

IFBC No. 19-R072110SAM
SWWRF ASR WELL REHABILITATION
PROJECT NO. 6069082
(913-59)
AUGUST 9, 2019

Manatee County BCC
Procurement Division
1112 Manatee Avenue West Ste 803
Bradenton, FL 34205
purchasing@mymanatee.org



**ADVERTISEMENT
INVITATION FOR BID CONSTRUCTION
NO. 19-R072110SAM
SWWRF ASR WELL REHABILITATION**

Manatee County, a political subdivision of the State of Florida (hereinafter referred to as County), will receive sealed bids from individuals, corporations, partnerships, and other legal entities authorized to do business in the State of Florida, to provide SWWRF ASR Well (Well) Rehabilitation, as specified in this Invitation for Bid Construction to include rehabilitation of existing aquifer storage and recovery (ASR) well equipment to continue cycle testing and operation of the Well. This will include a Well video survey, geophysical logging, recovery pump replacement, pipe replacements, connection to high service pump station piping and to the reject lake, flow meter, pressure recorder, water level instrumentation, and associated electrical work. Also, monitor Well piping replacement.

DATE, TIME AND PLACE DUE:

The Due Date and Time for submission of Bids in response to this IFBC is **September 17, 2019 at 3:00 P.M. ET**. Bids must be delivered to the following location: Manatee County Administration Building, 1112 Manatee Ave. W., Suite 803, Bradenton, FL 34205 prior to the Due Date and Time.

SOLICITATION INFORMATION CONFERENCE:

A non-mandatory Solicitation Information Conference will be held at 11:00 am on August 19, 2019 at the SWWRF Site, 5101 65th St. W., Administration Building, Bradenton, FL 34210 with a MANDATORY site visit immediately following at 11:30 am.

DEADLINE FOR QUESTIONS AND CLARIFICATION REQUESTS:

The deadline to submit all questions, inquiries, or requests concerning interpretation, clarification or additional information pertaining to this Invitation for Bid Construction to the Manatee County Procurement Division is August 28, 2019. Questions and inquiries should be submitted via email to the Designated Procurement Contact shown below.

Important: A prohibition of lobbying is in place. Review Section A.13 carefully to avoid violation and possible sanctions.

DESIGNATED PROCUREMENT CONTACT: Sherri Meier, Sr. Procurement Agent
(941) 749-3042, Fax (941) 749-3034
Email: sherri.adamsmeier@mymanatee.org
Manatee County Financial Management Department
Procurement Division

AUTHORIZED FOR RELEASE: _____

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SECTION A
INFORMATION FOR BIDDERS

To receive consideration, entities who submit a response to this Invitation for Bid (Bidders) must meet the minimum qualification requirements and comply with the following instructions. Bid responses (Bids) will be accepted from single business entities, joint ventures, partnerships or corporations.

A.01 BID DUE DATE

The Due Date and Time for submission of Bids in response to this Invitation for Bid (IFBC) is **September 17, 2019 at 3:00 P.M. ET**. Bids must be delivered to the following location: Manatee County Administration Building, 1112 Manatee Ave. W., Suite 803, Bradenton, FL 34205 and time stamped by a Procurement representative prior to the Due Date and Time.

Bids received after the Due Date and Time will not be considered. It will be the sole responsibility of the Bidder to deliver its Bid to the Manatee County Procurement Division for receipt on or before the Due Date and Time. If a Bid is sent by U.S. Mail, courier or other delivery services, the Bidder will be responsible for its timely delivery to the Procurement Division. Bids delayed in delivery will not be considered, will not be opened at the public opening, and arrangements will be made for their return at the Bidder's request and expense.

A.02 SOLICITATION INFORMATION CONFERENCE:

In order to provide prospective Bidders with information and understanding of the County's needs a non-mandatory Solicitation Information Conference will be held at 11:00 am on August 19, 2019 at the SWWRF Site, 5101 65th Street West, Administration Building, Bradenton, FL 34210 with a MANDATORY site visit immediately following at 11:30 am.

Attendance to mandatory information conferences and/or site visits are required to meet the minimum qualification requirements of the IFBC. Attendance to non-mandatory information conferences is not required, but is strongly encouraged.

A.03 PUBLIC OPENING OF BIDS

Bids will be opened immediately following the Due Date and Time at the Manatee County Administration Building, Suite 803 in the presence of County officials. Bidders or their representatives may attend the Bid opening.

Manatee County will make public at the opening the names of the business entities which submitted a Bid and the total bid price submitted. No review or analysis of the Bids will be conducted at the Bid opening.

A.04 SUBMISSION OF BIDS

The contents of the Bid sealed package must include:

- One (1) bound original clearly identifying Bidder and marked "ORIGINAL".
- Two (2) bound copies clearly identifying Bidder and marked "COPY" with all required information and identical to the original.
- One (1) electronic format copy clearly identifying Bidder.

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Electronic format copy should be submitted on a Universal Serial Bus (USB) portable flash memory drive or compact disc (CD) in MicroSoft Office® or Adobe Acrobat® portable document format (PDF) in one continuous file. Do not password protect or otherwise encrypt electronic Bid copies. Electronic copies must be searchable and contain an identical Bid to the original.

Submit the Bid package in a sealed container with the following information clearly marked on the outside of the package: IFBC No. 19-072110SAM, SWWRF ASR Well Rehabilitation, Bidder's name, and Bidder's address. Bids must be delivered to the Manatee County Procurement Division prior to the Due Date and Time at the following address:

Manatee County Procurement Division
1112 Manatee Ave. West, Ste. 803
Bradenton, FL 34205

A.05 DISTRIBUTION OF SOLICITATION DOCUMENTS

All documents issued pursuant to this IFBC are distributed electronically and available for download at no charge at www.mymanatee.org > *Business / Bids and Proposals*. Documents may be viewed and downloaded for printing using Adobe Reader® software.

At its sole discretion, the County may utilize a third-party provider, such as DemandStar to distribute proposals. Visit the DemandStar website at www.Demandstar.com for more information regarding this service. Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Additionally, the IFBC and all related documents are available for public inspection at the Manatee County Procurement Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205. Call (941) 749-3014 to schedule an appointment. Documents are available between the hours of 8:00 A.M. and 5:00 P.M., Monday through Friday, with the exception of County holidays.

As a courtesy, Manatee County notifies the Manatee County Chamber of Commerce and the Manatee County Black Chamber of Commerce of all active solicitations, who then distributes the information to its members.

A.06 EXAMINATION OF BID DOCUMENTS AND SITE(S)

It is the responsibility of each bidder before submitting a bid, to (a) examine the IFBC documents thoroughly; (b) visit the Project Site(s) 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 IFBC documents; and (e) notify County in writing of all conflicts, errors, or discrepancies in the IFBC documents.

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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 Project Site(s) 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 IFBC documents. County will provide each bidder access to the site(s) to conduct such explorations and tests.

Bidder shall fill all holes, clean up and restore the Project Site(s) 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 successful bidder in performing the Work are identified in the IFBC documents.

All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by successful bidder. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by County unless otherwise provided in the IFBC documents.

Inspection of the Project Site(s) is a requirement to be considered for award of this bid. Prior to submitting a bid, each bidder shall examine the Project Site(s) and all conditions thereon fully familiarizing themselves with the full scope of the Work. Failure to become familiar with Project Site conditions will in no way relieve the successful bidder from the necessity of furnishing any materials or performing any Work that is required to complete the Project in accordance with the Project Plans and Specifications. Bidder shall acknowledge inspection of the Project Site(s) on his/her signed, submitted Bid Form.

A.07 ADDENDA

Any interpretations, corrections or changes to this IFBC will be made by addenda. Addenda will be posted on the Procurement Division's web page of the County website at <http://www.mymanatee.org/purchasing> > *Bids and Proposals*. For those solicitations that are advertised on DemandStar, addenda will also be posted on the DemandStar distribution system on the 'Planholders' link.

All addenda are a part of the IFBC and each Bidder will be bound by such addenda. It is the responsibility of each Bidder to read and comprehend all addenda issued. Failure of any Bidder to acknowledge an issued addendum in its Bid will not relieve the Bidder from any obligation contained therein.

A.08 BID FORMS

Bids must include the forms provided in this IFBC. If needed, additional pages may be attached to a form. Bidders must fully complete and execute all Bid Forms. Bid Forms must be executed by an authorized official of the company who has the legal authority to bind the company.

A.09 BID EXPENSES

All costs incurred by Bidder in responding to this IFBC will be the sole responsibility of the Bidder.

A.10 QUESTION AND CLARIFICATION PERIOD

Each Bidder shall examine all IFBC documents and will judge all matters relating to the adequacy and accuracy of such documents. Any questions or requests concerning interpretation, clarification or additional information pertaining to this IFBC, including the sample Agreement, shall be made in writing via email to the Manatee County Procurement Division to the Designated Procurement Contact or to purchasing@mymanatee.org. All questions received and responses given will be provided to potential bidders via an addendum to this IFBC.

Manatee County will not be responsible for oral interpretations given by other sources including County staff, representative, or others. The issuance of a written addendum by the Procurement Division is the only official method whereby interpretation, clarification or additional information will be given.

A.11 FALSE OR MISLEADING STATEMENTS

Bids which contain false or misleading statements, or which provide references which do not support an attribute or condition claimed by the Bidder, may be rejected. If, in the opinion of the County, such information was intended to mislead the County in its evaluation of the Bid, and the attribute, condition or capability is a requirement of this IFBC. Such Bidder will be disqualified from consideration for this IFBC and may be disqualified from submitting a response on future solicitation opportunities with the County.

A.12 CONFIDENTIALITY OF SECURITY RELATED RECORDS

- a. Pursuant to Florida Statutes § 119.071(3), the following records (hereinafter referred to collectively as “the Confidential Security Records”) are confidential and exempt from the disclosure requirements of Florida Statutes § 119.07(1):
 - i. A Security System Plan or portion thereof for any property owned by or leased to County or any privately owned or leased property held by County.
 - ii. Building plans, blueprints, schematic drawings, and diagrams, including draft, preliminary, and final formats, which depict the internal layout and structural elements of a building, arena, stadium, water treatment facility, or other structure owned or operated by County.
 - iii. Building plans, blueprints, schematic drawings, and diagrams, including draft, preliminary, and final formats, which depict the internal layout or structural elements of an attractions and recreation facility, entertainment or resort complex, industrial complex, retail and service development, office development, or hotel or motel development in the possession of, submitted to County.
- b. Successful Bidder agrees that, as provided by Florida Statute, it shall not, as a result of a public records request, or for other reason disclose the contents of, or release or provide copies of the Confidential Security Records to any other party absent the express written authorization of County’s Property Management Director or to comply with a court order requiring such release or disclosure. To the extent successful Bidder receives a request for such records, it shall immediately contact the County’s designated Contract administrator who shall coordinate County’s response to the request.

A.13 LOBBYING

After the issuance of any IFBC, prospective bidders, bidders, or their agents, representatives or persons acting at the request of such bidder shall not contact, communicate with or discuss any matter relating to the IFBC with any officer, agent or employee of Manatee County other than the Procurement Official or the contact identified in this IFBC, pursuant to the Manatee County Code of Laws. This prohibition includes copying such persons on all written communication, including email correspondence. This requirement begins with the issuance of an IFBC and ends upon execution of the final Agreement or when the IFBC has been cancelled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Code of Laws.

A.14 UNBALANCED BIDDING PROHIBITED

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 requirements and industry and market conditions, the Bid will be presumed to be unbalanced. Examples of unbalanced Bids will include:

- a. Bids showing omissions, alterations of form, additions not specified, or required conditional or unauthorized alternate bids.
- b. 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.
- c. Bids where the unit costs offered are in excess of, or below reasonable cost analysis values.

In the event County determines that a Bid is presumed unbalanced, it will request the opportunity to and reserves the right to, review all source quotes, bids, price lists, letters of intent, and other supporting documentation which the Bidder obtained and upon which the Bidder relied upon to develop its Bid. County reserves the right to deem any presumptive unbalanced Bid where the Bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs as non-responsive.

A.15 FRONT LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities which 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 loaded. Front loaded bids could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the bidder to complete the Work or otherwise creating an appearance of an undercapitalized bidder.

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

A.16 WITHDRAWAL OR REVISION OF BIDS

Bidders may withdraw Bids under the following circumstances:

- a. If Bidder discovers a mistake(s) prior to the Due Date and Time. Bidder may withdraw its Bid by submitting a written notice to the Procurement Division. The notice must be received in the Procurement Division prior to the Due Date and Time for receiving Bids. A copy of the request shall be retained and the unopened Bid returned to the Bidder; or
- b. After the Bids are opened but before a contract is signed, Bidder alleges a material mistake of fact if:
 1. The mistake is clearly evident in the solicitation document; or
 2. Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made in the Bid. Request to withdraw a Bid must be in writing and approved by the Procurement Official.

A.17 IRREVOCABLE OFFER

Any Bid may be withdrawn up until the Due Date and Time. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to provide the goods or services set forth in this IFBC or until one or more of the Bids have been duly accepted by County, whichever occurs first.

A.18 RESERVED RIGHTS

County reserves the right to accept or reject any and/or all bids, to waive irregularities and minor technicalities, and to request resubmission. Also, 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 County. Any sole response received by the first submission date may or may not be rejected by County depending on available competition and current needs of 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 meets or exceeds the quality of goods and/or services set forth in the IFBC documents or otherwise required by County.

To be responsive, a Bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the IFBC.

To be a responsible bidder, the bidder shall have the capability in all respects to perform fully the bid requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance.

Also, 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 County deems necessary to make this determination shall be provided by the bidder. Such information may

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include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

A.19 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 the Manatee County Procurement Division shall be in accordance with the Manatee County Procurement Ordinance as amended.

A.20 COLLUSION

By submitting a bid in response to this IFBC, Bidder certifies that it has not divulged, discussed or compared its bid with any other bidder, and has not colluded with any other bidder or parties to this bid whatsoever. Further, Bidder, and in the case of a joint bid each party thereto, certifies as to their own organization, that in connection with this IFBC that:

- a. All 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. All 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 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 is/are named in Bidder's Bid and that no person other than those identified has any interest in the Bid or in the resulting Agreement to be entered into.
- e. No person or agency has been employed or retained to solicit or secure the resulting Agreement upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee except bona fide employees or established commercial agencies maintained by Bidder for purpose of doing business.

A.21 CODE OF ETHICS

With respect to this and any bid, if a Bidder violates, directly or indirectly, the ethics provisions of the Manatee County Procurement Code and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part II, Code of Ethics for Public Officers and Employees, such Bidder will be ineligible for award to perform the work described in this IFBC, and may be disqualified from submitting on any future quote or bid requests to supply goods or services to Manatee County. By submitting a bid, the Bidder represents to County that all statements made and materials submitted are truthful, with no relevant facts withheld.

A.22 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime, as that term is defined in Section 287.133, Florida Statutes, may not submit a bid to provide any goods or services to a public entity; may not submit a bid with a public entity for the construction or repair of a public building or public work; may not submit bids on leases of real property to a public entity; may not be awarded or perform Work as a contractor, supplier, Subcontractor, or consultant under an agreement with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Code of Laws prohibits the award of any bid to any person or entity who/which has, within the past five (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 Procurement Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter.

To ensure compliance with the foregoing, the Code requires all persons or entities desiring to do business with 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 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 form is attached herein for this purpose.

A.23 SCRUTINIZED COMPANIES

Florida Statutes § 287.135, as amended from time to time, may contain limitations on the part of a company to conduct business with the County. Submission of a response to this solicitation shall be subject to all procedural requirements contained within that statute including the submission of any required certification of eligibility to contract with the County. It shall be the responsibility of the company responding to this solicitation to concurrently review the current version of the statute and ensure it is compliant. To the extent a certification is required, it shall be provided on the form located at Attachment E *Vendor Certification Regarding Scrutinized Companies Lists*.

A.24 AGREEMENT

The successful Bidder will be required to execute the Agreement, a sample of which is attached hereto and made a part hereof. The County will transmit the Agreement to the successful Bidder for execution. The successful Bidder agrees to deliver the required number of duly executed copies of the Agreement, with any other required documents, to the County within ten calendar days of receipt.

A.25 LEGAL NAME

Bidders shall clearly indicate the full legal name, including any d/b/a, address, email address, and telephone number on the Bid Form. Bid Forms shall be signed above the typed or printed name and title of the signer. The signer must be an official of the organization and have the authority to bind the bidder to the submitted bid.

When bidder is a partnership, the Bid Form shall be signed in the name of the firm and by all partners required under the terms of the partnership agreement. When a corporation is a bidder, the authorized corporate officers shall sign.

Bidders who are corporations or limited partnerships shall provide a certified copy of their permit to transact business in the State of Florida, preferably along with the Bid Form, or within forty-eight (48) hours after request by County.

When submitting a bid as a joint venture, it must have filed paper documents with the Division of Profession's Construction Industry Licensing Board prior to submitting a bid.

A.26 DISCOUNTS

All discounts must be incorporated in the prices contained in the bid and not shown separately. Unless otherwise specified in this IFBC, pricing must be all inclusive, including delivery costs. The prices indicated on the Pricing Form shall be the prices used in determining award.

A.27 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Cert. No. 59-78-0089K; Florida Sales Tax Exempt Cert. No. 85-8012622206C-6). Therefore, the Bidder is prohibited from delineating a separate line item in its bid for any sales or service taxes.

The successful Bidder will be responsible for the payment of taxes of any kind, including but not limited to sales, consumer, use, and other similar taxes payable on account of the work performed and/or materials furnished under the award in accordance with all applicable laws and regulations.

A.28 QUALITY

Unless otherwise specifically provided in the IFBC documents, all goods provided shall be new, the latest make or model, of the best quality, of the highest grade of workmanship, and of the most suitable for the purpose intended.

Unless otherwise specifically provided in the IFBC documents, 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.29 AUTHORIZED PRODUCT REPRESENTATION

Bidder, 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 do so may, in the County's sole discretion, be deemed a material breach of the resulting agreement and shall

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constitute grounds for County's immediate termination of the resulting agreement.

A.30 ROYALTIES AND PATENTS

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

A.31 AMERICANS WITH DISABILITIES ACT

Manatee County does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of 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 cover page of this document at least twenty-four (24) hours in advance of either activity.

A.32 EQUAL EMPLOYMENT OPPORTUNITY

In accordance with Title VI of the Civil Rights Act of 1964, Title 15, Part 8 of the Code of Federal Regulations and the Civil Rights Act of 1992, Manatee County hereby notifies all Bidders that it will affirmatively ensure minority business enterprises are afforded full opportunity to participate in response to this IFBC and will not be discriminated against on the grounds of race, color, national origin, religion, sex, age, handicap, or marital status in consideration of award.

A.33 MINORITY AND/OR DISADVANTAGED BUSINESS ENTERPRISES

The State of Florida Office of Supplier Diversity provides the certification process and maintains the database of certified MBE/DBE firms. Additional information may be obtained at <http://www.osd.dms.state.fl.us/iframe.htm> or by calling (850) 487-0915.

A.34 DELIVERY

Unless otherwise specified, all prices shall include all delivery cost (FOB Destination).

A.35 MATHEMATICAL ERRORS

1. Bid pricing forms without imbedded mathematical formulas: 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. In the event the dollar amount for contract contingency is omitted, it will be added to the total price of the Bid.
2. Bid pricing forms with imbedded mathematical formulas: Interactive bid pricing forms that contain mathematical formulas may be provided to automate lengthy and complex bid forms. In the event bid pricing forms with imbedded formulas are used and a multiplication/extension error(s) is discovered in the formula, the unit price entered by the Bidder shall prevail.
3. Bidder shall assume the responsibility and accuracy of the information input in the bid pricing form and therefore shall verify that the calculations are correct before submitting its Bid.

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4. Regardless of the type of bid pricing form used, all Bids shall be reviewed mathematically by the County using these standards.

A.36 SUBCONTRACTORS

The successful bidder will obtain prior written approval from the County for any subcontractor(s) and the work each will perform. A subcontractor is defined as any entity performing work within the scope of the project who is not an employee of the successful Bidder.

Bidders subcontracting any portion of the work shall include a list of subcontractors along with their bid. The list shall include: name and address of subcontractor, type of work to be performed and the percent of the contract amount to be subcontracted.

A.37 E-VERIFY

Prior to the employment of any person under this contract, the successful Bidder shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of (a) all persons employed during the contract term by the successful Bidder to perform employment duties within Florida and (b) all persons, including subcontractors, assigned by the successful Bidder to perform work pursuant to the contract with Manatee County. For more information on this process, please refer to United States Citizenship and Immigration Service site at: <http://www.uscis.gov/>.

Only those individuals determined eligible to work in the United States shall be employed under this contract.

By submission of a bid in response to this IFBC, the successful Bidder commits that all employees and subcontractors will undergo e-verification before placement on this contract.

The successful Bidder shall maintain sole responsibility for the actions of its employees and subcontractors. For the life of the contract, all employees and new employees brought in after contract award shall be verified under the same requirement stated above.

A.38 DISCLOSURE

Upon receipt, all inquiries and responses to inquiries related to this IFBC become "Public Records," and shall be subject to public disclosure consistent with Florida Statutes, Chapter 119.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intent to award decision is made earlier than this time as provided by Florida Statutes § 119.071(1)(b). No announcement or review of the bids shall be conducted at the public opening.

Based on the above, County will receive bids at the time and date stated and will make public at the opening the names of the business entities of all that submitted a bid.

If County rejects all bids and concurrently notices its intent to reissue the solicitation, the rejected bids are exempt from public disclosure until such time as County provides notice of an intended decision concerning the reissued solicitation or until County withdraws the reissued

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solicitation. A bid is not exempt for longer than twelve (12) months after the initial notice rejecting all bids.

Pursuant to Florida Statutes 119.0701, to the extent successful Bidder is performing services on behalf of the County, successful Bidder must:

- a. Keep and maintain public records required by public agency to perform the service.
- b. Upon request from the public agency's custodian of public records, provide the public agency with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Florida Statutes, Chapter 119, or as otherwise provided by law.
- c. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the successful Bidder does not transfer the records to the public agency.
- d. Upon completion of the contract, transfer, at no cost, to the public agency all public records in possession of contractor or keep and maintain public records required by the public agency to perform the service. If the successful Bidder transfers all public records to the public agency upon completion of the contract, the successful Bidder shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the successful Bidder keeps and maintains public records upon completion of the contract, the successful Bidder shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the public agency, upon request from public agency's custodian of public records, in a format that is compatible with the information technology systems of the public agency.

IF THE SUCCESSFUL BIDDER HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE SUCCESSFUL BIDDER'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO ANY RESULTING CONTRACT, CONTACT COUNTY'S CUSTODIAN OF PUBLIC RECORDS AT:

Phone: (941) 742-5845

Email: debbie.scaccianoce@mymanatee.org

Mail: Manatee County BCC

Attn: Records Manager

1112 Manatee Ave W.

Bradenton, FL 34205.

A.39 LOCAL PREFERENCE

Local business is defined as a business legally authorized to engage in the sale of the goods and/or services, and which certifies within its Bid that for at least six (6) full months prior to the advertisement of this IFBC it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.

Local preference shall not apply to the following categories of agreements:

1. Purchases or agreements which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions governing the funds prohibit the preference.
2. Any bid announcement which specifically provides that local preference, as set forth in this section, is 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.
3. For a competitive solicitation for construction services in which fifty percent (50%) or more of the cost will be paid from state.
4. To qualify for local preference under this section, **a local business must certify to County** by completing an **"Affidavit as to Local Business Form,"** which is available for download at www.mymanatee.org/vendor. Click on "Affidavit for Local Business" to access and print the form. Complete, notarize, and mail the notarized original to the following address: Manatee County Procurement Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.
5. It is the responsibility of the bidder to ensure accuracy of the Affidavit as to Local Business and notify County of any changes affecting same.

A.40 VENDOR REGISTRATION

Registering your business will provide Manatee County a sourcing opportunity to identify suppliers of needed goods and services and identify local businesses. To register as a supplier with the County go to www.mymanatee.org/vendor. For assistance with supplier registration, call the Procurement Division main number at (941) 749-3014. Office hours are Monday – Friday, 8:00 A.M. to 5:00 P.M., excluding County holidays.

A link to Vendor Registration is listed on the Procurement Division's web page at <http://www.mymanatee.org/home/government/departments/financial-management/purchasing.html>. Click on "Register as a Vendor", then "Vendor Registration Form". Registration is not mandatory to submit a Bid.

A.41 ENVIRONMENTAL SUSTAINABILITY

All bidders are encouraged to use as many environmentally preferable "green" products, materials, as supplies, as possible to promote a safe and healthy environment. Environmentally preferable are products or services that have a reduced adverse effect on the environment.

Bidder shall acknowledge in its Bid if Bidder has an environmental sustainability initiative. In addition, Bidder shall submit with its Bid a brief summary of Bidder's environmental sustainability initiative. This information will be used as a determining factor in the award decision when all other factors, including local preference, are otherwise equal.

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A.42 ePAYABLES

Manatee County Board of County Commissioners and the Manatee County Clerk of the Circuit Court have partnered to offer the ePayables program, which allows payments to be made to vendors via credit cards.

The Clerk of the Circuit Court will issue a unique credit card number to vendor after goods are delivered or services rendered, vendors submit invoices to the remit to address on the purchase order. When payments are authorized, an email notification is sent to the vendor. The email notification includes the invoice number(s), invoice date(s), and amount of payment. There is no cost for vendors to participate in this program; however, there may be a charge by the company that processes your credit card transactions.

If Bidder is interested in participating in this program, complete the ePayables Application attached herein and return the completed form via email to lori.bryan@manateeclerk.com.

A.43 BASIS OF AWARD

County will not make award to a Bidder who is delinquent in payment of any taxes, fees, fines, contractual debts, judgments, or any other debts due and owed to the County, or is in default on any contractual or regulatory obligation to the County. By submitting this solicitation response, Bidder attests that it is not delinquent in payment of any such debts due and owed to the County, nor is it in default on any contractual or regulatory obligation to the County. In the event the Bidder's statement is discovered to be false, bidder will be subject to suspension and/or debarment and the County may terminate any award it has with bidder.

Award shall be to the lowest, responsive, responsible bidder(s) meeting specifications which includes delivery time requirements, qualification requirements, and having the lowest total offer for requirements listed on the Bid Form for the Work as set forth in this IFBC. Bid prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work to the County's satisfaction, in accordance with and in the manner set forth and described in the IFBC documents and within the prescribed time.

Only one bid shall be submitted and considered based on 180 calendar days completion time.

In evaluating Bids, 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 responsive, responsible bids which are equal with respect to price and all other evaluation factors are received, the bid from the local business shall be given preference in award.

IFBC No. 19-R072110SAM

Whenever two or more responsive, responsible bids which are equal with respect to price are received, and both or neither of these bids are from a local business, the award shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Procurement Division and open to the public.

Bidder acknowledges that County has, or may hire, others to perform work similar to or the same as that which is within the scope of work of this IFBC. In the event that the successful Bidder cannot meet the delivery time or availability requirements of materials, the County, at its sole discretion can obtain the goods and services from other sources.

A.44 SCOPE OF WORK

The successful Bidder shall furnish and install all materials, equipment and labor which is reasonably inferable and necessary for the proper completion of the Work specified in this IFBC, whether specifically indicated in the IFBC or not.

The successful Bidder shall furnish all shop drawings, work drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all Work required by these Specifications.

The successful Bidder 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 County.

Rehabilitation of existing Well equipment to continue cycle testing and operation of the Well. This will include a Well video survey, geophysical logging, recovery pump replacement, pipe replacements, connection to high service pump station piping and to the reject lake, flow meter, pressure recorder, water level instrumentation, and associated electrical work. Also, monitor Well piping replacement.

A.45 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. Completion time shall be based on 180 calendar days.

A.46 LIQUIDATED DAMAGES

If the successful Bidder fails to achieve substantial completion of the Work within the contract time and as otherwise required by the Agreement (to include not only the entire Work but any portion of the Work as set forth therein), the County shall be entitled to retain or recover from the successful Bidder, as liquidated damages and not as a penalty, the sum of \$41.00 per calendar day, commencing upon the first day following expiration of the contract time and continuing until the actual date of substantial completion.

Such liquidated damages are hereby agreed to be a reasonable estimate of damages the County will incur because of delayed completion of the Work. The County may deduct liquidated damages as described in this paragraph from any unpaid amounts then or thereafter due the successful bidder under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the successful bidder shall be payable to the County

at the demand of the County, together with interest from the date of the demand at the maximum allowable rate.

A.47 CONTRACT CONTINGENCY WORK

Contract contingency is a monetary allowance used solely at County's discretion to handle unexpected conditions as required to satisfactorily complete the Work in accordance with the IFBC documents. A Field Directive must be issued by an authorized County representative to authorize use of contract contingency funds.

The percentage for contract contingency is listed on the Bid Form. Bidder shall enter the dollar amount for contract contingency based on the percentage of the total base bid. The total contract award will include contract contingency.

Appropriate uses of contract contingency include increases to existing bid item quantities that do not change the initial scope of Work, which may be directed by County staff; modification items not originally bid which were unforeseen yet necessary during the Work to provide a safe, complete Project and that do not change the initial scope of Work; and unanticipated conflicts and/or design changes required during construction which are necessary to provide a safe, complete Project and that do not change the initial Scope of Work.

Inappropriate uses of contract contingency include anything that changes the initial scope of Work, including the Contract Sum and Contract Time, and adding bid items not previously contemplated that change the initial scope of Work.

A.48 LICENSES AND PERMITS

The successful Bidder shall be solely responsible for obtaining all necessary license and permit fees, including, but not limited to, all license fees, permit fees, impact fees, or inspection fees, and responsible for the costs of such fees. Successful Bidder is solely responsible for ensuring all work complies with all Federal, State, local, and Manatee County ordinances, orders, codes, laws, rules, regulations, directives, and guidelines.

A.49 PROTEST

Any actual bidder, proposer, or contractor who is aggrieved in connection with the notice of intent to award of a contract with a value greater than \$250,000 where such grievance is asserted to be the result of a violation of the requirements of the Manatee County Procurement Code or any applicable provision of law by the officers, agents, or employees of the County, may file a protest to the Procurement Official.

Protest must be in writing and delivered via email at purchasing@mymanatee.org or by hand delivery to the Procurement Division at 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205 by 5:00 p.m. on the fifth business day following the date of posting of the Notice of Intent to Award on the County website. There is no stay of the procurement process during a protest. The Procurement Official shall have the authority to settle and resolve a protest concerning the intended award of a contract.

For additional information regarding the County protest process, visit the Procurement Division

webpage on the County website.

A.50 ACCESSIBILITY

The County is committed to making its documents and information technologies accessible to individuals with disabilities by meeting the requirements of Section 504 of the Rehabilitation Act and best practices (W3C WCAG 2). **For assistance with accessibility regarding this solicitation, contact the Manatee County Procurement Division via email at purchasing@mymanatee.org or by phone at 941-748-4501 X3014.**

Successful Bidder shall ensure all its electronic information, documents, applications, reports, and deliverables required under this Agreement are in a format that meets the requirements of Section 504 of the Rehabilitation Act and best practices (W3C WCAG 2).

Where not fully compliant with these requirements and best practices, Successful Bidder shall provide clear points of contact for each document and information technology to direct users in how to obtain alternate formats. Further, successful Bidder shall develop accommodation strategies for those non-compliant resources and implement strategies to resolve the discrepancies.

A.51 SOLICITATION SCHEDULE

The following schedule has been established for this Solicitation process. Refer to the County's website (www.mymanatee.org > Business > *Bids & Proposals*) for meeting locations and updated information pertaining to any revisions to this schedule.

Scheduled Item	Scheduled Date
Non-Mandatory Solicitation Information Conference at SWWRF, 5101 65th St. W., Administration Building, Bradenton, FL 34210	August 19, 2019, 11:00 AM, ET
Mandatory Site Visit at SWWRF, 5101 65th St. W., Administration Building, Bradenton, FL 34210	August 19, 2019, 11:30 AM, ET,
Question and Clarification Deadline	August 28, 2019
Final Addendum Posted	September 5, 2019
Bid Response Due Date and Time	September 17, 2019, 3:00 PM, ET
Due Diligence Review Completed	September 20, 2019
Projected Award	October 2019

NOTE: Any statements contained in the Scope of Work, Bid Summary, Construction Agreement, General Conditions of the Construction Agreement and/or Exhibits which vary from the information in Section A, Information for Bidders, shall have precedence over the Information for Bidders.

END OF SECTION A

SECTION B

BID FORMS

(To be completed and returned with Bid)

APPENDIX A
BIDDER'S QUESTIONNAIRE
IFBC No. 19-R072110SAM

Bidder must fully complete and return this form with its Bid. Bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID

1. Contact Information:

FEIN #: _____
License #: _____
License Issued to: _____
Date License Issued (MM/DD/YR): _____
Company Name: _____
Physical Address: _____
City: _____ State of Incorporation: _____ Zip Code: _____
Phone Number: () _____ Fax Number: () _____
Email address: _____

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. Bidder is authorized to do business in the State of Florida: ☐ Yes ☐ No

For how many years? _____

5. Your organization has been in business (under this firm's name) as a

Is this firm in bankruptcy? _____

6. Attach a list of projects where this specific type of Work was performed.

BIDDER: _____

IFBC No. 19-R072110SAM

7. Is this firm currently contemplating or in litigation? Provide summary details.

8. 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.

9. Have you ever failed to complete Work awarded to you? Or failed to complete projects within contract time? If so, state when, where (contact name, address, phone number) and why.

10. Have you ever been debarred or prohibited from providing a bid to a governmental entity? If yes, name the entity and describe the circumstances.

11. Will you subcontract any part of this Work? If so, describe which portion(s) and to whom.

12. If any part of work will be subcontracted, list MBE/DBE/WBE/VETERAN to be utilized. Include the estimated dollar amount of the portion of Work each will perform.

BIDDER: _____

13. What equipment do you own to accomplish this Work? (A listing may be attached)

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

15. If applicable to the Work for this IFBC, Drilling Supervisor Qualifications: Contractor shall provide a boring specialist who shall remain on the project site during the entirety of the directional boring operation. This includes, but is not limited to, drilling fluid preparation, seaming, boring and pulling. The boring specialist shall have a minimum of five (5) years' experience in supervising directional bores of similar nature, diameter, materials and lengths. (Reference: Specification Section 02619, Horizontal Directional Drilling).

Provide the contact information for a minimum of three (3) projects wherein the boring specialist has performed this type of work, diameter, materials and lengths.

Boring specialist's name: _____

Boring specialist's years of experience in supervising directional bores _____

Provide contact name, and contact number for projects:

16. If applicable to the Work for this IFBC, Pipe Fusion Qualifications: All boring and fusing equipment shall be certified for operation. The Contractor responsible for thermal butt fusing pipe and fittings shall have manufacturer certification for performing such work or a minimum of five (5) years of experience performing this type of work.

Thermal butt fusing pipe and fittings contractor or subcontractor's name: _____

Attach a copy of contractor's/subcontractor's manufacturer certification to this Questionnaire

OR

Provide contractor's/subcontractor's years of experience in thermal butt fusing pipe and fittings _____

If manufacturer certification is not provided, include contact name, and contact number for projects that confirms five years of experience:

BIDDER: _____

IFBC No. 19-R072110SAM

17. If applicable to the Work for this IFB, Pipe Bursting Qualifications: The Contractor shall be certified by the manufacturer of the pipe bursting system that they are fully trained licensed installer of the manufacturer's pipe bursting system. Contractor shall provide a letter to the County documenting this requirement. (Reference: Specification Section 02619A, Pipe Bursting (PB) of Existing Mains).

18. List the following regarding the surety which is providing the bond(s):

Surety's Name:

Address:

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

Agent's Name:

Address:

Phone:

Email:

19. Is Bidder a local business as defined in Section A.38, Local Preference?

☐ Yes

☐ No

If yes, by signing below Bidder certifies that for at least six months prior to the advertisement date of this IFB it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota counties with at least one full-time employee at that location.

BIDDER: _____

BY: _____

PRINTED NAME: _____

TITLE/DATE: _____

PHYSICAL ADDRESS OF QUALIFYING LOCAL LOCATION: _____

NAME OF QUALIFYING EMPLOYEE AT LOCAL LOCATION: _____

IFBC No. 19-R072110SAM

20. Confirm if Bidder has an environmental sustainability initiative as defined in Section A.40.

☐ Yes ☐ No

If yes, submit a brief summary (2-3 paragraphs) of the environmental sustainability initiative.

BIDDER: _____

APPENDIX B

ENVIRONMENTAL CRIMES CERTIFICATION

SWORN STATEMENT PURSUANT TO ARTICLE V,

MANATEE COUNTY PROCUREMENT CODE

IFBC No. 19-R072110SAM

Bidder must fully complete and return this form with its Bid. 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 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 an Owner's Agreement for public improvements, procurement of goods or services (including professional services) or an Owner's lease, franchise, concession or management agreement, or shall receive a grant of Owner's monies unless such person or entity has submitted a written certification to Owner 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 Owner's Purchasing Official, 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 an 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.

(Continued)

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

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 AGREEMENT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR COUNTY ADMINISTRATOR DETERMINES THAT **SUCH** PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.

[Signature]

STATE OF _____
COUNTY OF _____

Sworn to and subscribed before me this _____ day of _____, 20____ by _____

Who is personally known / has produced _____ as identification
[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.

APPENDIX C
FLORIDA TRENCH SAFETY ACT
IFBC No. 19-R072110SAM

Bidder must fully complete and return this form with its Bid. 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 **IFBC NO. 19-R072110SAM**
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 County and Engineer of Record, 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:

Trench Safety Measure (Description)	Units of MeasureUnit (LF, SY)	Quantity	Unit Cost	Extended Cost
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: _____



Angelina M. Colonnese

CLERK OF THE CIRCUIT COURT AND COMPTROLLER OF MANATEE COUNTY

1115 Manatee Avenue West, Bradenton, Florida 34205 - Phone (941) 749-1800 Fax (941) 741-4082, P.O. Box 25400, Bradenton, Florida 34206 - www.manateeclerk.com

Bidder must fully complete and return this form with its Bid.

APPENDIX D: ePAYABLES APPLICATION

IFBC No. 19-R072110SAM

Company name_____

Contact person_____

Phone number_____

Email Address_____

FINANCE USE ONLY

Open orders: YES or NO

PEID _____

CREATE DATE _____

CONFIRMED WITH

Name and phone number

IFAS _____

BANK _____

INITIALS _____

Return completed form to:

Via email to:

lori.bryan@manateeclerk.com

Via fax to: (941) 741-4011

Via mail:

PO Box 1000

Bradenton, FL 34206

Revised: September 30, 2015

"Pride in Service with a Vision to the Future"

Clerk of the Circuit Court – Clerk of Board of County Commissioners – County Comptroller – Auditor and Recorder

APPENDIX E
Scrutinized Company Certification
IFBC No. 19-R072110SAM

This certification is required pursuant to Florida State Statute Section 287.135.

As of July 1, 2011, a company that, at the time of bidding or submitting a proposal for a new contract or renewal of an existing contract, is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List is ineligible for, and may not bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of \$1 million or more.

Bidder must fully complete and return this form with its Bid.

Company _____ FID or EIN No. _____

Address _____

City _____ State _____ Zip _____

I, _____, as a representative of _____
certify and affirm that this company is not on the Scrutinized Companies with Activities in Sudan List or
the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

Signature

Title

Printed Name

Date

APPENDIX F

MINIMUM QUALIFICATIONS

IFBC No. 19-R072110SAM

Bidders must submit the information and documentation requested in this Attachment that confirms Bidder meets the following minimum qualification requirement(s):

1. Must have been registered with the State of Florida, Division of Corporations to do business in Florida for the past three years, since August 2016.

No documentation is required. The County will verify registration.

2. Bidder, or its representative, attended the mandatory site visit at: SWWRF Site, 5101 65th St. W., Bradenton, FL 34210.

No documentation is required for attendance to the mandatory site visit. The County will verify attendance from the meeting sign-in sheets.

