. Use products of one manufacturer in any one paint coating system; all coating materials compatible. Coatings for touch-up shall be same as original.
  - D. All coatings in contact with potable water need to be NSF Certified in accordance with ANSI/NSF Standard 61.
  - E. All coatings specified shall be free of lead (<0.01% by weight or volume) and shall contain no chromate pigments.

- F. Catalysts, thinners and other additives shall be used only as recommended by the manufacturer and only with the full knowledge and approval of the Engineer. When used, only products manufactured by the coating's manufacturer shall be used in the coatings. Generic thinners may be used for equipment and personal clean up.
- G. Colors, where not specified, shall be as selected by the Owner or their Representative.

## 2.02 EQUIPMENT

- A. Effective oil and water separators shall be used in all compressed air lines serving spray painting and sandblasting operations to remove oil or moisture from the air before it is used. Separators shall be placed as far as practicable from the compressor.
- B. The compressed air supply used for abrasive blasting shall be tested periodically for the presence of oil and Moisture. Tests shall be made when starting blasting operations and before application of any coatings. Additional test shall be made every four hours or more frequently if required by incimate weather. The approved method of testing is the Blotter test as described in ASTM 4285. Tests shall be done without sand by directing the nozzle toward a piece of clean, white absorbent paper, cloth or clear plastic for one minute to detect any oil or moisture. If the test indicates the presence of oil or moisture in the air supply, the following steps must be taken:
  - 1. Stop all blasting operations and make necessary repairs, adjustments, or changes in the equipment to ensure a clean, dry oil-free air supply.
  - 2. Do not proceed with blast cleansing until the air supply is retested and approved by the Engineer.
  - 3. All blasted cleaned work, which was completed using the contaminated air supply since the previous test, shall be re-blasted to the specification.
- C. All equipment for application of the paint and the completion of the work shall be furnished by the Contractor in first-class condition and shall comply with recommendations of the paint manufacturer.
- D. Contractor shall utilize "Nordson-Mikrotest" or "Positector" dry film thickness gauge to verify coatings for ferrous metal.
- E. All safety equipment shall comply with all applicable OSHA/ NIOSH and plant regulations. If plant or manufacturer recommendations are at variances with State, Federal of other government agency with jurisdiction, the higher standard applies.

Safety compliance is the responsibility of the Contractor during the conduct of the project.

### **2.03 PAINT SCHEDULE**

- A. Coordinate, schedule and confirm the various cleaning, touch-up and finishing operations with the Owner and the Engineer. Ensure the transmission of materials data, color selections, and coating system methods between the coating applicators. Take responsibility for not exceeding exposure and re-coat time limits. Cleaning and resurfacing shall be scheduled so that dust and other contaminants from the cleaning process will not fall on wet, newly resurfaced areas.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. Comply with the manufacturer's recommendations as to environmental conditions under which materials can be applied.
- B. Cover or otherwise protect finish work or other surfaces not in the work area.
- C. Do not apply resurfacing system materials when dust is in work site.
- D. Erect and maintain protective tarps, enclosures and/or masking to contain debris (such as dust or airborne particles resulting from surface preparation) generated during any and all work activities. This includes, but is not limited to, the use of dust/debris collection apparatus as required.
- E. Provide, set-up, and maintain all required hoists, scaffolds, and staging and planking, and perform all access related hoisting work required to complete the work of this section as indicated and specified. Scaffolds shall have solid backs and floors to prevent dropping materials from there to the floors or ground below.

### **3.02 INSPECTION OF SURFACES**

- A. The Contractor shall examine surfaces scheduled to receive paint and finishes for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work.
- B. Do not proceed with surface preparation or coating application until conditions are suitable.

- C. For steel surfaces, unacceptable surface conditions may include severe loss of structure, or conditions under which the specified surface preparation will damage the steel surface.
- D. Before application of the prime coat and each succeeding coat, all surfaces to be coated shall be subject to inspection by the NACE Inspector. Any defects or deficiencies shall be corrected by the Contractor before application of any subsequent coating.
- E. Samples of surface preparation and of painting systems shall be furnished by the Contractor to be used as a standard throughout the job, unless omitted by the Engineer.
- F. When any appreciable time has elapsed between coatings, previously coated areas shall be carefully inspected by the Engineer, and where, in his opinion, surfaces are damaged or contaminated, they shall be cleaned and recoated at the Contractor's expense. Recoating times of manufacturer's printed instructions shall be adhered to.
- G. Coating thickness shall be determined by the use of a properly calibrated "Nordson-Mikrotest" "Positector" Coating Thickness Gauge (or equal) for ferrous metal or an OG232 "Tooke" Paint Inspection gauge (or equal) for non-ferrous and cementitious surfaces. Please note that use of the "Tooke" gauge is classified as a destructive test.

### 3.03 PREPARATION

- A. All surfaces shall be cleaned and prepared for each paint system and coat application as specified herein. Cleaning standard of practice shall be outlined in the Steel Structures Painting Council and National Association of Corrosion Engineers Surface Preparation Specifications unless otherwise noted.
- B. The blast shall be angular and sharp to enhance bonding of the coating. ASTM 4417 or NACE RPO 287, Replica Tape Methods shall verify surface profile. Profile Comparators are excluded, as they are subjective.
- C. No coating shall occur until the specified degree of preparation is achieved and the surface is free of contamination including blast media. All prepared surfaces shall be coated within the same day, exempting surfaces maintained with a dehumidification unit or approved blast holder, such as Chlor\* Blast.
- D. Chlorides, Sulfates and Nitrates shall be maintained at acceptable levels prior to applying any specified coatings against reacted salts. Chlor\*Rid is biodegradable and contains non-hazardous ingredients to the environment. Chlor\*Rid will not interfere with the bonding of future applications of coatings.

Prior to cleaning or blasting, test surfaces for chlorides, nitrates and sulfates contaminants with the Chlor\*Test™ Steel Kit's. After cleaning or blasting a small sample area, retest to verify cleanliness. Adjust speed of travel, pressure or dilution as necessary and retest to verify desired cleanliness level is attained

1. Chlor\*Rid is to be applied to all substrates to reduce the levels of salt to below the following levels:

Chloride Salts	6 Parts Per Centimeter <sup>2</sup> - Non Immersion 3 Parts Per Centimeter <sup>2</sup> - Immersion
Sulfate Salts	17 Parts Per Centimeter <sup>2</sup>
Nitrate Salts	10 Parts Per Centimeter <sup>2</sup>

Note: Parts Per Centimeter<sup>2</sup> and Parts Per Million are the same when using all Chlor\*Rid Test Kits.