3. Bidder must hold certification or registration as a Water Well Contractor and have worked on UIC Wells, pumps, piping, electrical and instrumentation work or must have assessed a General Contractor's license issued by the Florida Department of Business and Professional Regulation for a period of at least three (3) consecutive years since August 2016. License must be current and valid through the Due Date for submission of bids to this IFBC.

If bidding as a certified Water Well Contractor, bidder must provide documentation of certification/registration pursuant to the requirements of the State of Florida Water Management District pursuant to Chapter 373, Florida Statutes for a period of at least three (3) consecutive years since August 2016. Bidder can subcontract a General Contractor who is licensed by the Florida Department of Business and Professional Regulation since August 2016 and be valid through the date of submission of bids to this IFBC.

If bidder is a General Contractor the Bidder must subcontract with a Water Well Contractor pursuant to the requirement of the State of Florida Water Management District pursuant to Chapter 373, Florida Statutes and have worked on UIC Wells, pumps, piping, electrical and instrumentation work and provide the name of Water Well Contractor subcontractor with their Appendix A-Bidder's Questionnaire. Provide a copy of the Bidder's General Contractor's license issued by the Florida Department of Business and Regulation and documentation confirming Bidder has been licensed and or certified for the period of August 2016 through the date of submission to the IFBC.

4. Bidder has provided UIC Well Rehabilitation for at least three (3) clients since August 2016 that of which two (2) of the listed projects included work on UIC Wells; and two (2) of these listed projects included pump, piping, electrical and instrumentation work.

Provide the following information for the three (3) qualifying clients.

- a) Name of client
 - b) Location (City/State)
 - c) Client contact name
 - d) Contact phone
 - e) Contact email
 - f) Service dates (start/end)
5. Bidder, on the day the bid is submitted, has a certified or registered Qualifying Agent, as required by Section 489.119, Florida Statutes, and that Qualifying Agent has been the same Qualifying Agent of Bidder for a period of at least three consecutive years, since August 2016.

Submit a copy of Bidder's Qualifying Agent's registration or certification along with supporting documentation confirming Qualifying Agent has been the Qualifying Agent for Bidder for three years, since August 2016.

6. Bidder is not on the Florida Department of Management Services Suspended, Debarred, Convicted Vendor List.

No documentation is required. The County will verify.

7. If Bidder is submitting as a joint venture must file the required documents with the Florida Department of Business and Professional Regulation as required by Florida Statute Section 489.119, prior to the Due Date and Time.

If Bidder is a joint venture, provide a copy of Bidder's approved filing with the Florida Department of Business and Professional Regulation. If Bidder is not a joint venture, provide a statement to that effect.

8. Bidder has no reported conflict of interests in relation to this IFBC.

Submit a fully completed copy of Appendix J. If applicable, on a separate page disclose the name of any officer, director or agent who is also an employee of the County. Disclose the name of any County employee who owns, directly or indirectly, any interest in the Bidder's firm or any of its branches. If no conflicts of interests are present, Bidder must submit a statement to that affect.

APPENDIX G
INSURANCE STATEMENT

IFBC No. 19-R072110SAM

Bidder must fully complete and return this form with its Bid.

THE UNDERSIGNED has read and understands the insurance requirements of this IFBC applicable to any contract resulting from this solicitation and shall provide the insurances required by this Attachment within ten (10) days from the date of Notice of Intent to Award.

Bidder Name: _____ Date: _____

Signature
(Authorized
Official): _____

Printed Name/Title: _____

Insurance Agency: _____

Agent Name: _____ Agent Phone: _____

APPENDIX H
ACKNOWLEDGMENT OF ADDENDA

IFBC No. 19-R072110SAM

The undersigned acknowledges receipt of the following addenda:

Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:

Print or type Bidder's information below:

_____ Name of Bidder	_____ Telephone Number
_____ Street Address	_____ City/State/Zip
_____ Email Address	
_____ Print Name & Title of Authorized Officer	_____ Signature of Authorized Official Date

**APPENDIX I,
BID PRICING FORM**

APPENDIX I, BID PRICING FORM
SWWRF ASR WELL REHABILITATION

Total Bid Price/Offer for Bid: \$_____ Complete. Based on a completion time of 180 calendar days.

We, the undersigned, hereby declare that we have carefully reviewed the IFB Documents in their entirety and with full knowledge and understanding of the Bid information and all its requirements, submit this Bid, which is complete in meeting each specification, term, and condition contained therein.

As a Bidder, we understand that the IFB documents, including but not limited to, all specifications, terms and conditions shall be made a part of any resulting Agreement between County and the successful Bidder. Failure by successful Bidder to comply with such specifications, terms and conditions shall result in Agreement default, whereupon, the defaulting successful Bidder shall be required to pay for all re-procurement costs, damages, and attorney's fees as incurred by County, and agrees to forfeit its bid bond.

Authorized Signature(s): _____

Name and Title of Above Signer(s): _____

Date: _____

APPENDIX J

AFFIDAVIT OF NO CONFLICT

IFBC No. 19-R072110SAM

COUNTY OF _____

STATE OF _____

BEFORE ME, the undersigned authority, this ____ day of _____, 20____ personally appeared, _____, a principal with full authority to bind _____ (hereinafter the "Affiant"), who being first duly sworn, deposes and says:

(a) is not currently engaged or will not become engaged in any obligations, undertakings or contracts that will require the Affiant to maintain an adversarial role against the County or that will impair or influence the advice, recommendations or quality of work provided to the County; and

(b) has provided full disclosure of all potentially conflicting contractual relationships and full disclosure of contractual relationships deemed to raise a question of conflict(s); and

(c) has provided full disclosure of prior work history and qualifications that may be deemed to raise possible question of conflict(s).

Affiant makes this affidavit for the purpose of inducing Manatee County, a political subdivision of the State of Florida, to enter into an Agreement for SWWRF ASR Well Rehabilitation.

If applicable, on a separate page Bidder shall disclose the name of any officer, director or agent of Bidder who is also an employee of the County and the name of any County employee who owns, directly or indirectly, any interest in the Bidder's firm or any of its branches. If no conflicts of interest are present, submit a statement to that affect.

Signature

Print Name

SUBSCRIBED to and sworn before me this ____ day of _____, 20__.

[Notary Seal]

Notary Public

My commission expires: _____

Notary Signature

Print Name

Personally known OR produced identification. Type of identification produced _____
_____.

SECTION C

SAMPLE CONSTRUCTION AGREEMENT

for

STIPULATED SUM

between

MANATEE COUNTY (AS OWNER)

and

_____ (AS CONTRACTOR)

**CONSTRUCTION AGREEMENT FOR
STIPULATED SUM
[PROJECT NAME]**

THIS AGREEMENT ("Agreement") is made and entered into by and between Manatee County, a political subdivision of the State of Florida, referred to herein as "Owner", and the firm of _____, incorporated in the State of _____ and registered and licensed to do business in the State of Florida (license # _____), referred to herein as "Contractor."

WHEREAS, the Owner intends to construct [PROJECT DESCRIPTION], the aforementioned improvements being hereinafter referred to and defined as the "Project"; and

WHEREAS, in response to Owner's Invitation for Bid No. _____ (the "IFB"), Contractor has submitted its Bid (the "Contractor's Bid") to provide the aforementioned construction services.

NOW THEREFORE, the Owner and the Contractor, in consideration of the mutual covenants hereinafter set forth, the sufficiency of which is hereby acknowledged, agree as follows:

1. Contract Documents. The Contract Documents consist of this Agreement and attached Exhibits, the attached General Conditions of the Construction Agreement, Supplementary Conditions (if any), Special Conditions (if any), Drawings (the titles of which are attached hereto as Exhibit A), Specifications (the titles of which are attached hereto as Exhibit B), Addenda issued prior to execution of this Agreement, the Invitation for Bid (including any Instructions to Bidders, Scope of Work, Bid Summary, Supplements, and Technical Specifications), any interpretations issued pursuant to the Invitation for Bid, the Contractor's Bid, permits, notice of intent to award, Notice to Proceed, purchase order(s), any other documents listed in this Agreement, and Modifications [to include written Amendment(s), Change Order(s), Work Directive Change(s) and Field Directive(s)] issued after execution of this Agreement. These form the Agreement, and are as fully a part of the Agreement as if attached or repeated herein. This Agreement represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. No other documents shall be considered Contract Documents.

2. Work. The Contractor shall fully execute the Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

3. Date of Commencement and Substantial Completion.

A. Date of Commencement. The date of commencement of the Work shall be the date fixed in a Notice to Proceed issued by the Owner.

B. Contract Time. The Contract Time shall be measured from the date of commencement.

C. Substantial Completion. The Contractor shall achieve Substantial Completion of the entire Work not later than ____ days from the date of commencement, or as follows:

Portion of Work**Substantial Completion Date**

subject to adjustments of this Contract Time as provided in the Contract Documents.

Time is of the essence in the Contract Documents and all obligations thereunder. If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time and as otherwise required by the Contract Documents (to include not only the entire Work but any portion of the Work as set forth above), the Owner shall be entitled to retain or recover from the Contractor, as liquidated damages and not as a penalty, the sum of \$_____ per calendar day, commencing upon the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable estimate of damages the Owner will incur because of delayed completion of the Work. The Owner may deduct liquidated damages as described in this paragraph from any unpaid amounts then or thereafter due the Contractor under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Contractor shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at the maximum allowable rate.

4. Contract Sum.

A. Payment. The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be _____ Dollars and Zero Cents (\$_____), subject to additions and deductions as provided in the Contract Documents.

B. Alternates. The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner. *(State the numbers or other identification of accepted alternates. If decisions on other alternates are to be made by the Owner subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

C. Unit Prices. Unit prices, if any, are reflected in the Contractor's Bid.

5. Payments.**A. Progress Payments.**

- (1) Based upon Applications for Payment submitted to the Architect/Engineer by the Contractor and Certificates for Payment issued by the Architect/Engineer, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.
- (2) The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.
- (3) Payments shall be made by Owner in accordance with the requirements of Section 218.735, Florida Statutes.

- (4) Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect/Engineer may require. This schedule, unless objected to by the Owner or Architect/Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment.
- (5) Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.
- (6) Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:
- i. Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of ten percent (10.00%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 3.3.B. of the General Conditions;
 - ii. Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), supported by paid receipts, less retainage of ten percent (10.00%);
 - iii. Subtract the aggregate of previous payments made by the Owner; and
 - iv. Subtract amounts, if any, for which the Architect/Engineer has withheld or nullified an Application for Payment, in whole or in part as provided in Section 3.3.C. of the General Conditions.
- (7) The progress payment amount determined in accordance with Section 5.A(6) shall be further modified under the following circumstances:
- i. Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect/Engineer shall determine for incomplete Work, retainage applicable to such work and unsettled claims.
 - ii. Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 3.2.B. of the General Conditions.
- (8) Reduction or limitation of retainage, if any, shall be as follows:

Notwithstanding the foregoing, upon completion of at least 50% of the Work, as determined by the Architect/Engineer and Owner, the Owner shall reduce to five percent (5%) the amount of retainage withheld from each subsequent progress payment.

- (9) Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

B. Final Payment. Final Payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when:

- (1) The Contractor has fully performed the Work except for the Contractor's responsibility to correct Work as provided in Section 2.4.C. of the General Conditions, and to satisfy other requirements, if any, which extend beyond final payment; and
- (2) A final Application for Payment has been approved by the Architect/Engineer.

6. Termination or Suspension.

A. Termination. The Agreement may be terminated by the Owner or the Contractor as provided in Article XIV of the General Conditions.

B. Suspension by Owner. The Work may be suspended by the Owner as provided in Article XIV of the General Conditions.

7. Other Provisions.

A. Substantial Completion Defined. Substantial Completion shall be defined as provided in Article I of the General Conditions. In the event a temporary certificate of occupancy or completion is issued establishing Substantial Completion, the Contractor shall diligently pursue the issuance of a permanent certificate of occupancy or completion.

B. Project Meetings. There shall be a project meeting, at the jobsite or other location acceptable to the parties, on a regularly scheduled basis. The meeting will be attended by a representative of the Contractor, Architect/Engineer and Owner. These representatives shall be authorized to make decisions that are not otherwise contrary to the requirements of this Agreement.

C. Weather. Any rainfall, temperatures below 32 degrees Fahrenheit or winds greater than 25 m.p.h. which actually prevents Work on a given day, shall be considered lost time and an additional day added to the Contract Time, provided no work could be done on site, and provided written notice has been submitted to the Owner by the Contractor documenting same.

D. Shop Drawings; Critical Submittals. In consideration of the impact of timely review of submittals and shop drawings on the overall progress of the Work, it is hereby agreed that the Owner

shall cause his agents and design professionals to accomplish the review of any particular “critical” submittals and/or shop drawings and return same to the Contractor within fourteen (14) days.

E. Applications for Payment. Applications for Payment shall be submitted once monthly at regular intervals and shall include detailed documentation of all costs incurred.

F. Punch List. Within 30 days after obtainment of Substantial Completion, the Owner shall generate a “punch list” of all work items requiring remedial attention by the Contractor. Within 5 days thereafter the Architect/Engineer shall assign a fair value to the punch list items, which sum shall be deducted from the next scheduled progress payment to the Contractor. Upon satisfactory completion of the punch list items, as certified by the Architect/Engineer, the previously deducted sum shall be paid to the Contractor.

G. Closeout documentation. Within 30 days after obtainment of Substantial Completion and before final payment, Contractor shall gather and deliver to Owner all warranty documentation, all manufacturer’s product and warranty literature, all manuals (including parts and technical manuals), all schematics and handbooks, and all as-built drawings.

H. Governing Provisions; Conflicts. In the event of a conflict between this Agreement and the Specifications or as between the General Conditions and the Specifications, the Specifications shall govern.

I. E-Verify. The Contractor’s employment of unauthorized aliens is a violation of Section 274(e) of the Federal Immigration and Employment Act. The Contractor shall utilize the U.S. Department of Homeland Security E-Verify system to verify the employment eligibility of all new employees hired during the term of this Agreement, and shall require the same verification procedure of all Subcontractors.

8. Insurance and Bonding. If and to the extent required by the Invitation for Bid documents, the Contractor shall furnish insurance coverage for (but not necessarily limited to) workers’ compensation, commercial general liability, auto liability, excess liability, and builder’s risk. The Contractor shall furnish to the Owner all appropriate policies and Certificate(s) of Insurance. The Contractor shall also post a Payment and Performance Bond for the Contract Sum, within ten (___) days following notification of intent to award, and otherwise in accordance with the Invitation for Bid documents.

9. Independent Contractor. The Contractor acknowledges that it is functioning as an independent contractor in performing under the terms of this Agreement, and it is not acting as an employee of the Owner.

10. Entire Agreement. This Agreement (inclusive of the Contract Documents incorporated herein by reference) represents the full agreement of the parties.

11. Amendments; Waivers; Assignment.

A. Amendments. This Agreement may be amended only pursuant to an instrument in writing that has been jointly executed by authorized representatives of the parties hereto.

B. Waivers. Neither this Agreement nor any portion of it may be modified or waived orally. However, each party (through its governing body or properly authorized officer) shall have the right,

but not the obligation, to waive, on a case-by-case basis, any right or condition herein reserved or intended for the benefit or protection of such party without being deemed or considered to have waived such right or condition for any other case, situation, or circumstance and without being deemed or considered to have waived any other right or condition. No such waiver shall be effective unless made in writing with an express and specific statement of the intent of such governing body or officer to provide such waiver.

C. Assignment. The rights and obligations of either party to this Agreement may be assigned to a third party only pursuant to a written amendment hereto.

12. Validity. Each of the Owner and Contractor represents and warrants to the other its respective authority to enter into this Agreement.

13. Covenant To Defend. Neither the validity of this Agreement nor the validity of any portion hereof may be challenged by any party hereto, and each party hereto hereby waives any right to initiate any such challenge. Furthermore, if this Agreement or any portion hereof is challenged by a third party in any judicial, administrative, or appellate proceeding (each party hereby covenanting with the other party not to initiate, encourage, foster, promote, cooperate with, or acquiesce to such challenge), the parties hereto collectively and individually agree, at their individual sole cost and expense, to defend in good faith its validity through a final judicial determination or other resolution, unless all parties mutually agree in writing not to defend such challenge or not to appeal any decision invalidating this Agreement or any portion thereof.

14. Disclaimer of Third-Party Beneficiaries; Successors and Assigns. This Agreement is solely for the benefit of the parties hereto, and no right, privilege, or cause of action shall by reason hereof accrue upon, to, or for the benefit of any third party. Nothing in this Agreement is intended or shall be construed to confer upon or give any person, corporation, partnership, trust, private entity, agency, or other governmental entity any right, privilege, remedy, or claim under or by reason of this Agreement or any provisions or conditions hereof. This Agreement shall be binding upon, and its benefits and advantages shall inure to, the successors and assigns of the parties hereto.

15. Construction.

A. Headings and Captions. The headings and captions of articles, sections, and paragraphs used in this Agreement are for convenience of reference only and are not intended to define or limit their contents, nor are they to affect the construction of or be taken into consideration in interpreting this Agreement.

B. Legal References. All references to statutory sections or chapters shall be construed to include subsequent amendments to such provisions, and to refer to the successor provision of any such provision. References to “applicable law” and “general law” shall be construed to include provisions of local, state and federal law, whether established by legislative action, administrative rule or regulation, or judicial decision.

16. Severability. The provisions of this Agreement are declared by the parties hereto to be severable. In the event any term or provision of this Agreement shall be held invalid by a court of competent jurisdiction, such invalid term or provision should not affect the validity of any other term or provision hereof; and all such terms and provisions hereof shall be enforceable to the fullest extent permitted by law as if such invalid term or provision had never been part of this Agreement; provided,

however, if any term or provision of this Agreement is held to be invalid due to the scope or extent thereof, then, to the extent permitted by law, such term or provision shall be automatically deemed modified in order that it may be enforced to the maximum scope and extent permitted by law.

17. Governing Law; Venue. This Agreement shall be governed by the laws of the State of Florida. Venue for any petition for writ of certiorari or other court action allowed by this Agreement shall be in the Circuit Court of the Twelfth Judicial Circuit in and for Manatee County, Florida.

18. Attorney’s Fees and Costs. In any claim dispute procedure or litigation arising from this Agreement, each party hereto shall be solely responsible for paying its attorney’s fees and costs.

19. Notices. All notices, comments, consents, objections, approvals, waivers, and elections under this Agreement shall be in writing and shall be given only by hand delivery for which a receipt is obtained, or certified mail, prepaid with confirmation of delivery requested, or by electronic mail with delivery confirmation. All such communications shall be addressed to the applicable addressees set forth below or as any party may otherwise designate in the manner prescribed herein.

To the Owner:

Email: _____

To the Contractor:

Email: _____

Notices, comments, consents, objections, approvals, waivers, and elections shall be deemed given when received by the party for whom such communication is intended at such party’s address herein specified, or such other physical address or email address as such party may have substituted by notice to the other.

20. Public Records Law. The Contractor shall comply with the Florida Public Records Act (Chapter 119, Florida Statutes), and shall:

- A. Keep and maintain public records required by the Owner to perform the services called for in this Agreement.
- B. Upon request from the Owner’s custodian of public records, provide the Owner with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes or as otherwise provided by law.
- C. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the

duration of this Agreement and following completion of this Agreement if the Contractor does not transfer the records to the Owner.

- D. Upon completion of this Agreement, transfer, at no cost, to the Owner all public records in possession of the Contractor or keep and maintain such public records. If the Contractor transfers all public records to the Owner upon completion of the Agreement, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of the Agreement, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the Owner, upon request from the Owner's custodian of public records, in a format that is compatible with the information technology systems of the Owner.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE OWNER'S CUSTODIAN OF PUBLIC RECORDS AT 941-748-4501, EXT. 5845; DEBBIE.SCACCIAOCE@MYMANATEE.ORG; POST OFFICE BOX 1000, BRADENTON, FLORIDA 34206.

21. Exhibits. Exhibits to this Agreement are as follows:

Exhibit A—Title(s) of Drawings

Exhibit B—Title(s) of Specifications

Exhibit C—Affidavit of No Conflict

Exhibit D—Certificate(s) of Insurance

Exhibit E—Payment and Performance Bond

Exhibit F—Standard Forms

- 1—Application for Payment
- 2—Certificate of Substantial Completion
- 3—Final Reconciliation / Warranty / Affidavit
- 4—Change Order

WHEREFORE, the parties hereto have executed this Agreement as of the date last executed below.

Name of Contractor

By: _____

Printed Name: _____

Title: _____

Date: _____

MANATEE COUNTY, a political subdivision
of the State of Florida

By: _____

Printed Name: _____

Title: _____

Date: _____

Construction Agreement

Exhibits & Standard Forms

- | | |
|--------------|---|
| A. Exhibit A | Drawings |
| B. Exhibit B | Specifications |
| C. Exhibit C | Affidavit of No Conflict |
| D. Exhibit D | Contractor's Certificate(s) of Insurance |
| E. Exhibit E | Contractor's Payment and Performance Bond |
| F. Exhibit F | Standard Forms |
- i. Application for Payment
 - ii. Contract Change Order
 - iii. Administrative Contract Adjustment (ACA)
 - iv. Certificate of Substantial Completion
 - v. Final Reconciliation Warranty Period Declaration and Contractor's Affidavit
 - vi. Public Construction Bond

Construction Agreement
Exhibit A
Title(s) of Drawings
(To be inserted prior to final execution)

Title
PROJECT NO.number

1 – 7 pages

(Signed and Sealed date)

Construction Agreement
Exhibit B
Title(s) of Specifications
(To be inserted prior to final execution)

Contract Documents / Specifications
For

Title
PROJECT NO.

(Dated date– number pages)

Construction Agreement
Exhibit C
Affidavit of No Conflict

COUNTY OF _____,

STATE OF _____,

BEFORE ME, the undersigned authority, this day personally appeared,

_____, a principal with full authority to bind

_____ hereinafter the "Lessee"), who being first

duly sworn, deposes and says:

(a) _____ is not currently engaged or will not become engaged in any obligations, undertakings or contracts that will require the Lessee to maintain an adversarial role against the County or that will impair or influence the advice, recommendations or quality of work provided to the County; and

(b) _____ has provided full disclosure of all potentially conflicting contractual relationships and full disclosure of contractual relationships deemed to raise a question of conflict(s); and

(c) _____ has provided full disclosure of prior work history and qualifications that may be deemed to raise possible question of conflict(s).

Affiant makes this affidavit for the purpose of inducing Manatee County, a political subdivision of the State of Florida, to enter into this Agreement for

Signature

Print Name

SUBSCRIBED to and sworn before me this ____ day of _____, 20__.

[Notary Seal]

Notary Public

My commission expires: _____

Notary Signature

Print Name

_____ is Personally Known

OR Produced Identification in the form of _____ (Type of Identification Produced)

Construction Agreement
Exhibit D
Contractor's Certificate(s) of Insurance

(to be inserted prior to final execution)

Construction Agreement
Exhibit E
Contractor's Payment and Performance Bond

(To be inserted prior to final execution)

Exhibit F

Standard Forms

Application for Payment

APPLICATION FOR PAYMENT				Request No.: _____ Project No.: _____
Project: _____				Purchase Order No.: _____
From: _____ To: _____				County Bid No.: _____
				Consultant: _____

CONTRACT PAYMENT SUMMARY				
Original Contract Amount:				\$ -
Change Order(s):				\$ -
Change order summary:				
Number	Date Approved	Additive	Deductive	
SUBTOTALS:		\$ -	\$ -	
Net change order subtotal (Additive less Deductive):				\$ -
Current Contract Amount (CCA): (Original Amount + Change Order(s))				\$ -
		Previous Status	Total WIP	
Value of the Work in Place (WIP)		\$ -	\$ -	
Value of Stored Materials		\$ -	\$ -	
Total Earned (\$ and % of CCA)		\$ -	\$ -	
Retainage (\$ and % of CCA)		\$ -	\$ -	
Net Earned (Total earned minus retainage)				\$ -
TOTAL PREVIOUS PAYMENTS				\$ -
AMOUNT DUE THIS PAYMENT (Net Earned minus Previous Payments)				\$ -

CONTRACTOR'S AFFIDAVIT OF NOTICE	
---	--

CERTIFICATE: The undersigned CONTRACTOR certifies that all items and amounts shown on this Application for Payment are

the Amount Due this Payment shown is now due.

NOTARY:

CONTRACTOR:

State of Florida, County of _____

Name of person authorized to sign Affidavit of Notice

Sworn to (or affirmed) and subscribed before me

this _____ day of _____ by

TITLE

(Name of person giving notice)

Contractor name, address and telephone no.:

(Signature of Notary Public - State of Florida)

Print, Type or Stamp Commissioned Name of
Notary Public:

Personally Known _____ or Produced Identification _____

Type of Identification Produced: _____

VERIFICATION, RECOMMENDATION, CONCURRENCES AND APPROVALS

(Signatures)

(Date)

Quantities verified by:

Consultant/Engineer:

Project Management:

Department Head:

Payment approved by
the

Board of County Commissioners:

Attested to by the Clerk of Circuit Court:

Contract Change Order

CONTRACT CHANGE ORDER (for Total Contract Adjusted Amount Greater than \$1,000,000) PROJECT:		Change Order No.:	
		Contract Amount (Present Value)	
		Project Number:	
NO. OF ITEM	DESCRIPTION OF ITEM AND CHANGE	DECREASE	INCREASE
	BY EXECUTION OF THIS CHANGE ORDER THE CONTRACTOR AGREES THAT ALL CLAIMS FOR ADDITIONAL CONTRACT TIME AND FEES FOR THE ITEMS IN THIS CHANGE ORDER HAVE BEEN SATISFIED.		
		TOTAL DECREASE:	TOTAL INCREASE:
Contractor: _____ Address: _____ City / State: _____		THE NET CHANGE OF \$ ADJUSTS THE CURRENT CONTRACT AMOUNT FROM TO	
Contractor Signature: _____ Date: _____		_____ CALENDAR DAYS ARE ADDED TO THE SCHEDULE WHICH CHANGES THE FINAL COMPLETION DATE TO [ENTER MONTH DAY, YEAR]	
RECOMMENDATION, CONCURRENCES AND APPROVALS			

	SIGNATURES	DATE
Consultant / Engineer:	_____	_____
Project Manager:	_____	_____
Division Manager:	_____	_____
Manatee County Purchasing:	Project Management Div. Mgr _____	_____
	Purchasing Official _____	_____
<p>Authority to execute this contract per Manatee County Code, Chapter 2-26, and per the delegation by the County Administrator effective January 26, 2009</p>		

JUSTIFICATION FOR CHANGE	Change Order No: Project Number:
1. NECESSITY FOR CHANGE: 	
2. Is change an alternate bid? (If yes, explain) 	
3. Does change substantially alter the physical size of the project? (If yes, explain) 	
4 Effect of this change on other 'prime' contractors? 	
5 Has the Surety and insurance company been notified, if applicable? CONTRACTOR RESPONSIBILITY 	

Attachment 8, Administrative Contract Adjustment

ADMINISTRATIVE CONTRACT ADJUSTMENT		Contract Adjustment No.: _____ Contract Amount: _____ Project Number: _____	
Project Name: _____			
ITEM	DESCRIPTION OF ITEM AND CHANGE	DECREASE	INCREASE
	BY EXECUTION OF THIS ADMINISTRATIVE CONTRACT ADJUSTMENT, THE CONTRACTOR AGREES THAT ALL CLAIMS FOR ADDITIONAL CONTRACT TIME AND FEES FOR THE ITEMS IN THIS ADMINISTRATIVE CONTRACT ADJUSTMENT HAVE BEEN SATISFIED.		
		TOTAL DECREASE:	TOTAL INCREASE:
Contractor: _____ Address: _____ City/State: _____ Contractor Signature: _____		THE NET CHANGE OF ADJUSTS THE CURRENT CONTRACT AMOUNT FROM _____ TO _____ _____ CALENDAR DAYS ARE ADDED TO THE SCHEDULE WHICH CHANGES THE FINAL COMPLETION DATE FROM _____ TO _____	

RECOMMENDATION, CONCURRENCES AND APPROVALS

	SIGNATURES	DATE
Consultant / Engineer:	_____	_____
Project Manager:	_____	_____
Division Manager:	_____	_____
	Project Management Div. Mgr	
Department Director /	_____	_____
Deputy Director	Deputy Director, Engineering Services	

**MANATEE COUNTY PROJECT MANAGEMENT DIVISION FORM
PMD-14****JANUARY
2011**

JUSTIFICATION FOR CHANGE	Change Order No: Project Number:
1. NECESSITY FOR CHANGE: _____ _____	
2. Does this change alter the scope of work? (If yes, explain) _____ _____	
3. It is the Contractor's responsibility to notify the bonding agency. Has the bonding agency been notified? _____	

Certificate of Substantial Completion

CERTIFICATE OF SUBSTANTIAL COMPLETION (S.C.)	CHECK ONE:	
	Partial	Total
Project Title:	Date Submitted:	
Contractor Data: Name: Address: City/State/Zip:	Project No:	
	S. C. Date (Proposed)	

If the "Partial" completion box above is checked, the following description applies to the work for which substantial completion is being sought. Otherwise, the work described in the Contract including approved changes, if any, is certified to be substantially complete:
(Description of the portion of work substantially completed):

(USE CONTINUATION SHEETS IF NECESSARY)

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item does not alter the Contractor's responsibility to complete all of the contract work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by the Contractor _____ days of within substantial completion. The approved substantial completion date is: _____

Contractor Signature _____ Date _____

Engineer's Approval _____ Date _____

Printed Name and Title _____

Printed Name and Title _____

The Contractor shall be responsible for security, operation, safety, maintenance, HVAC, insurance and warranties in accordance with the Contract. The County will assume the responsibility for paying the cost of electrical power from midnight of the date of Engineer's approval as indicated above.

ATTACH THE INSPECTOR'S FINAL WALKTHROUGH LIST OF DEFICIENCIES.

Final Reconciliation Warranty Period

FINAL RECONCILIATION, WARRANTY PERIOD DECLARATION AND CONTRACTOR'S AFFIDAVIT	
Project Title:	Date Submitted:
Contractor Data: Name: Address: City/State/Zip:	Project No: Warranty (months):
<p>This Final Reconciliation is for the work performed for Manatee County by the above named contractor, hereinafter called CONTRACTOR, pursuant to the contract dated _____ as amended, and acts as an addendum thereto.</p> <p>It is agreed that all quantities and prices in the attached Final Pay Estimate No. _____ are correct and that the amount of \$ _____ including retainage is due to the CONTRACTOR, that no claims are outstanding as between the parties, and that the above stated sum represents the entirety of monies owed the CONTRACTOR.</p> <p>It is further agreed that the warranty period for CONTRACTOR'S work pursuant to the Contract is from _____ to _____</p> <p>As (title) _____ for CONTRACTOR, I have authority to bind said CONTRACTOR, and as such make this final reconciliation, declaration and affidavit for the purpose of inducing Manatee County to make final payment to CONTRACTOR for work done at/upon _____ under said contract:</p> <p>CONTRACTOR has paid all social security and withholding taxes accrued in connection with the construction project.</p> <p>CONTRACTOR has paid all workers' compensation and other insurance premiums incurred in connection with this construction project.</p> <p>CONTRACTOR has paid for all required permits in connection with this construction project.</p> <p>All laborers, material, men, suppliers, subcontractors and service professionals who worked for and/or supplied materials, equipment and/or services to the CONTRACTOR under this construction contract have been paid in full.</p> <p style="text-align: right;">_____ (Affiant Signature)</p> <p>NOTARY: State of Florida, County of _____, Sworn to (or affirmed) and subscribed before me this _____ day of _____, 20____, by _____ (person giving notice).</p> <p>Signature of Notary Public - State of Florida: _____ Print, Type or Stamp Commissioned Name of Notary Public: _____</p> <p>Personally Known <input type="checkbox"/> or Produced Identification <input type="checkbox"/> Type of Identification Produced _____</p>	

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(Previous versions are obsolete)

Public Construction Bond

**MANATEE COUNTY GOVERNMENT
PUBLIC CONSTRUCTION BOND**

BY THIS BOND, We _____, located at _____, as
(Name of Contractor) (Address)
Principal and _____ a corporation, whose address is
(Name of Surety)

Are bound to Manatee County, a political subdivision of the State of Florida, herein called
County, in the sum of \$ _____, for payment of which we bind ourselves,
our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that Principal:

1. Performs Contract No. 19-R072110SAM, between Principal and County for construction of
SWWRF ASR Well Rehabilitation,

(Title of Project)

the Contract Being made a part of this bond by reference, at the times and in the manner
prescribed in the Contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes,
supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the
prosecution of the Work provided for in the Contract; and
3. Pays County all losses, damages, expenses, costs, and attorney's fees, including appellate
proceedings, that County Sustains because of a default by Principal under the Contract; and
4. Performs the guarantee of all Work and materials furnished under the Contract for the time
specified in the Contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with
the notice and time limitation provisions of Section 255.05(2), Florida Statutes.

Any changes in or under the Contract documents and compliance or non-compliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this bond.

DATED ON _____

CONTRACTOR AS PRINCIPAL

Contractor Name

Signature

Print Name

Title

(Corporate Seal)

SURETY

Surety Name

Signature

Print Name

Title

(Corporate Seal)

AGENT OR BROKER

Company Name

Address

City/State/Zip

Telephone

Licensed Florida Insurance Agent?

___ Yes

___ No

License #:

State of

County of

City of

GENERAL CONDITIONS

of the

CONSTRUCTION AGREEMENT

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GENERAL CONDITIONS

ARTICLE I

DEFINITIONS

1.1 Definitions. For purposes of the Contract Documents, the following terms shall have the following meanings.

A. Acceptance: The acceptance of the Project into the Owner's operating public infrastructure.

B. Application for Payment: The form approved and accepted by the Owner, which is to be used by Contractor in requesting progress payments or final payment and which is to include such supporting documentation as is required by the Contract Documents.

C. Architect/Engineer: _____, a _____ corporation, registered and licensed to do business in the State of Florida.

D. Change Order: A written order signed by the Owner, the Architect/Engineer and the Contractor authorizing a change in the Project Plans and/or Specifications and, if necessary, a corresponding adjustment in the Contract Sum and/or Contract Time, pursuant to Article V.

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

F. Contractor's Personnel: The Contractor's key personnel designated by Contractor.

G. Construction Services: The Construction Services to be provided by Contractor pursuant to Section 2.4, in accordance with the terms and provisions of the Contract Documents..

H. Construction Team: The working team established pursuant to Section 2.1.B.

I. Contract Sum: The total compensation to be paid to the Contractor for Construction Services rendered pursuant to the Contract Documents, as set forth in Contractor's Bid (or Guaranteed Maximum Price Addendum), unless adjusted in accordance with the terms of the Contract Documents

J. Contract Time: The time period during which all Construction Services are to be completed pursuant to the Contract Documents, to be set forth in the Project Schedule.

K. Days: Calendar days except when specified differently. 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.

L. Defective: When modifying the term “Work”, referring to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or that does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or that has been damaged prior to Owner’s approval of final payment (unless responsibility for the protection thereof has been assumed by Owner).

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

N. Field Directive: A written order issued by Owner which orders minor changes in the Work not involving a change in Contract Time, to be paid from the Owner’s contingency funds.

O. Final Completion Date: The date upon which the Project is fully constructed and all Work required on the Project and Project Site is fully performed as verified in writing by the Owner.

P. Float or Slack Time: The time available in the Project Schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Q. Force Majeure: Those conditions constituting excuse from performance as described in and subject to the conditions described in Article XII.

R. 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.

S. Non-prejudicial Delay: Any delay impacting a portion of the Work within the available total Float or Slack Time and not necessarily preventing Substantial Completion of the Work within the Contract Time.

T. Notice to Proceed: Written notice by Owner (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 the Work.

U. Owner: Manatee County, a political subdivision of the State of Florida.

V. Owner’s Project Representative: The individual designated by Owner to perform those functions set forth in Section 7.8.

W. Payment and Performance Bond: The Payment and Performance Bond security posted pursuant to Section 2.4.Y to guarantee payment and performance by the Contractor of its obligations hereunder.

X. Permitting Authority: Any applicable governmental authority acting in its governmental and regulatory capacity which is required to issue or grant any permit, certificate, license or other approval which is required as a condition precedent to the commencement or approved of the Work, or any part thereof, including the building permit.

Y. Prejudicial Delay: Any excusable or compensable delay impacting the Work and exceeding the total float available in the Project Schedule, thus preventing completion of the Work within the Contract Time unless the Work is accelerated.

Z. 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.

AA. Procurement Ordinance: The Manatee County Procurement Code, Chapter 2-26 of the Manatee County Code of Laws, as amended from time to time.

BB. Progress Report: A report to Owner that includes all information required pursuant to the Contract Documents and submitted in accordance with Section 2.4.EE, hereof.

CC. Project: The total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by Owner and by separate contractors. For the purposes of the Contract Documents, the term Project shall include all areas of proposed improvements and all areas which may reasonably be judged to have an impact on the Project.

DD. Project Costs: The costs incurred by the Contractor to plan, construct and equip the Project and included within, and paid as a component of, the Contract Sum.

EE. Project Manager: Subject to the prior written consent of Owner, the individual designated to receive notices on behalf of the Contractor, or such other individual designated by the Contractor, from time to time, pursuant to written notice in accordance with the Contract Documents.

FF. Project Plans and Specifications: The one hundred percent (100%) construction drawings and specifications prepared by the Architect/Engineer, and any changes, supplements, amendments or additions thereto approved by the Owner, which shall also include any construction drawings and final specifications required for the repair or construction of the Project, as provided herein.

GG. Project Schedule: The schedule and sequence of events for the commencement, progression and completion of the Project, developed pursuant to Section 2.3., as such schedule may be amended as provided herein.

HH. Project Site: The site depicted in the Project Plans and Specifications, inclusive of all rights of way, temporary construction easements or licensed or leased sovereign lands.

II. Punch List Completion Date: The date upon which all previously incomplete or unsatisfactory items, as identified by the Contractor, the Architect/Engineer and/or the Owner are completed in a competent and workmanlike manner, consistent with standards for Work of this type and with good building practices in the State of Florida.

JJ. Subcontractor: Any individual (other than a direct employee of the Contractor) or organization retained by Contractor to plan, construct or equip the Project pursuant to Article IV.

KK. Substantial Completion and Substantially Complete: The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use; provided, however, that as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy or completion and other permits, approvals, licenses, and other documents from any governmental authority which are necessary for the beneficial occupancy of the Project or any designated portion thereof.

LL. Substantial Completion Date: The date on which the Project or designated portion thereof is deemed to be Substantially Complete, as evidenced by receipt of (i) the Architect/Engineer's certificate of Substantial Completion, (ii) written Acceptance of the Project by the Owner, and (iii) approvals of any other authority as may be necessary or otherwise required.

MM. Substitute: Materials or equipment offered by the Contractor as an alternative to that set forth in the Project Plans and Specifications, where (i) the Project Plans and Specifications do not authorize an "approved equal", or (ii) the Owner, in its reasonable discretion, determines that a pre-authorized "approved equal" will result in a substantial change to the Work because of cost, quality or other difference in comparison to the materials or equipment specified.

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

OO. Work: The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

PP. Work Directive Change: A written directive to Contractor, issued on or after the effective date of the Agreement pursuant to Section 5.8 and signed by Owner's 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 responding to emergencies.

ARTICLE II

RELATIONSHIP AND RESPONSIBILITIES

2.1 Relationship between Contractor and Owner. The Contractor accepts the relationship of trust and confidence established with Owner pursuant to the Contract Documents. The Contractor shall furnish its best skill and judgment and cooperate with Owner and Owner's Project Representative in furthering the interests of the Owner. The Contractor agrees to provide the professional services required to complete the Project consistent with the Owner's direction and the terms of the Contract Documents. All services provided hereunder by Contractor, either directly or through Subcontractors, shall be provided in accordance with sound construction practices and applicable professional construction standards.

A. Purpose. The purpose of the Contract Documents is to provide for the provision of construction services for the Project on the Project Site by the Contractor, and construction of the Project by the Contractor in accordance with the Project Plans and Specifications. The further purpose of the Contract Documents is to define and delineate the responsibilities and obligations of the parties to the Contract Documents and to express the desire of all such parties to cooperate to accomplish the

purposes and expectations of the Contract Documents.

B. Construction Team. The Contractor, Owner and Architect/Engineer shall be called the "Construction Team" and shall work together as a team commencing upon full execution of the Contract Documents through Substantial Completion. As provided in Section 2.2, the Contractor and Architect/Engineer shall work jointly through completion and shall be available thereafter should additional services be required. The Contractor shall provide leadership to the Construction Team on all matters relating to construction. The Contractor understands, acknowledges and agrees that the Architect/Engineer shall provide leadership to the Construction Team on all matters relating to design.

C. Owner's Reliance on Bid (or Guaranteed Maximum Price Addendum). The Contractor acknowledges that the representations, statements, information and pricing contained in its Bid (or Guaranteed Maximum Price Addendum) have been relied upon by the Owner and have resulted in the award of this Project to the Contractor.

2.2 General Contractor Responsibilities. In addition to the other responsibilities set forth herein, the Contractor shall have the following responsibilities pursuant to the Contract Documents:

A. Personnel. The Contractor represents that it has secured, or shall secure, all personnel necessary to perform the Work, none of whom shall be employees of the Owner. Primary liaison between the Contractor and the Owner shall be through the Owner's Project Representative and Contractor's Project Manager. All of the services required herein shall be performed by the Contractor or under the Contractor's supervision, and all personnel engaged in the Work shall be fully qualified and shall be authorized or permitted under law to perform such services.

B. Cooperation with Architect/Engineer. The Contractor's services shall be provided in conjunction with the services of the Architect/Engineer. In the performance of professional services, the Contractor acknowledges that time is critical for Project delivery. The Contractor acknowledges that timely construction utilizing the services of an Architect/Engineer and a Contractor requires maximum cooperation between all parties.

C. Timely Performance. The Contractor shall perform all services as expeditiously as is consistent with professional skill and care and the orderly progress of the Work, in accordance with the Project Schedule. Verification of estimated Project Schedule goals will be made as requested by the Owner.

D. Duty to Defend Work. In the event of any dispute between the Owner and any Permitting Authority that relates to the quality, completeness or professional workmanship of the Contractor's services or Work, the Contractor shall, at its sole cost and expense, cooperate with the Owner to defend the quality and workmanship of the Contractor's services and Work.

E. Trade and Industry Terminology. 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 (or at the time of execution of the Guaranteed

Maximum Price Addendum), 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 Owner or Contractor, or any of their agents or employees from those set forth in the Contract Documents. Computed dimensions shall govern over scaled dimensions.

2.3 Project Schedule. The Contractor, within ten (10) days after being awarded the Agreement, shall prepare and submit for the Owner's and Architect/Engineer's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of Work.

- A. The Project Schedule shall show a breakdown of all tasks to be performed, and their relationship in achieving the completion of each phase of Work, subject to review of Owner and Architect/Engineer and approval or rejection by Owner. The Project Schedule shall show, at 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 Project Schedule shall include all phases of procurement, approval of shop drawings, proposed Change Orders in progress, schedules for Change Orders, and performance testing requirements. The Project Schedule shall include a construction commencement date and Project Substantial Completion Date, which dates shall accommodate known or reasonably anticipated geographic, atmospheric and weather conditions.
- B. The Project Schedule shall serve as the framework for the subsequent development of all detailed schedules. The Project Schedule shall be used to verify Contractor performance and to allow the Owner's Project Representative to monitor the Contractor's efforts.
- C. The Project Schedule may be adjusted by the Contractor pursuant to Article V. The Owner shall have the right to reschedule Work provided such rescheduling is in accord with the remainder of terms of the Contract Documents.
- D. The Contractor shall prepare a submittal schedule, promptly after being awarded the Agreement and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect/Engineer's approval. The Architect/Engineer's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect/Engineer reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.
- E. The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect/Engineer.

2.4 Construction Services. The Contractor shall provide the following Construction Services:

A. Construction of Project. The Contractor shall work from the receipt of a Notice to Proceed through the Substantial Completion of the Project in accordance with the terms of the Contract Documents to manage the construction of the Project. The Construction Services provided by the Contractor to construct the Project shall include without limitation (1) all services necessary and commensurate with established construction standards, and (2) all services described in the Invitation for Bid (or Request for Proposal) and the Bid (or Guaranteed Maximum Price Addendum).

B. Notice to Proceed. A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. 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 issuance of the Notice to Proceed.

C. Quality of Work. If at any time the labor used or to be used appears to the Owner as insufficient or improper for securing the quality of Work required or the required rate of progress, the Owner may order the Contractor to increase its efficiency or to improve the character of its Work, and the Contractor shall conform to such an order. Any such order shall not entitle Contractor to any additional compensation or any increase in Contract Time. The failure of the Owner to demand any increase of such efficiency or any improvement shall not release the Contractor from its obligation to secure the quality of Work or the rate of progress necessary to complete the Work within the limits imposed by the Contract Documents. The Owner may require the Contractor to remove such personnel as the Owner deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Project is deemed to be contrary to the Owner's interest. The Contractor shall provide good quality workmanship and shall promptly correct construction defects without additional compensation. Acceptance of the Work by the Owner shall not relieve the Contractor of the responsibility for subsequent correction of any construction defects.

D. Materials. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by Architect/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.

E. Accountability for Work. The Contractor shall be solely accountable for its Work, including plans review and complete submittals. The Contractor shall be solely responsible for means, methods, techniques, sequences and procedures of construction. If a specific means, method, technique, sequence or procedure of construction is required by the Contract Documents, the Contractor may utilize an alternative means, method, technique, sequence or procedure acceptable to the Architect/Engineer if the Contractor submits sufficient information to allow the Architect/Engineer to determine that the alternative is equivalent to that required by the Contract Documents.

F. Contract Sum. The Contractor shall construct the Project so that the Project can be built for a cost not to exceed the Contract Sum.

G. Governing Specifications. The Project shall be constructed in accordance with applicable Owner design standards and guidelines. In the absence of specified Owner design standards or guidelines, the Architect/Engineer shall use, and the Contractor shall comply with, the most recent version of the applicable FDOT or AASHTO design standards. In general, the Project shall be constructed by the Contractor in accordance with applicable industry standards. The Contractor shall be responsible

for utilizing and maintaining current knowledge of any laws, ordinances, codes, rules, regulations, standards, guidelines, special conditions, specifications or other mandates relevant to the Project or the services to be performed.

H. Adherence to Project Schedule. The development and equipping of the Project shall be undertaken and completed in accordance with the Project Schedule, and within the Contract Time described therein.

I. Superintendent. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project Site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

(1) The Contractor, as soon as practicable after award of the Agreement, shall furnish in writing to the Owner through the Architect/Engineer the name and qualifications of the proposed superintendent. The Architect/Engineer may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect/Engineer has reasonable objection to the proposed superintendent or (2) that the Architect/Engineer requires additional time to review. Failure of the Architect/Engineer to reply within 14 days shall constitute notice of no reasonable objection.

(2) The Contractor shall not employ a proposed superintendent to whom the Owner or Architect/Engineer has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not be unreasonably withheld or delayed.

J. Work Hours. 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 shall not permit overtime work or the performance of Work on a Saturday, Sunday or legal holiday without Owner's written consent given after prior notice to Architect/Engineer (at least seventy-two (72) hours in advance).

K. Overtime-Related Costs. Contractor shall pay for all additional Architect/Engineering charges, inspection costs and Owner staff time for any overtime work which may be authorized. Such additional charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by Owner because such overtime work. At Owner's option, such overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.

L. Insurance, Overhead and Utilities. 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.

M. Cleanliness. The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project Site. Contractor

shall restore to original conditions all property not designated for alteration by the Contract Documents. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from Contractor.

N. Loading. 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.

O. 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:

- (1) All employees on the Work and other persons and organizations who may be affected thereby;
- (2) All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Project Site; and
- (3) Other property at the Project Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement during 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 for the public and preservation of the Owner's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for safety and protection with regard to the Work shall continue until such time as all the Work is completed.

P. Emergencies. In emergencies affecting the safety or protection of persons or the Work or property at the Project Site or adjacent thereto, Contractor, without special instruction or authorization from Architect/Engineer or Owner, shall act to prevent threatened damage, injury or loss. Contractor shall give Owner 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 Project 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.

Q. Substitutes. For Substitutes not included with the Bid (or Guaranteed Maximum Price Addendum), but submitted after the effective date of the Agreement (or Guaranteed Maximum Price Addendum), Contractor shall make written application to Architect/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 provision 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 Architect/Engineer in evaluating the proposed Substitute. Architect/Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed Substitute. In rendering a decision, Owner, Architect/Engineer and Contractor shall have access to any available Float Time in the Project Schedule. If Substitute materials or equipment not included as part of the Bid (or Guaranteed Maximum Price Addendum), 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 Owner and an appropriate Change Order executed to adjust the Contract Sum.

- (1) Architect/Engineer will be allowed a reasonable time within which to evaluate each proposed Substitute. Architect/Engineer will be the sole judge of acceptability and no Substitute will be ordered, installed or utilized without Architect/Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved shop drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any Substitute.
- (2) Contractor shall reimburse Owner for the charges of Architect/Engineer and Architect/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.

R. Surveys and Stakes. 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 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 shall 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 shall be held responsible for the preservation of all stakes and marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they shall be immediately and accurately replaced by the Contractor.

S. Suitability of Project Site. The Contractor has, by careful examination, satisfied itself as to the nature and location of the Work and all other matters which can in any way affect the Work, including, but not limited to details pertaining to borings, as shown on the drawings. Such boring information is not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the Project Site, approximately at the locations indicated. The Contractor has examined boring data, where available, made its own interpretation of the subsurface conditions and other preliminary data, and has based its Bid (or Guaranteed Maximum Price Addendum) on its own opinion of the conditions likely to be encountered. Except as specifically provided in Sections 2.4.U., 5.4 and 5.5, no extra compensation or extension of time will be considered for any Project Site conditions that existed at the time of bidding (or at the time of execution of the Guaranteed Maximum Price Addendum). No verbal agreement or conversation with any officer, agent or employee of the Owner, before or after the execution of the Agreement, shall affect or modify any of the terms or obligations herein contained.

T. Project Specification Errors. If the Contractor, during the Work, finds that the drawings, specifications or other Contract Documents cannot be followed, the Contractor shall immediately inform the Owner in writing, and the Owner 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 sole risk of non-payment and delay.

U. Remediation of Contamination: Owner and Contractor recognize that remediation of subsurface conditions may be necessary due to potential hazardous materials contamination. Because the presence or extent of any contamination is not known, Contractor shall include no cost in the Contract Sum, and no time in the Project Schedule, for cost or delays that might result from any necessary remediation. The Project Schedule will provide a period of time between demolition activities and the start of the next activity to commence any remediation if needed. Contractor shall use all reasonable efforts in scheduling the Project to minimize the likelihood that remediation delays construction. Any hazardous materials remediation Work which Contractor agrees to perform shall be done pursuant to a Change Order or amendment consistent with the following:

- (1) The dates of Substantial Completion shall be equitably adjusted based on delays, if any, incurred in connection with remediation efforts.
- (2) Contractor, and any Subcontractors which have mobilized on the Project Site, shall be paid for demonstrated costs of overhead operations at the Project Site during any period of delay of more than seven (7) days, except to the extent that Work proceeds concurrently with remediation. The categories of costs to be reimbursed are limited to those reasonably incurred at the jobsite during the delay period (such as trailers or offices, telephones, faxes, and the like); equipment dedicated to the Project and located at the Project Site; salaries and associated costs of personnel dedicated to the Project to the extent that they do not perform work on other projects; and other jobsite costs that are reasonable and which are incurred during the delay period. Subcontractors and suppliers which have not mobilized are limited to the costs set forth in Section 2.4.U(3).
- (3) Contractor and any Subcontractor or supplier on the Project who is eligible for compensation shall be paid any demonstrated costs of escalation in materials or labor, and reasonable costs of off-site storage of materials identified to the Project, arising because of any delay of more than seven (7) days. Such Contractor, Subcontractors and suppliers are obligated to take all reasonable steps to mitigate escalation costs, such as through early purchase of materials.
- (4) Contractor, for itself and all Subcontractors and suppliers on the Project, hereby agrees that the extension of time for delays under Section 2.4.U(1), and payment of the costs identified in Sections 2.4.U(2) and/or Section 2.4.U(3), are the sole remedies for costs and delays described in this Section, and waives all claims and demands for extended home office overhead (including, but not limited to, "Eichleay" claims), lost profit or lost opportunities, and any special, indirect, or consequential damages arising as a result of delays described in this Section. The Contract Sum shall be adjusted to reflect payment of allowable costs.
- (5) If any delay described in this section causes the time or cost for the Project to exceed the Contract Time or the Contract Sum, then the Owner may terminate the Agreement pursuant to Section 14.2.
- (6) Contractor and any Subcontractor or supplier seeking additional costs under this Section 2.4.U. shall promptly submit estimates or any costs as requested by

Owner, and detailed back-up for all costs when payment is sought or whenever reasonably requested by Owner. All costs are auditable, at Owner's discretion. Bid, estimate and pricing information reasonably related to any request for additional compensation will be provided promptly upon request.

- (7) Contractor shall include provisions in its subcontracts and purchase orders consistent with this Section.

V. Interfacing.

- (1) The Contractor shall take such measures as are necessary to ensure proper construction and delivery of the Project, including but not limited to providing that all procurement of long-lead items, the separate construction Subcontractors, and the general conditions items are performed without duplication or overlap to maintain completion of all Work on schedule. Particular attention shall be given to provide that each Subcontractor bid package clearly identifies the Work included in that particular separate subcontract, its scheduling for start and completion, and its relationship to other separate contractors.
- (2) Without assuming any design responsibilities of the Architect/Engineer, the Contractor shall include in the Progress Reports required under this Section 2.4 comments on overlap with any other separate subcontracts, omissions, lack of correlation between drawings, and any other deficiencies noted, in order that the Architect/Engineer may arrange for necessary corrections.

W. Job Site Facilities. The Contractor shall arrange for all job site facilities required and necessary to enable the Contractor and Architect/Engineer to perform their respective duties and to accommodate any representatives of the Owner which the Owner may choose to have present on the Project Site.

X. Weather Protection. The Contractor shall provide temporary enclosures of building areas to assure orderly progress of the Work during periods when extreme weather conditions are likely to be experienced. The Contractor shall also be responsible for providing weather protection for Work in progress and for materials stored on the Project Site. A contingency plan shall be prepared upon request of the Owner for weather conditions that may affect the construction.

Y. Payment and Performance Bond. Prior to the construction commencement date, the Contractor shall obtain, for the benefit of and directed to the Owner, a Payment and Performance Bond satisfying the requirements of Section 255.05, Florida Statutes, covering the faithful performance by the Contractor of its obligations under the Contract Documents, including but not limited to the construction of the Project on the Project Site and the payment of all obligations arising thereunder, including all payments to Subcontractors, laborers, and materialmen. The surety selected by the Contractor to provide the Payment and Performance Bond shall be approved by the Owner prior to the issuance of such Bond, which approval shall not be unreasonably withheld or delayed provided that the surety is rated A or better by Best's Key Guide, latest edition. For Changes in the Work that result in an increase in the Contract Sum, Owner reserves the right to require the Contractor to secure and deliver additive riders to the Payment and Performance Bond.

Z. Construction Phase; Building Permit; Code Inspections. Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist

Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.

- (1) Building Permit. The Owner and Architect/Engineer shall provide such information to any Permitting Authority as is necessary to obtain approval from the Permitting Authority to commence construction prior to beginning construction. The Contractor shall pull any required building permit, and shall be responsible for delivering and posting the building permit at the Project Site prior to the commencement of construction. The cost of the building permit is included in the Contract Sum. The Owner and Architect/Engineer shall fully cooperate with the Contractor when and where necessary.
- (2) Code Inspections. The Project requires detailed code compliance inspection during construction in disciplines determined by any Permitting Authority. These disciplines normally include, but are not necessarily limited to, structural, mechanical, electrical, plumbing, general building and fire. The Contractor shall notify the appropriate inspector(s) and the Architect/Engineer, no less than 24 hours in advance, when the Work is ready for inspection and before the Work is covered up. All inspections shall be made for conformance with the applicable ordinances and building codes. Costs for all re-inspections of Work found defective and subsequently repaired shall not be included as Project Costs and shall be borne by the Contractor or as provided in the contract between Contractor and Subcontractor.
- (3) Contractor's Personnel. The Contractor shall maintain sufficient off-site support staff and competent full-time staff at the Project Site authorized to act on behalf of the Contractor to coordinate, inspect, and provide general direction of the Work and progress of the Subcontractors. At all times during the performance of the Work, the Owner shall have the right to demand replacement of Contractor Personnel to whom the Owner has reasonable objection, without liability to the Contractor.
- (4) Lines of Authority. To provide general direction of the Work, the Contractor shall establish and maintain lines of authority for its personnel and shall provide this information to the Owner and all other affected parties, such as the code inspectors of any Permitting Authority, the Subcontractors, and the Architect/Engineer. The Owner and Architect/Engineer may attend meetings between the Contractor and his Subcontractors; however, such attendance is optional and shall not diminish either the authority or responsibility of the Contractor to administer the subcontracts.

AA. Quality Control. The Contractor shall develop and maintain a program, acceptable to the Owner and Architect/Engineer, to assure quality control of the construction. The Contractor shall be responsible for and supervise the Work of all Subcontractors, providing instructions to each when their Work does not conform to the requirements of the Project Plans and Specifications, and the Contractor shall continue to coordinate the Work of each Subcontractor to ensure that corrections are made in a timely manner so as to not affect the efficient progress of the Work. Should a disagreement occur between the Contractor and the Architect/Engineer over the acceptability of the Work, the Owner, at its sole discretion and in addition to any other remedies provided herein, shall have the right to determine the acceptability, provided that such determination is consistent with standards for construction projects of this type and generally accepted industry standards for workmanship in the

State of Florida.

BB. Management of Subcontractors. All Subcontractors shall be compensated in accordance with Article IV. The Contractor shall solely control the Subcontractors. The Contractor shall negotiate all Change Orders and Field Orders with all affected Subcontractors and shall review the costs and advise the Owner and Architect/Engineer of their validity and reasonableness, acting in the Owner's best interest. When there is an imminent threat to health and safety, and Owner's Project Representative concurrence is impractical, the Contractor shall act immediately to remove the threats to health and safety and shall subsequently fully inform Owner of all such action taken. The Contractor shall also carefully review all shop drawings and then forward the same to the Architect/Engineer for review and actions. The Architect/Engineer will transmit them back to the Contractor, who will then issue the shop drawings to the affected Subcontractor for fabrication or revision. The Contractor shall maintain a suspense control system to promote expeditious handling. The Contractor shall request the Architect/Engineer to make interpretations of the drawings or specifications requested of him by the Subcontractors and shall maintain a business system to promote timely response. The Contractor shall inform the Architect/Engineer which shop drawings or requests for clarification have the greatest urgency, to enable the Architect/Engineer to prioritize requests coming from the Contractor. The Contractor shall advise the Owner and Architect/Engineer when timely response is not occurring on any of the above.

CC. Job Requirements.

- (1) The Contractor shall provide each of the following as a part of its services hereunder:
 - (a) Maintain a log of daily activities, including manpower records, equipment on site, weather, delays, major decisions, etc;
 - (b) Maintain a roster of companies on the Project with names and telephone numbers of key personnel;
 - (c) Establish and enforce job rules governing parking, clean-up, use of facilities, and worker discipline;
 - (d) Provide labor relations management and equal opportunity employment for a harmonious, productive Project;
 - (e) Provide and administer a safety program for the Project and monitor for subcontractor compliance without relieving them of responsibilities to perform Work in accordance with best acceptable practice;
 - (f) Provide a quality control program as provided under Section 2.4.C above;
 - (g) Provide miscellaneous office supplies that support the construction efforts which are consumed by its own forces;
 - (h) Provide for travel to and from its home office to the Project Site and to those other places within Manatee County as required by the Project;

- (i) Verify that tests, equipment, and system start-ups and operating and maintenance instructions are conducted as required and in the presence of the required personnel and provide adequate records of same to the Architect/Engineer;
 - (j) 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 after execution of the Agreement, Owner/Architect/Engineer's clarifications and interpretations of the Contract Documents, progress reports, as-built drawings, and other project related documents;
 - (k) 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, and provide copies of same to Owner/Architect/Engineer;
 - (l) Record names, addresses and telephone numbers of all Contractors, Subcontractors and major suppliers of materials and equipment;
 - (m) Furnish Owner/Architect/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;
 - (n) Consult with Owner/Architect/Engineer in advance of scheduling major tests, inspections or start of important phases of the Work;
 - (o) Verify, during the course of the Work, that certificates, maintenance and operations manuals and other data required to be assembled and furnished are applicable to the items actually installed, and deliver same to Owner/Architect/Engineer for review prior to final Acceptance of the Work; and
 - (p) Cooperate with Owner in the administration of grants.
- (2) The Contractor shall provide personnel and equipment, or shall arrange for separate Subcontractors to provide each of the following as a Project Cost:
- (a) Services of independent testing laboratories, and provide the necessary testing of materials to ensure conformance to contract requirements; and
 - (b) Printing and distribution of all required bidding documents and shop drawings, including the sets required by Permitting Authority inspectors.

DD. As-Built Drawings. The Contractor shall continuously review as-built drawings and mark up progress prints to provide as much accuracy as possible. Prior to, and as a requirement for authorizing final payment to the Contractor due hereunder, the Contractor shall provide to the Owner an original set of marked-up, as-built Project Plans and Specifications and an electronic format of those records showing the location and dimensions of the Project as constructed, which documents shall be certified as being correct by the Contractor and the Architect/Engineer. Final as-built drawings shall be signed and sealed by a registered Florida surveyor.

EE. Progress Reports. The Contractor shall forward to the Owner, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the Work, to include those parts of the Work 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 Owner's review and approval. In addition, more detailed schedules may be required by the Owner for daily traffic control.

FF. Contractor's Warranty. The Contractor warrants to the Owner and Architect/Engineer that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements will be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect/Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

- (1) Contractor shall use its best efforts and due diligence to ensure that during the warranty period, those entities or individuals who have provided direct warranties to the Owner as required by the Contract Documents perform all required warranty Work in a timely manner and at the sole cost and expense of such warranty providers. Any such cost or expense not paid by the warranty providers shall be paid by the Contractor, to include any costs and attorney's fees incurred in warranty-related litigation between Contractor and any Subcontractors.
- (2) The Contractor shall secure guarantees and warranties of Subcontractors, equipment suppliers and materialmen, and assemble and deliver same to the Owner in a manner that will facilitate their maximum enforcement and assure their meaningful implementation. The Contractor shall collect and deliver to the Owner any specific written guaranties or warranties given by others as required by subcontracts.
- (3) At the Owner's request, the Contractor shall conduct, jointly with the Owner and the Architect/Engineer, no more than two (2) warranty inspections within three (3) years after the Substantial Completion Date.

GG. Apprentices. If Contractor employs apprentices, their performance of Work shall be governed by and shall comply with the provisions of Chapter 446, Florida Statutes.

HH. Schedule of Values. Unit prices shall be established for this Agreement by

the submission of a schedule of values within ten (10) days of receipt of the Notice to Proceed. The schedule shall include quantities and prices of items equaling the Contract Sum and will subdivide the Work into components in sufficient detail to serve as the basis for progress payments during construction. Such prices shall include an appropriate amount of overhead and profit applicable to each item of Work. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.

II. Other Contracts. The Owner 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 III COMPENSATION

3.1 Compensation. The Contract Sum 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 Contractor's expense without change in the Contract Sum.

A. Adjustments. The Contract Sum may only be changed by Change Order or by a written amendment. Any claim for an increase or decrease in the Contract Sum 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 fifteen (15) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all amounts to which the claimant is entitled as a result of the occurrence of said event. Failure to deliver a claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

B. Valuation. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Sum shall be determined in one of the following ways (at Owner's discretion):

- (1) In the case of Unit Price Work, in accordance with Section 3.1.C, below; or
- (2) By mutual acceptance of a lump sum; or
- (3) On the basis of the cost of the Work, plus a negotiated Contractor's fee for overhead and profit. Contractor shall submit an itemized cost breakdown together with supporting data.

C. Unit Price Work. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment pursuant to a requested Change Order under the following conditions:

- (1) If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract Sum 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

- (2) If there is no corresponding adjustment with respect to any other item of Work;
and
 - (i) If Contractor believes that it has incurred additional expense as a result thereof; or
 - (ii) If Owner believes that the quantity variation entitles it to an adjustment in the unit price; or
 - (iii) If the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

3.2 Schedule of Compensation. All payments for services and material under the Contract Documents shall be made in accordance with the following provisions.

A. Periodic Payments for Services. The Contractor shall be entitled to receive payment for Construction Services rendered pursuant to Section 2.4 in periodic payments which shall reflect a fair apportionment of cost and schedule of values of services furnished prior to payment, subject to the provisions of this Section.

B. Payment for Materials and Equipment. In addition to the periodic payments authorized hereunder, payments may be made for material and equipment not incorporated in the Work but delivered and suitably stored at the Project Site, or another location, subject to prior approval and acceptance by the Owner on each occasion.

C. Credit toward Contract Sum. All payments for Construction Services made hereunder shall be credited toward the payment of the Contract Sum as Contractor's sole compensation for the construction of the Project.

3.3 Invoice and Payment. All payments for services and materials under the Contract Documents shall be invoiced and paid in accordance with the following provisions.

A. Invoices. The Contractor shall submit to the Owner periodic invoices for payment, in a form acceptable to the Owner, which shall include a sworn statement certifying that, to the best of the Contractor's knowledge, information and belief, the construction has progressed to the point indicated, the quality and the Work covered by the invoice is in accord with the Project Plans and Specifications, and the Contractor is entitled to payment in the amount requested, along with the cost reports required pursuant to Article II, showing in detail all monies paid out, Project Costs accumulated, or Project Cost incurred during the previous period. This data shall be attached to the invoice.

B. Additional Information; Processing of Invoices. Should an invoiced amount appear to exceed the Work effort believed to be completed, the Owner may, prior to processing of the invoice for payment, require the Contractor to submit satisfactory evidence to support the invoice. All progress reports and invoices shall be delivered to the attention of the Owner's Project Representative. Invoices not properly prepared (mathematical errors, billing not reflecting actual Work done, no signature, etc.) shall be returned to the Contractor for correction.

C. Architect/Engineer's Approval. Payment for Work completed shall be subject to the Architect/Engineer approving the payment requested by the Contractor and certifying the amount

thereof that has been properly incurred and is then due and payable to the Contractor, and identifying with specificity any amount that has not been properly incurred and that should not be paid.

D. Warrants of Contractor with Respect to Payments. The Contractor warrants that (1) upon payment of any retainage, materials and equipment covered by a partial payment request will pass to Owner either by incorporation in construction or upon receipt of payment by the Contractor, whichever occurs first; (2) Work, materials and equipment covered by previous partial payment requests shall be free and clear of liens, claims, security interests, or encumbrances; and (3) no Work, materials or equipment covered by a partial payment request which has been acquired by the Contractor or any other person performing Work at the Project Site, or furnishing materials or equipment for the Project, shall be subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or any other person.

E. All Compensation Included. Contractor's compensation includes full payment for services set forth in the Contract Documents, including but not limited to overhead, profit, salaries or other compensation of Contractor's officers, partners and/or employees, general operating expenses incurred by Contractor and relating to this Project, including the cost of management, supervision and data processing staff, job office equipment and supplies, and other similar items.

ARTICLE IV SUBCONTRACTORS

4.1 Subcontracts. At the Owner's request, the Contractor shall provide Owner's Project Representative with copies of all proposed and final subcontracts, including the general and supplementary conditions thereof.

A. Subcontracts Generally. All subcontracts shall: (1) require each Subcontractor to be bound to Contractor to the same extent Contractor is bound to Owner by the terms of the Contract Documents, as those terms may apply to the portion of the Work to be performed by the Subcontractor, (2) provide for the assignment of the subcontracts from Contractor to Owner at the election of Owner, upon termination of Contractor, (3) provide that Owner will be an additional indemnified party of the subcontract, (4) provide that Owner will be an additional insured on all insurance policies required to be provided by the Subcontractor, except workers' compensation, (5) assign all warranties directly to Owner, and (6) identify Owner as an intended third-party beneficiary of the subcontract.

(1) A Subcontractor is a person or entity who has a direct contract with Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

(2) A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

B. No Damages for Delay. Except when otherwise expressly agreed to by Owner in writing, all subcontracts shall provide:

"LIMITATION OF REMEDIES – NO DAMAGES FOR DELAY. The Subcontractor's

exclusive remedy for delays in the performance of the contract caused by events beyond its control, including delays claimed to be caused by the Owner or Architect/Engineer or attributable to the Owner or Architect/Engineer and including claims based on breach of contract or negligence, shall be an extension of its contract time and shall in no way involve any monetary claim.”

Each subcontract shall require that any claims by the Subcontractor for delay must be submitted to the Contractor within the time and in the manner in which the Contractor must submit such claims to the Owner, and that failure to comply with the conditions for giving notice and submitting claims shall result in the waiver of such claims.

C. Subcontractual Relations. The Contractor shall require each Subcontractor to assume all the obligations and responsibilities which the Contractor owes the Owner pursuant to the Contract Documents, by the parties to the extent of the Work to be performed by the Subcontractor. Said obligations shall be made in writing and shall preserve and protect the rights of the Owner and Architect/Engineer, with respect to the Work to be performed by the Subcontractor, so that the subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with its sub-subcontractors.

D. Insurance; Acts and Omissions. Insurance requirements for Subcontractors shall be no more stringent than those requirements imposed on the Contractor by the Owner. The Contractor shall be responsible to the Owner for the acts and omissions of its employees, agents, Subcontractors, their agents and employees, and all other persons performing any of the Work or supplying materials under a contract to the Contractor.

4.2 Relationship and Responsibilities. Except as specifically set forth herein with respect to direct materials acquisitions by Owner, nothing contained in the Contract Documents or in any Contract Document does or shall create any contractual relation between the Owner or Architect/Engineer and any Subcontractor. Specifically, the Contractor is not acting as an agent of the Owner with respect to any Subcontractor. The utilization of any Subcontractor shall not relieve Contractor from any liability or responsibility to Owner, or obligate Owner to the payment of any compensation to the Subcontractor or additional compensation to the Contractor.

4.3 Payments to Subcontractors; Monthly Statements. The Contractor shall be responsible for paying all Subcontractors from the payments made by the Owner to Contractor pursuant to Article III, subject to the following provisions:

A. Payment. The Contractor shall, no later than ten (10) days after receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor’s Work, pay to each Subcontractor the amount to which the Subcontractor is entitled in accordance with the terms of the Contractor’s contract with such Subcontractor. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-Subcontractors in a similar manner. After receipt of payment from Owner, if the need should arise to withhold payments to Subcontractors for any reason, as solely determined by Contractor, the Contractor shall promptly restore such monies to the Owner, adjusting subsequent pay requests and Project bookkeeping as required.

B. Final Payment of Subcontractors. The final payment of retainage to Subcontractors shall not be made until the Project has been inspected by the Architect/Engineer or other person designated by the Owner for that purpose, and until both the Architect/Engineer and the Contractor have issued a written certificate that the Project has been constructed in accordance with

the Project Plans and Specifications and approved Change Orders. Before issuance of final payment to any Subcontractor without any retainage, the Subcontractor shall submit satisfactory evidence that all payrolls, material bills, and other indebtedness connected with the Project have been paid or otherwise satisfied, warranty information is complete, as-built markups have been submitted, and instruction for the Owner's operating and maintenance personnel is complete. Final payment may be made to certain select Subcontractors whose Work is satisfactorily completed prior to the completion of the Project, but only upon approval of the Owner's Project Representative.

4.4 Responsibility for Subcontractors. As provided in Section 2.4.BB, Contractor shall be fully responsible to Owner 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.

4.5 Contingent Assignment of Subcontracts. Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that:

- (1) assignment is effective only after termination of the Contract by the Owner for cause pursuant to Article XIV and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- (2) assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Agreement.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract. Upon such assignment, if the Work has been suspended for more than thirty (30) days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension. Upon such assignment to the Owner, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE V CHANGES IN WORK

5.1 General. Changes in the Work may be accomplished after execution of the Agreement, and without invalidating the Agreement, by Change Order, Work Directive Change or order for a minor change in the Work, subject to the limitations stated in this Article V and elsewhere in the Contract Documents. A Change Order shall be based upon agreement among the Owner, Contractor and Architect/Engineer; a Work Directive Change requires agreement by the Owner and Architect/Engineer and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect/Engineer alone. Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Work Directive Change or order for a minor change in the Work.

5.2 Minor Changes in the Work. The Owner or Architect/Engineer shall have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such change will be effected by written order signed by the Architect/Engineer and shall be binding on the Owner and Contractor. The Contractor shall abide by and perform such minor changes. Such changes shall be effected by a Field Directive or a Work Directive Change. Documentation of changes shall be determined

by the Construction Team, and displayed monthly in the Progress Reports. Because such changes shall not affect the Contract Sum to be paid to the Contractor, they shall not require a Change Order pursuant to Section 5.6.

5.3 Emergencies. In any emergency affecting the safety of persons or property, the Contractor shall act at its discretion to prevent threatened damage, injury, or loss. Any increase in the Contract Sum or extension of time claimed by the Contractor because of emergency Work shall be determined as provided in Section 5.6. However, whenever practicable, the Contractor shall obtain verbal concurrence of the Owner's Project Representative and Architect/Engineer where the act will or may affect the Contract Sum or Contract Time.

5.4 Concealed Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect/Engineer before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. The Architect/Engineer will promptly investigate such conditions and, if the Architect/Engineer determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect/Engineer determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect/Engineer shall promptly notify the Owner and Contractor in writing, stating the reasons. If the Contractor disputes the Architect/Engineer's determination or recommendation, the Contractor may proceed as provided in Article VIII. If the Owner disputes the Architect/Engineer's determination or recommendation, the Owner may appeal directly to the Purchasing Official and shall thereafter follow the process set forth in Section 8.5.

5.5 Hazardous Materials. In the event the Contractor encounters on the Project Site material reasonably believed to be hazardous, petroleum or petroleum related products, or other hazardous or toxic substances, except as provided in Section 2.4.U, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner and the Architect/Engineer in writing. The Work in the affected area shall not thereafter be resumed except by Change Order or written amendment, if in fact the material or substance has not been rendered harmless. The Work in the affected area shall be resumed when the Project Site has been rendered harmless, in accordance with the final determination by the Architect/Engineer or other appropriate professional employed by Owner. The Contractor shall not be required to perform without its consent any Work relating to hazardous materials, petroleum or petroleum related products, or other hazardous or toxic substances. In the event the Contractor encounters on the Project Site materials believed in good faith to be hazardous or contaminated material, and the presence of such hazardous or contaminated material was not known and planned for at the time the Contractor submitted its Bid (or Guaranteed Maximum Price proposal), and it is necessary for the Contractor to stop Work in the area affected and delays Work for more than a seven (7) day period, adjustments to the Contract Sum and/or Contract Time shall be made in accordance with this Article V.

5.6 Change Orders; Adjustments to Contract Sum.

A. Change Orders Generally. The increase or decrease in the Contract Sum resulting from a change authorized pursuant to the Contract Documents shall be determined:

- (1) By mutual acceptance of a lump sum amount properly itemized and supported by sufficient substantiating data, to permit evaluation by the Architect/Engineer and Owner; or
- (2) By unit prices stated in the Agreement or subsequently agreed upon; or
- (3) By any other method mutually agreeable to Owner and Contractor.

If Owner and Contractor are unable to agree upon increases or decreases in the Contract Sum and the Architect/Engineer certifies that the work needs to be commenced prior to any such agreement, the Contractor, provided it receives a written Change Order signed by or on behalf of the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be determined on the basis of the reasonable expenditures of those performing the Work attributed to the change. However, in the event a Change Order is issued under these conditions, the Owner, through the Architect/Engineer, will establish an estimated cost of the Work and the Contractor shall not perform any Work whose cost exceeds that estimated without prior written approval by the Owner. In such case, the Contractor shall keep and present in such form as the Owner may prescribe an itemized accounting, together with appropriate supporting data of the increase in overall costs of the Project. The amount of any decrease in the Contract Sum to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in costs will be the amount of the actual net decrease.

5.7 Owner-Initiated Changes. Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a Field Directive, a Change Order, or a Work Directive Change, as the case may be. 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). A Work Directive Change may not change the Contract Sum 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 Sum or Contract Time.

5.8 Unauthorized Work. Contractor shall not be entitled to an increase in the Contract Sum or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents.

5.9 Defective Work. Owner and Contractor shall execute appropriate Change Orders (or written amendments) covering changes in the Work which are ordered by Owner, or which may be required because of acceptance of defective Work, without adjustment to the Contract Sum.

5.10 Estimates for Changes. At any time Architect/Engineer may request a quotation from Contractor for a proposed change in the Work. Within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the Contract Sum or Contract Time for the proposed change. Architect/Engineer shall have twenty-one (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 Architect/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.

5.11 Form of Proposed Changes. 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 Owner. Standard Owner forms shall be utilized.

5.12 Changes to Contract Time. The Contract Time may only be changed pursuant to a Change Order or a written amendment to the Contract Documents. 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 to because of the occurrence of said event. 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 Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God. Failure to deliver a written notice of claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

ARTICLE VI

ROLE OF ARCHITECT/ENGINEER

6.1 General.

A. Retaining. The Owner shall retain an Architect/Engineer (whether an individual or an entity) lawfully licensed to practice in Florida. That person or entity is identified as the Architect/Engineer in the Agreement and is referred to throughout the Contract Documents as if singular in number.

B. Duties. Duties, responsibilities and limitations of authority of the Architect/Engineer as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner and Architect/Engineer. Consent shall not be unreasonably withheld.

C. Termination. If the employment of the Architect/Engineer is terminated, the Owner shall employ a successor Architect/Engineer as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect/Engineer.

6.2 Administration. The Architect/Engineer will provide administration of the Agreement as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect/Engineer approves the final Application for Payment. The Architect/Engineer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

A. Site Visits. The Architect/Engineer will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work complete, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. Unless specifically instructed by Owner, the Architect/Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect/Engineer will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's

rights and responsibilities under the Contract Documents.

B. **Reporting.** Based on the site visits, the Architect/Engineer will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect/Engineer will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect/Engineer will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

6.3 Interpretation of Project Plans and Specifications. The Architect/Engineer will be the interpreter of the requirements of the Project Plans and Specifications. Upon receipt of comments or objections by Contractor or Owner, the Architect/Engineer will make decisions on all claims, disputes, or other matters pertaining to the interpretation of the Project Plans and Specifications.

6.4 Rejection of Non-Conforming Work. Upon consultation with Owner, the Architect/Engineer shall have the authority to reject Work which does not conform to the Project Plans and Specifications.

6.5 Correction of Work. The Contractor shall promptly correct all Work rejected by the Architect/Engineer for being defective or as failing to conform to the Project Plans and Specifications, whether observed before or after the Substantial Completion Date and whether or not fabricated, installed, or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for Architect/Engineer's additional services made necessary thereby.

6.6 Timely Performance of Architect/Engineer. The Contractor shall identify which requests for information or response from the Architect/Engineer have the greatest urgency and those items which require prioritizing in response by the Architect/Engineer. The Contractor shall also identify the preferred time period for response and shall request a response time which is reasonably and demonstrably related to the needs of the Project and Contractor. If Architect/Engineer claims that Contractor's expectations for a response are unreasonable, Owner shall require Architect/Engineer to communicate such claim to Contractor in writing together with the specific time necessary to respond and the date upon which such response will be made. If Contractor believes that Architect/Engineer is not providing timely services or responses, Contractor shall notify Owner of same in writing not less than two (2) weeks before Contractor believes performance or response time from Architect/Engineer is required without risk of delaying the Project.