2. Application by High Pressure Washing: Chlor\*Rid is added to the water of the pressure washer, usually in a dilution ratio of 1:50. The application rate is dependent on the contamination level and the water quality. Add Chlor\*Rid by means of a metering pump or add to a reservoir water supply. A siphon device may be used, but most such devices lack dilution control and positive input. Use potable water or other approved source. A minimum 3000 psi. pressure washer is recommended. Flush washer and lines prior to application. Hold pressure nozzle perpendicular to the surface and no more than 12 inches away to ensure all surfaces are washed with direct high pressure. In areas of deep pitting, slow the wash speed to enable Chlor\*Rid to penetrate. Do not rinse. Typical application rate is 100-300 Sq. Ft. per gallon of Chlor\*Rid.
  3. Application by Hand Washing: Use Chlor\*Rid DTSTM (Direct to Surface) according to directions. Chlor\*Rid DTS is ready to use direct from the container- no dilution necessary.
  4. Application by Wet Abrasive Blasting: Add Chlor\*Rid to the system at 1 U.S. gallon per 300-1000 square feet of surface to be blasted using potable water or other approved source. (Dilution ratio of 1:250 typical.) Add Chlor\*Rid to rinse water at 1:100 ratio. Always use appropriate safety equipment.
- E. Prior to preparing any item, surface contaminants are to be removed to not drive into surface pores. Remove grease and oil from the surface with Rust-Oleum 3599 Cleaner Degreaser diluted to the desired strength for effective removal. Any chemical contamination shall be eliminated by means of neutralization or flushing or both prior to additional surface preparation. Clean rags shall be changed each 100 square feet while repeatedly rinsing.

### 3.04 PREPARATION OF MATERIALS

- A. Mechanical mixers, capable of thoroughly mixing the pigment and vehicle together, shall be used to mix the paint prior to use where required by manufacturer's instructions; thorough hand mixing will be allowed for small amounts up to one gallon. Pressure pots shall be equipped with mechanical mixers to keep the pigment in suspension, when required by manufacturer's instructions. All pressure pots shall be double regulated for proper atomization & fluid pressure regulation. Otherwise, intermittent hand mixing shall be done to assure that no separation occurs. All mixing shall be done in accordance with SSPC Vol. 1, Chapter 4, "Practical Aspects, Use and Application of Paints" and/or with manufacturer's recommendations.
- B. Catalysts, thinners and other additives shall be used only as recommended by the manufacturer and only with the full knowledge and approval of the Engineer. When used, only products manufactured by the coating's manufacturer shall be used in the coatings. Generic thinners may be used for equipment and personal clean up.

### 3.05 MIC REMOVAL AND REPAIR

Note: The Contractor is responsible for a satisfactory elimination of all known occurrences of MIC. MIC was previously addressed on the upstream side of the gate surface. Only previously unidentified MIC incidents or any failure previously completed must be repaired. Few if any incidents are anticipated for this project. Contractor to include five (5) occurrences as part of this Bid.

- A. Following degreasing and prior to blast cleaning test surfaces for chlorides, nitrates and sulfates contaminants. Re-clean and retest as necessary to verify cleanliness. Prior to the application of the protective coating system, chlorides, sulfates, and nitrates shall be limited to the following concentrations:

Chloride Salts	6 parts per cm <sup>2</sup> – Non immersion surfaces 3 parts per cm <sup>2</sup> – Immersion surfaces
Sulfate Salts	17 parts per cm <sup>2</sup>
Nitrate Salts	10 parts per cm <sup>2</sup>

- B. Surface must be clean, dry, and oil free prior to proceeding.
- C. Abrasively blast surface to the point where all MIC pits and worm holes can be identified for remediation.
- D. Where MIC Pitting has occurred, a "pencil" type grinder is required to open and deepen pits and cut out tunnels to expose MIC worm holes and tunnels.
- E. Wash exposed pits and tunnels surfaces with a liberal application of a minimum 10% solution of hydrogen peroxide, taking care to flush any MIC pits. Applicators are to

be thoroughly trained in the proper use of Hydrogen Peroxide. MSDS sheets are to be consulted and all warning and safety procedures followed. Keep the surfaces wet with additional Hydrogen Peroxide for a minimum of 10 minutes. Saturated bulk cloth or cotton works well for this purpose.

- F. Thoroughly flush the surface with clean water, air blow dry and repeat the saturation of the Hydrogen Peroxide as stated above a second time. Re-wash the surface with clean water and allow to thoroughly dry.
- G. Re-establish the blast standard and profile as specified to a Near White SSPC-SP-10 degree of cleanliness. Provide a blast profile between 2-4 mils in depth. Following this blast cleaning, a NACE Certified Coating Inspector shall record thickness measurements of all structural members noted in the scope of work.
- H. Fill all MIC pits and exposed tunnels with Duromar SAR repair putty, or approved equal. Apply by putty knife and strike flush. No filling is required unless further structural defects are noted by the Owner.

### 3.06 APPLICATION

- A. See coating schedule for actual coating systems to be used on this project.
- B. All work shall be accomplished by skilled workmen, under competent supervision, familiar with and trained to do this type of work.
- C. Paint shall be applied only on thoroughly dry surfaces and during periods of favorable weather, unless otherwise allowed by the paint manufacturer. Except as provided below, painting shall not be permitted when the atmospheric temperature is below 50° F, or when freshly painted surfaces may be damaged by rain, fog, dust, or condensation, and/or when it can be anticipated that these conditions will prevail during the drying period.
- D. No coatings shall be applied unless surface temperature is a minimum of 5° above dew point; temperature must be maintained during curing. Dew point determination shall be taken and recorded before and during any coating application. Readings shall be taken during any significant ambient weather changes and, in any event, shall be taken several times each day when blasting or coating work is being performed.

**DEW POINT CALCULATION CHART**

Dew Point - the temperature at which moisture will condense on surface.

Relative Humidity	Ambient Air Temperature - Fahrenheit										
	20	30	40	50	60	70	80	90	100	110	120
90%	18	28	37	47	57	67	77	87	97	107	117
85%	17	26	36	45	55	65	76	84	95	104	113
80%	16	25	34	44	54	63	73	82	93	102	110
75%	15	24	33	42	52	62	71	80	91	100	108
70%	13	22	31	40	50	60	68	78	88	96	105
65%	12	20	29	38	47	57	66	76	85	93	103
60%	11	20	27	36	45	55	64	73	83	92	101
55%	9	17	25	34	43	53	61	70	80	89	98
50%	6	15	23	31	40	50	59	67	77	86	94
45%	4	13	21	29	37	47	56	64	73	82	91
40%	1	11	18	26	35	43	52	61	69	78	87
35%	-2	8	16	23	31	40	48	57	65	74	83

**SURFACE TEMPERATURE AT WHICH CONDENSATION OCCURS**

Example:

If air temperature is 70° F and relative humidity is 65%, the dew point is 57° F. No coating should be applied unless surface temperature is 62° F minimum.