ARTICLE VII

OWNER'S RIGHTS AND RESPONSIBILITIES

7.1 Project Site; Title. The Owner shall provide the lands upon which the Work under the Contract Documents 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. The Owner hereby represents to the Contractor that it currently has and will maintain up through and including the Substantial Completion Date, good title to all of the real property constituting the Project Site. Owner agrees to resolve, at its expense, any disputes relating to the ownership and use of the Project Site which might arise during construction.

7.2 Project Plans and Specifications; Architect/Engineer. The parties hereto acknowledge and agree that Owner has previously entered into an agreement with Architect/Engineer. Pursuant to the terms of such agreement, the Architect/Engineer, as an agent and representative of Owner, is responsible for the preparation of Project Plans and Specifications which consist of drawings, specifications, and other documents setting forth in detail the requirements for the construction of the Project. All such Project Plans and Specifications shall be provided either by Owner or the Architect/Engineer, and Contractor shall be under no obligation to provide same and shall be entitled to rely upon the accuracy and completeness of the Project Plans and Specifications provided by the Architect/Engineer and all preliminary drawings prepared in connection therewith. The Contractor will be furnished a reproducible set of all drawings and specifications reasonably necessary for the performance of Contractor's services hereunder and otherwise ready for printing. The Contractor shall be notified of any written modification in the agreement between Owner and Architect/Engineer.

7.3 Surveys; Soil Tests and Other Project Site Information. Owner shall be responsible for providing a legal description and certified land survey of the Project Site in a form and content and with such specificity as may be required by the Architect/Engineer and Contractor to perform their services. To the extent deemed necessary by Owner and Architect/Engineer, and solely at Owner's expense, Owner may engage the services of a geotechnical consultant to perform test borings and other underground soils testing as may be deemed necessary by the Architect/Engineer or the Contractor. Contractor shall not be obligated to provide such surveys or soil tests and shall be entitled to rely upon the accuracy and completeness of the information provided; subject, however, to the provisions of Section 2.4.S hereof. Owner shall provide Contractor, as soon as reasonably possible following the execution of the Contract Documents, all surveys or other survey information in its possession describing the physical characteristics of the Project Site, together with soils reports, subsurface investigations, utility locations, deed restrictions, easements, and legal descriptions then in its possession or control. Upon receipt of all surveys, soils tests, and other Project Site information, Contractor shall promptly advise Owner of any inadequacies in such information and of the need for any additional surveys, soils or subsoil tests. In performing this Work, Contractor shall use the standard of care of experienced contractors and will use its best efforts timely to identify all problems or omissions. Owner shall not be responsible for any delay or damages to the Contractor for any visible or disclosed site conditions or disclosed deficiencies in the Project Site which should have been identified by Contractor and corrected by Owner prior to the execution of the Contract Documents.

7.4 Information; Communication; Coordination. The Owner's Project Representative shall examine any documents or requests for information submitted by the Contractor and shall advise Contractor of Owner's decisions pertaining thereto within a reasonable period of time to avoid unreasonable delay in the progress of the Contractor's services. Contractor shall indicate if any such documents or requests warrant priority consideration. However, decisions pertaining to approval of the Project Schedule as it relates to the date of Substantial Completion, the Project Cost, Contractor's compensation, approving or changing the Contract Sum shall only be effective when approved by Owner in the form of a written Change Order or amendment to the Contract Documents. Owner reserves the right to designate a different Owner's Project Representative provided Contractor is notified in writing of any such change. Owner and Architect/Engineer may communicate with Subcontractors, materialmen, laborers, or suppliers engaged to perform services on the Project, but only for informational purposes. Neither the Owner nor the Architect/Engineer shall attempt to direct the Work of or otherwise interfere with any Subcontractor, materialman, laborer, or supplier, or otherwise interfere with the Work of the Contractor. Owner shall furnish the data required of Owner under the Contract Documents promptly.

7.5 Governmental Body. The Contractor recognizes that the Owner is a governmental body

with certain procedural requirements to be satisfied. The Contractor has and will make reasonable allowance in its performance of services for such additional time as may be required for approvals and decisions by the Owner and any other necessary government agency.

7.6 Pre-Completion Acceptance. The Owner 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.

7.7 Ownership and Use of Drawings, Specifications and Other Instruments of Service.

- (1) The Architect/Engineer and the Architect/Engineer's consultants shall be deemed the authors and owners of their respective instruments of service, including the Project Plans and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the instruments of service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be constructed as publication in derogation of the Architect/Engineer's or Architect/Engineer's consultants' reserved rights.
- (2) The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the drawings and specifications provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Project Plans and Specifications or other instruments of service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the drawings or specifications on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect/Engineer and the Architect/Engineer's consultants.

7.8 Owner's Project Representative. Owner's Project Representative is Owner's Agent, who will act as directed by and under the supervision of the Owner, and who will confer with Owner/Architect/Engineer regarding his actions. The Owner's Project Representative's dealings in matters pertaining to the on-site Work shall, in general, be only with the Owner/Architect/Engineer and Contractor and dealings with Subcontractors shall only be through or with the full knowledge of Contractor.

A. Responsibilities. Except as otherwise instructed in writing by Owner, the Owner's Project Representative will:

- (1) Attend preconstruction conferences; arrange a schedule of progress meetings and other job conferences as required in consultation with Owner/Architect/Engineer and notify those expected to attend in advance; and attend meetings and maintain and circulate copies of minutes thereof;
- (2) Serve as Owner/Architect/Engineer's liaison with Contractor, working principally through Contractor's superintendent, to assist in understanding the intent of the Contract Documents. As requested by Owner/Architect/Engineer, assist in

obtaining additional details or information when required at the job site for proper execution of the Work;

- (3) Report to Owner/Architect/Engineer whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents;
- (4) Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to Owner/Architect/Engineer;
- (5) Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to Owner/Architect/Engineer; and
- (6) Perform those duties as set forth elsewhere within the Contract Documents.

B. Limitations. Except upon written instructions of Owner, Owner's Project Representative shall not:

- (1) Authorize any deviation from the Contract Documents or approve any substitute materials or equipment;
- (2) Exceed limitations on Owner/Architect/Engineer's authority as set forth in the Contract Documents;
- (3) Undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work;
- (4) 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;
- (5) Advise on or issue directions as to safety precautions and programs in connection with the Work;
- (6) Authorize Owner to occupy the project in whole or in part; or
- (7) Participate in specialized field or laboratory tests.

ARTICLE VIII

RESOLUTION OF DISAGREEMENTS; CLAIMS FOR COMPENSATION

8.1 Owner to Decide Disputes. The Owner shall reasonably decide all questions and disputes (with the exception of matters pertaining to the interpretation of the Project Plans and Specifications which shall be resolved by the Architect/Engineer pursuant to Section 6.3) that may arise in the execution and fulfillment of the services provided for under the Contract Documents, in accordance with the Procurement Ordinance.

8.2 Finality. The decision of the Owner upon all claims, questions, disputes and conflicts shall be final and conclusive, and shall be binding upon all parties to the Contract Documents, subject to judicial review as provided in Section 8.5 below.

8.3 No Damages for Delay. If at any time Contractor is delayed in the performance of Contractor's responsibilities under the Contract Documents as the result of a default or failure to perform in a timely manner by Owner or Owner's agents or employees, Contractor shall not be entitled to any damages except for compensation specifically authorized in Article III. Contractor's sole remedy will be a right to extend the time for performance. Nothing herein shall preclude Contractor from any available remedy against any responsible party other than Owner. Contractor shall be responsible for liquidated damages for delay if otherwise provided for in the Contract Documents.

8.4 Permitted Claims Procedure. Where authorized or permitted under the Contract Documents, all claims for additional compensation by Contractor, extensions of time affecting the Substantial Completion Date, for payment by the Owner of costs, damages or losses due to casualty, Force Majeure, Project Site conditions or otherwise, shall be governed by the following:

- (1) All claims must be submitted as a request for Change Order in the manner as provided in Article V.
- (2) The Contractor must submit a notice of claim to Owner's Project Representative and to the Architect/Engineer within fifteen (15) days of when the Contractor was or should have been aware of the fact that an occurrence was likely to cause delay or increased costs. Failure to submit a claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.
- (3) Within twenty (20) days of submitting its notice of claim, the Contractor shall submit to the Owner's Project Representative its request for Change Order, which shall include a written statement of all details of the claim, including a description of the Work affected.
- (4) After receipt of a request for Change Order, the Owner's Project Representative, in consultation with the Architect/Engineer, shall deliver to the Contractor, within twenty (20) days after receipt of request, its written response to the claim.
- (5) In the event the Owner and Contractor are unable to agree on the terms of a Change Order, the Owner shall have the option to instruct the Contractor to proceed with the Work. In that event, the Owner shall pay for those parts of the Work, the scope and price of which are not in dispute. The balance of the disputed items in the order to proceed will be resolved after completion of the Work, based upon completed actual cost.
- (6) The rendering of a decision by Owner 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 Owner 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.

8.5 Contract Claims and Disputes. After completion of the process set forth in Section 8.4

above, any unresolved dispute under this Agreement shall be decided by the Purchasing Official in accordance with Section 2-26-63 of the Manatee County Code of Laws, subject to an administrative hearing process as provided in Section 2-26-64. The decision of the Board of County Commissioners in accordance with Section 2-26-64 of the Manatee County Code of Laws shall be the final and conclusive County decision subject to exclusive judicial review in circuit court by a petition for certiorari.

8.6 Claims for Consequential Damages. The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Agreement. This mutual waiver includes:

- (1) damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- (2) damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article XIV. Nothing contained in this Section 8.6 shall be deemed to preclude assessment of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

ARTICLE IX

INDEMNITY

9.1 Indemnity.

A. Indemnification Generally. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect/Engineer, Architect/Engineer's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.1.

B. Claims by Employees. In claims against any person or entity indemnified under this Section 9.1 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 9.1.A. shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

9.2 Duty to Defend. The Contractor shall defend the Owner in any action, lawsuit mediation or arbitration arising from the alleged negligence, recklessness or intentionally wrongful conduct of the

Contractor and other persons employed or utilized by the Contractor in the performance of the Work. So long as Contractor, through its own counsel, performs its obligation to defend the Owner pursuant to this Section, Contractor shall not be required to pay the Owner's costs associated with the Owner's participation in the defense.

ARTICLE X

ACCOUNTING RECORDS; OWNERSHIP OF DOCUMENTS

10.1 Accounting Records. Records of expenses pertaining to all services performed shall be kept in accordance with generally accepted accounting principles and procedures.

10.2 Inspection and Audit. The Contractor's records shall be open to inspection and subject to examination, audit, and/or reproduction during normal working hours by the Owner's agent or authorized representative to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the Contractor or any of its payees during the performance of the Work. These records shall include, but not be limited to, accounting records, written policies and procedures, Subcontractor files (including proposals of successful and unsuccessful bidders), original estimates, estimating worksheets, correspondence, Change Order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to the Contract Documents. They shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with the Contract Documents. For such audits, inspections, examinations and evaluations, the Owner's agent or authorized representative shall have access to said records from the effective date of the Contract Documents, for the duration of Work, and until three (3) years after the date of final payment by the Owner to the Contractor pursuant to the Contract Documents.

10.3 Access. The Owner's agent or authorized representative shall have access to the Contractor's facilities and all necessary records to conduct audits in compliance with this Article. The Owner's agent or authorized representative shall give the Contractor reasonable advance notice of intended inspections, examinations, and/or audits.

10.4 Ownership of Documents. Upon obtainment of Substantial Completion or termination of the Agreement, all records, documents, tracings, plans, specifications, maps, evaluations, reports, transcripts and other technical data, other than working papers, prepared or developed by the Contractor shall be delivered to and become the property of the Owner. The Contractor at its own expense may retain copies for its files and internal use.

ARTICLE XI

PUBLIC CONTRACT LAWS

11.1 Equal Opportunity Employment.

A. Employment. The Contractor shall not discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, disability or age, and will take affirmative action to ensure that all employees and applicants are afforded equal employment opportunities without discrimination because of race, creed, sex, color, national origin, disability or age. Such action will be taken with reference to, but shall not be limited to, recruitment, employment, job

assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of training or retraining, including apprenticeship and on-the-job training.

B. Participation. No person shall, on the grounds of race, creed, sex, color, national origin, disability or age, be excluded from participation in, be denied the proceeds of, or be subject to discrimination in the performance of the Agreement.

11.2 Immigration Reform and Control Act of 1986. Contractor acknowledges that it is responsible for complying with the provisions of the Immigration Reform and Control Act of 1986, located at 8 U.S.C. Section 1324, et seq., and regulations relating thereto. Failure to comply with the above statutory provisions shall be considered a material breach and shall be grounds for immediate termination of this Agreement.

11.3 No Conflict of Interest. The Contractor warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Contractor to solicit or secure this Agreement, and that it has not paid or agreed to pay any person, company, corporation, individual, or firm other than a bona fide employee working solely for the Contractor, any fee, commission, percentage, gift or any other consideration, contingent upon or resulting from the award or making of this Agreement.

A. No Interest in Business Activity. By accepting award of this Agreement, the Contractor, which shall include its directors, officers and employees, represents that it presently has no interest in and shall acquire no interest in any business or activity which would conflict in any manner with the performance of services required hereunder, including without limitation as described in the Contractor's own professional ethical requirements. An interest in a business or activity which shall be deemed a conflict includes but is not limited to direct financial interest in any of the material and equipment manufacturers, suppliers, distributors, or contractors who will be eligible to supply material and equipment for the Project for which the Contractor is furnishing its services required hereunder.

B. No Appearance of Conflict. The Contractor shall not knowingly engage in any contractual or professional obligations that create an appearance of a conflict of interest with respect to the services provided pursuant to the Agreement. The Contractor has provided the Affidavit of No Conflict, incorporated into the Contract Documents as Exhibit "C", as a material inducement for Owner entering the Agreement. If, in the sole discretion of the County Administrator or designee, a conflict of interest is deemed to exist or arise during the term of this Agreement, the County Administrator or designee may cancel this Agreement, effective upon the date so stated in a written notice of cancellation, without penalty to the Owner.

11.4 Truth in Negotiations. By execution of the Contract Documents, the Contractor certifies to truth-in-negotiations and that wage rates and other factual unit costs supporting the compensation are accurate, complete and current at the time of contracting. Further, the original Contract Sum and any additions thereto shall be adjusted to exclude any significant sums where the Owner determines the Contract Sum was increased due to inaccurate, incomplete or non-current wage rates and other factual unit costs. Such adjustments must be made within one (1) year after final payment to the Contractor.

11.5 Public Entity Crimes. The Contractor is directed to the Florida Public Entity Crimes Act, Section 287.133, Florida Statutes, specifically section 2(a), and the Owner's requirement that the Contractor comply with it in all respects prior to and during the term of the Agreement.

ARTICLE XII
FORCE MAJEURE, FIRE OR OTHER CASUALTY

12.1 Force Majeure.

A. Unavoidable Delays. Delays in any performance by any party contemplated or required hereunder due to fire, flood, sinkhole, earthquake or hurricane, acts of God, unavailability of materials, equipment or fuel, war, declaration of hostilities, revolt, civil strife, altercation or commotion, strike, labor dispute, or epidemic, archaeological excavation, lack of or failure of transportation facilities, or any law, order, proclamation, regulation, or ordinance of any government or any subdivision thereof, or for any other similar cause to those enumerated, beyond the reasonable control and which with due diligence could not have been reasonably anticipated, shall be deemed to be events of Force Majeure and any such delays shall be excused. In the event such party is delayed in the performance of any Work or obligation pursuant to the Contract Documents for any of the events of Force Majeure stated in this Section 12.1, the date for performance required or contemplated by the Contract Documents shall be extended by the number of calendar days such party is actually delayed.

B. Concurrent Contractor Delays. If a delay is caused for any reason provided in 12.1.A. or because of an extension of time provided by Change Order, and during the same time period a delay is caused by Contractor, the date for performance shall be extended as provided in 12.1.A. but only to the extent the time is or was concurrent.

C. Notice; Mitigation. The party seeking excuse for nonperformance based on Force Majeure shall give written notice to the Owner, if with respect to the Contractor, or to the Contractor if with respect to the Owner, specifying its actual or anticipated duration. Each party seeking excuse from nonperformance based on Force Majeure shall use its best efforts to rectify any condition causing a delay and will cooperate with the other party, except that neither party shall be obligated to incur any unreasonable additional costs and expenses to overcome any loss of time that has resulted.

12.2 Casualty; Actions by Owner and Contractor. During the construction period, if the Project or any part thereof shall have been damaged or destroyed, in whole or in part, the Contractor shall promptly make proof of loss; and Owner and Contractor shall proceed promptly to collect, or cause to be collected, all valid claims which may have arisen against insurers or others based upon such damage or destruction. The Contractor shall diligently assess the damages or destruction and shall prepare an estimate of the cost, expenses, and other charges, including normal and ordinary compensation to the Contractor, necessary for reconstruction of the Project substantially in accordance with the Project Plans and Specifications. Within fifteen (15) days following satisfaction of the express conditions described in subsections (1), (2) and (3) below, the Contractor covenants and agrees diligently to commence reconstruction and to complete the reconstruction or repair of any loss or damage by fire or other casualty to the Project to substantially the same size, floor area, cubic content, and general appearance as prior to such loss or damage:

- (1) Receipt by the Owner or the trustee of the proceeds derived from collection of all valid claims against insurers or others based upon such damage or destruction, and receipt of other sums from any source such that the funds necessary to pay the Project Cost and any additions to the Project Cost necessitated for repair or reconstruction are available;
- (2) Written agreement executed by the Contractor and the Owner, by amendment to the Contract Documents or otherwise, authorizing and approving the repair

or reconstruction and any additions to the Project Cost necessitated thereby, including any required adjustment to the Contract Sum; and

- (3) Final approval by the Owner of the Project Plans and Specifications for such repair or reconstruction and issuance of any required building permit.

12.3 Approval of Plans and Specifications. The Owner agrees to approve the plans and specifications for such reconstruction or repair if the reconstruction or repair contemplated by such plans and specifications is economically feasible, and will restore the Project, or the damaged portion thereof, to substantially the same condition as prior to such loss or damage, and such plans and specifications conform to the applicable laws, ordinances, codes, and regulations. The Owner agrees that all proceeds of any applicable insurance or other proceeds received by the Owner or the Contractor as a result of such loss or damage shall be used for payment of the costs, expenses, and other charges of the reconstruction or repair of the Project.

12.4 Notice of Loss or Damage. The Contractor shall promptly give the Owner written notice of any significant damage or destruction to the Project, defined as loss or damage which it is contemplated by Contractor will increase the Contract Sum or extend the Substantial Completion Date, stating the date on which such damage or destruction occurred, the then expectations of Contractor as to the effect of such damage or destruction on the use of the Project, and the then proposed schedule, if any, for repair or reconstruction of the Project. Loss or damage which the Contractor determines will not affect the Contract Sum or Substantial Completion Date will be reported to Owner and Architect/Engineer immediately, and associated corrective actions will be undertaken without delay.

ARTICLE XIII

REPRESENTATIONS, WARRANTIES AND COVENANTS

13.1 Representations and Warranties of Contractor. The Contractor represents and warrants to the Owner each of the following.

A. The Contractor is a construction company, organized under the laws of the State of _____, authorized to transact business in the State of Florida, with _____ as the primary qualifying agent. Contractor has all requisite power and authority to carry on its business as now conducted, to own or hold its properties, and to enter into and perform its obligations hereunder and under each instrument to which it is or will be a party, and is in good standing in the State of Florida.

B. Each Contract Document to which the Contractor is or will be a party constitutes, or when entered into will constitute, a legal, valid, and binding obligation of the Contractor enforceable against the Contractor in accordance with the terms thereof, except as such enforceability may be limited by applicable bankruptcy, insolvency, or similar laws from time to time in effect which affect creditors' rights generally and subject to usual equitable principles in the event that equitable remedies are involved.

C. There are no pending or, to the knowledge of the Contractor, threatened actions or proceedings before any court or administrative agency, within or without the State of Florida, against the Contractor or any partner, officer, or agent of the Contractor which question the validity of any document contemplated hereunder, or which are likely in any case, or in the aggregate, to materially adversely affect the consummation of the transactions contemplated hereunder, or materially adversely affect the financial condition of the Contractor.

D. The Contractor has filed or caused to be filed all federal, state, local, or foreign tax returns, if any, which were required to be filed by the Contractor, and has paid, or caused to be paid, all taxes shown to be due and payable on such returns or on any assessments levied against the Contractor.

E. Neither Contractor nor any agent or person employed or retained by Contractor has acted fraudulently or in bad faith or in violation of any statute or law in the procurement of this Agreement.

F. The Contractor shall timely fulfill or cause to be fulfilled all of the terms and conditions expressed herein which are within the control of the Contractor or which are the responsibility of the Contractor to fulfill. The Contractor shall be solely responsible for the means and methods of construction.

G. It is recognized that neither the Architect/Engineer, the Contractor, nor the Owner has control over the cost of labor, materials, or equipment, over a Subcontractor's methods of determining bid prices, or over competitive bidding, market, or negotiating conditions.

H. During the term of the Contract Documents, and the period of time that the obligations of the Contractor under the Contract Documents shall be in effect, the Contractor shall cause to occur and to continue to be in effect those instruments, documents, certificates, and events contemplated by the Contract Documents that are applicable to, and the responsibility of, the Contractor.

I. The Contractor shall assist and cooperate with the Owner and shall accomplish the construction of the Project in accordance with the Contract Documents and the Project Plans and Specifications, and will not knowingly violate any laws, ordinances, rules, regulations, or orders that are or will be applicable thereto.

J. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective, and that Owner, representatives of Owner, governmental agencies with jurisdictional interests will have access to the Work at reasonable time for their observation, inspecting and testing. Contractor shall give Architect/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 Owner.

K. If any Work (including Work of others) that is to be inspected, tested, or approved is covered without written concurrence of Architect/Engineer, it must, if requested by Architect/Engineer, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Architect/Engineer timely notice of Contractor's intention to cover the same and Architect/Engineer has not acted with reasonable promptness in response to such notice. Neither observations by Architect/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.

L. 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, Owner 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 Architect/Engineers, attorneys and other professionals and any additional expenses experienced by Owner 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 the schedule and shall not be entitled to an extension of the Contract Time or the recovery of delay damages due to correcting or removing defective Work.

M. 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, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner 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 Owner has paid Contractor but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Architect/Engineer and a Change Order will be issued incorporating the necessary revisions.

N. If within three (3) years after the Substantial Completion Date 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 Owner and in accordance with Owner's written instructions, either correct such defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instruction, Owner may have the defective Work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor. Failing payment by the Contractor and notwithstanding any other provisions of the Contract Documents to the contrary, Owner shall have the right to bring a direct action in the Circuit Court to recover such costs.

13.2 Representations of the Owner. To the extent permitted by law, the Owner represents to the Contractor that each of the following statements is presently true and accurate:

A. The Owner is a validly existing political subdivision of the State of Florida.

B. The Owner has all requisite corporate or governmental power and authority to carry on its business as now conducted and to perform its obligations under the Contract Documents and each Contract Document contemplated hereunder to which it is or will be a party.

C. The Contract Documents and each Contract Document contemplated hereby to which the Owner is or will be a party has been duly authorized by all necessary action on the part of, and has been or will be duly executed and delivered by, the Owner, and neither the execution and delivery thereof nor compliance with the terms and provisions thereof or hereof: (a) requires the approval and consent of any other person or party, except such as have been duly obtained or as are specifically noted herein; (b) contravenes any existing law, judgment, governmental rule, regulation or order applicable to or binding on the Owner; or (c) contravenes or results in any breach of, default under, or result in the creation of any lien or encumbrance upon the Owner under any indenture, mortgage, deed of trust, bank loan, or credit agreement, the charter, ordinances, resolutions, or any other agreement or instrument to which the Owner is a party, specifically including any covenants of any bonds, notes, or other forms of indebtedness of the Owner outstanding on the date of the Contract Documents.

D. The Contract Documents and each document contemplated hereby to which the Owner is or will be a party constitutes, or when entered into will constitute, a legal, valid, and binding obligation of the Owner enforceable against the Owner in accordance with the terms thereof, except as such enforceability may be limited by applicable bankruptcy, insolvency, or similar laws from time to time in effect which affect creditors' rights generally, and subject to usual equitable principles in the event that equitable remedies are involved.

E. There are no pending or, to the knowledge of the Owner, threatened actions or proceedings before any court or administrative agency against the Owner which question the validity of the Contract Documents or any document contemplated hereunder, or which are likely in any case or in the aggregate to materially adversely affect the consummation of the transactions contemplated hereunder or the financial or corporate condition of the Owner.

F. The Owner shall use due diligence to timely fulfill or cause to be fulfilled all of the conditions expressed in the Contract Documents which are within the control of the Owner or which are the responsibility of the Owner to fulfill.

G. During the pendency of the Work and while the obligations of the Owner under the Contract Documents shall be in effect, the Owner shall cause to occur and to continue to be in effect and take such action as may be necessary to enforce those instruments, documents, certificates and events contemplated by the Contract Documents that are applicable to and the responsibility of the Owner.

H. The Owner shall assist and cooperate with the Contractor in accomplishing the construction of the Project in accordance with the Contract Documents and the Project Plans and Specifications, and will not knowingly violate any laws, ordinances, rules, regulations, orders, contracts, or agreements that are or will be applicable thereto or, to the extent permitted by law, enact or adopt any resolution, rule, regulation, or order, or approve or enter into any contract or agreement, including issuing any bonds, notes, or other forms of indebtedness, that will result in the Contract Documents or any part thereof, or any other instrument contemplated by and material to the timely and effective performance of a party's obligations hereunder, to be in violation thereof.

ARTICLE XIV

TERMINATION AND SUSPENSION

14.1 Termination for Cause by Owner. This Agreement may be terminated by Owner upon written notice to the Contractor should Contractor fail substantially to perform a material obligation in accordance with the terms of the Contract Documents through no fault of the Owner. In the event Owner terminates for cause and it is later determined by a court of competent jurisdiction that such termination for cause was not justified, then in such event such termination for cause shall automatically be converted to a termination without cause pursuant to Section 14.2.

A. **Nonperformance.** If the Contractor fails to timely perform any of its obligations under the Contract Documents, including any obligation the Contractor assumes to perform Work with its own forces, or if it persistently or repeatedly refuses or fails, except in case for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or fails, without being excused, to maintain an established schedule (failure to maintain schedule shall be defined as any activity that falls thirty (30) days or more behind schedule) which has been adopted by the Construction Team, or it fails to make prompt payment to Subcontractors for materials or labor, or disregards laws, rules, ordinances, regulations, or orders of any public authority having jurisdiction, or otherwise is guilty

of substantial violations of the Agreement the Owner may, after seven (7) days written notice, during which period the Contractor fails to perform such obligation, make good such deficiencies and perform such actions. The Contract Sum shall be reduced by the cost to the Owner of making good such deficiencies, and the Contractor's compensation shall be reduced by an amount required to manage the making good of such deficiencies. Provided, however, nothing contained herein shall limit or preclude Owner from pursuing additional damages from Contractor because of its breach.

B. Insolvency. If the Contractor is adjudged bankrupt, or if it makes a general assignment for the benefit of its creditors, or if a receiver is appointed because its insolvency, then the Owner may, without prejudice to any other right or remedy, and after giving the Contractor and its surety, if any, fourteen (14) days written notice, and during which period the Contractor fails to cure the violation, terminate the Agreement. In such case, the Contractor shall not be entitled to receive any further payment. Owner shall be entitled to recover all costs and damages arising because of failure of Contractor to perform as provided in the Contract Documents, as well as reasonable termination expenses, and costs and damages incurred by the Owner may be deducted from any payments left owing the Contractor.

C. Illegality. Owner may terminate the Agreement if Contractor disregards laws or regulations of any public body having jurisdiction.

D. Rights of Owner. The Owner may, after giving Contractor (and the Surety, if there is one) seven (7) days written notice, terminate the services of Contractor for cause; exclude Contractor from the Project Site and take possession of the Work and of all Contractor's tools, construction equipment and machinery at the Project 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 Project Site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner 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 Sum, Contractor shall pay the difference to Owner. Such costs incurred by Owner shall be verified by Owner in writing; but in finishing the Work, Owner shall not be required to obtain the lowest quote for the Work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement. In such event and notwithstanding any other provisions of the Contract Documents to the contrary, Owner shall be entitled to bring a direct action in the Circuit Court to recover such costs.

14.2 Termination without Cause by Owner. The Owner, through its County Administrator or designee, shall have the right to terminate the Agreement, in whole or in part, without cause upon sixty (60) calendar days' written notice to the Contractor. In the event of such termination for convenience, the Owner shall compensate Contractor for payments due through the date of termination, and one subsequent payment to cover costs of Work performed through the date of termination, subject to the terms and conditions of Section 3.1. The Contractor shall not be entitled to any other further recovery against the Owner, including, but not limited to, anticipated fees or profit on Work not required to be performed, or consequential damages or costs resulting from such termination.

A. Release of Contractor. As a condition of Owner's termination rights provided for in this subsection, Contractor shall be released and discharged from all obligations arising by, through, or under the terms of the Contract Documents, and the Payment and Performance Bond shall be released. Owner shall assume and become responsible for the reasonable value of Work performed by

Subcontractors prior to termination plus reasonable direct close-out costs, but in no event shall Subcontractors be entitled to unabsorbed overhead, anticipatory profits, or damages for early termination.

B. Waiver of Protest. Contractor hereby waives any right to protest the exercise by Owner of its rights under this Section that may apply under the Procurement Ordinance.

14.3 Suspension without Cause. Owner 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 Sum or an extension of the Contract Time, or both, directly attributable to any suspension if Contractor makes an approved claim therefor.

14.4 Termination Based Upon Abandonment, Casualty or Force Majeure. If, after the construction commencement date (i) Contractor abandons the Project (which for purposes of this paragraph shall mean the cessation of all construction and other activities relating to the Project, excluding those which are necessary to wind down or otherwise terminate all outstanding obligations with respect to the Project, and no recommencement of same within one hundred twenty (120) days following the date of cessation), or (ii) the Project is stopped for a period of thirty (30) consecutive days due to an instance of Force Majeure or the result of a casualty resulting in a loss that cannot be corrected or restored within one hundred twenty (120) days (excluding the time required to assess the damage and complete the steps contemplated under Section 12.2), the Owner shall have the right to terminate the Agreement and pay the Contractor its compensation earned or accrued to date.

14.5 Vacation of Project Site; Delivery of Documents. Upon termination by Owner pursuant to Section 14.2 or 14.4, Contractor shall withdraw its employees and its equipment, if any, from the Project Site on the effective date of the termination as specified in the notice of termination (which effective date shall not be less than two (2) working days after the date of delivery of the notice), regardless of any claim the Contractor may or may not have against the Owner. Upon termination, the Contractor shall deliver to the Owner all original papers, records, documents, drawings, models and other material set forth and described in the Contract Documents.

14.6 Termination by the Contractor. If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety (90) consecutive days by Owner or under an order of court or other public authority, or Owner fails to act on any Application for Payment or fails to pay Contractor any sum finally determined to be due; then Contractor may, upon fourteen (14) days written notice to Owner terminate the Agreement and recover from Owner payment for all Work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Owner has failed to act on any Application for Payment or Owner has failed to make any payment as aforesaid, Contractor may upon fourteen (14) days written notice to Owner stop the Work until payment of all amounts then due.

END OF GENERAL CONDITIONS

SECTION D

BID ATTACHMENTS

Bid Attachment 1**INSURANCE AND BOND REQUIREMENTS**

IFBC No. 19-R072110SAM

Work under the resulting Agreement cannot commence until all insurance coverages indicated herein have been obtained. The cost for insurance coverages is the sole responsibility of successful Bidder. The successful Bidder shall obtain and submit to the Procurement Division within ten (10) calendar days from the date of notice of intent to award, proof the following minimum amounts of insurance on a standard ACORD form (inclusive of any amounts provided by an umbrella or excess policy):

STANDARD INSURANCES	REQUIRED LIMITS
1. <input checked="" type="checkbox"/> Automobile Liability:	<p>Coverage must be afforded under a per occurrence policy form including coverage for all owned, hired and non-owned vehicles for bodily injury and property damage of not less than:</p> <ul style="list-style-type: none">• \$ <u>1,000,000</u> Combined Single Limit; OR• \$ <u>500,000</u> Bodily Injury and \$ <u>500,000</u> Property Damage• \$ <u>10,000</u> Personal Injury Protection (No Fault)• \$ <u>500,000</u> Hired, Non-Owned Liability• \$ <u>10,000</u> Medical Payments <p><i>This policy shall contain severability of interests' provisions.</i></p>
2. <input checked="" type="checkbox"/> Commercial General Liability: (Per Occurrence form only; Claims-Made form is not acceptable)	<p>Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:</p> <ul style="list-style-type: none">• \$ <u>1,000,000</u> Single Limit Per Occurrence• \$ <u>2,000,000</u> Aggregate• \$ <u>1,000,000</u> Products/Completed Operations Aggregate• \$ 1,000,000 Personal and Advertising Injury Liability• \$ 50,000 Fire Damage Liability• \$ <u>10,000</u> Medical Expense, and• \$ <u>1,000,000</u>, Third Party Property Damage• \$ _____ Project Specific Aggregate (Required on projects valued at over \$<u>10,000,000</u>) <p><i>This policy shall contain severability of interests' provisions.</i></p>
3. <input checked="" type="checkbox"/> Employer's Liability	<p>Coverage limits of not less than:</p> <ul style="list-style-type: none">• \$ <u>100,000</u> Each Accident• \$ <u>500,000</u> Disease Each Employee <p>\$<u>500,000</u> Disease Policy Limit</p>
4. <input checked="" type="checkbox"/> Worker's Compensation	<p>Coverage limits of not less than:</p> <ul style="list-style-type: none">• Statutory workers' compensation coverage shall apply for all employees in compliance with the laws and statutes of

<input type="checkbox"/> US Longshoremen & Harbor Workers Act coverage <input type="checkbox"/> Jones Act coverage	<p>the State of Florida and the federal government.</p> <ul style="list-style-type: none"> If any operations are to be undertaken on or about navigable waters, coverage must be included for the US Longshoremen & Harbor Workers Act and Jones Act. <p>Should 'leased employees' be retained for any part of the project or service, the employee leasing agency shall provide evidence of Workers' Compensation coverage and Employer's Liability coverage for all personnel on the worksite and in compliance with the above Workers' Compensation requirements.</p> <p>NOTE: Workers' Compensation coverage is a firm requirement. Elective exemptions are considered on a case-by-case basis and are approved in a very limited number of instances.</p>
OTHER INSURANCES	REQUIRED LIMITS
5. <input type="checkbox"/> Aircraft Liability	<p>\$ _____ per occurrence</p> <p>Coverage shall be carried in limits of not less than \$5,000,000 each occurrence if applicable to the completion of the services under this Agreement.</p>
6. <input type="checkbox"/> Installation Floater	<p>If the resulting Agreement does not include construction of or additions to above ground building or structures, but does involve the installation of machinery or equipment, successful Bidder 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).</p>
7. <input type="checkbox"/> Pollution Liability	<p>\$ _____ per occurrence</p>
8. <input type="checkbox"/> Professional Liability and/or Errors and Omissions (E&O) Liability	<p>Professional (E&O) Liability shall be afforded for the Bodily Injury and Property Damage for not less than \$_____ Each Claim, \$1,000,000 Policy Aggregate.</p>
9. <input checked="" type="checkbox"/> Builder's Risk Insurance	<p>When the contract or agreement includes the construction of roadways and/or the addition of a permanent structure or building, including the installation of machinery and/or equipment, Builder's Risk Insurance shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:</p>

	<ul style="list-style-type: none"> • An amount equal to 100% of the completed value of the project, or the value of the equipment to be installed • The policy shall not carry a self-insured retention/deductible greater than \$10,000 <p>Coverage shall be for all risks and include, but not be limited to, storage and transport of materials, equipment, supplies of any kind whatsoever to be used on or incidental to the project, theft coverage, and Waiver of Occupancy Clause Endorsement, where applicable.</p>
10. <input type="checkbox"/> Cyber Liability	<p>Coverage must comply with Florida Statute 501.171 and must be afforded under a per occurrence policy form for limits not less than</p> <p>\$_____ Security Breach Liability</p> <p>\$_____ Security Breach Expense (each occurrence)</p> <p>\$_____ Security Breach Expense (aggregate)</p> <p>\$_____ Replacement or Restoration of Electronic Data</p> <p>\$_____ Extortion Threats</p> <p>\$_____ Business Income and Extra Expense</p> <p>\$_____ Public Relations Expense</p> <p>The policy must not carry a self-insured retention/deductible greater than \$_____.</p>
11. <input type="checkbox"/> Hazardous Materials Insurances (as noted)	<p>Hazardous materials include all materials and substances that are currently designated or defined as hazardous by Florida or Federal law or rules of regulations.</p> <p><input type="checkbox"/> <i>Pollution Liability</i></p> <p>Coverage must be afforded under a per occurrence policy form for limits not less than the value of the contract, subject to a \$_____ minimum, for Bodily Injury and Property Damage to include sudden and gradual release, each claim and aggregate.</p> <p><input type="checkbox"/> <i>Asbestos Liability (If handling within scope of Contract)</i></p> <p>Coverage must be afforded under a per occurrence policy form for limits not less than the value of the contract, subject to a \$_____ minimum, for Bodily Injury and Property Damage to include sudden and gradual release, each claim and aggregate.</p>

	<p><input type="checkbox"/> Disposal</p> <p>Coverage must be afforded under a per occurrence policy form for limits not less than the value of the contract, subject to a \$_____ minimum, for Liability for Sudden and Accidental Occurrences, each claim and an aggregate and not less than the value of the contract, subject to a \$_____ minimum, for Liability for Non-Sudden Occurrences, each claim and aggregate.</p> <p><input type="checkbox"/> Hazardous Waste Transportation Insurance</p> <p>Coverage must be afforded under a per occurrence policy form for limits not less than the value of the contract, subject to a \$_____ minimum, per accident.</p> <p>The successful Bidder shall designate the hauler and have the hauler furnish a Certificate of Insurance for Automobile Liability Insurance with Endorsement MCS-90 for liability arising out of the transportation of hazardous materials.</p> <p>The successful Bidder must also provide the EPA Identification Number.</p>
12. <input type="checkbox"/> Liquor Liability	<p>Coverage must be afforded under a per occurrence policy form for limits not less than</p> <p>\$_____ Each Occurrence and Aggregate.</p>
13. <input type="checkbox"/> Garage Keeper's Liability	<p>Coverage shall be required if the maintenance, servicing, cleaning or repairing of any County motor vehicles is inherent or implied within the provision of the contract.</p> <p>Coverage must be afforded under a per occurrence policy form for limits not less than equal to the full replacement value of the lot or garage</p>
14. <input type="checkbox"/> Bailee's Customer	<p>Coverage must be afforded under a per occurrence policy form for limits not less than equal to the full replacement value of the lot or garage.</p>

15. <input type="checkbox"/> Watercraft	\$_____ per occurrence
---	------------------------

BOND REQUIREMENTS

1. <input checked="" type="checkbox"/> Bid Bond	<p>A Bid Bond in the amount of \$_____ or __5__% of the total offer. Bid bond shall be submitted with the sealed response and shall include project name, location, and / or address and project number.</p> <p>In lieu of the bond, the bidder may file an alternative form of security in the amount of \$_____ or _____% of the total offer. in the form of a money order, a certified check, a cashier's check, or an irrevocable letter of credit issued to Manatee County.</p> <p>NOTE: A construction project over \$200,000 requires a Bid Bond in the amount of 5% of the total bid offer.</p>
2. <input checked="" type="checkbox"/> Payment and Performance Bond	<p>A Payment and Performance Bond shall be submitted by successful Bidder for 100% of the award amount and shall be presented to Manatee County within ten (10) calendar days of issuance of the notice of intent to award.</p> <p>NOTE: A construction project over \$200,000 requires a Payment and Performance Bond.</p>
3. <input type="checkbox"/> Construction Bond	<p>For construction projects to protect against an adverse event that causes disruptions, failure to complete the project, or failure to meet the contract specifications in an amount of \$</p>

Approved by Risk: _____

Date: _____

INSURANCE REQUIREMENTS

I. THE POLICIES BELOW ARE TO CONTAIN, OR BE ENDORSED TO CONTAIN, THE FOLLOWING PROVISIONS:

1. Commercial General Liability and Automobile Liability Coverages

- a. **“Manatee County, a Political Subdivision of the State of Florida,” is to be named as an Additional Insured in respect to:** Liability arising out of activities performed by or on behalf of the successful Bidder, his agents, representatives, and employees; products and completed operations of the successful Bidder; or automobiles owned, leased, hired or borrowed by the successful Bidder. The coverage shall contain no special limitation(s) on the scope of protection afforded to the County, its officials, employees or volunteers.

In addition to furnishing a Certificate of Insurance, the successful Bidder shall provide the endorsement that evidences Manatee County being listed as an Additional Insured. This can be done in one of two ways: (1) an endorsement can be issued that specifically lists “Manatee County, a Political Subdivision of the State of Florida,” as Additional Insured; or, (2) an endorsement can be issued that states that all Certificate Holders are Additional Insured with respect to the policy.

- b. The successful Bidder's insurance coverage shall be primary insurance with respect to the County, its officials, employees and volunteers. Any insurance or self-insurance maintained by the County, its officials, employees or volunteers shall be excess of successful Bidder's insurance and shall be non-contributory.
- c. The insurance policies must be on an occurrence form.

2. Workers' Compensation and Employers' Liability Coverages

The insurer shall agree to waive all rights of subrogation against the County, its officials, employees and volunteers for losses arising from work performed by the successful Bidder for the County.

II. GENERAL INSURANCE PROVISIONS APPLICABLE TO ALL POLICIES:

1. Prior to the execution of contract, or issuance of a Purchase Order, and then annually upon the anniversary date(s) of the insurance policy's renewal date(s) for as long as this contract remains in effect, successful Bidder shall furnish the County with a Certificate(s) of Insurance (using an industry accepted certificate form, signed by the Issuer, with applicable endorsements, and containing the solicitation or contract number, and title or description) evidencing the coverage set forth above and naming “Manatee County, a Political Subdivision of the State of Florida” as an Additional Insured on the applicable coverage(s) set forth above.
2. If the policy contains an aggregate limit, confirmation is needed in writing (letter, email, etc.) that the aggregate limit has not been eroded to procurement representative when supplying Certificate of Insurance.

In addition, when requested in writing from the County, successful Bidder will provide the County with a certified copy of all applicable policies. The address where such certificates and certified policies shall be sent or delivered is as follows:

Manatee County, a Political Subdivision of the State of Florida
Attn: Risk Management Division
1112 Manatee Avenue West, Suite 969
Bradenton, FL 34205

3. The project's solicitation number and title shall be listed on each certificate.
 4. successful Bidder shall provide thirty (30) days written notice to the Risk Manager of any cancellation, non-renewal, termination, material change, or reduction in coverage of any insurance policies to procurement representative including solicitation number and title with all notices.
 5. successful Bidder agrees that should at any time successful Bidder fail to meet or maintain the required insurance coverage(s) as set forth herein, the County may terminate this contract.
 6. The successful Bidder waives all subrogation rights against Manatee County, a Political Subdivision of the State of Florida, for all losses or damages which occur during the contract and for any events occurring during the contract period, whether the suit is brought during the contract period or not.
 7. The successful Bidder has sole responsibility for all insurance premiums and policy deductibles.
 8. It is the successful Bidder's responsibility to ensure that his agents, representatives and subcontractors comply with the insurance requirements set forth herein. successful Bidder shall include his agents, representatives, and subcontractors working on the project or at the worksite as insured under its policies, or successful Bidder shall furnish separate certificates and endorsements for each agent, representative, and subcontractor working on the project or at the worksite. All coverages for agents, representatives, and subcontractors shall be subject to all of the requirements set forth to the procurement representative.
 9. All required insurance policies must be written with a carrier having a minimum A.M. Best rating of A- FSC VII or better. In addition, the County has the right to review the successful Bidder's deductible or self-insured retention and to require that it be reduced or eliminated.
- III. Successful Bidder understands and agrees that the stipulated limits of coverage listed herein in this insurance section shall not be construed as a limitation of any potential liability to the County, or to others, and the County's failure to request evidence of this insurance coverage shall not be construed as a waiver of successful Bidder's obligation to provide and maintain the insurance coverage specified.
- IV. The enclosed Hold Harmless Agreement shall be signed by the successful Bidder and shall become a part of the contract.

- V.** Successful Bidder understands and agrees that the County does not waive its immunity and nothing herein shall be interpreted as a waiver of the County's rights, including the limitation of waiver of immunity, as set forth in Florida Statutes 768.28, or any other statutes, and the County expressly reserves these rights to the full extent allowed by law.
- VI.** No award shall be made until the Procurement Division has received the Certificate of Insurance and Hold Harmless Agreement in accordance with this section.

[Remainder of page intentionally left blank]

Bid Attachment 2

TECHNICAL SPECIFICATIONS

CONTRACT DOCUMENTS

FOR

ASR WELL AT SSWRF
INFRASTRUCTURE REFURBISHMENT
BRADENTON, FLORIDA
PROJECT # 6069082

July 2019
BID SET

PROJECT OWNER:

County of Manatee, Florida
c/o Manatee County Purchasing
1112 Manatee Avenue West
Bradenton, Florida 34205
(941) 748-4501

PREPARED BY:

Jacobs
4350 West Cypress Street, Suite 600
Tampa, Florida 33626
(813) 874-0777

ASR WELL AT SSWRF INFRASTRUCTURE REFURBISHMENT

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DIVISION 1 GENERAL REQUIREMENTS

SECTION 01005 GENERAL REQUIREMENT

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. 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 County, 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 incidental costs. 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.

The Contractor shall be solely responsible for the adequacy of his workmanship, materials and equipment.

C. Contractor Qualifications

To be eligible to perform the work of this Contract, the Contractor shall meet the following minimum qualifications:

1. Must have possessed a General Contractor's license issued by the Florida Department of Business and Professional Regulation for a period of at least three (3) consecutive years since August 2016. License must be current and valid through the Due Date for submission of bids for this IFBC.
2. Work on the existing ASR well shall be performed by a well contractor licensed to work in Florida.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

3. As part of the bid submission, identify at least three (3) projects performed since August 2016 that included work of a similar nature to the work described in this IFBC. Include reference contact information for each project listed as a reference. Two (2) of the listed projects shall have included work on UIC wells; and two (2) of the listed projects shall have included pump, piping, electrical, and instrumentation work.
4. Contractor may subcontract portions of the work to fulfill the above requirements.

D. 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.

The Contractor shall protect all 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 County. 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 County. 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 County 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.

Where public utility installations or structures owned or controlled by the County 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 County, 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 County, 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.

The Contractor shall give written notice to County 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. Sunshine811 (sunshine811.com) 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 County.

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 County, 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 County 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 County, 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 County, should such errors or omissions be discovered. All schedules are given for the convenience of the County 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

All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request, in writing to the County, that the manufacturer or subcontractor deal directly with the County. 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.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

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 County 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 County and made of ample size and strength for the purpose intended. Substantial templates and working drawings for installation shall be furnished.

The Contractor shall 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 or provide a 1/32-inch neoprene gasket between the metal surface and the concrete or grout.

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 County, such engineer or superintendent shall make all adjustments and tests required by the County to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the County 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 County 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 County 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 County 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 County.

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 County formally takes over the operation thereof.

B. Costs

All inspection and testing of materials furnished under this Contract will be performed by the County 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 County for compliance. The Contractor shall reimburse the County 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 County, 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 County 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 County 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 County notifies the Contractor, in writing, that the results of such tests are acceptable.

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 County. 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. The decision of the County 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 County, 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 County 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 County 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 County 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 County, provide a suitable temporary fence which shall be maintained until the permanent fence is replaced. The County 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 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 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 – as indicated on the plans.

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 therefore. 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 County, additional work is deemed necessary to avoid interference with the work, payment therefore will be made as provided for in the General Conditions.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

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 County. This does not preclude conforming to the requirements of the insurance underwriters. Copies of surveys, photographs, reports, etc., shall be given to the County.

Prior to the beginning of any excavations, the Contractor shall advise the County 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 County may order the Contractor, for the convenience of the County, to remove trees along the line or trench excavation. If so ordered, the County 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.

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 County. 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 engines 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.

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 County 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 County, 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 County 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.

Water recovered from the existing ASR well or the existing monitor wells shall not be discharged to wetland areas either directly or indirectly.

C. Existing Facilities

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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. Manatee County Utilities has an existing Aquifer Storage and Recovery (ASR) well located at the Southwest Water Reclamation Facility (SWWRF). This well has not been used in some time and requires "cycle testing" to evaluate returning the well to service. The Work to be performed for this project is to rehabilitate the existing ASR well infrastructure to allow placing reclaimed water down the well, followed by pumping water from the well, for several cycles. Infrastructure to be rehabilitated generally includes replacing the existing vertical turbine pump, motor, and control panel; providing temporary piping to supply reclaimed water to the well; providing temporary piping to convey water discharged from the well to the North Storage Pond; providing temporary piping to convey purge water from two monitoring wells to a sanitary lift station; and providing flow, pressure, and water level instrumentation.
- B. The work included in this contract consists of constructing the following:
 - 1. Remove existing vertical turbine pump and 20 HP motor from existing ASR well and install new vertical turbine pump and motor of equal size.
 - 2. Selective demolition of existing piping.
 - 3. Furnish and install above ground 8" ductile iron and PVC pressure piping to convey reclaimed water from the existing reclaimed water High Service Pump Station (HSPS) to the existing ASR well.
 - 4. Furnish and install above ground 8" ductile iron and PVC pressure piping to convey water pumped from the existing ASR well to the North Storage Pond with a dispersion header consisting of multiple 2-inch diameter schedule 80 PVC pipes.
 - 5. Furnish and install above ground 8" flanged ductile iron piping for new bi-directional flow meter.
 - 6. Miscellaneous valves, fittings, joint restraints, couplings, pipe accessories, and pipe supports.
 - 7. Furnish and install bi-directional flow meter, water level, and pressure instrumentation.
 - 8. Remove existing pump control panel and install new pump control panel. Electrical work also includes providing power connections to ASR pump motor and to instrumentation.
 - 9. Furnish and install temporary 2-inch HDPE tubing to convey purge water from two existing monitor wells to an existing lift station.
 - 10. Geophysical logging of existing ASR well including video survey.
 - 11. Lower head in ASR well column with salt solution.
- C. The Contractor shall furnish all shop drawings, working drawings, record drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all work required by these Specifications and as shown on the Contract Drawings.

- D. 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 County.
- E. 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 operation of the County's reclaimed water system.
- B. The methods, means, sequences and techniques used for construction of the work is the sole responsibility of the Contractor. The Contractor shall select appropriate methods, means, sequences and construction techniques to meet the following objectives:
 - 1. The Contractor shall develop a work sequence that limits the time that the reclaimed water High Service Pump Station (HSPS) is offline from the reclaimed water distribution system to no more than two (2) days; and the time when the HSPS is offline shall occur when irrigation demand for reclaimed water is low (typically during periods of wet weather).
 - 2. The Contractor shall plan a sequence of work that provides appropriate time for pipe, valve, pump, and equipment deliveries; pressure testing of new pipelines; and installation of instrumentation systems before the existing ASR well is placed into service considering the following:
 - a. Any water pumped from the ASR well shall be discharged to the North Storage Pond. Water recovered from the well must have flow continuously measured and logged. Water recovered from the well for testing the new pump or to clear the well for video survey or geophysical logging shall have flow measured and totalized by a Contractor provided temporary flow meter (e.g. propeller meter) if the flow meter and instrumentation to be installed as part of this contract is not already installed, tested, and functioning properly. No additional payment will be made to the Contractor for providing and operating a temporary flow meter system.
 - b. The ASR well should begin receiving reclaimed water as soon as practicable. To receive reclaimed water, continuously measure and log flow to the well and pressure at the wellhead. If the flow meter and pressure instrumentation to be installed as part of this contract is not already installed, tested, and functioning properly; the Contractor shall provide temporary flow meter and pressure instrumentation. No additional payment will be made to the Contractor for providing and operating a temporary flow meter and pressure recording system. If the ASR well is not already functioning under artesian conditions

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(due to seasonal fluctuations of the groundwater surface), the well will become artesian once reclaimed water is introduced into the well.

- c. If the ASR well is functioning under artesian conditions when the existing pump and motor must be removed to allow geophysical logging and/or new pump installation, the Contractor shall lower head in the well column with salt solution. After completion of geophysical logging and/or new pump installation, Contractor shall dilute the water in the well using reclaimed water and pump the diluted water to the North Storage Pond until the water in the well reaches background water quality to the satisfaction of the Engineer. The Contractor shall provide a temporary pump to purge the well for geophysical logging; and provide temporary flow meter (e.g. propeller meter) if the flow meter and instrumentation to be installed as part of this contract is not already installed, tested, and functioning properly. No additional payment will be made to the Contractor for providing and operating a temporary pump and/or flow meter system.
 - d. At the time the Contractor schedules to have geophysical logging performed on the well, the County may desire to also have the well to be purged at a higher pumping rate than necessary to clear the well for logging. If requested by the County, the Contractor shall provide a temporary pumping system capable of pumping the well at a rate of between 400 and 600 gpm for up to one (1) week. The Contractor shall also assist the County with collection of background water quality samples during this extended purge period. The Contractor shall be compensated for the work to purge the well at the higher rate at the bid item price identified in the Contract for "High Rate Purging of Existing ASR Well."
3. The Contractor shall plan a sequence of work that provides operable water level instrumentation as soon as practicable. The ability to take measurements of water level in the ASR well within 30 days of the notice to proceed is desired.
- C. The Contractor shall, if necessary, construct the work continuously (including night and overtime work) in order to meet the time limitation described in paragraph B.1 above. The Contractor shall coordinate the construction schedule and operations with the County's Representative; and if overtime work is required, reimburse the County for the costs incurred as a result of the overtime work.
- D. The Contractor shall not close off access to HSPS or other public works facilities also located on the site. Construction of alternative access shall be considered as part of the overhead cost of the work, and no additional payment will be made for the construction of alternative access.

1.04 CONSTRUCTION AREAS

- A. The work of this project is to take place within the Southwest Water Reclamation Facility site which is property owned by Manatee County. Prior to mobilizing to the site, the Contractor and County's Representative shall agree upon an area in which the work is to be limited, including laydown and storage area, and the Contractor shall not work outside the agreed upon area without prior written approval by the County's Representative. The Contractor shall not conduct

work or storage activities on road right-of-way or on private property without written approval of the property owner.

- B. The Contractor shall:
1. Limit his use of the construction areas for work and for storage, to allow for:
 - a. Work by other Contractors.
 - b. County's Use.
 2. Coordinate use of work site under direction of County's Representative.
 3. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
 4. Move any stored products under the Contractor's control that interfere with plant operations, use of the property by the County, or work by other contractors.
 5. Obtain and pay for the use of additional storage or work areas needed for Contractor operations.

1.05 BENEFICIAL USE BY COUNTY PRIOR TO SUBSTANTIAL COMPLETION

- A. Contractor shall recognize that portions of the Work will be completed prior to substantial completion of the entire Work. However, the three-year guaranty period shall not commence until the date established by the Contract Documents for the entire Work and the Contractor shall schedule and price the cost of the entire Work accordingly.

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 County to be inefficient, inappropriate, or insufficient for securing the quality of work required for producing the rate of progress aforesaid, The County 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 County 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 affected property owner. At no time shall contractor, his employees, or subcontractors enter upon the adjacent golf course grounds.

1.03 WORK LOCATIONS

Work shall be located substantially as indicated on the drawings, but the County 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 County may require special construction procedures such as limiting the length of open trench, prohibiting stacking excavated material in the street, and/or requiring that trenches 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 County 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 County 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 County, permanent relocation of a utility owned by the County is required, the County 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 County will notify the utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the County 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 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 County.
- 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 County 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 County. 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 County.
- 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 County.

- C. Any changes to the traffic pattern require a Traffic Control Plan as detailed in section 01570 of this specification.

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 temporary use 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 County 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 County.
- C. Contractor and his subcontractors shall cooperate with County personal collection water quality samples or measuring water levels within the well.

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. 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 County.

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 County 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 County. 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 existing systems all as shown on the Drawings or where directed by the County. The cost for this work and for the actual connection shall be included in the price bid for the project and shall not result in any additional cost to the County.

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 County.

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 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.
- 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.
- 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 County and shall provide suggestions on how best to resolve the issue.

- 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 County.
- 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 County 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 County a Hurricane Preparedness Plan. The plan should outline the necessary measures which the Contractor proposes to perform at no additional cost to the County in case of a hurricane warning.
- B. For inclement weather such as tropical systems or extended periods of rain, the Contractor shall insure that the ongoing work of this project does not prohibit the County from using the HSPS. Operation of the HSPS is needed to allow reclaimed water to be delivered under pressure to an offsite injection well when the onsite storage ponds near their storage capacity.
- C. In the event of inclement weather, or whenever County 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 County, 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 County and if so shall be protected for a reasonable time until picked up by the County. Any equipment or material not worthy of salvaging, as directed by the County, 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.
- C. The Contractor shall pump water from the existing well as required to purge the well as necessary to perform the work of this Contract using his own equipment. He shall discharge purge water to the North Storage Pond.

1.10 ADDITIONAL PROVISIONS

- A. Before commencing work on any of the existing pipelines, structures or equipment, the Contractor shall notify the County, 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 County'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 County.
- C. Water pumped from the existing ASR well shall not be discharged onto the ground or into the adjacent stormwater pond. All water pumped from the existing ASR well shall be discharged to the North Storage Pond.

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 County for excessive noise shall not relieve the Contractor of the other portions of this specification.

- 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 County 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 County. All material and installation costs shall be 100% borne by the Contractor.
- 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 County 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 County acceptance of the equipment.

1.14 FUEL STORAGE & FILLING

- A. If the contractor is storing fuel on site, or doing his own fuel filling of portable equipment (other than hand-held equipment), he is responsible for any required response, clean-up or reporting required, at no additional cost to the county.
- B. The Contractor shall prepare and submit a fuel storage / spill abatement plan prior to start of construction if required.

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 County. Do not proceed with work until County 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.
- C. Record Drawings shall report all elevations based on NAVD88 datum and provide conversion between NGVD29 and NAVD88 datum.

1.02 QUALIFICATION OF SURVEYOR

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

1.03 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are designated on the Contract Drawings. If control points are not designated on the drawings, the Contractor shall include establishing suitable control points for the work to be performed as part of the field surveying services provided.
- 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.
- C. Make no changes or relocations without prior written notice to County.
- D. Report to County when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations.
- E. Require surveyor to replace project control points which may be lost or destroyed.
- F. 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.

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The Contractor shall establish in the field the limits of the easements within which the pipelines and structures of the project are to be constructed.

The Contractor shall establish in the field a stationed survey baseline for horizontal control along pipeline routes in accordance with the reference information provided with the Contract Documents. The baseline established shall be used to reference constructed locations of the various elements of the work that are to be shown in the project record drawings. The survey baseline established by the Contractor for horizontal control of the work shall be sufficiently described in the project record drawings to allow the baseline to be re-established by others in the field at a future date.

1.05 RECORDS

The Contractor shall employ a Professional Engineer or Surveyor registered in the State of Florida to verify survey data and properly prepare record drawings per Section 01720.

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.

- 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.

1.02 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

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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

MCPW UTIL STD Manatee County Utility Engineering
4410-B 66th St. W.

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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
OSHA	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 th 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 County 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. Contractor may be required to provide a break-down of the lump sum totals (Schedule of Values) that will be used to determine applicable periodic payments of a lump sum bid item.

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 deemed included as part of the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the County until as-built (record) drawings have been submitted and approved by the County.

1. Shop drawings, working drawings, project photographs, and other contractor documentation.
2. Furnish, install, and remove project sign.
3. Maintaining red-line drawings of changes to construction plans during progress of the work.
4. Temporary utilities including water and power required for construction.
5. Contractor obtain Manatee County Building Permit and payment of permit fee(s).
6. Site preparation, clearing, grubbing, grading, and protection of existing structures, trees, and shrubbery to remain.
7. Erosion, sediment, dust, and noise control.
8. Traffic control including maintenance of traffic and replacement or relocation of signs.
9. Trench excavation, including necessary pavement removal and rock removal, sheeting, shoring, bracing, temporary barricades, and temporary trench covers.
10. Dewatering and disposal of surplus water.
11. Backfill and compaction, including furnishing and placing suitable fill, and all grading.
12. Protection, repair, replacement or relocation of existing utilities, not designated in the Contract Documents for relocation.
13. Selective demolition as shown on the plans or designated in the Contract Documents.
14. Rubbish and spoil removal.
15. Appurtenant work as required for a complete and operable system.
16. Testing and placing system in operation.
17. Any material and equipment required to be installed and utilized for testing.
18. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
19. Maintaining the existing functionality of the reclaimed water HSPS during construction.
20. Restoring the job site to its original condition, which includes but is not limited to restoring the ground surface to its original grade; repair and replacement of defaced surfaces; and related work obviously required to complete project in accordance with the Contract Documents that is not specifically included for payment under other bid items.
21. Sodding.

22. As-built Record Drawings.
23. Operation and Maintenance Manual.
24. Instructing County's designated personnel in operation, adjustment and maintenance of products, equipment and systems.

The Contractor's attention is again called to the fact that the quotations for the various items of work are intended to establish a total price for completing the work in its entirety. Should the Contractor feel that the cost for any item of work has not been established by the bid items listed in the Bid Form, the Contractor shall include the cost for that work in some other applicable bid item, so that the total bid price for the work does reflect the total price for completing the work in its entirety.

1.08

BID ITEM DESCRIPTIONS

BID ITEM No. 1: MOBILIZATION - DEMOBILIZATION

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. Mobilization includes, but is not limited to: preparation and movement of personnel, equipment, supplies and incidentals such as safety and sanitary supplies/ facilities

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

Partial payments for this Bid Item will be made in accordance with the following schedule:

Percent of Original Contract Amount:	Percent Allowable Payment of Mobilization/Demobilization Bid Item Price:
5	25
10	35
25	45
50	50
75	75
100	100

These payments will be subject to the standard retainage provided in the Contract. Payment of the retainage will be made after completion of the work and demobilization.

BID ITEM No. 2: WELL DRILLING RIG MOBILIZATION - DEMOBILIZATION

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for setting up a well drilling rig at the project site to perform the work identified on the Plans and described by the Specifications, and after use of the well drilling rig is

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complete, taking down the rig and removing it from the site. Work shall include, but is not limited to, transportation of the drilling rig and tools to the project; set-up labor, material, and equipment; well driller overhead costs; stand-by time for well drilling equipment resulting from Contractor's scheduling of the work; drilling rig take-down labor, material, and equipment; transportation of the drilling rig and tools off the site; and clean-up and restoration of the site after well drilling equipment has been removed.

Partial payments for this Bid Item will be made in the amount of 60% upon full mobilization of the equipment to the site and 40% when the equipment has been fully removed from the site and the site restored to the satisfaction of the County. Only one mobilization and one demobilization will be paid for under this Bid Item. Should additional mobilizations and demobilizations be necessary to complete the work due the Contractor's sequencing or scheduling of the work, no additional payments will be due the Contractor under this bid item. The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item.

BID ITEM No. 3: WELL VIDEO SURVEY

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for well video survey work identified on the Plans and described by the Specifications. Work shall include, but is not limited to, preparing the existing well for insertion and use of video camera, furnishing video survey equipment, recording the video survey, and furnishing copies of the recorded video in a format suitable for playback on existing County equipment.

Payment under this lump sum Bid Item will be made when a recording of the video survey is received and accepted by the County in accordance with the Contract Documents; and full payment of this lump sum bid item shall represent full compensation for all labor, material, and equipment required to complete this Bid Item.

If no work is performed that qualifies for payment with this bid item, then the Contractor shall not be entitled to payment for work described for this bid item, and the Contractor will not be entitled to additional compensation because no payment is made for this bid item

BID ITEM No. 4: GEOPHYSICAL LOGGING

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for the work of geophysical logging identified on the Plans and described by the Specifications. Work shall include, but is not limited to, preparing the existing well for insertion and use of logging tools, lowering head in well column with salt solution; furnishing logging tools and equipment, recording the log results, and furnishing copies of the logs.

Payment under this lump sum Bid Item will be made when logging results are received and accepted by the County in accordance with the Contract Documents; and full payment of this lump sum bid item shall represent full compensation for all labor, material, and equipment required to complete this Bid Item.

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If no work is performed that qualifies for payment with this bid item, then the Contractor shall not be entitled to payment for work described for this bid item, and the Contractor will not be entitled to additional compensation because no payment is made for this bid item.

BID ITEM No. 5: RECOVERY PUMP REPLACEMENT

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for recovery pump replacement work identified on the Plans and described by the Specifications. Work shall include, but is not limited to, lowering head in well column with salt solution; existing pump discharge head, column pipe, bowl assembly and motor removal; transportation of removed equipment and material to lawful place of disposal provided by the Contractor; furnish and install new pump discharge head, column pipe, bowl assembly, electric motor; connections to existing piping and wellhead flange; connection to pump control panel; testing; pumping system start-up and training; and all other labor, materials and equipment necessary for a complete and fully operable pump system to recover water from the existing well, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item. Measurement for periodic payments of this lump sum bid item shall be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM No. 6: TEMPORARY RECHARGE LINE PIPING – FURNISH & INSTALL

Payment for all work included under this Bid Item shall be made at the applicable Contract unit price bid for the construction of the recharge piping identified on the Plans and described by the Specifications to deliver reclaimed water to the existing ASR well. The unit price shall include all costs necessary for labor, equipment, survey, and material for the Work that includes, but is not limited to, ductile iron pipe and PVC pipe, fittings, joint restraint, piping accessories, pipe coatings and linings, painting, pipe supports, and all other labor, materials and equipment necessary for a complete and fully operable process piping system, including field engineering and surveying, flushing, testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Work compensated for by payment of this unit price bid item shall also include site restoration and cleanup, and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

Measurement shall be made for the actual length in lineal feet of recharge piping installed, measured along the centerline of the pipe through fittings in place, complete and accepted by the County. When measuring pipeline for payment, no distinction will be made for pipe size or material; and both horizontal and vertical runs of pipe will be measured for payment. The length of piping to be measured for payment under this payment item shall fall between the flange connection at the existing HSPS pipe and the flange connection at the temporary flowmeter piping.

BID ITEM No. 7: RECHARGE LINE CONNECTION TO HSPS PIPING

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for connecting the temporary recharge line pipe to the existing reclaimed water high service pump station (HSPS) piping as identified on the Plans and described by the Specifications. Work shall include, but is not limited to, ductile iron pipe, flange fittings, gate valve, flanged coupling adapter, piping accessories, pipe coatings and linings, painting, pipe supports, and all other labor, materials and equipment necessary for a complete and properly operating connection, including testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Payment shall also include all selective demolition of existing process piping; disposal of removed material not designated salvage; disconnecting, raising, and reinstalling existing PR valve; site restoration and cleanup; and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item.

BID ITEM No. 8: TEMPORARY RECOVERY LINE PIPING – FURNISH & INSTALL

Payment for all work included under this Bid Item shall be made at the applicable Contract unit price bid for the construction of the recovery piping identified on the Plans and described by the Specifications to deliver water recovered from the ASR well to the North Storage Pond. The unit price shall include all costs necessary for labor, equipment, survey, and material for the Work that includes, but is not limited to, ductile iron pipe and PVC pipe, fittings, joint restraint, piping accessories, pipe coatings and linings, painting, pipe supports, and all other labor, materials and equipment necessary for a complete and fully operable process piping system, including field engineering and surveying, flushing, testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Work compensated for by payment of this unit price bid item shall also include graded aggregate base material, site restoration and cleanup, and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

Measurement shall be made for the actual length in lineal feet of recovery piping installed, measured along the centerline of the pipe through fittings in place, complete and accepted by the County. When measuring pipeline for payment, no distinction will be made for pipe size or material; and both horizontal and vertical runs of pipe will be measured for payment. The length of piping to be measured for payment under this payment item shall fall between the flange connection at the temporary flowmeter piping and the flange connection at each Flow Dispersion Header.

BID ITEM No. 9: TEMPORARY FLOW DISPERSION HEADER – FURNISH & INSTALL

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid per each constructed temporary flow dispersion header identified on the Plans and described by the Specifications. The unit price shall include all costs necessary for labor, equipment, survey, and material for the Work that includes, but is not limited to, ductile iron pipe and PVC pipe, fittings,

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valves, hose, service saddles, joint restraint, piping accessories, pipe coatings and linings, painting, pipe supports, concrete support blocks, miscellaneous metals, and all other labor, materials and equipment necessary for a complete and fully operable flow dispersion header, including field engineering and surveying, testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Work compensated for by payment of this unit price bid item shall also include graded aggregate base material, site restoration and cleanup, and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

Measurement shall be made for each completed temporary flow dispersion header installed, complete, properly operating, and ready for approval and acceptance by the County.

BID ITEM No. 10: MONITOR WELL PURGE PIPING – FURNISH & OPEN CUT INSTALL

Payment for all work included under this Bid Item shall be made at the applicable Contract unit price bid for the construction of buried monitor well purge piping identified on the Plans and described by the Specifications to convey purge water from existing monitor wells to the existing lift station. The unit price shall include all costs necessary for labor, equipment, survey, and material for the Work that includes, but is not limited to, HDPE tubing, connection fittings, joining pipe segments, piping accessories, locating utilities that may impact construction and aligning the pipe to avoid such impacts, excavation, backfill, compaction, temporary barricades, tracer wires and appurtenances, locator tape, flushing, and all other labor, materials and equipment necessary for a complete and fully operable process piping system, including field engineering and surveying, testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Work compensated for by payment of this unit price bid item shall also include site restoration by sodding and cleanup, and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

Measurement shall be made for the actual length in lineal feet of recharge piping installed, measured horizontally along the ground surface along the route of the installed pipe through fittings in place, complete and accepted by the County. Monitor well purge piping installed above ground shall not be measured for payment as part of this bid item.

BID ITEM No. 11: MONITOR WELL PURGE PIPING – FURNISH & ABOVE GROUND INSTALL

Payment for all work included under this Bid Item shall be made at the applicable Contract unit price bid for the construction of above ground monitor well purge piping identified on the Plans and described by the Specifications to convey purge water from existing monitor wells to the existing lift station. The unit price shall include all costs necessary for labor, equipment, survey, and material for the Work that includes, but is not limited to, HDPE tubing, connection fittings, joining pipe segments, piping accessories, locating utilities that may impact construction and aligning the pipe to avoid such impacts, temporary barricades, flushing, and all other labor, materials and equipment necessary for a complete and fully operable process piping system, including field engineering and surveying, testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Work compensated for

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by payment of this unit price bid item shall also include site restoration and cleanup, and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

Measurement shall be made for the actual length in lineal feet of recharge piping installed, measured horizontally along the route of the installed pipe through fittings in place, complete and accepted by the County.

BID ITEM No. 12: MONITOR WELL PURGE PIPING CONNECTIONS TO EXISTING PIPING

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid for connecting the monitor well purge pipe to each of two existing monitor wells and to the existing lift station vent piping as identified on the Plans and described by the Specifications. Work shall include, but is not limited to, stainless steel pipe, fittings, unions, valves, couplings, pipe clamps; PVC pipe, fittings, couplings; piping accessories; painting; pipe supports; and all other labor, materials and equipment necessary for a complete and properly operating piping system, including testing and start-up, all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County. Payment shall also include all selective demolition of existing piping; disposal of removed material not designated salvage; site restoration and cleanup; and all other items called for or necessary for a complete installation in accordance with the Contract Documents.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item.

BID ITEM No. 13: ELECTRICAL

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid to perform the electrical work identified on the Plans and described by the Specifications. Work shall include, but is not limited to, wire, conduit, grounding, panels (including pump control panel), switchgear, new pressure switch, and all other items called for or necessary for a complete installation to provide power to the replacement ASR pump and to the instrumentation; all as shown on the Contract Drawings and/or called for in the Contract Specifications, ready for approval and acceptance by the County.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item. Measurement for periodic payments of this lump sum bid item shall be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM No. 14: TEMPORARY FLOW METER & PIPING – FURNISH & INSTALL

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid to provide new flow meter and above ground flanged ductile iron piping as identified on the Plans and described by the Specifications. Work shall include, but is not limited to, bi-directional flow meter including flow sensor, flow transmitter, datalogger, software, NEMA 4X

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enclosure, stanchion support with rain hood, surge suppressor, flanged ductile iron pipe and fittings, valves, flange coupling adapters, piping accessories, pipe coatings and linings, painting, pipe supports, concrete pad, and all other items called for or necessary for a complete and properly operating installation in accordance with the Contract Documents.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item. Measurement for periodic payments of this lump sum bid item shall be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM No. 15: PRESSURE RECORDER & INSTRUMENTATION – FURNISH & INSTALL

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid to provide pressure sensor, pressure recorder, analog pressure indicators, process connection piping, software, and all other items called for or necessary for a complete and properly operating installation in accordance with the Contract Documents.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item. Measurement for periodic payments of this lump sum bid item shall be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM No. 16: WATER LEVEL INSTRUMENTATION – FURNISH & INSTALL

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid to provide water level transmitter with integral datalogger including cable, mounting accessories, termination enclosure, desiccant canister, software, and all other items called for or necessary for a complete and properly operating installation in accordance with the Contract Documents.

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item. Measurement for periodic payments of this lump sum bid item shall be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM No. 17: HIGH RATE PURGING OF EXISTING ASR WELL

Payment for all work included under this Bid Item shall represent full compensation in accordance with the lump sum price bid to provide temporary pump system to purge the existing ASR well at the rate specified in the Contract Documents. The price shall include all costs necessary for labor, equipment, power, and material for the Work that includes, but is not limited to, temporary pump and motor, drop pipe, cable, mounting accessories, temporary metering, and all other items called for or necessary to pump water at the rate and duration in accordance with the Contract Documents.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

The lump sum payment for this bid item shall represent full compensation for all labor, material, and equipment required to complete the work of this Bid Item. Measurement for periodic payments of this lump sum bid item shall be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

If the County elects to not perform the work described for high rate purging of the existing ASR well that qualifies for payment with this bid item, then the Contractor shall not be entitled to payment for work described for this bid item, and the Contractor will not be entitled to additional compensation because no payment is made for this bid item. It shall be at the sole discretion of the County whether or not high rate purging of the well is to be performed by the Contractor, and the Contractor shall not proceed with such work unless authorized in advance by the County in writing.

CONTRACT CONTINGENCY

Payment for all work under this Bid Item shall be made only at the County's discretion. This Bid Item shall not exceed 10% of the Bidders Total Base Bid. The Bidder shall calculate and enter a dollar amount for this Bid Item.

If no work is performed that qualifies for payment with this bid item, then the Contractor shall not be entitled to payment for work described for this bid item, and the Contractor will not be entitled to additional compensation because no payment is made for this bid item.

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

The Contractor shall 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 County and Contractor.

1.02 FORMAT AND DATA REQUIRED

- A. Submit payment requests in the form provided by the County 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 County 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: A written order signed by the Owner, the Architect/Engineer and the Contractor authorizing a change in the Project Plans and/or Specifications and, if necessary, a corresponding adjustment in the Contract Sum and/or Contract Time, pursuant to Article V of the General Conditions of the Construction Agreement.
- B. Administrative Change Adjustment: Minor change order under 10% of project cost or 20% time, does not have to be Board approved.
- C. Field Directive: A written order issued by Owner which orders minor changes in the Work not involving a change in Contract Time, to be paid from the Owner's contingency funds.
- D. Field Order: Minor change to contract work that does not require adjustment of contract sum or expected date of completion.

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 County 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.

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 ORDER CHANGE

- A. In lieu of a Change Order, the Project Manager may issue a Field Order for the Contractor to proceed with additional work within the original intent of the Project.
- B. Field Order 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 Order 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 County 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.
 1. Name of the County'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. Change Order will describe changes in the Work, both additions and deletions, with attachments as necessary to define details of the change.
- C. 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 County, 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 County for approval. The County 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. County's definition of the scope of the required changes.
 - 2. Contractor's Proposal for a change, as approved by the County.
 - 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 County and Contractor.

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

- A. Refer to Article V.5.6 of the General Conditions of the Construction Agreement.

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. 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 County 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. County's Engineer.
 - 2. County's Project Manager
 - 3. County Inspector.
 - 4. Contractor.
 - 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.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

6. Use of premises:
 - a. Work and storage areas.
 - b. County's REQUIREMENTS.
7. Temporary utilities.
8. Housekeeping procedures.
9. Liquidated damages.
10. Equal Opportunity Requirements.
11. Laboratory testing.
12. Project / Job meetings: Progress meeting, other special topics as needed.

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 County 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 County. 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 County. Such permission, however, may be revoked at any time by the County 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.

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 County to review Contractor's planning, scheduling, management and execution of the work; to assist County 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 using the latest version of Microsoft Project, or other County approved software, 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.

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 County to review all submittals as set forth in the Contract Documents; items of work required of County 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 County.
- 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 County, 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 County. 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 County 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 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 County, 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 progress schedules with each application for payment.

2.06 MONTHLY STATUS REPORTS

- A. Contractor shall submit 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 County and Contractor at a monthly schedule meeting and Contractor will address County'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 County 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. County shall have 10 calendar days after receipt of the submittal to respond. Upon receipt of County's comments, Contractor shall make the necessary revisions and submit the revised schedule within 10 calendar days. The resubmittal, if concurred with by County, 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 and concurrence by County. 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 County.

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. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the County. 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.

1.02 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, with a copy to the County, 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. All material & product submittals, other than samples, may be transmitted electronically as a pdf file. All returns to the contractor will be as a pdf file only unless specifically requested otherwise.
- 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.

1.03 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 County 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 County's actual cost for the additional work.
- 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.

1.04 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.
 - 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.

1.05 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 County and Engineer shall not have responsibility therefor.

1.06 SAMPLES (NOT USED)

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 County 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 County, 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 County 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 01380 CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall employ a competent photographer to take construction record photographs or perform video, recording including furnishing all labor, materials, equipment and incidentals necessary to obtain photographs and/or video recordings of all construction areas.
- B. Preconstruction record information shall consist of video recordings on digital video disks (DVD).
- 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 one print 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.
 - 2. The Contractor shall require that photographer maintain negatives or protected digital files for a period of two years from date of substantial completion of the project.
 - 3. Photographer shall agree to furnish additional prints to County 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.

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- 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 photographers 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 County at each period of photography for instructions concerning views required.

1.04 VIDEO RECORDINGS

- A. Video, recording shall be done along all routes that are scheduled for construction. Video, recording shall include full, recording of both sides of all streets and the entire width of easements plus 10 feet on each side on which construction is to be performed. All video recording 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 stationing in the audio portion of the recordings for easy location identification.
- D. Two complete sets of video recordings shall be delivered to the County on digital video disks (DVD) for the permanent and exclusive use of the County prior to the start of any construction on the project.
- E. All video recordings shall contain the name of the project, the date and time of the video, recording, the name and address of the photographer and any other identifying information required.
- F. Construction shall not start until preconstruction video recordings are completed, submitted and accepted by the County. In addition, no progress payments shall be made until the preconstruction video recordings are accepted by the County.