- E. Suitable enclosures to permit painting during inclement weather may be used if provisions are made to control atmospheric conditions artificially inside the enclosure, within limits suitable for painting throughout the painting operations.
- F. Field painting in the immediate vicinity of, or on, energized electrical and rotating equipment, and equipment and/or pipes in service shall not be performed without the approval of the Engineer.
- G. Extreme care shall be exercised in the painting of all operable equipment, such as valves, electric motors, etc., so that the proper functioning of the equipment will not be affected.
- H. The Contractor's scaffolding shall be erected, maintained and dismantled without damage to structures, machinery, equipment or pipe. Drop cloths shall be used where required to protect buildings and equipment. All surfaces required to be clear for visual observation shall be cleaned immediately after paint application.
- I. Before applying field coat, touch-up abraded areas of shop coats with paint. Apply an entire coat if necessary. Touch-up coats are in addition to, and not a substitute for first field finish coat. Clean deteriorated surfaces to bare metal before applying touch-up coat. Contractor is responsible for verifying that coatings are compatible with shop primer.

- J. The prime coat shall be applied immediately following surface preparation and in no case later than the same working day. All paint shall be applied by brushing, paint mitt and roller, conventional spraying, or airless spraying, using equipment approved by the paint manufacturer.
- K. The Contractor shall be responsible for inter-coat contamination. In the event surfaces are damaged or contaminated, they shall be cleaned and re-coated at the Contractor's expense.
- L. Each coat of paint shall be recoated as per manufacturer's instructions. Paint shall be considered re-coatable when an additional coat can be applied without any detrimental film irregularities such as lifting or loss of adhesion. Exceeding recoat limits shall require re profiling the surface to assure proper bonding of future coats.
- M. Surfaces that will be inaccessible after assembly shall receive either the full specified paint system or three shop coats of the specified primer before assembly.
- N. Finish colors shall be in accordance with the Coating Schedule and shall be factory mixed (i.e., there shall be no tinting by the Contractor, unless authorized by the Engineer).
- O. All welds, corners, angles, bolt heads, threads, edges (except outer edges on individual steel plates) and other difficult access areas shall receive a stripe coat of the material specified after the application of the first primer coat. This shall be done in addition to the specified number of coats.
- P. All hidden surfaces shall be sealed by caulking. Hidden surfaces are defined as: inaccessible surfaces between back to back angles irons, structural shapes stitch-welded to vessels, and any area where two pieces of metal overlap and the overlap is not continuous welded. Bostic 900 Caulk is specified for these areas and may be top-coated within 4 hours at 70 F or greater. Caulk shall be applied after the first coat of material and before the second coat.

### **3.07 APPLICATION OF PAINT**

- A. All paint shall be uniformly applied without sags, runs, spots, pinholes or other blemishes. Work which shows carelessness, lack of skill, or is defective in the opinion of the Engineer, shall be corrected at no cost to the Owner.
- B. Apply coating materials to meet manufacturer's spreading rate and dry film thickness recommendations. Dry film thicknesses specified are constant for brush, spray, roller or other form of application.

C. By Brush and/or Rollers

1. Top quality, properly styled brushes and rollers shall be used. Rollers with a baked phenol core shall be utilized.
2. The brushing or rolling shall be done so that a smooth coat as nearly uniform in thickness as possible is obtained. Brush or roller strokes shall be made to smooth the film without leaving deep or detrimental marks.
3. Surfaces not accessible to brushes or rollers may be painted by spray, by dauber or sheepskins, and paint mitt, as authorized by the manufacturer.
4. It may require two coats to achieve the specified dry film thickness if application is by brush and roller.

D. Air or Airless

1. The equipment used shall be suitable for the intended purpose, shall be capable of properly atomizing the paint to be applied and shall be equipped with suitable pressure regulators and gauges.
2. Paint shall be applied in a uniform layer, with a 50% overlap pattern. All runs and sags should be brushed out immediately or the paint shall be removed and the surface re-sprayed.
3. High build coatings should be applied by a cross-hatch method of spray application to ensure proper film thickness of the coating.
4. Areas inaccessible to spray shall be brushed; if also inaccessible to brush, daubs or sheepskins shall be used, as authorized by the manufacturer.
5. Special care shall be taken with thinners and paint temperatures so that paint of the correct formula reaches the receiving surface.
6. Nozzles, tips, etc., shall be of sizes and designs as recommended by the manufacturer of the paint being sprayed.

**3.08 PROTECTION AND CLEANUP**

- A. It shall be the responsibility of the Contractor to protect at all times, in areas where painting is being done, floors, materials of other crafts, equipment, vehicles, fixtures, and finished surfaces adjacent to paint work.
- B. The Contractor shall exercise care in the painting of all operable equipment so that the proper functioning of the equipment will not be effected.
- C. Surfaces such as ID plates, moving parts, motor windings, bearing assemblies, lights etc. shall be masked off and not painted or sandblasted. Damage to these surfaces will be charged back to the Contractor.
- D. The Contractor shall be responsible for adequately protecting all machinery and plant property from damage due to paint over-spray and sandblasting. Over-spray damage is the responsibility of the Contractor. Signs are to be posted indicating spray

painting is in progress. Designated parking is to be enforced. Wind sock/s are to be placed to provide a wind direction reference.

- E. The Contractor shall contain and dispose of all spent abrasives, old paint chips, paint overspray and debris by means suitable to the Engineer, including, but not limited to, full shrouding of the area.
- F. If shrouding is required, the Contractor must provide a complete design of the intended shroud or cover. Care must be taken not to modify or damage the structure during the use of the shroud. If damage should occur, the Contractor is held responsible for all repairs.
- G. At the completion of the work, the Contractor shall remove all paint where spilled, splashed, spattered, sprayed, or smeared on all surfaces, including glass, light fixtures, hardware, and equipment, painted and unpainted surfaces.
- H. After completion of the work, the Contractor shall remove from the job site all painting equipment, scaffolding, surplus materials, and debris resulting from his work.
- I. The Contractor shall be responsible for keeping trash and debris from collecting or being spread across the job site during the course of the job. Oil and solvent soaked rags shall not be allowed to accumulate and shall be properly disposed.
- J. The Contractor is responsible for the removal and proper disposal of all hazardous materials from the job site in accordance with Local, State and Federal requirements as outlined by the Environmental Protection Agency.
- K. A notarized statement shall be presented to the Engineer that all hazardous materials have been disposed of properly including, but not limited to: name of disposal company, disposal site, listing of hazardous materials, weights of all materials, cost per pound, and EPA registration number.

### **3.09 TOUCH-UP MATERIALS**

- A. The Contractor shall provide at the end of the Project at least one (1) gallon of each generic topcoat in each color as specified by the Engineer for future touch-up. Two gallons may be required for (2) component materials.

### **3.10 INSPECTION**

- A. The Contractor is ultimately responsible for the quality performance of the applied materials and workmanship. Inspections by the Engineer or the Engineer's representative do not limit this responsibility.

- B. The Contractor is responsible for keeping the Engineer informed of all progress so that inspection for quality can be achieved.
- C. Upon completion of the coating system installation, the coated surface shall be prepared to permit close visual inspection by the Engineer or the Engineer's representative. Any and all deficiencies or defective work will be marked for repair or removal/replacement. Such areas shall be re-cleaned and reworked by the Contractor according to these specifications and the manufacturer's recommendations at no additional cost to the Owner.

### **3.11 MANUFACTURER'S REPRESENTATIVE**

- A. The Contractor shall retain the services of the coating manufacturer to provide a minimum of three visits during the job as a consultant on surface preparation, thickness of coating, and proper application of coating. The manufacturer Representative will receive the NACE Inspector's reports. The manufacturer shall provide written notice to the Engineer that the protective coating system has been properly applied.

SEE NEXT PAGE FOR COATING SCHEDULE

**3.12 COATING SCHEDULE**

- A. Steel – Immersion Service:
- Tainter Gate and Related Hardware(upstream side)
  - Stop Log Embedded Guide Tracks
1. Surface Preparation: At points of corrosion to be repaired, remove all existing coating by blast cleaning and apply degreaser such as Rust-Oleum 3599 Cleaner Degreaser. Remove rust by blast cleaning in accordance with SSPC-SP10 Near White Blast Cleaning and a profile between 2-4 mils depth.
  2. Prior MIC repairs coatings may remain in tact but must receive a profile between 2-4 mils in depth.
  3. Apply the first coat of Duromar HPL 2221 Red during the same day as preparation. Steel which turns to a lesser degree of preparation must be re-captured to the Near White Standard.
  4. Recoat windows must be honored or the prior coat must be re-profiled prior to applying an additional coat. Each full coat shall be tested for adequate thickness by the Certified NACE Inspector prior to release for the next application.
  5. After application of first coat of Duromar HPL 2221 Red , apply a stripe coat to all welds, bolts, sharp angle edges threads, and prior MIC repairs. The top coat of Duromar HPL 2221 Light Gray may immediately follow.
  6. Any divots or pits which exceed 1/8 inch depth shall be filled with Duromar SAR UW. This can occur between the first and second coat of Duromar HPL 2221, and once applied, can be immediately top-coated with the final coat of Duromar HPL 2221 Light Gray.

<b>Steel – Immersion Service</b>		
Tainter Gate and Related Hardware(upstream side) & Stop Log Embedded Guide Tracks		
Coat	Product	Dry Film-Mils
1 <sup>st</sup> Coat	Duromar HPL 2221 Red	12-16
Divot & Pit Repair	Duromar SAR UW repair putty	as required
Spot/Stripe coat (welds, bolt heads, threads & prior MIC repairs)	Duromar HPL 2221 Light Gray	12-16
Top Coat	Duromar HPL 2221 Light Gray	12-16

B. Steel – Periodic Immersion Service:

- Stop Log
  1. Remove all grease and oils per the specification.
  2. Pressure wash (4,000 PSI min) to remove dirt, moss, chalk and any other foreign contaminants. Inspect for Chlorides per the specification requirements.
  3. Spot Commercial Blast to SSPC-SP6 Grade any areas showing rust leaving a blast profile between 1.5 and 2.5 mils depth.
  4. Full Sweep Blast to a SSPC-SP7 Grade all remaining areas leaving a blast profile of 1.5 to 2.5 mils depth.
  5. Feather all lifted edges prior to apply additional coatings. The primer coat must be applied the same day as preparation is provided.
  6. Apply a spot coat of Rust-Oleum 9182 Silver Gray between 5 to 8 dry mils thickness. Immediately apply a full prime coat of Rust-Oleum 9182 Silver Gray between 5 to 8 dry mils thickness. After 12 hours and before 96 hours apply a full finish of Rust-Oleum 9179 Black Mastic Epoxy between 5 to 8 mils DFT.
  7. Between the prime and finish coats, provide a stripe coat for all welds and sharp angles. Ring all bolt heads before applying the full coat. This step is to be applied at the same thickness as the full coat.

Steel – Periodic Immersion Service Stop Log		
Coat	Product	Dry Film-Mils
Spot	Rust-Oleum 9182 Silver Gray Mastic Epoxy	5-8
Prime	Rust-Oleum 9182 Silver Gray Mastic Epoxy	5-8
Stripe (welds, sharp angles & bolt heads)	Rust-Oleum 9179 Black Mastic Epoxy	5-8
Finish	Rust-Oleum 9179 Black Mastic Epoxy	5-8

- C. Steel – Non-Immersion Service:
- Tainter Gate and related hardware(downstream side)
  - Stop Log Support Framing
  - Stop Log Access Platform
1. Remove all grease and oils per the specification.
  2. Pressure wash (4,000 PSI min) Dam down stream side and all related structural steel items to remove dirt, moss, chalk and any other foreign contaminants. Inspect for Chlorides per the specification requirements.
  3. Spot Commercial Blast to SSPC-SP6 Grade any areas showing rust leaving a blast profile between 1.5 and 2.5 mils depth.
  4. Full Sweep Blast to a SSPC-SP7 Grade all remaining areas leaving a blast profile of 1.5 to 2.5 mils depth.
  5. Feather all lifted edges prior to apply additional coatings. The primer coat must be applied the same day as preparation is provided.
  6. Apply a spot coat of Rust-Oleum 9182 Silver Gray between 5 to 8 dry mils thickness. Immediately apply a full prime coat of Rust-Oleum 9182 Silver Gray between 5 to 8 dry mils thickness.. After 12 hours and before 96 hours apply a full finish of Rust-Oleum 9892 White Mastic Urethane between 3 to 5 mils DFT.
  7. Between the prime and finish coats, provide a stripe coat for all welds and sharp angles. Ring all bolt heads before applying the full coat. This step is to be applied at the same thickness as the full coat.