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. County 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. County 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 County 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 County 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.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

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 County 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 County.
- H. If the test results indicate the material or equipment complies with the Contract Documents, the County 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 traffic plan from the FDOT Maintenance of Traffic Standards, Series 600 of the FDOT Roadway & Traffic Design Standards, Latest Edition.
- B. Should there be the necessity to close any portion of a roadway carrying vehicles or pedestrians the Contractor shall submit a Traffic Control Plan (TCP) at least 5 days before a partial or full day closure, and at least 8 days before a multi-day closure. TCP shall be submitted, along with a copy of their accreditation, by a certified IMSA or ATSA Traffic Control Specialist.
 - 1. 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.
 - 2. All traffic control signs must be in place and inspected at least 1 day in advance of the closure. Multi-day closures notification signs shall be in place at least 3 days in advance of the closure. All signs must be covered when not in effect, and checked twice a day by the Worksite Traffic Supervisor when they are in effect.
- 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 Contractor will consult with the County immediately on any vehicular or pedestrian safety or efficiency problem incurred as a result of construction of the project.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

- 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.
- F. When conditions require the temporary installation of signs, pavement markings and traffic barriers for the protection of workers and traffic, the entire array of such devices shall be depicted on working drawings for each separate stage of work. These drawings shall be submitted to the County for review and approval prior to commencement of work on the site.
- G. Precast concrete traffic barriers shall be placed adjacent to trenches and other excavations deeper than six inches below the adjacent pavement surface.

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. The Contractor shall furnish, install and maintain County project identification signs.
- B. The Contractor shall remove signs on completion of construction.
- C. The Contractor shall allow no other signs to be displayed except for traffic control and safety.

1.02 PROJECT IDENTIFICATION SIGN (COUNTY)

- A. Two 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 County.
 - 3. Names and titles of authorities as directed by County.
 - 4. Prime Contractor.
- B. Graphic design, style of lettering and colors: As approved by the County.
- C. Erect on the site at a lighted location of high public visibility, adjacent to main entrance to site, as approved by the County

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.

1.05 PUBLIC NOTIFICATION

- A. Door Hangers: The Contractor shall generate and distribute door hangers to all residents who will be impacted by project construction.

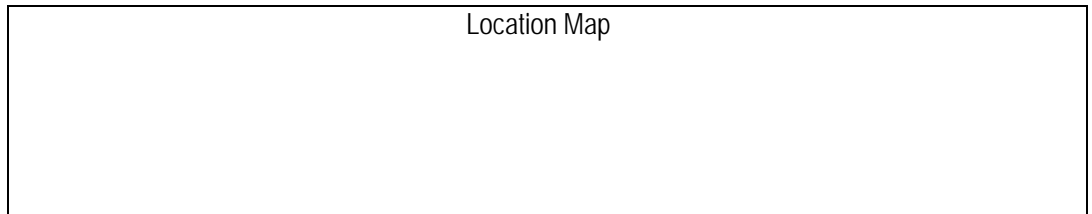
ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

1. Residents impacted include anyone who resides inside, or within 500 feet of project limits of construction.
 2. The Contractor shall have additional door hangers available in the field to distribute to local residents or the public should they indicate they were not notified of the project.
- B. Door Hangers shall be distributed prior to start of construction of the project. Hangers shall be affixed to doors of residents via elastic bands or tape.

EXAMPLE:

PLEASE PARDON THE INCONVENIENCE WHILE THE ROADWAY IS BEING RECONSTRUCTED IN
YOUR NEIGHBORHOOD

This project consists of utility improvements and the reconstruction of ??? Boulevard from U.S. ???
to ??? Street West. The project is expected to begin in August, 200X and be completed in July 200X.



WE HOPE TO KEEP ANY INCONVENIENCE TO A MINIMUM. HOWEVER, IF YOU HAVE ANY
PROBLEMS, PLEASE CONTACT THE FOLLOWING:

- | | | |
|----|-------------------------------|---------------------|
| A. | Contractor | Project Manager |
| | Contractor Address | PM Address |
| | Contractor Phone (Site Phone) | PM Phone No. & Ext. |
| B. | Project Inspector | |
| | Inspector Phone Number | |

AFTER HOURS EMERGENCY NUMBER – (941) 747-HELP
THANK YOU FOR YOUR UNDERSTANDING AND PATIENCE
MANATEE COUNTY GOVERNMENT – PROJECT MANAGEMENT DEPT.

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 County.
 - 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 County. 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. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with County prior to proceeding. Do not proceed with work without clear instructions.

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 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. 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 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

The Contractor shall 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, in accord with manufacturer's instructions, with seals and labels intact and legible.
- B. 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.
 - 2. Instrumentation and electrical equipment shall not be stored outside.
- C. 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. 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 County. 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 County.
 - 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 County 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. 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.
5. Lubricants shall be changed upon completion of installation and as frequently as required, thereafter during the period between installation and acceptance.
6. 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 County 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 County determines that the work is not substantially complete:
 - 1. The County 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 County.
 - 3. The County shall re-inspect the work.
- E. When the County finds that the work is substantially complete:
 - 1. The Engineer shall prepare and deliver to the County 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 County as provided in Conditions of the Contract. When the Engineer considers the work substantially complete, he will execute and deliver to the County 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 County's representative and are operational.
 5. The work is completed and ready for final inspection.
- B. The County shall make an inspection to verify the status of completion after receipt of such certification.
- C. If the County determines that the work is incomplete or defective:
1. The County 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 County that the work is complete.
 3. The County shall re-inspect the work.
- D. Upon finding the work to be acceptable under the Contract Documents, the County 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 County's fees.

1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS TO COUNTY

- 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-9).

1.05 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the County.
- 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

The Contractor shall 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 County 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 RECORD DRAWINGS

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. When construction is complete, Record Drawings, indicating the locations and elevations of the improvements that have been built, shall be provided to Manatee County Public Works Department. The Record Drawings shall be a special revision of the approved Construction Drawings; prepared by a Florida Licensed Surveyor and Mapper; and shall reflect all of the below requirements in content.

1.02 STANDARDS

- A. Record drawings shall be submitted to at least the level of detail in the contract documents. Original drawings in CAD format may be requested of the Engineer.
- B. The Contractor shall employ a Florida Licensed Surveyor and Mapper to collect and verify elevation data, installed location of constructed work, and properly prepare record drawings.
- C. The data required to properly prepare these record drawings shall be obtained at the site, at no cost to the County by the Contractor or his/her duly appointed representative. The appointed representative shall be a qualified employee of a responsible professional on a project-by-project basis.

1.03 CERTIFICATIONS

- A. Record drawings shall be certified by a Florida Licensed Surveyor and Mapper. The certification shall state that the "Record Locations and Elevations depicted on the Record Drawing are true and correct and were collected in the field by the Surveyor and Mapper or by a representative under the direct supervision of the Surveyor and Mapper."
- B. All visible record features, including elevations of piping and concrete slabs in NAVD88, must be measured and located by the Surveyor or by personnel under his or her direct supervision. The certifying Surveyor shall be fully responsible for the accuracy of the record locations and elevations shown on the Record Drawings.
- C. Record Drawings will also be certified by the Engineer, after the Engineer has reviewed the record drawings submitted by the Contractor. Contractor shall revise record drawing submittal as necessary for the Engineer to certify the record drawings as stipulated by the Manatee County Public Works Standards, and as necessary for the County to accept the record drawing submittal. Additional copies of certified record drawings prepared by the Surveyor and Mapper may be requested by the Engineer, and Contractor shall arrange to have the additional copies requested furnished to the Engineer.

1.04 SUBMITTALS

- A. Record drawing submittal materials shall be attached to a transmittal letter, which shall list the following information:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each Record Document.
 - 5. Signature of Contractor or his authorized representative.
- B. The following materials shall be submitted for review and approval:
 - 1. Transmittal letter.
 - 2. Two signed, dated, and sealed sets of the Record Drawings.
 - 3. Final plats and/or easements when applicable.
 - 4. Final breakdown of construction quantities and final costs when applicable.
 - 5. Performance bond, defect security bond, warranties and associated cost estimates when applicable.
 - 6. A copy of the bacteriological test results when applicable, and
 - 7. A copy of all of the infrastructure inspection reports.
- C. Record Drawing submittal from Contractor shall consist of the following materials:
 - 1. Transmittal letter.
 - 2. One set original Mylar Record Drawings; signed, dated, and sealed by a Florida Licensed Surveyor and Mapper.
 - 3. Two sets paper copies of the Record Drawings; signed, dated, and sealed by a Florida Licensed Surveyor and Mapper.
 - 4. One copy of the Record Drawings plan set in AutoCAD and PDF formats on a DVD or CD.
- D. Prior to substantial completion, and prior to starting the bacteriological testing of water lines, deliver two (2) signed and sealed sets of record drawing information to the Engineer. These will be reviewed and verified by the Engineer and the County inspector. If there are any required changes or additions, these changes shall be incorporated into the entire record drawing set resubmitted prior to final pay application.
- E. Complete and final record drawing information shall be submitted to Engineer prior to Contractor making a final pay application. Before final payment application can be recommended for payment by the Engineer, the final submittal of record drawing information shall have been accepted by the County.

PART 2 PRODUCTS

2.01 REQUIREMENTS AS TO FORM

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

- A. Every set of Record Drawings shall have a cover sheet with a vicinity map, which shows where the project is located, and a key map, which shows where each sheet in the record drawing set is located inside the project boundaries. Each sheet used in the construction drawings shall be included as a sheet in the record drawing set.
- B. Each sheet of the Record Drawings shall have the title "RECORD DRAWING" printed on it in large, bold lettering, near the title block. Each sheet shall also have the words "COUNTY MAINTAINED – WATER," "- SEWER" or "-WATER AND SEWER," or "PRIVATELY MAINTAINED – WATER," "- SEWER," or "- WATER AND SEWER" in large, bold lettering, near the title block, depending on which entity will be responsible for maintaining the utilities. If the project includes a new reclaimed water system, each sheet shall also have the words "COUNTY MAINTAINED - RECLAIMED WATER," or "PRIVATELY MAINTAINED - RECLAIMED WATER," in large, bold lettering, near the title block, depending on which entity will be responsible for maintaining the utilities.
- C. Record drawing information submitted in tabular form shall not be accepted. Record information notes shall be positioned individually on the drawings near the depictions of the item to which each note corresponds.
- D. Record information notes shall be bold or italics to identify them as record information.
- E. Record drawings shall have a revision note such as "Record Drawing" in the revision block and a date corresponding to the date the record drawing was issued.
- F. Record information shall be presented in a clear and comprehensible form.
- G. The drawing scales used in the Record Drawings shall be the same as were used in the construction drawings, and the sheet number of each record drawing sheet shall be the same as the sheet numbers that were used on the construction drawings from which the record drawings originate. If additional sheets need to be added, they shall be numbered with a letter following the preceding sheet number (e.g. a sheet number added between sheet 4 and 5 would be labeled 4a).
- H. All sheets that were used to depict locations and elevations of utility structures in the construction drawings shall be included in the record drawing set.
- I. Record drawings shall accurately depict all existing improvements lying within the immediate vicinity of the constructed utilities. Existing improvements shall include, but not be limited to: sidewalks, walls, fences, road surfaces, buildings, and other utilities. Immediate vicinity includes areas within utility easements, includes areas within rights of way, and also includes areas within 15 feet of potable water mains, reclaimed water mains, sanitary force mains, and gravity sewer mains. Immediate vicinity also includes areas within 10 feet of potable water meters, reclaimed water meters, backflow preventers, and fire hydrants. Private irrigation mains that are not located within the rights of way shall also be located on the record drawings. Rights of way, easements, and property corners shall be shown and shall be of sufficient detail as to determine if the constructed utilities are within the easements or rights of way. A reference to the recording

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

document (O.R. Book or Plat Book and Page) shall be included with any depiction of a right-of-way or easement. O.R. Book or Plat Book and Page are not required to be shown on the record drawings of a project for proposed rights of way, or proposed easements that will identified on the proposed final plat for the said project.

- J. Each roadway depicted on the drawings shall have the correct roadway name noted on it. Provisional roadway names, such as "Street A", shall not be allowed on the record drawings. Each new lot of a new subdivision shall have its street address number noted on the record drawings.
- K. Horizontal locations required for valves, fittings, services, and other utility structures shall be to the center of each installation. Top of ground or pavement elevations required along pipelines shall be reported to the nearest 0.1 feet. Top of pipe elevations shall be to the nearest 0.1 feet. Elevations of manhole rims and manhole pipe inverts shall be reported to the nearest 0.01 feet. Horizontal locations of all features shall be reported to the nearest 0.1 feet.
- L. Computer drawing files submitted shall be AutoCAD® 2012 or later release date versions.
 - 1. All reference files required to recreate the signed and sealed Record Drawings shall be included in the submitted digital files.
 - 2. 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 describing its relevance and use.
 - 3. Computer drawing files format shall be DWG only and shall be Windows NT or Windows 2000 or Windows XP compatible.
- M. Contractor shall prepare and submit review draft of record drawings. The review submittal shall consist of the following:
 - 1. Four (4) sets of paper prints (24" x 36")
 - 2. One (1) CD containing a PDF file or scan of the draft record drawings.
- N. When records drawings have been found to be satisfactory by the County, a final submittal of the drawings shall be prepared by the Contractor to include the following:
 - 1. One (1) set of mylars (24" x 36") consisting of each sheet of drawings included in the record drawing set.
 - 2. One (1) CAD CD of the record drawing set and PDF file of the drawings. CAD file shall use etransmit or binding when saving onto the CD. 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 note describing its relevance and use.
 - 3. Three (3) sets of paper prints (24" x 36").
 - 4. Mylars and paper prints shall be signed and sealed by the PSM and EOR.

2.02 MONUMENTATION

- A. Record information shall be referenced by station and offset to a monumented baseline per Section 01050. The Contractor shall retain a Florida Licensed Surveyor and Mapper to establish baseline and station monumentation for the work when required. The monumentation for the baseline shall be shown or described on the record drawing (i.e. iron rod & cap, nail & disk or other durable and identifiable monument). For each baseline, there shall be at least two monuments described and referenced. State Plane Coordinates for the monuments shall be shown in NAD 83 (99 adjustment) in feet. Developments not within existing or proposed subdivisions and not within 1.5 miles from existing Manatee County Primary Control Points or platted State Plane Coordinates may be exempted from the requirement for monuments to be based on State Plane Coordinates.
- B. The alignment of the baseline shall be along the centerline or edge of one of the following: an existing paved road, recorded right-of-way, recorded easement, face of an existing building, existing sidewalk or other existing, identifiable reference line. Offsets from the baseline shall not exceed 150 feet. All elevations shown on Record Drawings shall be referenced to a minimum of two described bench marks. A minimum of two on-site bench marks shall be described including datum. All bench marks shall be based upon NAVD88. However, all Record Drawings shall be in NAVD88. Contract drawing elevations reported as NGVD29 datum shall be revised to be NAVD88 datum on the Record Drawings.
- C. All locations and elevations shall be field located by or under the direct supervision of a Florida Licensed Surveyor and Mapper.

PART 3 EXECUTION

3.01 RECORD INFORMATION

- A. Water distribution utility systems, reclaimed water (or irrigation) utility systems, and sanitary sewer collection utility systems shall be located and the locations shall be depicted and noted on the Record Drawings by station and offset from an established baseline, and by elevation relative to established benchmarks. For "single point" installations, N and E coordinates rather than station and offset may be allowed.
 - 1. Elements of the utility systems that shall be located and noted by station, offset, and elevation:
 - a. Top of pipe on water mains at connections to new work and at no greater than 20 feet apart (measured along the centerline).
 - b. Valves.
 - b. All fittings and bends.
 - c. Flow meter sensor.
 - d. Reclaimed water (or irrigation) services (center of meter or meter box).
 - e. Wellhead
 - e. Other miscellaneous utility structures with features at or above the surface of the ground.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

2. Elements of the utility systems that shall be located and noted by station and offset:
 - a. Control and electrical panels.
 - b. Pipe supports.
 - c. Ground rod locations.
 3. At locations where a top-of-pipe elevation is required for pipeline, a top-of-ground or top-of-pavement elevation shall also be measured and noted on the Drawings.
 4. Wellhead flange elevations and top of slab elevation at wellhead shall be measured.
- B. On Record Drawings, at locations where the horizontal positions of constructed pipelines or other utility structures deviate by more than 3 feet (as scaled on the drawing) from the horizontal positions that were shown on the Construction Drawings, the actual positions of the constructed feature shall be measured and be depicted in the actual constructed position on the Record Drawings; and their original design positions shall be crossed-hatched out or screen shaded.
- C. Record information shall include:
1. A thorough description of the pipes that have been installed, including type of pipe material or casing, size, class, diameter ratio, and other basic information.
 2. Field changes of dimension and detail.
 3. Changes made by Field Order or by Change Order.
 4. Details not on original contract drawings.
- D. For new valves, the manufacture type (as in gate, plug or butterfly), size (pipe nominal diameter) and make (manufacturer) of each valve shall be noted on the Record Drawings.
- E. Record flow meter information, including make, model, year of manufacture, and serial number.
- F. Abandoned infrastructure shall also be depicted as record information and noted as "abandoned"

END OF SECTION

SECTION 01730 OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The Contractor shall compile product data and related information appropriate for County's maintenance and operation of products furnished under Contract.

Contractor shall prepare operating and maintenance data as specified in this and as referenced in other pertinent sections of Specifications.

- B. Contractor shall arrange to have manufacturer's representatives of the various equipment and instrumentation furnished for this Contract instruct County's personnel in maintenance of products and equipment and systems.
- C. Contractor shall provide three (3) sets of operating and maintenance data for products and equipment provided within this Contract. Also provide one (1) CD with operating and maintenance data presented in a PDF file.

1.02 FORM OF SUBMITTALS

- A. Assemble data into ring binder(s) for use by County's personnel.
- B. Format:
1. Size: 8-1/2 inch x 11 inch
 2. Text: Manufacturer's printed data
 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 equipment.
 - a. Provide typed description of product, supplier, and source for service and replacement parts.
 - b. Provide indexed tabs.
 6. Cover: Identify with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Name of Contractor.
 - 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. 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.
 - 7. List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.
 - 8. 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.
 - e. Set-up programming instructions.
 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.
- D. Prepare and include additional data when the need for such data becomes apparent during instruction of County'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 three 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 COUNTY'S PERSONNEL

- A. Prior to final inspection or acceptance, fully instruct County'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 County for review and transmittal.

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 County'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. 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 County 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 2 SITE WORK

SECTION 02064 MODIFICATIONS TO EXISTING STRUCTURES, PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall 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 restraint devices, if required, is part of the installation shall also be installed as directed by the County.
- 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 County.
- 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 County, except that items not salvageable, as determined by the County, 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.

ASR WELL AT SSWRF INFRASTRUCTURE REFURBISHMENT

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 as may be necessary to accomplish the work described by the Project Plans. For temporary pipelines that will not be buried, ground upon which pipeline will be placed shall be cleared of rubbish and mowed.
- 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 County 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 County. Grassed areas which will not be excavated shall be mowed. 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 County 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 County within a five mile radius of the construction site. Should County not choose to receive any or all excess topsoil materials, the Contractor shall dispose of said material at no additional cost to County.

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 County 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 County 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 County.

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 02222 TRENCHING, BEDDING AND BACKFILL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals necessary to perform all excavation, trenching, bedding, backfill, fill, grading, trench protection or other related work required to complete the work shown on the Drawings and specified herein.
- B. Prior to commencing work, the Contractor shall examine the site and take into consideration all conditions that may affect his work.
- C. The Contractor is responsible for the protection of every tree in the project area not specifically designated by the plans for removal. 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.

1.02 PROTECTION

- A. Sheeting and Bracing in Excavations:
 - 1. Use steel sheeting, other shoring methods or materials as needed for the Contractor's selected method of construction. Wood sheeting that will be driven below mid-diameter of any pipe shall not be used without prior written approval of the County. No sheeting is to be withdrawn if driven below, mid-diameter of any pipe and shall be cut off at a level no lower than one foot above the top of any pipe unless otherwise directed by the County.
 - 3. All sheeting and bracing not left in place shall be carefully removed in such a manner as not to endanger the construction or other structures, utilities, existing piping, or property. Unless otherwise approved or indicated on the Drawings or in the Specification, all sheeting and bracing shall be removed after completion of the piping or structure, care being taken not to disturb or otherwise injure the pipeline or finished masonry. All voids left or caused by withdrawal of sheeting shall be immediately refilled with sand by ramming with tools specifically made for that purpose, by watering, or as may otherwise be directed.
- B. Dewatering, Drainage and Flotation
 - 1. The Contractor shall construct and place all pipelines, concrete work, structural fill, bedding rock and limerock base course, in-the-dry. In addition, the Contractor shall make the final 24" of excavation for this work in-the-dry and not until the water level is a minimum of 18" below proposed bottom of excavation.
 - 2. The Contractor shall, at all times during construction, provide and maintain proper equipment and facilities to remove promptly and dispose of properly all water entering excavation and keep such excavations dry so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill, structure, or pipes to be built thereon have

- been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
3. Dewatering shall at all times be conducted in such a manner as to preserve the natural undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.
 4. Wellpoints may be required for dewatering the soil prior to final excavation for deeper in-ground structures or piping and for maintaining the lowered groundwater level until construction has been completed to avoid the structure, pipeline, or fill from becoming floated or otherwise damaged. Wellpoints shall be surrounded by suitable filter sand and no fines shall be removed by pumping. Pumping from wellpoints shall be continuous and standby pumps shall be provided.
 5. The Contractor shall furnish all materials and equipment to perform all work required to install and maintain the proposed drainage systems for handling groundwater and surface water encountered during construction of structures, pipelines and compacted fills.
 6. Where required, the Contractor shall provide a minimum of two operating groundwater observation wells at each structure to determine the water level during construction of the pipeline or structure. Locations of the observation wells shall be at structures and along pipelines as approved by the County prior to their installation. The observation wells shall be extended to 6 inches above finished grade, capped with screw-on caps and removed (including backfilling the hole) at the completion of this Project.
 7. Prior to excavation, the Contractor shall submit his proposed method of dewatering and maintaining dry conditions to the County for approval. Such approval shall not relieve the Contractor of the responsibility for the satisfactory performance of the system. The Contractor shall be responsible for correcting any disturbance of natural bearing soils for damage to pipeline or structures caused by an inadequate dewatering system or by interruption of the continuous operation of the system as specified.
 8. As part of his request for approval of a dewatering system, the Contractor shall demonstrate the adequacy of the proposed system and wellpoint filter sand by means of a test installation. Discharge water shall be clear, with no visible soil particles in a one-quart sample. Discharge water shall not flow directly into wetlands or Waters of the State as defined by FDEP and SWFWMD.
 9. During backfilling and construction, water levels shall be measured in observation wells located as directed by the County.
 10. Continuous pumping will be required as long as water levels are required to be below natural levels.

PART 2 PRODUCTS

2.01 MATERIALS

A. General

1. Materials for use as fill, pipe bedding, and backfill shall be described below.
2. Additional materials shall be furnished as required from off-site sources and hauled to the site. For each such material, the Contractor shall notify the County of the source of the material and shall, if requested by the County, provide a representative sample of

sufficient quantity for approval by the County prior to the material being used as fill or in the trench.

3. Soil classification A-7 and A-8, per AASHTO M-145, shall not be used as fill, pipe bedding, or backfill.

B. Structural Fill

1. Structural fill in trenches shall be used below spread footing foundations, slab-on-grade floors and other structures as backfill within three feet of the below grade portions of structures.
2. Structural fill material shall be a minimum of 60 percent clean sand of either soil classification A-1, A-2, or A-3, per AASHTO M-145; and shall be free of organic matter, lumps of clay or marl, muck, deleterious and/or compressible materials, and rock in excess of 2-1/2" in diameter. Broken concrete, masonry, rubble or other similar materials shall not be used as backfill.

C. Common Fill

1. Common fill material shall be either soil classification A-1, A-2, A-3, A-4, A-5, or A-6 per AASHTO M-145, and shall be free from organic matter, lumps of clay, muck or marl, compressible materials, and rock exceeding 2-1/2" in diameter. Common fill shall not contain broken concrete, masonry, rubble or other similar materials. Existing soil may be used to adjust grades over the site with the exception of the construction area.
2. Material falling within the above specification, encountered during the excavation, may be stored in segregated stockpiles for reuse. All material which, in the opinion of the County, is not suitable for reuse shall be spoiled as specified herein for disposal of unsuitable materials by the Contractor.

D. Crushed Stone

1. Crushed stone may be used for pipe bedding, manhole bases, as a drainage layer below structures with underdrains and at other locations indicated on the Drawings.
2. Crushed stone shall be size No. 57 with gradation as noted in Table 1 of Section 901 of Florida Department of Transportation, Construction of Roads and Bridges.

PART 3 EXECUTION

3.01 EXCAVATION

- A. Excavate to the elevations indicated on the construction drawings. Take special care to avoid over-excavating or disturbing the bottom of a trench or pit, so that the soil at the bottom of the hole remains in a naturally compacted condition. Excavate to widths sufficient to provide adequate working room to install the required structures. Do not excavate the final layer of soil to the designed grade until just before placing the bedding, foundation, pipe, structure, or masonry work required. Remove boulders, rocks, logs or any unforeseen obstacles encountered.
- B. In case the foundation soil found at the bottom of the trench or pit is soft, plastic or mucky, or does not conform to the soils classification specified as suitable foundation material, over-

excavation to a greater depth will be required. Soils not meeting the classification required for foundation material shall be removed to a depth at least four inches below the bottom of the pipe, bedding or structure bottom elevation. Rock, boulders or other hard or lumpy material shall be removed to a depth 6 inches below the bottom of the pipe, bedding or structure bottom elevation. Remove muck, clay or other soft material to a depth as needed to establish a firm foundation.

- C. Where possible, the sides of trenches should be vertical up to at least the spring line of the installed pipe or conduit.
- D. Trench excavation shall be performed in accordance with Florida Statute Title XXXIII, Chapter 553, Part III, Trench Safety Act.

3.02 BACKFILLING

- A. Backfill materials shall be placed on solid, firm, naturally compacted or compacted, dry or dewatered in-place soil foundations.
- B. Bedding materials shall be placed on solid, firm soil foundations and shall be compacted to a density approximately the same as the natural material into which the trench or pit was cut.
- C. Concrete and masonry structures shall be backfilled using Structural Fill. Backfilling and compaction shall be carried up evenly on all walls of an individual structure simultaneously. The maximum allowable difference in backfill elevations shall be two feet. No backfilling shall be allowed against concrete or masonry walls until the walls and their supporting slabs have been in place at least seven days or until the specified 28-day strength has been attained. Compaction of Structural Fill shall be 98 percent of the maximum dry density of the material as determined by AASHTO T-180. The Structural Fill shall be either dried or shall have water added so that the moisture content of the material is within a range that will allow the required density to be achieved.
- D. Trenching backfill for pipe or conduit installation shall be Common Fill for the pipe bedding zone. The pipe bedding envelope shall begin at the level four inches, six inches, or nine inches, depending on pipe diameter, below the bottom of the pipe, and shall extend vertically up to a level 12 inches above the top of the pipe. Where the in-place soil material within the four inch, six inch, or nine inch pipe bedding zone beneath the bottom of the pipe meets the soil classification for Common Fill, undercutting of the trench below the bottom of the pipe will not be required. In this case, loosen the soil in the bottom of the trench immediately below the middle third of the pipe diameter, and place the pipe upon it. Where the in-place soil material within the pipe bedding zone does not meet the soil classification for Common Fill, undercutting shall be required, and the bedding zone shall be backfilled with Crushed Stone. In this case, place the pipe bedding material and leave it in a moderately firm uncompacted condition under the middle third of the pipe diameter, and compact the outer portions of the trench bottom to 98 percent of the maximum dry density. Soils that were over-excavated due to rocky, soft or otherwise unsuitable soil foundation conditions shall also be replaced with Common Fill. Compaction of Common Fill shall be 98 percent of the maximum dry density as determined by

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AASHTO T-180. Such backfill material shall have an optimized moisture content that will allow the required density to be achieved.

- E. Pipe sections for gravity flow systems shall be laid with spigots downstream and bells upstream. Excavate for pipe bells before laying pipe. Lay pipe true to the lines and grades indicated on the construction plans. Place backfill material on both sides of the pipe and compact. Take special care to effect the filling and compaction of material in the haunch areas under the sides of the pipe.
- F. For pipes that are not installed under roadways or driveways, trenching backfill for pipe installation shall be Common Fill above the pipe envelope zone, and shall be compacted to 90 percent of the maximum dry density of the material as determined by AASHTO T-180, and shall have moisture content optimized to allow the required density. For pipes that are installed under roadways or driveways, trenching backfill for pipe installation shall be Selected Common Fill above the pipe envelope zone, and shall be compacted to 98 percent of the maximum dry density of the material as determined by AASHTO T-180, and shall have moisture content optimized to allow the required density. Selected Common Backfill shall be placed in layers not to exceed 6 inches. Common Backfill shall be placed in layers not to exceed 12 inches.
- G. Backfill compaction tests shall be performed every 300 feet in pipe line trenches that will not be located in pavement areas, every 100 feet in pipe line trenches that are to be located under pavement (but not less than 2 tests for each section of pipe under pavement), and for every utility structure. Test reports shall be presented to the County Inspector; and the Contractor shall deliver a copy of test reports to the Engineer. Backfill compaction testing will not be required for pipelines designated as temporary on the plans.

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 County.

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 County.
- 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 County. 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 County.
- C. Temporary sedimentation controls include, but are not limited to: silt dams, traps, barriers, and appurtenances at the top or foot of sloped surfaces, including top of bank for stormwater retention areas, which shall ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the County.
- 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. Florida 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 County.
- B. Bahia sod.

2.02 SEDIMENTATION CONTROL

- A. .Netting - fabricated of material acceptable to the County.
- 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. Remove large clods, rock, stumps, roots larger than 1/2 inch in diameter and debris.
 - 2. Place sod over prepared surface.
 - 3. Roll and water grassed areas in a manner which will encourage growing of grass.

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 barriers 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 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 County.

1.02 RELATED WORK NOT INCLUDED

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. 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 County 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.
- B. 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 County.

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

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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 County in accordance with Florida Department of Transportation, Specifications Section 575 and 981. The Contractor shall furnish Bahia grass sod or match existing sod. Existing grass shall be the intended predominate grass type as determined by the County. 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.
- 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 County. 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.

Water recovered from the ASR well shall not be used for watering and maintaining grassed or landscaped areas.

PART 3 EXECUTION

3.01 INSTALLATION

- A. When the ground to be seeded or sodded has stabilized sufficiently, the Contractor shall commence work on lawns and grassed areas, including fine grading as necessary and as directed by the County.
- 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 County 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 County shall be repaired by the Contractor as directed by the County.
- D. Grassed areas disturbed by rutting of vehicle tire tracks shall be regraded and restored by Contractor with sod at no additional cost to the County.

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

- A. Any existing landscape items damaged or altered during construction by the Contractor shall be restored or replaced as directed by the County.
- B. Maintain landscape work for a period of 90 days immediately following complete installation of work or until County 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 County.

3.04 REPAIRS TO LAWN AREAS DISTURBED BY CONTRACTOR'S OPERATORS

- A. 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.
- B. Lawn areas damaged by wheel ruts formed by the Contractor's or his sub-contractor's vehicles shall be repaired at once by proper soil preparation, fertilizing and sodding, in accordance with these Specifications, and to limits satisfactory to the County.

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 in pavement areas.

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, specified herein, or published in applicable requirements 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 98% 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 trenches shall neither be disturbed nor 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 County.

3.02 PAVEMENT REPAIR AND REPLACEMENT

- A. The Contractor shall repair, to meet or exceed original surface material, all existing concrete or asphaltic pavement, driveways, or sidewalks 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 asphaltic concrete repairs shall be in accordance with the Manatee County Public Works Standards, Part I Utilities Standards Manual, Detail UG-12. The 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. The existing asphalt beyond the excavation or damaged section shall be milled 25' back from the saw cut. Final overlay shall match existing with no discernable "bump" at joint.

3.03 MISCELLANEOUS RESTORATION

Concrete sidewalks or driveways cut or damaged by construction shall be restored in full sections or blocks to a minimum thickness of four inches for sidewalks and six inches for driveways (or sidewalks across driveways). 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 or new ASR well pump 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 or siltation caused by construction operations.

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 02603 DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required to install ductile iron piping system, complete, as shown on the Drawings and specified herein.
- B. Provide and install complete all fittings and appurtenances not noted specifically on the construction plans but are required to properly complete the piping system in accordance with the Drawings and specified herein.
- C. Newly installed pipe shall be kept clean and free of all foreign matter.

1.02 SUBMITTALS

- A. The Contractor shall submit to the Engineer, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all ductile iron pipe and fittings.
- B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Above ground ductile iron pipe shall conform to ANSI/AWWA C115/A21.51 and shall be Special Thickness Class 53. All pipe materials used in potable water or reclaimed water systems shall comply with NSF Standard 61. All ductile iron pipe shall be clearly marked on the outside of the barrel to readily identify it from cast iron. Pipe shall be as manufactured by the American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, or an approved equal.
- B. Flanges shall be ductile iron, flat face that conform to the drilling and facing of ANSI B16.1 Class 125.
- C. All flanged fittings shall be pressure rated for 250 psi for all sizes. All fittings shall be ductile iron and meet the requirements of AWWA C110.
- D. Rubber gaskets for flanges shall be full face and shall be Ethylene Propylene Diene Monomer (EPDM) rubber for potable water and reclaimed water pipelines.
- E. Pipe and Fitting Linings and Coatings: All ductile iron pipe shall be provided with the protective lining and coating system called for on the construction plans. Above ground piping shall be coated in the factory with primer compatible with the protective coating system called for on the construction plans.

- G. Flange coupling adapters shall be fusion-bonded epoxy coated carbon steel with Ethylene Propylene Diene Monomer (EPDM) rubber gaskets and type 316 stainless steel nuts, bolts and spacers. Each flange coupling adapter shall be provided with type 316 stainless steel thrust ties and anchors.

PART 3 EXECUTION

3.01 IDENTIFICATION

- A. Each length of pipe and each fitting shall be marked with the name of the manufacturer, size and class, lining type, and shall be clearly identified as ductile iron pipe. All gaskets shall be marked with the name of the manufacturer and size.
- B. Above ground pipe and appurtenances shall be painted to match color of adjoining pipe.

3.02 HANDLING AND STORAGE

- A. Prior to installation, all pipe and fittings shall be inspected. Cracked, broken or otherwise defective materials not in conformance with the specifications or Manatee County Public Works Standards shall not be used and shall be removed from the project site.
- B. The pipeline installer shall take care in the handling, storage and installation of the pipe and fittings to prevent injury to the materials or coatings. Use proper implements, tools and facilities for the safe and proper protection of the work. Lower the pipe and fittings from the truck to the ground and from the ground into position in the new pipe system in a manner to avoid any physical damages. Under no circumstances shall the pipe or fittings be dropped onto the ground.

3.03 CLEANING

- A. The interior of pipe, fittings, valves and other appurtenances shall be thoroughly cleaned of all dirt, debris and obstructions before being incorporated into new work. All pipes shall be kept clean during and after installation and shall be protected from dirt or foreign matter entering the pipe at all times. All open pipe ends shall be securely plugged or capped water-tight when construction stops during the day, or during lunch, or overnight or during longer periods of inactivity.

3.03 INSTALLATION

- A. Pipe, fittings, valves, and other appurtenances shall be installed in accordance with the manufacturer's written installation instructions.
- B. Lay all pipe true to the lines and grades indicated on the construction drawings.
- C. Joining of pipe sections shall be done in strict accordance with the pipe manufacturer's written instructions.

- D. When cutting or machining pipe in the field is necessary, the pipe installer shall use only the tools and methods recommended by the manufacturer in the written instructions. Care shall be taken to not damage the pipe coating or linings. Damage to linings shall be cause for rejections of the complete section of pipe, or for the rejection of a fitting or valve. Damage to exterior coatings shall be corrected to the original standard material specification.

END OF SECTION

SECTION 02604 POLYETHYLENE (HDPE) PIPE AND FITTINGS

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install high density polyethylene (HDPE) tubing, fittings and appurtenances as shown on the Contract Drawings and specified in the Contract Documents.
- B. Newly installed pipe shall be kept clean and free of all foreign matter & gouges.
- C. All pipe shall be correctly color coded / identified.

1.02 SUBMITTALS

- A. The Contractor shall submit to the Engineer, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all polyethylene tubing and fittings.
- B. The Contractor shall submit the pipe manufacturer's certification of compliance with the applicable sections of the Specifications.
- C. The Contractor shall submit shop drawings showing installation method and the proposed method and specialized equipment to be used.

PART 2 PRODUCTS

2.01 PIPE

- A. Polyethylene tubing 3 inches in diameter and smaller for wastewater force mains shall be high-density PE 4710 polyethylene, per ASTM D3350, Pressure Class 200, DR 11 (pressure class 138, DR 15.5 when designated on plans as temporary pipeline), iron pipe size (IPS) outside diameter, Charter Plastics PE 4710 IPS or an approved equal, meeting the requirements of ASTM D 3035 and AWWA C901.

2.02 JOINTS

- A. Where HDPE pipe is joined to HDPE pipe, fusion and mechanical connections are allowed; chemical (solvents, epoxies, etc.) are not allowed. Thermal fusion shall be accomplished in accordance with the written instructions of the pipe manufacturer and fusion equipment supplier. The installer of the thermal butt fused PE pipe shall have received training in heat fusion pipe joining methods and shall have had experience in performing this type of work.

- B. Connections less than 4-inch diameter shall be made using stainless steel connection fittings or couplings. Use with stainless steel insert stiffeners.

PART 3 EXECUTION

3.01 IDENTIFICATION

- A. Pipe and tubing shall bear identification markings in accordance with AWWA C906 or C901.
- B. Pipe shall be color coded blue for water, purple (Pantone purple 522 C) for reclaimed water or green for pressure sewer using a solid pipe color or embedded colored stripes. Where stripes are used, there shall be a minimum of three stripes equally spaced.

END OF SECTION

SECTION 02606 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install the PVC piping, ductile iron fittings, joint restraint and other appurtenances complete and ready for use as specified in the Contract Documents.
- B. Provide and install complete all fittings and appurtenances not noted specifically on the construction plans as required, to complete the temporary pipelines in accordance with the Manatee County Public Works Standards.

1.02 SUBMITTALS

- A. The Contractor shall submit shop drawings to the Engineer including, but not limited to, dimensions and technical specifications for all piping.
- B. The Contractor shall submit and shall comply with pipe manufacturer's recommendation for handling, storing and installing pipe and fittings.
- C. The Contractor shall submit pipe manufacturer's certification of compliance with these Specifications, including for pipe used for reclaimed water mains, a copy of NSF lab certification.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pressure Class-Rated Polyvinyl Chloride (PVC) Pipe
 - 1. Polyvinyl chloride (PVC) pressure pipe, 4 to 12 inches in diameter, shall be Class 235, DR 18, meeting the requirements of AWWA C900 and shall have cast-iron pipe-equivalent (CI) outside diameters (also known as ductile iron pipe size (DIPS)). Each length of pipe shall be hydrostatically tested to four times its pressure class of the pipe by the manufacturer in accordance with AWWA C900.
 - 2. Polyvinyl chloride (PVC) pressure pipe, 14 to 36 inches in diameter, shall be ductile-iron-pipe-size (DIPS) outside diameter and shall meet the requirements of AWWA C905. PVC pipe shall not be used for potable and reclaim waterlines 16 inches and larger. Pipe used in water and reclaimed water service shall be DR 18 and Pressure Class 235. Pipe used in sewer force mains shall be DR 21 and Pressure Class 200. Each length of pipe shall be hydrostatically tested at twice its pressure class in accordance with AWWA C905. Pipe shall be furnished in standard lengths of approximately 20 feet.
 - 3. Polyvinyl chloride (PVC) pressure pipe, 2 to 3 inches in diameter, shall be Pressure Rated 200, SDR 21, conforming to ASTM D 2241, and shall have Iron Pipe Size (IPS) outside

diameters. SDR 21 PVC pipe 2 to 3 inches in diameter shall not be used for working pressures greater than 125 psi. PVC pipe shall not be used in applications which require pipes that are less than 2 inches in diameter for wastewater force mains. PVC pipe shall not be used in applications which require pipes that are less than 3 inches in diameter for potable water piping and reclaimed water piping.

B. Joints

1. Standard PVC pressure pipe joints shall be bell and spigot push-on type with elastomeric ring seals. Ring seal gaskets used at push-on joints shall conform to ASTM F477 and shall be SBR rubber for potable and reclaimed water pipes.
2. Lubricant furnished for lubricating the push-on joints in potable water pipes shall be nontoxic, water soluble, shall not support the growth of bacteria, shall have no deteriorating effects on the gasket or pipe material, and shall not impart color, taste, or odor to the water, and shall be an approved substance per NSF 61.
3. Thrust restraint devices shall be provided at all horizontal and vertical bends and fittings, in casings under roads and railroads and at other locations as indicated on the construction drawings. Thrust restraint devices for PVC pipe and fittings shall be restraining glands as manufactured by Star Pipe Products Stargrip 4000 series, Sigma Corp. One-Lok Series D-SLCE, or as manufactured by EBAA Iron Sales Megaflange 2000PV, or other approved equal restraining gland products.
4. Restrained joints for PVC pipe shall be split-casing mechanical restraint devices as manufactured by Star Pipe Products series 1100G2C, Sigma Corp. PV-LOK Series D-PWP, Ford Meter Box Co. series UFR1390-C, or other approved equal joint restraint product. All above ground joints of the above ground temporary piping shall be restrained.
5. All thrust restraint and joint restraint products shall have a factory applied high performance coating on steel and ductile surfaces; and shall be provided with type 316 stainless steel hardware, bolts, and connecting rods throughout.

C. All fittings for PVC pipe shall be ductile iron with mechanical joints and shall conform to AWWA C110 or AWWA C153 and to the applicable sections of these Specifications for ductile iron fittings.

D. Standard double bell couplings will not be accepted where the pipe will slip completely through the coupling.

E. All pipe materials used in potable water or reclaimed water systems shall comply with NSF Standard 61.

PART 3 EXECUTION

3.01 IDENTIFICATION

- A. PVC pipe shall bear the NSF mark indicating pipe size, manufacturer's names, AWWA and/or ASTM Specification number, working pressure, and production code.
- B. PVC pipe shall be color coded blue for water, purple (Pantone purple 522C) for reclaimed water or green for pressure sewer using a solid pipe color pigment.

ASR WELL AT SSWRF INFRASTRUCTURE REFURBISHMENT

END OF SECTION

SECTION 02608 TESTING AND INSPECTIONS

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall give timely notice to the County Inspector of approvals or observations which may be required, and a time and date for a field visit shall be scheduled. Provide all materials, equipment, supplies and labor as required to complete the testing or inspection operations. Should any test fail, the causes of failure shall be corrected, and the work shall be retested until all test requirements have been successfully met.
- B. Field tests or observations which require the presence of a County Inspector shall be scheduled on week days during normal working hours. A minimum of two full days' notice, not counting weekends, shall be provided to the inspector in advance of when the test is to be conducted. Any requests for emergency test scheduling must be made in writing, stating why the test should be scheduled ahead of tests for other jobs.
- C. Contractor and County Inspector shall be present for all testing.
- D. The Contractor shall prepare a report of each test that describes test made and the results. The report shall be presented to the County Inspector upon completion of the test. The Contractor shall have a copy of all test reports delivered to the Engineer of Record.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PIPELINE INSPECTIONS

- A. During the County Inspector's routine inspections of construction, the County Inspector shall observe that the pipe interior, fittings, valves and other appurtenances are thoroughly cleaned of all dirt, debris and obstructions incorporated into the existing piping system; and that the interior of all pipelines are kept clean during and after installation; and that all open pipe ends are securely plugged or capped water-tight when construction stops during the day, or during lunch, or overnight or during long periods of inactivity.

3.02 COMPACTION TESTING

- A. When backfilling of an excavation is needed in a location that the County has determined will require compaction testing, the Contractor shall arrange with Testing Laboratory to perform the tests.

3.03 MATERIALS CLASSIFICATION

- A. Soils and soil-aggregate mixtures used as backfill materials shall be identified according to the AASHTO system, designation M-145.

3.04 HYDROSTATIC TESTING OF PRESSURE PIPELINES

- A. After completing installation of the new pipe system, the new pipe shall be tested hydrostatically for leakage.
- B. The County Inspector shall have been notified and shall be present during hydrostatic testing procedures.
- C. Contractor shall provide a written hydrostatic test plan to County and Engineer at least two weeks prior to performing the hydrostatic testing. Plan shall be reviewed with the County and Engineer.
- D. During hydrostatic testing, ASR wellhead valves shall be closed to prevent test water from entering the well. Water used for testing shall be discharged to North Storage Pond. Contractor may install small tap on new piping to pressurize line and measure water pressure. After the hydrostatic test has been successfully completed, the tap shall be closed and plugged with stainless steel stop.
- E. Conduct the hydrostatic test at pressure and for duration noted on the construction plans. The water supply, and the water supply pump, shall be disconnected during the test. The test pressure shall not fall below the minimum pressure specified during the test.
- F. Any visible leakage shall be corrected, and the pipe segment retested.
- G. Any damaged or defective pipeline components that are discovered after the hydrostatic testing shall be repaired or replaced with standard materials, and the test shall be repeated until a satisfactory test result is achieved. Any modifications to the new pipeline made after a successful hydrostatic test has been performed shall be cause for a new hydrostatic test of the same pipeline to be performed again.
- H. No pipeline installation shall be accepted if the test pressure at the start of the test is not maintained for the specified test duration. In the event of a failed test result, locate all leaks and make repairs or replacements as required, and retest the pipeline until pressure is maintained constant and without any discernable leaks.
- I. When the test has been completed successfully, blow off the pressure from the opposite end of the line from the water supply connection, to demonstrate the limits of the length of pipeline subjected to testing.

3.05 TRACER WIRE

- A. Prior to acceptance by County of buried pipe installed with a tracer wire, the Contractor shall demonstrate that the locator tracer wire functions properly. The Contractor shall use one of several commercially available utility locating instruments to energize and trace the locator wire for continuity. Direct signal locate method shall directly apply the current from the transmitter to the tracer wire and

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the signal shall be detected and followed with a receiver. Submit to the County Inspector for approval the method and equipment to be used. Testing of the locator wire shall be done prior to or concurrent with the hydrostatic pressure test.

END OF SECTION

SECTION 02609 INSTALLATION OF WATER SYSTEM PIPE

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall furnish and install pipe, fittings, valves, other appurtenances and all incidentals complete and of the size, material, and location shown by the construction Drawings.

PART 2 PRODUCTS

2.01 TRACER WIRE

- A. Tracer wire shall be continuous No. 10 gauge solid copper wire with minimum 30-mils polyethylene insulation rated UF or USE by Underwriter's Laboratories. The plastic wire insulation shall be color coded blue (water), Pantone purple 522 C (reclaimed water) or green (sanitary sewer). The wire shall be laid on top of the pipe and secured in place at every joint and at 5-foot intervals.
- B. Spliced tracer wire connections shall be underground wire connectors meeting UL 486D test standards, as DryConn Direct Bury Lug Aqua or equivalent.

2.02 WARNING TAPE

- A. Buried warning tape shall be colored green (sewer), blue (water), or Pantone purple 522C (reclaimed water) on top and be boldly labeled every eighteen to thirty-two (18-32) inches as follows "CAUTION POTABLE WATER LINE BURIED BELOW", "CAUTION WASTEWATER LINE BURIED BELOW", OR "CAUTION RECLAIMED WATER LINE BURIED BELOW". The tape shall have a tensile strength of no less than 4,000 psi, a dart impact strength of no less than 120 grams per 1.5 mils, be no less than 0.0055-inch thick. The tape shall be designed to last as long as the pipe it is installed over, even in adverse soils.

2.03 THRUST RESTRAINT

- A. Temporary pipelines installed above ground shall be provided with thrust restraint devices to hold the pipeline in place. Devices shall be either cast-in-place concrete blocks, precast concrete blocks, or other approved restraining devices. Cast-in-place concrete shall have a minimum 28-day strength of 2,800 psi. Concrete thrust restraint devices shall be attached to pipe with galvanized steel straps.

2.04 PAINT

- A. Unless otherwise shown on the drawings, metal and ductile iron piping and accessories shall be painted with the following system:

1. Factory applied epoxy primer for ferrous metal:
 - a. Anticorrosive, converted epoxy primer containing rust-inhibitive pigments.
 - b. 1 coat, 2.5 mils minimum dry film thickness (MDFT).
- B. First coat: High build epoxy
 1. Polyamidoamine epoxy, minimum 69 percent volume solids, capability of 4 to 8 MDFT per coat.
 2. 1 coat, 4 MDFT.
- C. Second coat: Polyurethane enamel
 1. Two-component, aliphatic or acrylic based polyurethane, high gloss finish.
 2. 1 coat, 3 MDFT.

PART 3 EXECUTION

3.01 HANDLING AND STORAGE

- A. Prior to installation, all pipe and fittings shall be inspected. Cracked, broken or otherwise defective materials not in conformance with the specifications or Manatee County Public Works Standards shall not be used and shall be removed from the project site.
- B. The pipeline installer shall take care in the handling, storage and installation of the pipe and fittings to prevent injury to the materials or coatings. Use proper implements, tools and facilities for the safe and proper protection of the work. Lower the pipe and fittings from the truck to the ground and from the ground into the trench in a manner to avoid any physical damages. Under no circumstances shall the pipe or fittings be dropped onto the ground or into the trenches.
- C. The pipeline installer shall not distribute material on the job site faster that it can be used to good advantage.

3.02 CLEANING

- A. The interior of pipe, fittings, valves and other appurtenances shall be thoroughly cleaned of all dirt, debris and obstructions before being incorporated into the work. All pipelines shall be kept clean during and after installation and shall be protected from dirt or foreign matter entering the pipe at all times. All open pipe ends shall be securely plugged or capped water-tight when construction stops during the day, or during lunch, or overnight or during longer periods of inactivity.

3.03 INSTALLATION

- A. Pipe, fittings, valves, and other appurtenances shall be installed in accordance with the manufacturer's written installation instructions and with the provisions of "Recommended Standards for Water Works" report as incorporated by reference by Chapter 62-555, F.A.C., and with the provisions of "Recommended Standards for Wastewater Facilities" report as incorporated by reference in Chapter 62-604, F.A.C.

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- B. Lay all temporary pipelines with a minimum number of bends and deflections at joints not exceeding 50% of pipe manufacturer's recommended maximum joint deflection for the pipe size installed. Provide mechanical joint bends or suitable fitting to make alignment adjustments exceeding joint deflection limitation. Pipe sections shall be laid in full contact with the prepared ground below the pipe, with bell holes dug out, to provide a continuous and uniform bearing and support for the pipe barrel between joints. Blocking under the pipe shall not be permitted (except through casing sleeves).
- C. Pipe alignment shall be reviewed with, and approved by, the County Inspector prior to beginning pipe installation. The selected alignment shall minimize interference with other site operations; not obstruct access to nearby equipment or electrical panels; afford maximum protection to above ground pipe from mowing or vehicular traffic; and not be located inside wetland or stormwater retention areas.
- D. Joining of pipe sections shall be done in strict accordance with the pipe manufacturer's written instructions. The joining surfaces of the bell and spigot and the rubber seal ring shall be thoroughly cleaned and lubricated immediately prior to joining the pipe per the written instructions. After the joint has been made, the pipe alignment shall be checked. All joints of temporary pipeline segments shall be restrained.
- E. When cutting or machining pipe in the field is necessary, the pipe installer shall use only the tools and methods recommended by the manufacturer in the written instructions. Care shall be taken to not damage the pipe coating or linings. Damage to linings shall be cause for rejections of the complete section of pipe, or for the rejection of a fitting or valve. Damage to exterior coatings shall be corrected to the original standard material specification.
- F. Thrust restraint devices shall be placed at bends and at regular intervals along temporary above ground pipelines. Contractor shall provide and install a sufficient number of adequately sized restraint devices to effectively restrain pipe movement when pressure flow through pipe is either initiated or stopped. The restraint devices shall also be placed to limit sideways movement of the pipeline. These restraint devices are in addition to the joint restraint devices.
- G. All pressure water, reclaimed water and force main sewer pipelines laid in trenches shall have a tracer wire attached to the pipe.
- H. Trenching, backfilling and compaction for the newly laid pipelines shall be accomplished in accordance with Section 02222, Trenching, Bedding and Backfill.
- I. All pressure mains which are installed by the open-trench method, regardless of piping material, shall also include the installation of a warning tape buried directly over the pipe continuously. Pipe shall have the warning tape of the proper color placed directly above the pipe 6 to 12 inches below finished grade.
- J. Underground tracer wire splice connections shall be minimized and shall be rated for direct burial service. The wire shall terminate with a wire nut inside a Contractor provided meter box or valve box. There shall be at least 12 inches of wire looped into the boxes. The looped termination shall allow for the connection of an electronic locator transmitter.

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- K. With the County Inspector present, new pipelines constructed by this project with diameters greater than or equal to 6 inches shall be pigged then flushed. New pipelines with diameters smaller than 6 inches shall be either flushed, or pigged and then flushed, to clean all parts of the system and to remove any accumulation of construction debris, rocks, sand, gravel, silt and other foreign material. **FLUSHING WATER SHALL NOT BE DISCHARGED INTO THE ASR WELL.**
- L. Prior to construction of new pipelines, the Contractor shall propose a flushing/pigging plan to the County Inspector showing on the drawings each location where each pig will be placed in the pipe, each location that the pig will be retrieved, and where flushing water will be discharged. A pig recommended by the pipe manufacturer for the type of pipe installed, shall run through pipes greater than or equal to 6 inches. Inspectors must be notified 48 hours in advance of any pigging and flushing operations. Short pipe lengths (i.e. stubs) may be flushed without pigs with prior approval from County. For flushing, a minimum velocity of at least 3.0 ft/sec, preferably 3.5 ft/sec, shall be obtained in the pipe. This velocity shall be maintained long enough to allow three complete pipe volume changes of water for proper flushing action. Successful flushing shall be determined visually by the County Inspector and may be deemed acceptable when the water is debris free.

END OF SECTION

SECTION 02640 VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install complete and ready for operation all valves and appurtenances as shown on the Drawings and specified herein.
- B. All valves and appurtenances shall be of the size shown on the Drawings and, to the extent possible, all equipment of the same type on the project shall be from one manufacturer.
- C. All valves and appurtenances shall have the name of the manufacturer and the working pressure for which they are designed cast in raised letters upon some appropriate part of the body.
- D. All valves and iron or steel body appurtenances shall have a factory applied, holiday free, fusion bonded epoxy coating on interior and exterior unless noted otherwise in the Drawings or this Specification.

1.02 DESCRIPTION OF SYSTEMS

- A. All of the equipment and materials specified herein are intended to be standard for use in controlling the flow of potable water, reclaim water, wastewater, etc., depending on the application.

1.03 QUALIFICATIONS

- A. All of the types of valves and appurtenances shall be products of well established reputable firms who are fully experienced and qualified in the manufacture of the particular equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable. Valves shall be as covered under mechanical devices in Section 8 of ANSI/NSF Standard 61.

1.04 SUBMITTALS

- A. The Contractor shall submit to the Engineer, within ten days after receipt of Notice to Proceed, a list of materials to be furnished, the names of the suppliers and the appropriate shop drawings for all valves and appurtenances.
- B. The Contractor shall submit valve manufacturer's O&M literature for each type of valve furnished.

1.05 TOOLS

- A. Special tools, if required for normal operation and maintenance, shall be supplied with the equipment.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. All hand actuated buried valves shall have three-piece adjustable valve boxes and 2-inch square AWWA operating nuts. Provide stainless steel extension stems and alignment rings where needed to bring the operating nut to within feet below the box lid.
- B. Water and reclaimed water system isolation valves shall be gate valves for sizes 2-inch through 12-inch and shall be butterfly valves for sizes 16-inch and larger.
- C. Valves shall open when turning the operating nut or wheel counterclockwise and shall close when turning clockwise.
- D. All bonnet bolts, gland bolts, flange connection bolts, nuts, washers, and other trim hardware exposed to the outside environment shall be stainless steel. Thrust collar tie-rod bolts shall be stainless steel. All underground bolts, nuts, and washers shall be COR-TEN or stainless steel.
- E. Pipe and Fitting Linings and Coatings: All ductile iron pipe shall be provided with the protective lining and coating system called for on the construction plans. Above ground piping shall be coated in the factory with primer compatible with the protective coating system called for on the construction plans.

2.02 GATE VALVES

- A. Gate valves installed underground shall be provided with a cast or ductile iron, three-piece valve box cast in concrete pad and a bronze tag disk.
- B. Gate valves 4-inches to 14 inches in diameter shall be resilient seat, manufactured to meet or exceed the requirements of AWWA C509 or AWWA C515 and shall be UL listed and FM approved where applicable. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.
- C. The valves shall have a non-rising stainless steel stem to eliminate lead content. All bolts, nuts and washers shall be stainless steel. Manufacturer shall use Never-Seez or equivalent during assembly of bolt and nut sets to prevent galling of similar metals. Stem seals shall be provided and shall be of the O-ring type, two above and one below the thrust collar. Valves that are located above grade and located in valve vaults shall be OS&Y with flanged joints.
- D. The wedge shall be ductile iron fully encapsulated with an EPDM rubber. The elastomer type shall be permanently indicated on the disc or body of the valve. The resilient sealing mechanism shall provide zero leakage at the water working pressure when installed with the line flow in either direction.

2.03 BALL VALVES

- A. Ball valves for water and reclaimed water, in sizes ¾ -inch through 2-inch, shall be brass body, stem and ball per ASTM B 62, alloy 85-5-5-5, full port, full flow, 1/4-turn. When indicated on the plans, stainless steel ball valves shall be type 316 stainless steel body, cap, stem and ball per ASTM A351, full port, full flow, ¼-turn, Apollo 76F or approved equal, with threaded ends as required.
- B. All valves shall be mounted in such a position that valve position indicators are plainly visible. Above grade ball valves shall have a vinyl coated lever handle. Lever handle, handle nut, and lever packing gland shall be 304 or 316 stainless steel.

2.04 BUTTERFLY VALVES

- A. Butterfly valves shall conform to AWWA C504, Class 250 B, Mueller Lineseal XP11, DeZurik AWWA, Pratt HP-25011, or an approved equal. Ductile iron conforming to ASTM A536, Grade 65-45-12 shall be provided. All valves shall be leak tested at 200 psi. Leak-tight in both directions.
- B. The face-to-face dimensions of flanged end valves shall be in accordance with Table 1 of above mentioned AWWA Specification for short-body valve. Adequate two-way thrust bearings shall be provided. Flange drilling shall be in accordance with ANSI B16.1.
- C. Valve seats shall be an EPDM elastomer. Valve seats 24 inches and larger shall be field adjustable and replaceable without dismounting operator disc or shaft and without removing the valve from the line. All retaining segments and adjusting devices shall be of corrosion resistant material with stainless steel Nylock screws and be capable of the 1/8-inch adjustment. Valves 20 inches and smaller shall have bonded or mechanically restrained seats as outlined in AWWA C504. Where the EPDM seat is mounted on the valve body, the mating edge of the valve disc shall be 18-8 stainless steel or Nickel-Chrome, 80-20 percent. Where the EPDM seat is mounted on the valve disc, the valve body shall be fitted with an 18-8 stainless steel seat offset from the shaft, mechanically restrained and covering 360 degrees of the peripheral opening or seating surface.
- D. The valve body shall be constructed of ductile iron or close grain cast iron per ASTM A126, Class B with integrally cast hubs for shaft bearing housings of the through boss-type.
- E. The valve shaft shall be turned, ground, and polished constructed of 18-8, ASTM A276, Type 304 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greatest dynamic or seating torque. Shaft shall be of either a one piece unit extending full size through the valve disk and valve bearing or it may be of a stub shaft design. Shaft bearings shall be Teflon or nylon, self-lubricated type.
- F. All valves shall be subject to hydrostatic and leakage tests at the point of manufacture. They hydrostatic test shall be performed with an internal hydrostatic pressure equal to 500 psi applied to the inside of the valve body of each valve for a period of five minutes. During the hydrostatic test, there shall be no leakage through the metal, the end joints or the valve shaft seal. The leakage test shall be performed at a differential pressure of 250 psi and against both sides of the valve. No adjustment of the valve disc shall be necessary after pressure test for normal operation of valve.

- G. Butterfly valve actuators shall conform to AWWA C504. Gearing for the actuators shall be totally enclosed in a gear case. Actuators shall be capable of seating and unseating the disc against the full design pressure and shall transmit a minimum torque to the valve. Actuators shall be rigidly attached to the valve body.

2.05 MANUAL ACTUATORS

- A. Manual actuators shall have a permanently lubricated, totally enclosed gearing and handwheel and gear ratio sized on the basis of actual line pressure and velocities. Actuators shall be equipped with handwheel, position indicator, and mechanical stop-limiting locking devices to prevent over travel of the disc in the open and closed positions. They shall turn counter-clockwise to open valves. Manual actuators shall be of the traveling nut, self-locking type and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators shall be fully enclosed and designed to produce the specified torque with a maximum pull of 80 pounds on the handwheel. Actuator components shall withstand an input of 450-foot pounds for 30 inches and smaller size valves at extreme actuator positions without damage. Valves located above grade shall have handwheel and position indicator, and valves located below grade shall be equipped with a 2-inch square AWWA operating nut located at ground level and cast iron extension type valve box.

2.06 AIR RELEASE VALVES

- A. Air release valves shall be slow closing air and vacuum valve arrangements which shall have two independent valves bolted together. The air and vacuum valve shall have all stainless steel float, guided on both ends with stainless steel shafts and bushings. The air and vacuum valve seat shall be Buna-N and shall be fastened to the cover with stainless shoulder screws in a manner to prevent distortion of the seat.
- B. A surge check valve shall be bolted to the inlet of the air and vacuum valve and consist of a body, seat, disc, and compression spring. The surge check unit shall operate on the interphase between the kinetic energy and relative velocity flows of air and water, so that after air passes through, and water rushes into the surge check, the disc starts to close, reducing the rate of flow of water into the air valve by means of throttling orifices in the disc to prevent water hammer in the air valves. The surge check orifices must be adjustable type for regulation in the field to suit operating conditions. Valves shall be rated for 250-pound class working pressure.

- C. Materials of construction shall conform to ASTM specifications as follows:

Air Valve Cover, Body, and Surge Check Body	Cast Iron	ASTM A48, Class 30
Float	Stainless Steel	ASTM A240
Surge Check Seat and Disc	Stainless Steel	ASTM A582
Air Valve Seat	Buna-N	
Spring	Stainless Steel	T302

2.07 VALVE BOXES

- A. Buried valves shall have adjustable cast iron or HDPE valve boxes. Lids shall be cast iron drop type, and shall have "WATER", "SEWER", or "RECLAIM", as applicable, cast into the top. Lids shall be painted "safety" blue for potable, purple for reclaimed, and green for sanitary sewer.
- B. Cast iron boxes shall be two-piece, or three-piece, as required, screw type, Tyler Pipe, 6850 Series, Box 461-S through 668-S, with extensions, as required to make the desired box length, or an approved equal. Bottom barrel shall be 5-1/4 inches inside diameter, with a flanged bottom of sufficient bearing area to prevent settling.
- C. HDPE boxes shall be two-piece, adjustable, 1/4-inch thick minimum heavy wall, high density polyethylene, with cast iron top and galvanized steel adjustable stem, Trench Adapter, as manufactured by American Flow Control, or an approved equal. Bottom barrel shall have flanged bottom to prevent settling. All bolts, screws and pins shall be stainless steel.
- D. Reclaimed valve boxes shall be square 9-inch x 9-inch load bearing marked "Reclaimed Water" and painted Pantone 522C purple.
- E. A centering device AFC part no. B 59434 or equal shall be installed in the valve box.

2.08 CHECK VALVES

- A. Check valves shall be swing type, weighted lever, conforming to AWWA C508. Valves shall be iron-body, bronze-mounted, single disk, 175 psi working pressure for 2- through 12-inch, 150 psi for 14- through 30-inch, with ANSI B16.1 Class 125 flanged ends, by Mueller; No. A-2600-6-01 (sewer), No. A-2602-6-01 (water or reclaimed water), or AVK Series 41, or an approved equal.
- B. When there is no flow through the line, the disc shall hang lightly against its seat in practically a vertical position. When open, the disk shall swing clear of the waterway.

- C. Check valves shall have bronze seat and body rings, extended bronze or stainless steel hinge pins and stainless steel nuts and bolts on bolted covers.
- D. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and weight.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All valves and appurtenances shall be installed in the location shown, true to alignment and rigidly supported. Any damage occurring to the above items before they are installed shall be repaired to the satisfaction of the County.
- B. All metal valves and appurtenances specified herein and exposed to view shall be painted.
- C. Above ground pipe and appurtenances shall be painted to match color of adjoining pipe.

END OF SECTION

SECTION 02670 ASR WELL REHABILITATION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. The Work described by the Drawings and Specifications to be performed to rehabilitate the existing ASR well shall be performed by a Florida licensed water well contractor, licensed under Chapter 62-532, F.A.C., to engage in the business of construction, modification, repair or abandonment of a well. Work performed shall be in strict conformance with all laws, rules, regulations, and standards related to the construction of wells in the State of Florida, Manatee County, and SWFWMD. All required construction permits for performing the work on and in the ASR well shall be the responsibility of and obtained by Contractor prior to initiating work on the well.
- B. Contractor shall perform all Work in a workmanlike manner by qualified personnel experienced with ASR wells. Contractor shall also furnish capable equipment to remove and install pumping equipment, for test-pumping operations, and inspection of the existing well casing and borehole as called for by the drawings and specified herein. Contractor performing the Work of this Contract shall meet the qualifications listed in Section 01005, "General Requirements."
- C. Avoid spillage of brackish water produced during rehabilitation of the ASR well. Well Contractor shall be responsible for all remediation, including additional monitoring that may be required, related to releases to the surficial aquifer caused by his personnel, equipment, and/or materials.
- D. Work Sequence shall be in accordance with the requirements described in Section 01010, "Summary of Work."

1.02 COORDINATION

- A. Well Contractor shall maintain a superintendent on-site during all work performed on the ASR well including pump removal and installation.
- B. Well Contractor shall cooperate in the coordination of its work with other work of this Contract and with other subcontractors in a manner that will provide the least interference with County's operations and other subcontractors, and in the interfacing and connection of the separate elements of the overall project work without additional costs to the County.
- C. Contractor shall provide Engineer 5 normal working days notice prior to mobilization of equipment to the ASR site. Engineer will inform FDEP and SWFWMD of the Contractor's schedule.
- D. New well pump, motor, and drop pipe shall be provided in accordance with Section 44425, Vertical Turbine Pumps, of these Specifications.

1.03 PERMITS

- A. All required construction permits for performing the work on and in the ASR well shall be the responsibility of and obtained by Well Contractor prior to initiating work on the well.
- B. Work on the ASR well shall not be allowed until all permits are obtained or written evidence is submitted to County demonstrating that the permitting agency has given permission to proceed.
- C. Well Contractor shall be responsible for complying with all provisions of the Underground Injection Control Class V, Group 3, Aquifer Storage and Recovery (ASR) Well System Construction and Testing Permit (FDEP Permit Number 039512-008-UC/5SR) related to its work on the well.

1.03 SUBMITTALS

- A. Well Contractor shall keep a daily Field Activity Report describing work performed, materials used, static water level measurements, tests performed and results, and other notes appropriate to the work performed. Copies of the activity report shall be provided daily to the Engineer and the County Inspector.
- B. Provide Shop Drawings that detail type, properties, size and materials of construction for the following products:
 - 1. Geophysical logging probe or sonde schematic for each downhole tool used.
 - 2. Drop pipe centralizers
 - 3. Salt
- C. Three field copies of each requested geophysical log shall be provided to Engineer by Well Contractor immediately upon the completion of the logging event. Five final copies of each field geophysical log, including one electronic copy in Adobe Acrobat format and LAS (Log ASCII Standard) format, shall be provided to Engineer by Contractor upon Engineer's review of field copy for such items as accuracy, scale, reproducibility, etc.

PART 2 PRODUCTS

2.01 GENERAL

- A. Well Contractor shall provide appropriate equipment for working on and in the existing ASR well. All equipment shall be in good operating condition and operated and maintained in strict conformance with manufacturer's recommendations.

2.02 LOGGING

- A. Provide a sheave or other means from which the logging subcontractor may hang geophysical and video equipment.
- B. Provide continuous digital recording geophysical logging equipment capable of running the following:

1. X-Y caliper log
2. Flow meter (with flow interpretation analysis) log
3. Video camera with rotating head or borehole televiewer

2.02 DROP PIPE CENTRALIZER

- A. Heavy duty shop fabricated stainless steel assembly designed to fit around drop pipe and position it centered within the inner casing. Four positioning bars (each 2-inch width 5/16-inch thickness minimum) shall be positioned around drop pipe at 90-degree intervals and contact inner casing for a length of 12-inches.

2.03 SALT

- A. Use food grade salt for lowering and/or maintaining the water level in the well.

PART 3 EXECUTION

3.01 HANDLING AND STORAGE

- A. Equipment shall not be shipped until approved by the County. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation.
- B. Provide substantial blocking or skids to support fabricated products off the ground and to prevent soiling or staining.
- C. Cover products subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.

3.02 CLEANUP OF CONSTRUCTION AREAS

- A. Avoid defacing of site area. Do not dump waste oil, fuel, rubbish, or other materials on the ground. Restore the site to original or better condition when work is complete.
- B. Upon leaving the site at the completion of the work, Contractor shall clean well head and pumping equipment of dirt, mud, grime, or other contaminating materials.

3.03 INSTALLATION

- A. The head on the well shall be controlled at all times and during all phases of the work. Contractor shall be prepared to kill well with salt if necessary.
- B. Notify County and Engineer five working days (Saturdays, Sundays, and Manatee County recognized holidays excepted) prior to beginning work on the well.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

- C. Take all necessary precautions to prevent contaminated water, gasoline, or other deleterious substances from entering the well, either through the wellhead opening or seepage through the ground surface.
- D. Water pumped from the existing ASR well shall not be discharged onto the ground or into the adjacent stormwater pond. All water pumped from the existing ASR well shall be discharged to the North Storage Pond.
- E. Well Contractor shall make available access to the ASR well during the work for water level measurements or for water quality sampling by County Staff when requested.
- F. Well Contractor shall obtain and record static water level each day contractor is onsite. Measurements shall be made prior to commencing other work activities of the day.
- G. Remove from the well site all removed equipment and other material removed by operations to rehabilitate the well which are required to complete the Work.
- H. Well Contractor shall be responsible for providing, installing, and maintaining all necessary tank trucks, pipe, pumps, and equipment necessary to pump water or drainage from the ASR well to the storage pond or to an FDEP-approved predetermined disposal site, in accordance with federal, state, and local regulations.
- I. Carefully disconnect existing vertical turbine pump and motor from existing well head flange and connecting piping. Completely remove pump, motor, and drop pipe from well.
- J. Purge well using temporary pumps furnished and installed by the Well Contractor. Perform geophysical logging.
- K. Install new pump, motor, and drop pipe into well. Provide and install centralizer on drop pipe just above pump bowl assembly.
- L. New pump and motor shall be energized, and proper pumping operation demonstrated before Well Contractor demobilizes from site. As part of the demonstration of proper pump installation, reclaimed water from the HSPS shall be directed into the well for not less than 24 hours, after which the wellhead shall be check for leaks and the pump energized and checked for proper operation and without there being unacceptable vibration. Should the pump not operate properly, the Well Contractor shall correct pump installation until proper operation is achieved.

3.04 GEOPHYSICAL LOGGING

- A. It is the Contractor's sole responsibility to reduce the turbidity of the water in the ASR well so that a clear video log can be obtained. No development time or standby charges will be allowed for purging the well in preparation of logging.
- B. Logging shall be performed as soon as possible after removal of existing pump and motor.

ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

- C. The logging interval shall be the total depth of the ASR well (approximately 740 feet below land surface) or less as determined by the Engineer.
- D. Provide access to the well for the purpose of water level measurements or water quality sampling as requested by the Engineer or County Inspector during geophysical logging.
- E. All logs shall be clearly labeled with all pertinent information regarding the well, location, depths, scales, etc. Repeat sections shall be run to verify logging tool performance on all logs. The repeat sections shall consist of 20 percent or the borehole length up to 200 feet in length. Engineer or his representative shall select the section of the borehole to perform the repeat section.
- F. Color Video survey of the borehole shall be recorded on DVD format. Contractor shall furnish County with a DVD of all runs, one field copy, and five copies of each survey.
- G. Regulatory agencies or other interested parties may require attendance during the geophysical logging. Contractor shall provide Engineer with two (2) working days' notice prior to logging to facilitate coordination of the logging activities.

END OF SECTION

DIVISION 3 CONCRETE

SECTION 03200 CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Reinforcing steel bars and welded steel wire fabric for cast-in-place concrete, complete with tie wire.
- B. Support chairs, bolsters, bar supports and spacers, for reinforcing.

1.02 QUALITY ASSURANCE

Perform concrete reinforcing work in accordance with ACI 318 unless specified otherwise in this Section.

1.03 REFERENCES

- A. ACI 318 - Building Code Requirements for Reinforced Concrete.
- B. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- C. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- D. CRSI 63 - Recommended practice for placing reinforcing bars.
- E. CRSI 65 - Recommended practice for placing bar supports, specifications and nomenclature.
- F. ACI 315 - American Concrete Institute - Manual of Standard Practice.

1.04 SHOP DRAWINGS

- A. Submit shop drawings in accordance with Contract Documents.
- B. Indicate bar sizes, spacings, locations and quantities of reinforcing steel and wire fabric, bending and cutting schedules and supporting and spacing devices.
- C. Manufacturer's Literature: Manufacturer's specifications and installation instructions for splice devices.

PART 2 PRODUCTS

2.01 REINFORCING

- A. Reinforcing steel: Grade 60, Minimum Yield Strength 60,000 psi, deformed billet steel bars, ASTM A615; plain finish.

- B. Welded steel wire fabric: Deformed wire, ASTM A497; smooth wire ASTM A185 in flat sheets; plain finish.

2.02 ACCESSORY MATERIALS

- A. Tie wire: Minimum 16 gauge annealed type, or patented system accepted by County.
- B. Chairs, bolsters, bar supports, spacers: Sized and shaped for strength and support of reinforcing during construction conditions.
- C. Special chairs, bolsters, bar supports, spacers (where adjacent to architectural concrete surfaces): Stainless steel type sized and shaped as required.

2.03 FABRICATION

- A. Fabricate concrete reinforcing in accordance with ACI 315.
- B. Locate reinforcing splices, not indicated on Drawings, at points of minimum stress. Location of splices shall be reviewed by County.
- C. Where indicated, weld reinforcing bars in accordance with AWS D12.1.

PART 3 EXECUTION

3.01 PLACEMENT

- A. Reinforcing shall be supported and secured against displacement. Do not deviate from true alignment.
- B. Before placing concrete, ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings which would reduce bond to concrete.

3.02 QUALITY ASSURANCE

- A. Acceptable Manufacturers: Regularly engaged in manufacture of steel bar and welded wire fabric reinforcing.
- B. Installer Qualifications: Three years experience in installation of steel bar and welded wire fabric reinforcing.
- C. Allowable Tolerances:
 - 1. Fabrication:
 - a. Sheared length: +1 in.
 - b. Depth of truss bars: +0, -1/2 in.
 - c. Stirrups, ties and spirals: $\pm 1/4$ in.
 - d. All other bends: ± 1 in.
 - 2. Placement:
 - a. Concrete cover to form surfaces: $\pm 1/4$ in.

- b. Minimum spacing between bars: 1 in.
- c. Top bars in slabs and beams:
 - (1) Members 8 in. deep or less: $\pm 1/4$ in.
 - (2) Members more than 8 in.: $\pm 1/2$ in.
- d. Crosswise of members: Spaced evenly within 2 in. of stated separation.
- e. Lengthwise of members: Plus or minus 2 in.
- 3. Maximum bar movement to avoid interference with other reinforcing steel, conduits, or embedded items: 1 bar diameter.

3.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size and length.
- B. Handle and store materials to prevent contamination.

3.04 INSTALLATION

- A. Placement:
 - 1. Bar Supports: CRSI 65.
 - 2. Reinforcing Bars: CRSI 63.
- B. Steel Adjustment:
 - 1. Move within allowable tolerances to avoid interference with other reinforcing steel, conduits, or embedded items.
 - 2. Do not move bars beyond allowable tolerances without concurrence of County.
 - 3. Do not heat, bend, or cut bars without concurrence of County.
- C. Splices:
 - 1. Lap splices: Tie securely with wire to prevent displacement of splices during placement of concrete.
 - 2. Splice devices: Install in accordance with manufacturer's written instructions.
 - 3. Do not splice bars without concurrency of County, except at locations shown on Drawings.
- D. Wire Fabric:
 - 1. Install in longest practicable length.
 - 2. Lap adjoining pieces one full mesh minimum, and lay splices with 16 gauge wire.
 - 3. Do not make end laps midway between supporting beams, or directly over beams of continuous structures.
 - 4. Offset end laps in adjacent widths to prevent continuous laps.
- E. Cleaning: Remove dirt, grease, oil, loose mill scale, excessive rust, and foreign matter that will reduce bond with concrete.
- F. Protection During Concreting: Keep reinforcing steel in proper position during concrete placement.

END OF SECTION

SECTION 03300 CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

Poured-in-place concrete slabs and pipe support cradles.

1.02 QUALITY ASSURANCE

Perform cast-in-place concrete work in accordance with ACI 318, unless specified otherwise in this Section.

1.03 TESTING LABORATORY SERVICES

- A. Inspection and testing will be performed by the testing laboratory currently under contract to Manatee County in accordance with the Contract Documents.
- B. Provide free access to work and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of work.
- D. Tests of cement and aggregates may be performed to ensure conformance with requirements stated herein.
- E. Three concrete test cylinders will be taken for every 100 cu. yds. or part thereof of each class of concrete placed each day. Smaller pours shall have cylinders taken as directed by the County.
- F. One slump test will be taken for each set of test cylinders taken.

1.04 REFERENCES

- A. ASTM C33 - Concrete Aggregates
- B. ASTM C150 - Portland Cement
- C. ACI 318 - Building Code Requirements for Reinforced Concrete
- D. ASTM C260 - Air Entraining Admixtures for Concrete
- E. ASTM C94 - Ready-Mixed Concrete
- F. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
- G. ACI 305 - Recommended Practice for Hot Weather Concreting

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

- A. Cement: Moderate-Type II, High early strength-Type III, Portland type, ASTM C150.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Water: Clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious material.

2.02 ADMIXTURES

- A. Air Entrainment: ASTM C260.
- B. Chemical: ASTM C494 Type A - water reducing admixture.

2.03 ACCEPTABLE MANUFACTURERS

Acceptable Products:

- 1. Pozzolith
- 2. WRDA

2.04 ACCESSORIES

Non-shrink grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2400 psi in 2 days and 7000 psi in 28 days.

2.05 CONCRETE MIXES

- A. Mix concrete in accordance with ASTM C94.
- B. Provide concrete of following strength:
 - 1. Required concrete strengths as determined by 28 day cylinders shall be as shown on the Drawings, but shall not be less than 3000 psi.
 - 2. Select proportions for normal weight concrete in accordance with ACI 301 3.8 Method 1, Method 2, or Method 3. Add air entraining agent to concrete to entrain air as indicated in ACI 301 Table 3.4.1.
 - 3. All mixes shall be in accordance with FDOT Specifications.
- C. Use set-retarding admixtures during hot weather only when accepted by County.
- D. Add air entraining agent to concrete mix for concrete work exposed to exterior.