<b>Steel – Non- Immersion Service</b> Tainter Gates and Hardware(downstream side), Stop Log Support Framing & Stop Log Access Platform		
Coat	Product	Dry Film-Mils
Spot	Rust-Oleum 9182 Silver Gray Mastic Epoxy	5-8
Prime	Rust-Oleum 9182 Silver Gray Mastic Epoxy	5-8
Stripe (welds, sharp angles & bolt heads)	Rust-Oleum 9892 White Mastic Urethane	3-5
Finish	Rust-Oleum 9892 White Mastic Urethane	3-5

- D. Steel – Non-Immersion Service / Ancillary Items:
- Handrail
  - Ladders
  - Barrel Ladders
  - Safety Posts (Bollards)
  - Gate Stems
  - Tainter Gate Lifting Devices (3)
1. Remove all grease and oils per the specification.
  2. Wrap the drive motors and electronics boxes with visqueen to not allow blast media to penetrate windings or otherwise damage the electrical motor. Fully protect the stainless lifting wire and spool to not allow any nicks, cuts or damage from the sand blasting operations. When removed, provide an SSPC-SP3 cleaning to remove all un-bonded coatings and address any spot rust. Following priming, caulk any voids found on the electronics control box prior to applying the finish coat.
  3. All other areas, Full Commercial Blast to a SSPC-SP-6 Grade all remaining areas leaving a blast profile of 1.5 to 2.5 mils depth.
  4. Apply a full coat of Rust-Oleum 9182 Silver Gray between 5 to 8 dry mils thickness. After 12 hours and before 96 hours apply a full finish of Rust-Oleum 9844 Safety Yellow Mastic Urethane between 3 to 5 mils DFT.
  5. Between the prime and finish coats, provide a stripe coat for all welds and sharp angles. Ring all bolt heads before applying the full coat. This step is to be applied at the same thickness as the full coat.

<b>Steel – Non- Immersion Service / Ancillary Items</b>		
<b>Handrail, Ladders, Barrel Ladders, Safety Posts, Gate Stems &amp; Tainter Gate Lifting Devices</b>		
Coat	Product	Dry Film-Mils
Prime	Rust-Oleum 9182 Silver Gray Mastic Epoxy	5-8
Stripe (welds, sharp angles & bolt heads)	Rust-Oleum 9844 Safety Yellow Mastic Urethane	3-5
Finish	Rust-Oleum 9844 Safety Yellow Mastic Urethane	3-5

**END OF SECTION**

**DIVISION 16**  
**ELECTRICAL**

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## SECTION 16010

### BASIC ELECTRICAL REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

##### 1.02 DEFINITIONS

- A. "Contract Documents" shall be understood to include the Contract Specifications, Contract Drawings, official addenda, official revision bulletins, and all other official documents.
- B. "Electrical equipment and materials" shall be understood to include all electrical related equipment, apparatus, components, devices, assemblies, materials, accessories, and appurtenances.
- C. "Owner" shall be understood to include the Owner's Designated Representative.
- D. "Provide" shall be understood as "furnish and install."

##### 1.03 BASIC REQUIREMENTS

- A. Contractor's Charge: It shall be this Contractor's responsibility to complete the Work of this project as conveyed in these Contract Specifications and on the Contract Drawings.
- B. Site Inspection: Prior to the bid, the Contractor shall thoroughly inspect the Project Site and shall become familiar with project areas and existing site conditions.
- C. Hazardous Materials/Conditions: Advise the Owner and Engineer/Architect in writing of any suspected hazardous materials and hazardous conditions discovered during the course of the Work. Make this notification as soon as the discovery is made.
- D. General: Installations shall conform to the requirements of NFPA 70, NFPA 101, and IEEE C2, unless more stringent requirements are indicated herein or elsewhere on the Contract Drawings.
- E. Workmanship: All work must be performed in a neat and workmanlike manner by a licensed journeyman electrician or a certified apprentice working under the direct supervision of a licensed journeyman electrician, and shall present a neat and professional appearance when complete.
- F. Electrical Equipment and Materials: Listed and labeled as defined in NFPA 70,

Article 100, by a Nationally Recognized Testing Laboratory meeting the requirements of OSHA 29 CFR 1910.

- G. Electrical Equipment and Materials described in these specifications and on the Contract Drawings establish the minimum standards for quality and style, shall be the basis of the bid, and shall be new unless otherwise indicated as existing. Manufacturer names are indicated as basis of design, or suggested alternate manufactures. Alternates shall be considered upon approval of the engineer.
- H. Electrical Equipment and Materials shall be installed in accordance with the manufacturer's recommendations using the best methods known to the trade.
- I. Onsite Storage: Onsite storage of electrical equipment and materials, and tools will be at the Owner's discretion and the Contractor's risk. The Contractor shall follow the pathways as directed by the Owner for the movement of electrical equipment and materials, and tools in and out of the building, and to and from the project areas. Such pathways will be established by the Owner, and are subject to change at the Owner's discretion.
- J. Delivery, Storage, and Handling: Equipment and materials shall be visually inspected by the Contractor when received and prior to acceptance from conveyance. Stored items shall be protected from the environment in accordance with the manufacturer's published instructions. Damaged items shall be replaced at the Contractor's expense. Stored items shall be protected from theft.
- K. Maintenance of Work Areas: The Contractor shall maintain all work areas in a neat and orderly fashion. The Contractor shall employ means as necessary including, but not necessarily limited to, dust curtains, to prevent the migration of dust, dirt, and debris from the immediate project areas to other areas accessible to the public and/or other building occupants. The Contractor shall clean all work areas of dust, dirt, and debris at the end of each workday and more frequently if directed to do so by the Owner.
- L. Protection: The Contractor shall make every effort to ensure a safe work environment for his employees, contractors, and agents, and for the public. The Contractor shall follow the applicable requirements and recommendations of OSHA. All exposed energized equipment, components, and wiring shall be shielded from accidental contact by employees, workers and building visitors. In no case shall exposed energized equipment, components, or wiring be left unprotected or unguarded. The Contractor shall provide all warning apparatus and materials required to cordon off the Project Site from those not directly associated with the Project including, but not necessarily limited to, warning tape and barriers, cones, signs, and dust curtains. The placement and erection of warning apparatus and materials shall be coordinated with, and to the satisfaction of the Owner and/or Engineer/Architect.
- M. Installations: The Contract Drawings indicate the extent and the general location and arrangement of equipment, conduit, and wiring. The Contractor shall become familiar with all details of the Work and verify all dimensions in the field so that equipment and materials shall be properly located and readily accessible. The

Contractor shall sequence, coordinate, and integrate the various elements of electrical equipment and materials and comply with the following:

1. Verify all dimensions by field measurement.
  2. Coordinate the installation of electrical equipment and materials with other building systems, features, and components.
  3. Sequence, coordinate, and integrate the installation of electrical equipment and materials for efficient flow of the Work.
  4. Install electrical equipment and materials to conform with approved submittal data to the greatest extent possible. Conform to the arrangements indicated on these drawings recognizing that portions of the work are shown only in diagrammatic form.
  5. Any confusing, conflicting, or unclear information on these drawings shall be referred to the Engineer/Architect prior to the bid for his resolution. By failing to refer confusing, conflicting, or unclear information in the Contract Documents to the Engineer/Architect for his resolution prior to the bid, the Contractor thereby acknowledges the Contract Documents as error free.
  6. In general, install electrical equipment and materials level and plumb, parallel and perpendicular to building lines and features.
  7. Install electrical equipment and materials to facilitate servicing and maintenance, and repair or replacement of component parts. To the greatest extent possible, connect electrical equipment for ease of disconnecting with a minimum of interference with other installations.
- N. Power Outages: The Contractor shall schedule power outages as required to complete the Work of this Project. The number and duration of power outages shall be kept to an absolute minimum. Power outages must be coordinated and scheduled with the Owner with a minimum of fourteen-(14) calendar days advance notice.
- O. Temporary Power and Lighting:
- P. Permits / inspections: Obtain (arrange, apply, pay for, and maintain) and post all required construction permits. Obtain (arrange, apply, and pay for) inspection of all electrical work performed under this Contract.
- Q. Quality Control: Upon completion of the Work, but prior to the punchlist inspection, the Contractor shall complete the following:
1. General: Verify that all electrical equipment is installed, operational, and fully functional in accordance with the manufacturer's requirements and tolerances.
  2. Connections and Terminals: Verify all electrical connectors and terminals have been tightened in accordance with the manufacturers published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A and UL 486B.
- R. Facilitate Punchlist Inspection: The Contractor shall make one journeyman

electrician available to accompany the Engineer/Architect during the punchlist inspection. The journeyman electrician shall assist the Engineer/Architect including, but not necessarily limited to, the removing of equipment covers to facilitate inspection of equipment interiors. The punchlist inspection shall be scheduled by the Engineer/Architect with a minimum of 7 calendar days advance notice following the Contractor's notification of his successful checkout and testing of the completed installations. During the punchlist inspection, the Engineer/Architect will survey the completed installations for compliance with Contract Requirements. Subsequent to the punchlist inspection, the Engineer/Architect will compile a list of installation deficiencies. The Owner's notification to the Contractor of Final Acceptance will not be issued until all installation deficiencies have been corrected to the satisfaction of the Owner and/or Engineer/Architect.

- S. Record Drawings: The Contractor shall maintain at the site a clean undamaged set of blue or black-line white prints of the Contract Drawings. This record set drawings shall be marked to show the actual installation, and where the actual installation varies substantially from the Work as originally shown. Mark whichever drawings are most capable of showing conditions fully and accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Mark record drawings with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.

**END OF SECTION**

**SECTION 16060**  
**GROUNDING AND BONDING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This Section includes grounding electrodes and conductors, equipment grounding conductors and bonding. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.
- B. Related Documents: Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

**1.02 SUBMITTALS**

- A. Data Sheets: Submit as a minimum the following information on each different item. The information shall be in the form of a manufacturer's standard data sheets.
  - 1. Rod Electrodes.
  - 2. Rod Material.
  - 3. Dimensions.
  - 4. Coupling Type.
  - 5. Mechanical Connectors.
  - 6. Material.
  - 7. Connector Type.
  - 8. Exothermic Connections.
  - 9. Process Description.
  - 10. Mold Types.
  - 11. Weld Material.
  - 12. Starting Material.
  - 13. Ground Well.
  - 14. Dimensioned Picture or Drawing of Grounding Well and Cover.
  - 15. Well Pipe Material.
  - 16. Well Cover Material and Legend.
- B. Test Reports: Indicate overall resistance to ground and resistance of each electrode.
- C. Manufacturer's Instructions: Include instructions for storage, handling, protection,

examination, preparation and installation of exothermic connectors.

### 1.03 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100.
- B. Comply with NFPA 70.
- C. IEEE Std 81 – Guide.
- D. UL 467 – Electrical Grounding and Bonding Equipment.
- E. UL 486A – Wire Connectors and Soldering Lugs for Use with Copper Conductors.
- F. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.

## PART 2 PRODUCTS

### 2.01 GROUNDING CONDUCTORS

- A. For insulated conductors, comply with Division 16 Section "600 Volt or Less Cable."
- B. Material: Copper.
- C. Equipment Grounding Conductors: Insulated with green-colored insulation.
- D. Grounding Electrode Conductors: Stranded cable.
- E. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
- F. Bare Copper Conductors: Comply with the following:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Assembly of Stranded Conductors: ASTM B 8.
  - 3. Tinned Conductors: ASTM B 33.
- G. Copper Bonding Conductors: As follows:
  - 1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4-inch in diameter.
  - 2. Bonding Conductor: No. 4 AWG, stranded copper conductor.
  - 3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
- H. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

### 2.02 CONNECTOR PRODUCTS

- A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

- B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.
- C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

### **2.03 GROUNDING ELECTRODES**

- A. Ground Rods: Size: ¾" diameter by 120 inches. Copper clad steel sectional type with high strength steel core and electrolytic grade copper outer sheath, molten welded to the core with tapered point.

### **2.04 EXOTHERMIC CONNECTIONS**

- A. UL 486A.
- B. Process: Exothermic process that produces molecular bonding of connected items.
- C. Approved for exposure or direct burial without degradation.
- D. Use graphite molds of proper size and design for the weld and connected items.
- E. Starting Weld material: Copper oxide and aluminum mixture with a minimum 3 percent tin.
- F. Weld material: Aluminum, copper and iron oxides ignited only by spark ignitor designed for the purpose.
- G. Miscellaneous: Provide tools and other devices required for a complete weld.
- H. All welding material shall be of the same manufacturer.

### **2.05 WIRE**

- A. UL 486A.
- B. Materials: Copper, 98 percent conductivity; insulated copper for all feeders, branch circuits; bonding jumpers and transformer grounds; solid for #10 AWG and smaller, stranded for larger than #10 AWG. See Section 16123 for insulation types.
- C. Foundation Electrodes: Bare, tinned, stranded copper #4/0 AWG.
- D. Grounding Electrode Conductor: Insulated copper, size as indicated.
- E. Counterpoise: Bare, tinned stranded, copper, #3/0 AWG.

### **2.06 GROUNDING WELL**

- A. UL 467.
- B. Well Pipe: 8-inch diameter by 36-inch long concrete pipe with belled end.
- C. Well Cover: Cast iron with legend "GROUND" embossed on cover.

### **2.07 GROUND BUS BARS**

- A. Building Master Ground Bar – MGB:
  - 1. Tin plated copper ground bar.

2. ¼-inch thick.
3. 4-inch wide with two sets of holes drilled and tapped.
4. Minimum 4-foot long unless otherwise indicated on the Drawings.
5. Wall mounted on 2-inch insulated standoffs.

### **PART 3 EXECUTION**

#### **3.01 APPLICATION**

- A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
- B. In raceways, use insulated equipment grounding conductors.
- C. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells.
- D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.
- E. Ground Rod Clamps at Test Wells: Use bolted pressure clamps with at least two bolts.
- F. Ground Bus Bars: Install in each electrical and communication rooms and elsewhere as indicated.
  1. Use insulated spacer; space 1 inch from wall and support from wall 6 inches above finished floor, unless otherwise indicated.
  2. At doors, route the bus up to the top of the doorframe, across the top of the doorway, and down to the specified height above the floor.

#### **3.02 EQUIPMENT GROUNDING CONDUCTORS**

- A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
- B. Install insulated equipment grounding conductors in all raceways. Terminate each end on suitable lug, bus or bushing.
- C. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for voice and data cables.
- D. Metal Poles Supporting Outdoor Lighting Fixtures: Provide a grounding electrode in addition to installing a separate equipment grounding conductor with supply branch-circuit conductors.
- E. Common Ground Bonding with Lightning Protection System: Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

- F. Where expansion joints or telescoping joints occur, provide bonding jumpers.
- G. Where flexible metallic conduit is employed, provide a green insulated grounding jumper installed in the flexible conduit.
- H. Provide grounding bushings on all service and feeder raceways terminating within switchboards, motor control centers, panelboards, cabinets, and all other enclosures. Provide grounding conductors from such bushings to the frame of the enclosure and to the ground bus or equipment grounding strap.
- I. Where paralleled conductors in separate raceways occur, provide grounding conductor in each raceway.

### 3.03 COUNTERPOISE

- A. Ground the steel framework of the structure with a driven ground rod at the base of every corner column and at intermediate exterior columns at distances not more than 60 feet apart. Provide a grounding conductor (counterpoise), electrically connected to each ground rod and to each steel column, extending around the perimeter of the building. Use tinned-copper conductor not less than No. 3/0 AWG for counterpoise and for tap to building steel. Bury counterpoise not less than 18 inches below grade and 24 inches from building foundation.

### 3.04 INSTALLATION

- A. Ground Rods: Install at least two rods, spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes.
  - 1. Drive ground rods until tops are 6 inches below finished floor or final grade, unless otherwise indicated. Proper driving studs and sleeves shall be used when driving ground rods. Water shall be continuously applied to the ground at point where the rod penetrates during the driving process.
  - 2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make connections without exposing steel or damaging copper coating.
- B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- C. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.
- D. Metal Water Service Pipe: Provide insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by grounding clamp connectors. Where a dielectric main water

- fitting is installed, connect grounding conductor to street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
- E. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.
  - F. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of associated pumps, fans, blowers, electric heaters, and air cleaners. Use braided-type bonding straps.
  - G. Bond each aboveground portion of gas piping system upstream from equipment shutoff valve.
  - H. Install one test well for each service at the ground rod electrically closest to the service entrance. Set top of well flush with finished grade or floor in addition to test well shown on drawings.

### 3.05 CONNECTIONS

- A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
  - 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
  - 2. Make connections with clean, bare metal at points of contact.
  - 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
  - 4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.
  - 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
- B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable. Use exothermic welded connections for connections to structural steel and for underground connections except those at test wells. Install at connections to ground rods and other electrodes. Comply with manufacturer's written recommendations. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
- C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
- D. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically

noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

- E. Connections at Test Wells: Use compression-type connectors on conductors and make bolted- and clamped-type connections between conductors and ground rods.
- F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.
- G. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.
- H. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

### **3.06 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING**

- A. Manholes and Handholes: Install a driven ground rod close to wall and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide a No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, non-shrink grout.

### **3.07 FIELD QUALITY CONTROL**

- A. Testing: Perform the following field quality-control testing:
  - 1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
  - 2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to IEEE Standard 81. Perform tests on each individual grounding electrode prior to connection to grounding system.
  - 3. Provide drawings locating each ground rod and ground rod assembly and other grounding electrodes, identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather

and other phenomena that may affect test results. Describe measures taken to improve test results.

4. Excessive Ground Resistance: If resistance to ground exceeds specified values. Install additional rod electrodes or add additional sections of a sectional type rod as required to achieve specified resistance to ground.

**END OF SECTION**

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**SECTION 16500**

**LIGHTING FIXTURES AND LAMPS**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A. The work included under this Section consists of furnishing and installing the lighting fixtures, including all related systems and accessories, as shown on the Drawings and hereinafter specified. The preferred lighting fixture for exterior lighting shall be the metal-halide "white light" unit, with pulse-start lamp and ballast. The preferred lighting fixture shall be full cutoff photometric and minimum power level needed in accordance with the Manatee County Lighting Ordinance.

**1.02 SUBMITTALS**

- A. Product Data: Submit manufacturer's product data on each lighting fixture and lamp.

**1.03 QUALITY ASSURANCE**

The latest issue of the following specifications and standards at the time of contract award form a part of this Section:

- A. National Electric Code (NEC) (NFPA 70).
- B. Illuminating Engineering Society of North America (IESNA) Handbook.
- C. American National Standards Institute (ANSI).

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Products: Refer to Lighting Fixture Schedules on the Drawings for products.
- B. Each lighting fixture shall have been tested and certified for proper operation by the fixture manufacturer for the type of environment and mounting on in which it is to be installed.
- C. All fixtures shall bear the UL label.

**2.02 BALLASTS**

- A. Ballasts shall be in a separate compartment from the lamps and shall be encapsulated for quiet operation.

- B. Ballasts shall be of the pulse-start, energy-efficient regulator type, unless specifically shown otherwise in the contract documents. The ballast shall have the following characteristics as listed in the CBM Standards:
1. The ballast shall be manufactured to the standards and operate the lamp within the limits of the ANSI voltage-wattage trapezoid.
  2. The ballast shall be designed to accommodate +/- 10% variation in line voltage and have a power factor of 0.9 or better.
  3. The ballast shall be multi-tapped unless otherwise shown in the contract documents.
  4. The ballast shall be rated for the ambient conditions expected for the lighting fixture's mounting location, such as (but not limited to) hot or cold-weather operation.

### **2.03 LIGHTING FIXTURE ASSEMBLIES**

- A. The lighting fixture shall be a complete, coordinated assembly of ballast, igniter if any, ballast housing, reflector, diffuser or lens, heat removal louver or shield as required, wiring compartment, mounting device and hardware (unless remote mounted ballast is specified). All components shall be connected by secure mechanical means to reduce vibration noise and to prevent detachment of any components due to shock or vibration.
- B. Lighting fixtures for exterior mounting on a pole shall include, submittal, complete dimensions, the details of mounting and hardware to include weather protection features, door construction and access if any, suspensions and latching, lens type and thickness, ballast and lamp location, lamp shield if necessary, and heat removal provisions or heat shield if required.

### **2.04 LAMP**

- A. High intensity discharge lamps shall be pulse start metallic halide as defined by the IESNA and as specified on the construction drawings. Lamps shall be manufactured and listed by the manufacturer to standards.
1. The ballast and lighting fixture in which the lamp is used shall be approved for the application by the lamp manufacturer.
- B. All lamps provided for a single project shall be from a single manufacturer and lot so as to minimize objectionable variations in lamp color and performance. If non-standard lamps are used, a stamped or engraved label with the lamp ordering information shall be permanently attached to the lighting fixture, and the Contractor shall identify the lamp by this ordering information on the submittals.
- C. Provide lamps by one of the following manufacturers:
1. General Electric Company.
  2. G.T.E. Sylvania.

3. N.A. Phillips Company.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Lighting fixtures shall be installed as indicated on the Drawings.
- B. No wiring splice or tap shall be located within an arm, stem, etc., used for support of lighting fixture. Wire shall be continuous from splice in outlet box to lamp socket, or to ballast terminals.
- C. Coordinate with other electrical work as appropriate to properly interface installation of lighting fixtures with other work.
- D. Fasten fixtures securely to light pole support and check to ensure that fixtures are oriented properly.

#### **3.02 ADJUST AND CLEAN**

- A. Clean lighting fixtures of dirt and debris upon completion of installation.
- B. Protect installed fixtures from damage during remainder of construction period.

#### **3.03 FIELD QUALITY CONTROL**

- A. Upon completion of installation of lighting fixtures, and after circuitry has been energized, apply electrical energy to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then re-test to demonstrate compliance; otherwise, remove and replace with new units, and proceed with re-testing.

#### **3.04 GROUNDING**

- A. Provide tight equipment grounding connections for each lighting fixture installation where indicated.

**END OF SECTION**

**SECTION 16601**

**LIGHTNING PROTECTION SYSTEM**

**PART 1 GENERAL**

**1.01 WORK INCLUDED**

- A. Furnish and install a structure lightning protection system. Extent of lightning protection system work is indicated on Drawings.

**1.02 QUALITY ASSURANCE**

- A. Lightning protection system shall be furnished and installed in compliance with the provisions of the following:
1. National Fire Protection Association (NFPA):
    - a. NFPA 780 Lightning Protection Code.
  2. Underwriters Laboratories, Inc. (UL):
    - a. UL 96A Standard for Safety Installation Requirements for Lightning Protection Systems.
- B. Each item shall be certified by UL, be labeled with UL Seal of Approval, and provided with marking in accordance with referenced standard.
- C. Lightning protection system shall bear the UL Master Label. Locate the Master Label adjacent to 'MCC-4' in the Electrical Bldg.
- D. Work shall be performed by an accredited lightning protection installer.

**1.03 SUBMITTALS**

- A. Product Data: Submit properly identified manufacturer's specifications and catalog data for review on materials, connections, fastenings, and method of installation.
- B. Shop Drawings: Submit a roof plan and a ground floor plan with all equipment properly dimensioned.
- C. Submit test reports.

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**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Products: Provide all lightning protection system components by one of the following manufacturers:
1. ERICO, Inc.
  2. Harger Lightning Protection, Inc.
  3. Heary Bros. Lightning Protection Co.
  4. Thompson Lightning Protection Systems, Inc.

**2.02 MATERIALS**

- A. Air Terminals: Nickel tipped copper or solid aluminum as required for compatibility with construction material, 1/2" diameter; 18" minimum length or as required to project minimum 12" above roof parapet.
- C. Air Terminals Bases on Pipe/Rail: Cast bronze or aluminum (as required) with bolt pressure cable connections and shall be securely mounted with stainless steel screws or bolts.
- D. Roof Conductors:
1. Class I - Stranded copper, 7/16" diameter, 215 lbs. per 1,000 feet. Roof conductors shall be compatible with roof material.
- E. Down conductor shall be Class I - Stranded copper, 7/16" diameter, 215 lbs. per 1,000 feet.
- F. Secondary Conductors:
1. Standard copper, 1/4" diameter, 92 lbs. per 1,000 feet.
- G. Bonding Devices, Cable Splicers and Miscellaneous Connectors: Cast bronze or aluminum (as required) with bolt pressure connections to cable. Where aluminum-to-copper connection is required, use bi-metallic connectors and fittings.
- H. Ground Rods: Copper-clad steel, nominally 20 feet long, 3/4" diameter.
- I. Miscellaneous Materials: All bolts, nuts and screws shall be brass, bronze or stainless steel.

- J. Roof Penetrations: Thru-roof assemblies with solid bars and appropriate roof flashings.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. All connectors and fitting shall be compatible for use with the conductor and the surfaces on which they are installed.
- B. Care shall be exercised in maintaining moisture, corrosion and structural integrity of roof and parapet, including roof warranty requirements. Coordinate work with roofing installer.
- C. Plastic conduits for down conductors shall be installed in poured concrete columns (if required).
- D. Down lead cables shall not be brought directly through roof. Thru-roof assemblies with solid rods shall be used for this purpose.
- E. Install conductors avoiding radius bends of less than 8 inches.
- F. All major rooftop mechanical equipment and isolated metal bodies within 6 feet of system conductors shall be bonded to lightning protection system's main roof conductor with secondary conductors and appropriate bonding devices.
- G. Ground rods shall be installed such that top is 3 feet below finished grade, a minimum of two (2) feet away from building. Ground rod resistance shall not exceed 10 Ohms. The resistance of the grounding system shall not exceed 3 Ohms.
- H. Lightning protection system shall be bonded to the Main System Ground bus bar.

#### **3.02 TESTING**

- A. Each new ground rod shall be tested individually to ensure the maximum resistance-to-ground shall not exceed 10 ohms, and every rod that fails the test shall be driven deeper, using additional lengths of ground rod if necessary, until the required resistance is achieved. Upon completion of installation of electrical grounding and bonding systems, test ground resistance-to-ground with ground resistance tester. Complete grounding system resistance-to-ground shall not exceed 3 ohms. Where tests show resistance-to-ground exceeds 3 ohms, take appropriate action to reduce resistance to 3 ohms or less, by driving additional ground rods; then retest to demonstrate compliance. Install rods at least 8 feet apart.

**END OF SECTION**