2.06 FORMS

- A. Forms shall be used for all concrete masonry, including footings. Form shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions, appearance and to the elevations indicated on the Drawings.
- B. Forms shall be made of wood, metal, or other approved material. Wood forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots; where used for expose surfaces, boards shall be dressed and matched. Plywood shall be sanded smooth and fitted with tight joints between panels. Metal forms shall be of an approved type for the class of work involved and of the thickness and design required for rigid construction.
- C. Edges of all form panels in contact with concrete shall be flush within 1/32-inch and forms for plane surfaces shall be such that the concrete will be plane within 1/16-inch in four feet. Forms shall be tight to prevent the passage of mortar and water and grout.
- D. Forms for walls shall have removable panels at the bottom for cleaning, inspection and scrubbing-in of bonding paste. Forms for walls of considerable height shall be arranged with tremies and hoppers for placing concrete in a manner that will prevent segregation and accumulation of hardened concrete on the forms or reinforcement above the fresh concrete.
- E. Molding or bevels shall be placed to produce a 3/4-inch chamfer on all exposed projecting corners, unless otherwise shown on the Drawings. Similar chamfer strips shall be provided at horizontal and vertical extremities of all wall placements to produce "clean" separation between successive placements as called for on the Plans.
- F. Forms shall be sufficiently rigid to withstand vibration, to prevent displacement or sagging between supports and constructed so the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.
- G. Forms, including new pre-oiled forms, shall be oiled before reinforcement is placed, with an approved nonstaining oil or liquid form coating having a non-paraffin base.
- H. Before form material is re-used, all surfaces in contact with concrete shall be thoroughly cleaned, all damaged places repaired, all projecting nails withdrawn, all protrusions smoothed and in the case of wood forms pre-oiled.
- I. Form ties encased in concrete shall be designed so that after removal of the projecting part, no metal shall be within 1-inch of the face of the concrete. That part of the tie to be removed shall be at least 1/2-inch diameter or be provided with a wood or metal cone at least 1/2-inch in diameter and 1-inch long. Form ties in concrete exposed to view shall be the cone-washer type equal to the Richmond "Tyscru". Throughbolts or common wire shall not be used for form ties.

PART 3 EXECUTION

3.01 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304.
- B. Notify County minimum 24 hours prior to commencement of concreting operations.
- C. Verify anchors, seats, plates and other items to be cast into concrete are placed, held securely and will not cause hardship in placing concrete. Rectify same and proceed with work.
- D. Maintain records of poured concrete items. Record date, location of pour, quantity, air temperature and test samples taken.
- E. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
- F. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's recommendations.
- G. Pour concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur.
- H. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solidly with non-shrink grout.
- I. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify County upon discovery.
- J. Conform to ACI 305 when concreting during hot weather.

3.02 SCREEDING

Screed surfaces level, maintaining flatness within a maximum deviation of 1/8" in 10 feet.

3.03 PATCHING

Allow County to inspect concrete surfaces immediately upon removal of forms. Patch imperfections as directed. All patching procedures shall be submitted to and approved by the County prior to use.

3.04 DEFECTIVE CONCRETE

- A. Modify or replace concrete not conforming to required lines, details and elevations.
- B. Repair or replace concrete not properly placed resulting in excessive honeycomb and other defects. Do not patch, fill, touch-up, repair, or replace exposed architectural concrete except upon express direction of County for each individual area.

3.05 CONCRETE FINISHING

Provide concrete surfaces to be left exposed, columns, beams and joists with smooth rubbed finish.

3.06 CURING AND PROTECTION

Beginning immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures and mechanical injury. Maintain concrete with minimal moisture loss at relatively constant temperature for a period of 7 days or until concrete strengths reaches 75% of the 28 day design strength.

Protection against moisture loss may be obtained with spray on curing compounds or plastic sheets. Protection against heat or cold may be obtained with insulated curing blankets or forms.

3.07 CONCRETE DRIVEWAY RESTORATION

Concrete driveways shall be restored with 6 inches of 3,000 psi concrete with W2.5 X W2.5, 6X6 wire mesh. Place ½ inch expansion joint between back of curb and new concrete. Area beneath restoration shall be mechanically tamped prior to placing concrete.

3.08 CONCRETE SIDEWALK RESTORATION

Concrete sidewalks across driveways shall be restored with 6 inches of 3,000 psi concrete with W2.5 X W2.5, 6X6 wire mesh. Place ½ inch expansion joint between back of curb and new concrete. Area beneath restoration shall be mechanically tamped prior to placing concrete.

Concrete sidewalks outside of driveways shall be restored with 4 inches of 3,000 psi concrete per FDOT Design Standards, Sections 522 & 310.

END OF SECTION

SECTION 03350 CONCRETE FINISHES

PART 1 GENERAL

1.01 SCOPE OF WORK

Furnish all labor, materials, equipment and incidentals required to finish cast-in-place concrete surfaces as specified herein.

1.02 SUBMITTALS

Submit to the County as provided in the Contract Documents, the proposed chemical hardener manufacturer's surface preparation and application procedures.

1.03 SCHEDULE OF FINISHES

- A. Concrete for the Project shall be finished in the various specified manners either to remain as natural concrete or to receive an additional applied finish or material under another Section.
- B. The base concrete for the following conditions shall be finished as noted and as further specified herein:
 - 1. Exterior, exposed concrete slabs and stairs - broomed finish.
 - 2. Interior, exposed concrete slabs - steel trowel finish.
 - 3. Concrete on which process liquids flow or in contact with sludge - steel trowel finish.
 - 4. Concrete where not exposed in the finished work and not scheduled to receive an additional applied finish or material - off-form finish.
 - 5. Provide concrete surfaces to be left exposed such as walls, columns, beams and joists with smooth rubbed finish.

1.04 RESPONSIBILITY FOR CHANGING FINISHES

- A. The surface finishes specified for concrete to receive additional applied finishes or materials are the finishes required for the proper application of the actual products specified under other Sections. Where different products are approved for use, it shall be the Contractor's responsibility to determine if changes in finishes are required and to provide the proper finishes to receive these products.
- B. Changes in finishes made to accommodate product different from those specified shall be performed at no additional cost to the County. Submit the proposed new finishes and their construction methods to the County for approval.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Portland cement and component materials required for finishing the concrete surfaces shall be as specified in the Contract Documents.
- B. Hardener shall be Lapidolith as manufactured by Sonneborn Building Products or approved equal. Hardener shall be used on all floors, stair treads and platforms.

PART 3 EXECUTION

3.01 FORMED SURFACES

- A. Forms shall not be stripped before the concrete has attained a strength of at least 50 percent of the ultimate design strength. This is equivalent to approximately five "100 day-degrees" of moist curing.
- B. Care shall be exercised to prevent damaging edges or obliterating the lines of chamfers, rustications, or corners when removing the forms or doing any work adjacent thereto.
- C. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete, to the satisfaction of the County.
- D. Off-form finish. Fins and other projections shall be removed as approved. Tie cone holes and other minor defects shall be filled with non-shrink grout specified under the Contract Documents.

3.02 FLOORS AND SLABS

- A. Floors and slabs shall be screeded to the established grades and shall be level with a tolerance of 1/8-inch when checked with a 10 foot straight edge, except where drains occur, in which case floors shall be pitched to drains as indicated. Failure to meet either of above shall be cause for removal, grinding, or other correction as approved by the County.
- B. Following screeding as specified above, power steel trowel as follows:
 - 1. Immediately after final screeding, a dry cement/sand shake in the proportion of 2-sacks of Portland cement to 350-pounds of coarse natural concrete sand shall be sprinkled evenly over the surface at the rate of approximately 500 pounds per 1,000 square feet of floor. Neat, dry cement shall not be sprinkled on the surface. This shake shall be thoroughly floated into the surface with an approved disc type power compacting machine weighing at least 200 pounds if a 20-inch disc is used or 300 pounds if a 24-inch disc is used (such as a "Kelly Float" as manufactured by the Weisner-Rapp Corporation of Buffalo, New York). A mechanical blade-type float or trowel is not acceptable for this work.
NOTE: This operation (application of the cement/sand shake) may be eliminated at the discretion of the County if the base slab concrete exhibits adequate fattiness and homogeneity.
 - 2. In lieu of power steel troweling, small areas as defined by the County shall be compacted by hand steel troweling with the dry cement/sand shake as ordered.

3. The floor or slab shall be compacted to a smooth surface and the floating operation continued until sufficient mortar is brought to the surface to fill all voids. The surfaces shall be tested with a straight edge to detect high and low spots which shall be eliminated.
 4. Compaction shall be continued only until thorough densification is achieved and a small amount of mortar is brought to the surface. Excessive floating shall be avoided.
- C. After Paragraph 3.02 A and B procedures are accomplished, floors and slabs for particular conditions shall be completed as scheduled in one of the following finishes:
1. Wood float finish. Hand wood float, maintaining the surface tolerance to provide a grained, nonslip finish as approved.
 2. Broomed finish. Hand wood float maintaining the surface tolerance and then broom with a stiff bristle broom in the direction of drainage to provide a nonslip finish as approved.
 3. Steel trowel finish. Hand steel trowel to a perfectly smooth, hard even finish free from high or low spots or other defects as approved.
- D. Floors, stair treads and platforms shall be given a floor hardener. Application shall be according to manufacturer's instructions.

3.03 APPROVAL OF FINISHES

- A. All concrete surfaces will be inspected during the finishing process by the County.
- B. Surfaces which, in the opinion of the County, are unsatisfactory shall be refinished or reworked until approved by the County.

END OF SECTION

DIVISION 5 METALS
SECTION 05500 MISCELLANEOUS METAL

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, equipment and incidentals required and install covers, grates, frames and other miscellaneous metals as shown on the Drawings and specified herein. The miscellaneous metal items include but are not limited to the following:
 - 1. All metal frames, ladders, stairs, stair rails, floor opening frames including gratings and supports.
 - 2. Prefabricated access hatches and frames.
 - 3. Anchors and anchor bolts except those specified to be furnished with all equipment.
 - 4. Railings, posts and supports both interior and exterior.
 - 5. Cast iron frames, covers, grates, drain leaders and drains.
 - 6. Steel plates, overhead steel door frames, angle frames, plates and channels.

1.02 COORDINATION

- A. The work in this Section shall be completely coordinated with the work of other Sections. Verify at the site both the dimensions and work of other trades adjoining items of work in this Section before fabrication and installation of items herein specified.
- B. Furnish to the pertinent trades all items included under this Section that are to be built into the work of other Sections.

1.03 SHOP DRAWINGS AND SAMPLES

- A. Detail drawings, as provided for in the Contract Documents, showing sizes of members, method of assembly, anchorage, and connection to other members shall be submitted to the County for approval before fabrication.
- B. Samples shall be submitted at the request of the County for concurrent review with Shop Drawings.

1.04 FIELD MEASUREMENTS

- A. Field measurements shall be taken at the site to verify or supplement indicated dimensions and to insure proper fitting of all items.

1.05 REFERENCED SPECIFICATIONS

- A. Unless otherwise specified, materials shall conform to the following:

Structural Steel	ASTM A36
Welded & Seamless Steel Pipe	ASTM A53
Gray Iron Castings	ASTM A48, Class 30
Galvanizing, general	ASTM A123
Galvanizing, hardware	ASTM A153
Galvanizing, assemblies	ASTM A386
Aluminum (Extruded Shapes)	6061-T6 (Alum. alloy)
Aluminum (Extruded Pipe)	6061-T6 (Alum. alloy)
Aluminum Bar Structural	6061-T6 (Alum. alloy)
Bolts and Nuts	ASTM, A307
Stainless Steel Bolts, Fasteners	AISI, Type 316
Stainless Steel Plate and Sheet, Wire	AISI, Type 316
Welding Rods for Steel	AWS Spec. for Arc Welding

PART 2 PRODUCTS

2.01 ANCHORS, BOLTS AND FASTENING DEVICES

- A. Anchors, bolts, etc., shall be furnished as necessary for installation of the work of this Section.
- B. Compound masonry anchors shall be of the type shown or required and shall be equal to Star Slug in compounded masonry anchors manufactured by Star Expansion Industries, equal by Phillips Drill Co., Rawlplug, or equal. Anchors shall be minimum "two unit" type.
- C. The bolts used to attach the various members to the anchors shall be the sizes shown or required. Stainless steel shall be attached to concrete or masonry by means of stainless steel machine bolts and iron or steel shall be attached with steel machine bolts unless otherwise specifically noted.
- D. For structural purposes, unless otherwise noted, expansion bolts shall be Wej-it "Ankr-Tite", Phillips Drill Co. "Wedge Anchors", or Hilti "Kwik-Bolt". When length of bolt is not called for on the Drawings, the length of bolt provided shall be sufficient to place the wedge portion of the bolt a minimum of 1-inch behind the reinforcing steel within the concrete. Material shall be as noted on the Drawings. If not listed, all materials shall be stainless steel.

2.02 ALUMINUM ITEMS

- A. Aluminum gratings shall be of serrated I-Bar Aluminum Alloy 6061-T6, fabricated to the depths and thicknesses shown on the Drawings and shall be Reliance Steel Products Company, I-Lok Type 7/8 R4 Aluminum Grating; IKG Industries, "Galok" Aluminum I-Bar Grating Type S194-I, or equal. All openings 2 inches and greater in diameter shall be banded with a bar of the same depth and thickness as the main bearing bars of the grating, or furnished with continuous cross bridges. Each cut bar shall be welded to the band if banding is utilized. The ends of all grating sections shall be likewise banded.

Clamps and bolts used for attaching grating to supporting members shall be stainless steel. All grating shall be clamped unless noted otherwise. Clamps shall be as recommended by the manufacturer.

- B. Stair treads shall be as specified above for grating and shall have abrasive nonslip nosing.
- C. Checkplate aluminum cover plates shall be fabricated to the details shown and installed at the locations shown.
- D. Structural aluminum angle and channel door frames shall be provided as shown on the Drawings and shall be anodized. Frames shall be fabricated with not less than three anchors on each jamb.
- E. Miscellaneous aluminum shapes and plates shall be fabricated as shown. Angle frames for hatches, beams, grates, etc., shall be furnished complete with welded strap anchors attached. Furnish all miscellaneous aluminum shown, but not otherwise detailed. Structural shapes and extruded items shall conform to the detail dimensions on the Plans within the tolerances published by the American Aluminum Association.

2.03 STEEL ITEMS

- A. Sleeves shall be steel or cast iron pipe in walls and floors with end joints as shown on the Drawings. All pipe sleeves shall have center anchor around circumference as shown.
- B. Miscellaneous steel pipe for sleeves and lifting attachments and other uses as required shall be Schedule 40 pipe fabricated according to the details as shown on the Drawings.
- C. Miscellaneous steel shall be fabricated and installed in accordance with the Drawings and shall include: beams, angles, support brackets, closure angles in roof at edge of T-beams; base plates to support ends of T-beams; door frames; splice plates, anchor bolts; lintels and any other miscellaneous steel called for on the Drawings and not otherwise specified.

PART 3 EXECUTION

3.01 FABRICATION

- A. All miscellaneous metal work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability.
- B. Connections and accessories shall be of sufficient strength to safely withstand stresses and strains to which they will be subjected. Steel accessories and connection to steel or cast iron shall be steel, unless otherwise specified. Threaded connections shall be made so that the threads are concealed by fitting.
- C. Welded joints shall be rigid and continuously welded or spot welded as specified or shown. The face of welds shall be dressed flush and smooth. Exposed joints shall be close fitting and jointed where least conspicuous.

- D. Welding of parts shall be in accordance with the Standard Code of Arc and Gas Welding in Building Construction of the AWS and shall only be done where shown, specified, or permitted by the County. All welding shall be done only by welders certified as to their ability to perform welding in accordance with the requirements of the AWS Code. Component parts of built-up members to be welded shall be adequately supported and clamped or held by other adequate means to hold the parts in proper relation for welding.
- E. Welding of aluminum work shall be on the unexposed side as much as possible in order to prevent pitting or discoloration.
- F. All aluminum finish exposed surfaces, except as specified below, shall have manufacturer's standard mill finish. Aluminum handrails shall be given an anodic oxide treatment in accordance with the Aluminum Association Specification AA-C22-A41. A coating of methacrylate lacquer shall be applied to all aluminum shipment from the factory.
- G. Castings shall be of good quality, strong, tough, even-grained, smooth, free from scale, lumps, blisters, sand holes, and defects of any kind which render them unfit for the service for which they are intended. Castings shall be thoroughly cleaned and will be subjected to a hammer inspection in the field by the County. All finished surfaces shown on the Drawings and/or specified shall be machined to a true plane surface and shall be true and seat at all points without rocking. Allowances shall be made in the patterns so that the thickness specified or shown shall not be reduced in obtaining finished surfaces. Castings will not be acceptable if the actual weight is less than 95 percent of the theoretical weight computed from the dimensions shown. The Contractor shall provide facilities for weighing castings in the presence of the County showing true weights, certified by the supplier.
- H. All steel finish work shall be thoroughly cleaned, in accordance with the Contract Documents, of all loose mill scale, rust, and foreign matter before shipment and shall be given one shop coat of primer compatible with finish coats specified in Painting Section after fabrication but before shipping. Paint shall be applied to dry surfaces and shall be thoroughly and evenly spread and well worked into joints and other open spaces. Abrasions in the field shall be touched up with primer immediately after erection. Final painting is specified in the Contract Documents.
- I. Galvanizing, where required, shall be the hot-dip zinc process after fabrication. Following all manufacturing operations, all items to be galvanized shall be thoroughly cleaned, pickled, fluxed, and completely immersed in a bath of molten zinc. The resulting coating shall be adherent and shall be the normal coating to be obtained by immersing the items in a bath of molten zinc and allowing them to remain in the bath until their temperature becomes the same as the bath. Coating shall be not less than 2 oz. per sq. ft. of surface.

3.02 INSTALLATION

- A. Install all furnished items imbedded in concrete or other masonry. Items to be attached to concrete or masonry after such work is completed shall be installed in accordance with the details shown. Fastening to wood plugs in masonry will not be permitted. All dimensions shall be verified at the site before fabrication is started.

- B. All steel surfaces to come in contact with exposed concrete or masonry shall receive a protective coating of an approved heavy bitumastic troweling mastic applied in accordance with the manufacturer's instructions prior to installation or provide a 1/32-inch neophrene gasket between the steel surface and the concrete or masonry.
- C. Where aluminum is embedded in concrete, apply a heavy coat of approved bitumastic troweling mastic in accordance with the manufacturer's instructions prior to installation.
- D. Where aluminum contacts masonry or concrete, provide a 1/32-inch neophrene gasket between the aluminum and the concrete or masonry.
- E. Where aluminum contacts a dissimilar metal, apply a heavy brush coat of zinc-chromate primer and provide a 1/32-inch neoprene gasket between the aluminum and the dissimilar metal.
- F. Where aluminum contacts wood, apply two coats of aluminum metal and masonry paint to the wood.

END OF SECTION

DIVISION 16 ELECTRICAL
SECTION 16050 ELECTRICAL - GENERAL PROVISIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, devices, equipment, appurtenances, and incidentals required for a complete electrical system as hereinafter specified and/or shown on the Contract Drawings. This work may necessarily include interfacing with and/or completely installing devices and/or equipment furnished under other sections of these Specifications.
- B. It is the intent of these Specifications that the electrical system be suitable in every way for the service required. All materials and all work/labor which may be reasonably implied as being incidental to the requirements of this Section shall be furnished at no additional cost to the County.
- C. All power interruptions to existing equipment shall be at the County's convenience. Each interruption shall have prior approval. Request(s) for power interruption(s) shall be made at least 48 hours in advance.
- D. The work shall include complete testing of all electrical components, including wiring.
- E. All workmanship shall be of the highest quality. Substandard work will be rejected and it shall be replaced entirely at the Contractor's expense with no cost to the County.
- F. It shall be the responsibility of each bidder or his authorized representative to physically visit the job site in order that he may be personally acquainted with the area(s), buildings and/or structures intended for use in the installation/construction under this Specification. The submittal of a proposal/bid by a bidder shall be considered evidence that he has complied with this requirement and accepts all responsibility for a complete knowledge of all factors governing his work. Therefore, failure to comply with this requirement of the Specifications will NOT be grounds for the successful bidder (Contractor) to request approval of change orders and/or additional monetary compensation.

1.02 TEMPORARY ELECTRICAL SERVICE

- A. The Contractor shall make the requisite arrangements for securing temporary electrical power for his use in accordance with Section 01510 of these Specifications.

1.03 CODES, INSPECTIONS AND FEES

- A. All materials and installations shall be in accordance with the National Electrical Code (latest edition) and the latest editions of all applicable national, state, county and local codes.

- B. To the extent that any item is routinely tested and rated by the Underwriter's Laboratories, Inc., that item shall bear the U.L. label. Additionally, all items shall be manufactured to the applicable NEMA standards.
- C. The Contractor shall make the necessary arrangements for obtaining all requisite permits and inspections and pay any applicable fees.

1.04 TESTS

- A. The Contractor shall test all items individually and as a system for proper operation.
- B. The Contractor shall, at his expense, make all the requisite repairs, adjustments and/or alterations to correct any shortcomings found as a result of the tests performed under Item 1.04.A above.
- C. A representative of the County shall be present during all testing. The County shall be notified at least 2 days prior to any testing.

1.05 SLEEVES AND FORMS FOR OPENINGS

- A. Provide and place all sleeves for conduits penetrating floors, walls, partitions, etc. Locate all necessary slots for electrical work and form before concrete is poured.

1.06 CUTTING AND PATCHING

- A. All cutting and patching shall be done in a thoroughly workmanlike manner - i.e., care shall be taken when cutting not to damage or mar surrounding areas, and when patching to match the original finish as closely as possible while providing a watertight seal. Refer to Item 1.01.E above.

1.07 INTERPRETATION OF DRAWINGS

- A. The layouts and arrangements as shown on the Contract Drawings are indicative of the physical arrangements desired; however, they are not intended to restrict the Contractor's freedom to accommodate the exact conditions as found in the field. Any deviations from the arrangements shown must be approved by the County prior to the final placement of the item(s) in question.
- B. The Contract Drawings are not intended to show exact locations of conduit runs.
- C. Circuit and conduit layouts shown are not intended to indicate the exact installation details. The Contractor shall furnish and install all requisite items, including all fittings, junction boxes, etc., to ensure that the electrical system operates in conformance with the Specifications and the specific requirements of an individual piece of equipment.
- D. Where circuits are shown as "home-runs", all necessary fittings and boxes shall be provided for a complete conduit installation.

- E. All three-phase circuits shall be run in separate conduits unless otherwise shown on the Contract Drawings.
- F. Surface mounted items such as panelboards, junction boxes, conduit, etc., shall be supported by spacers to provide a clearance between the equipment and the mounting surface.
- G. The County shall make the final decision in determining the exact location(s) and mounting height(s) of any item(s) or piece(s) of equipment in question.
- H. All connections to equipment shall be made in accordance with the approved shop and manufacturer's drawings, regardless of the number of conductors shown on the Contract Bid Drawings.
- I. The Contractor shall coordinate the Work of the different trades in order to prevent interferences between conduit(s), piping and other non-electrical equipment. In case any interference develops, an authorized representative of the County shall decide which equipment, conduit(s) or piping must be relocated, regardless of which was installed first. Any such interferences shall be remedied solely at the Contractor's expense without any additional cost to the County.

1.08 EQUIPMENT SIZING AND HANDLING

- A. The Contractor shall thoroughly check all entryways, doors, hallways, stairways, buildings and structures through which equipment must be transported to reach its final location.
- B. If necessary for safe passage of the equipment, the manufacturer shall be required to ship his material in sections sized to pass through the restricted areas. This requirement holds even if such equipment sizing differs from the manufacturer's standard shipping section.
- C. To the extent possible, the equipment shall be kept upright at all times. If equipment has to be tilted for ease of passage through restricted areas, the manufacturer shall provide specific handling instructions as well as any requisite bracing in order to assure both the functional integrity of the equipment and the validity of the equipment warranty.

1.09 SUBMITTALS

- A. As specified under Section 01340 of these Specifications, the Contractor shall submit shop drawings and/or manufacturer's cut sheets for approval of all materials, equipment, devices, apparatus, and other items as required by the County.
 - 1. Prior to submittal by the Contractor, all shop drawings shall be checked for accuracy and Contract requirements. Shop drawings shall bear the date checked and shall be accompanied by a statement that the shop drawings have been examined for conformity to the Specifications and Contract Drawings. This statement shall also list all discrepancies with the Specifications and Contract Drawings. Shop drawings not so checked and noted shall be returned unchecked by the County.

2. The County's check shall be only for conformance with the design concept of the Project and compliance with the Specifications and Contract Drawings. The responsibility for, or the necessity of, furnishing materials and workmanship required by the Specifications and Contract Drawings which may not be indicated on the shop drawings is included under the Work of this Section.
3. No material shall be ordered, no equipment manufacturing shall be started, nor shall any shop work/fabrication commence until the County has approved the shop drawings. Any deviation from this requirement of the Specifications shall be entirely at the risk and expense of the Contractor without any additional cost to the County.
4. Record Drawings: As the Work progresses, the Contractor shall legibly record all field changes on a set of Contract Drawings. When the project is completed, the Contractor shall furnish the County with a complete set of reproducible "as-built" drawings.

1.10 MANUFACTURER'S SERVICES

- A. The Contractor shall arrange for an authorized manufacturer's representative who shall be an experienced field service engineer to be present for the inspection, installation, testing, calibration, adjusting and start-up of any item(s) or piece(s) of equipment as deemed necessary by the County.
- B. In addition to the duties of Item 1.10.A above, the manufacturer's representative shall also instruct the County's personnel in the proper operation and maintenance of the item(s) in question.

1.11 MATERIALS

- A. All materials used shall be new, unused and as hereinafter specified. Where not specifically called out, all materials shall be of the very best quality of their respective kinds. Unless specifically otherwise approved in writing by the County, only material manufactured in the United States shall be used!
- B. Where applicable, all materials and equipment shall conform with the requirements of Item 1.03.B above.
- C. Electrical equipment shall at all times during construction be adequately protected against both mechanical injury and damage by water. Electrical equipment shall be stored indoors in dry shelters. Any damaged equipment shall be replaced by the Contractor at his own expense.
- D. All items shall be manufactured from the materials specified - substitute materials will NOT be acceptable.
- E. Only the specified manufacturer's equipment shall be used unless an "or approved equal" is noted. The County shall be the sole determiner of what constitutes an "approved equal".

1.12 GUARANTEES AND WARRANTIES

- A. All items furnished under the Electrical Specifications shall be guaranteed and/or warranted, in writing, against defects in materials, construction and workmanship as specified under Section 01740 of these Specifications.

END OF SECTION

SECTION 16108 MISCELLANEOUS EQUIPMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install all miscellaneous equipment as hereinafter specified and/or shown on the Drawings.
- B. Installation shall be in the locations described herein and/or shown on the Drawings and/or where directed by the County's authorized personnel.

PART 2 PRODUCTS

2.01 MATERIALS

A. CIRCUIT BREAKERS

- 1. Circuit breakers where required or called for by the drawings shall be Square "D" molded case bolt-on type, shall have a single pole, shall be rated 20-amperes at 120/240 VAC, and shall have an interrupting rating of 10,000-amperes.

B. SAFETY SWITCHES

- 1. Safety switches where required or called for by the drawings shall be Square "D" heavy duty safety switch with visible blade, non-fusible, heavy duty type, shall have a quick-make, quick-break, single throw operating mechanism, and shall have both a dual cover interlock and a color coded indicator handle. The safety switch shall have all current carrying parts made of copper and shall be furnished in a NEMA 3R rainproof enclosure, 1-inch bolt-on hubs, a solid neutral assembly, and a copper ground kit.
- 2. In addition to being UL listed under files E2875 and 154828, the safety switches shall comply with the following standards:
 - a. UL 98, Enclosed and Dead Front Switches.
 - b. NEMA KS1, Enclosed Switches.
 - c. Federal Spec WS-865c for Type "HD".

C. FLOW METER

- 1. The flow meter shall be as shown on the drawings and be a complete system consisting of flow sensing element and electronics providing local flow indication and a 4-20 mA signal to be connected to the existing SCADA system.
- 2. Transmitter shall be remote mounted from the flow sensing element. Locate inside a NEMA 4X enclosure with a hinged cover (left vertical side) and clamps or clasps along the other three sides. The enclosure shall be as manufactured by Hoffman, Rob Roy, or approved equal.
- 3. The electronics of the installed flow meter shall be suitable for outside exposure.

D. DUPLEX RECEPTACLES

1. Duplex receptacle where required or called for by the drawings shall be the ground fault circuit interrupter (GFCI) type, shall be rated 20-amperes at 125 VAC and shall be of the NEMA 5-20R configuration. The receptacle shall be Hubbel, or approved equal, and provided with weatherproof box and cover.

E. SUPPORT STRUCTURE

1. A stanchion support structure, firmly mounted to the existing concrete slab shall be provided in accordance with the details shown on the drawings.

PART 3 EXECUTION

(NOT USED)

END OF SECTION

SECTION 16110 CONDUITS AND FITTINGS**PART 1 GENERAL****1.01 SCOPE OF WORK**

Furnish and install the conduits, fittings, devices and appurtenances as hereinafter specified and/or as shown on the Contract Drawings.

1.02 SUBMITTALS

The requirements of Section 01340 and Section 16050 shall be met.

1.03 APPLICATIONS

- A. Except where otherwise shown on the Contract Drawings, or hereinafter specified, all wiring shall be run in rigid conduits.
- B. PVC Sch 80 or rigid aluminum conduits shall be used at all locations aboveground and within structures and buildings, except where otherwise shown on the Contract Drawings.
- C. PVC Sch 80 or rigid aluminum conduits shall be used at all locations for shielded instrumentation and shielded control wiring, except where otherwise shown on the Contract Drawings.
- D. Schedule 80 PVC conduits shall be used for all underground, under-slab and in-slab applications except where otherwise shown on the Contract Drawings.
- E. Schedule 80 PVC conduits shall be used in highly corrosive areas such as chlorine storage areas, digesters, fluoride storage and handling areas, etc.
- F. All conduits of a given type shall be the product of one manufacturer.
- G. Except where otherwise shown on the Contract Drawings, or hereinafter specified, all boxes shall be metal.
- H. Flush mounted switch, receptacle and control station boxes shall be pressed steel.
- I. Surface mounted switch, receptacle and control station boxes shall be cast or malleable iron.
- J. Devices designated as NEMA Type 4 shall be 316 stainless steel, gasketed.
- K. Devices designated as NEMA Type 4X shall be fiberglass, gasketed, except as otherwise shown on the Contract Documents.
- L. Combination expansion-deflection fittings shall be used where conduits cross structural expansion joints.

PART 2 PRODUCTS

2.01 MATERIALS

A. Rigid Conduit

1. Rigid aluminum conduit shall meet requirements of NEMA C80.5 and UL 6A and Type 6063, copper-free aluminum alloy.
2. Rigid PVC conduit shall be Carlon Plus 80 rigid PVC non-metallic conduit (extra heavy wall EPC-80) as manufactured by Carlon, or approved equal.

B. Liquidtight, Flexible Conduit

1. Liquidtight, flexible non-metallic conduits shall be Carflex Liquidtight Flexible Non-Metallic Conduit as manufactured by Carlon, or approved equal.

C. Rigid Conduit Fittings

1. Rigid Aluminum Conduit Fittings:
 - a. Aluminum elbows, bends, sweeps, nipples, couplings, etc., approved equal.
2. Rigid Non-Metallic Conduit Fittings: PVC elbows, bends, sweeps, nipples, couplings, device boxes, etc., shall be Plus 80 fittings as manufactured by Carlon, or approved equal.

D. Flexible Conduit Fittings

1. Flexible Metal Conduit Fittings: Fittings used with flexible metal conduit shall be of the screw-in type as manufactured by Thomas and Betts Company, or approved equal.
2. Flexible Non-Metallic Conduit Fittings: Fittings used with flexible non-metallic conduit shall be Carflex Liquidtight Non-metallic Fittings as manufactured by Carlon, or approved equal.

E. Flexible Couplings: Flexible couplings shall be as manufactured by Crouse-Hinds, Appleton Electric Company, or approved equal.

F. Wall Seals: Conduit wall seals shall be type "WSK" as manufactured by the O.Z. Electrical Manufacturing Company, or approved equal.

G. Expansion Fittings: Combination expansion-deflection fittings shall be type "XD" as manufactured by Crouse-Hinds, or approved equal.

H. Boxes

1. Device Boxes
 - a. Flush mounted wall device boxes shall be galvanized pressed steel as manufactured by the Raco Manufacturing Company, or approved equal.
 - b. Surfaced mounted wall device boxes shall be cast or malleable iron as manufactured by Crouse-Hinds, Appleton Electric Company, or approved equal.
 - c. Flush mounted in-floor device boxes shall be cast metal, shall be watertight, shall have

adjustable cover frames, and shall be as manufactured by Russell & Stoll Company, Steel City Electric, or approved equal.

2. Other Boxes

- a. Terminal boxes, junction boxes, pull boxes, etc., except as otherwise specified and/or shown on the Contract Drawings, shall be PVC or 316 S.S.
- b. The boxes shall have continuously welded seams and shall be ground smooth.
- c. The box bodies shall be flanged, shall be not less than 14-gauge metal, and shall not have holes or knockouts.
- d. The box covers shall be not less than 12-gauge metal, shall be gasketed, and shall be fastened to the box bodies with stainless steel screws.

I. Conduit Mounting Devices: Hangers, rods, channel, backplates, clips, straps, beam clamps, etc., shall be 316 stainless steel as manufactured by Unistrut Corp., or approved equal.

J. Fixture Support System

1. The fixture support system shall be the channel type and shall be furnished complete with all requisite mounting hardware and appurtenances.
2. The channel, mounting hardware and related appurtenances shall be 316 stainless steel.
3. The fixture support system shall be as manufactured by the Unistrut Corp., or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. No conduit smaller than 3/4-inch electrical trade size shall be used nor shall either 1-1/4-inch conduit or 3-1/2-inch conduit be used. Minimum size underground, under slab or in-slab shall be 1-inch.
- B. No wires shall be pulled until the individual conduit runs are complete in all details. Additionally, each conduit shall be cleaned and reamed and certified clear of all burrs and obstructions before any wire is pulled.
- C. The ends of all conduits shall be tightly capped to exclude dust and moisture during construction.
- D. Conduits shall be supported at intervals of 8-feet or less, as required to obtain a rigid installation.
- E. Exposed conduits shall be run parallel with and/or perpendicular to the surrounding surface(s). No diagonal runs will be allowed.
- F. Single conduits shall be supported by one-hole pipe clamps in combination with one-screw backplates to provide space between the conduits and the mounting surface.
- G. Multiple horizontal runs of conduits shall be supported by trapeze type hangers (channel) suspended by threaded rod, 3/8-inch minimum diameter.
- H. Multiple vertical runs of conduits shall be supported by structurally mounted channel in combination with conduit clamps.

- I. Conduit support devices shall be attached to structural steel by welding or beam or channel clamps as indicated on the Contract Drawings.
- J. Conduit support devices shall be attached to concrete surfaces by "spot type" concrete inserts.
- K. Conduits terminating in pressed steel boxes shall have double locknuts and insulated bushings.
- L. Conduits terminating in gasketed enclosures shall be terminated with conduit hubs.
- M. Conduit wall seals, waterproof type, shall be used at all locations where conduits penetrate walls.
- N. Liquidtight, flexible conduit - metal or non-metallic as shown on the Contract Drawings - shall be used for all motor terminations and for all connections/terminations where vibration is anticipated.
- O. Flexible couplings shall be used in hazardous locations for all motor terminations and for all connections/terminations where vibration is anticipated.
- P. Conduit stubouts for future construction shall be capped at both ends with threaded PVC conduit caps.
- Q. The cement used for PVC conduit installations shall be as manufactured by Carlon, or approved equal.
- R. Rigid aluminum conduits entering manholes and/or below grade pull boxes shall be terminated with grounding type bushings which shall be connected to a 5/8-inch by 10-foot long driven ground rod with No. 6 AWG bare copper wire.
- S. Rigid aluminum conduit shall be used for all risers. The underground portion of the riser and a 12-inch section of the riser immediately above the ground or slab/floor level shall be painted with a bitumastic coating.
- T. The use of electrical metallic tubing shall be restricted to low voltage applications (600V or less) in non-process areas where specifically approved by the County on a "per installation" basis - e.g., above suspended ceilings in office areas.

3.02 **GUARANTEES AND WARRANTIES**

The Contractor shall guarantee and warrant all materials and labor provided under this Section in accordance with Section 01740 and Section 16050 of these Specifications.

END OF SECTION

SECTION 16120 WIRES AND CABLES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install all wires, cables and appurtenances as described hereinafter and/or as shown on the Contract Drawings.

1.02 SUBMITTALS

- A. The requirements of Section 01340 and Section 16050 shall be met.
- B. Samples of the actual wires and cables proposed for use shall be submitted for approval. There shall be a sample for each size and type of wire and cable proposed for use. The samples shall be of sufficient length to show the maximum rated voltage, insulation type and class, conductor size, the manufacturer's name, trademark or identifying logo, and the U.L. listing number.
- C. The wires and cables as approved for use shall be compared with the wires and cables actually installed. If any unapproved wires and cables are installed, they shall be removed and replaced solely at the Contractor's expense with no additional cost to the County.

1.03 APPLICATIONS

- A. The wire for lighting and receptacle circuits shall be type THHN/THWN, stranded.
- B. The wire for all power circuits and motor leads shall be type THHN/THWN, stranded.
- C. Single conductor wires for control, indication and metering shall be type THHN/THWN, No. 14 AWG, stranded.
- D. Multiconductor control cable shall be No. 14 AWG, stranded.
- E. The wire for process instrumentation shall be No. 16 AWG, stranded.

1.04 MINIMUM SIZES

- A. Except for control and signal leads, no conductor smaller than No. 12 AWG shall be used.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Wire and cables shall be made of annealed, 98% conductivity, soft drawn copper conductors.
- B. All conductors shall be stranded except that the uninsulated copper grounding conductors shall be solid.

2.02 600 VOLT WIRE AND CABLE

- A. Type THHN/THWN insulation shall be used for all 600 Volt wires and cables. The insulation shall be a flame-retardant, heat-resistant thermoplastic, and shall have a nylon, or equivalent, jacket.
- B. The 600 Volt wires and cables shall be as manufactured by Anixter, Rome Cable, Southwire, or approved equal.

2.03 INSTRUMENTATION AND CONTROL WIRING

- A. Process instrumentation wiring shall be No. 16 AWG stranded twisted pair, 600 Volt, cross-linked polyethylene insulated, aluminum tape shielded, PVC jacketed. Multiconductor cables with individually twisted pairs shall be installed where shown on the Contract Drawings.
- B. Multiconductor control cables shall be No. 14 AWG, stranded, 600 Volt, cross-linked polyethylene insulated, PVC jacketed.
- C. Instrumentation and control wiring shall be as manufactured by Belden, Alpha, or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Wires and cables shall be sized as shown on the Contract Drawings and/or, where applicable, sized to match existing wiring.
- B. All conductors shall be carefully handled to avoid kinks or damage to the insulation.
- C. Lubricants or pulling compounds shall be used to facilitate wire pulling. Such lubricants/compounds shall be U.L. listed for use with the insulation specified.
- D. Use pulling means - fish-tape, cable, rope, basket weave wire/cable grips, etc. - which will not damage the wire/cable insulation or the raceway.
- E. Shielded instrumentation wire shall be installed from terminal to terminal with no splicing at any intermediate point.
- F. Shielded instrumentation wire shall be installed in rigid steel conduit and pull boxes that contain only instrumentation cables. Instrumentation cables shall be separated from control cables in manholes.
- G. Shielding on instrumentation cables shall be grounded at the transmitter end only.

- H. All new wires and cables shall be continuous and without splices between points of connection to equipment terminals. However, the County will permit a splice provided that the length between the connection points exceeds the greatest standard shipping length available from the submitted manufacturer and no other manufacturer acceptable to the County is able to furnish wires or cables of the required length.
- I. All 600 volt wire and cable connections shall be made using compression type connectors. Insulated connectors shall be used for all terminations. The connections shall be made so that both the conductivity and the insulation resistance shall be not less than that of the uncut conductor.
- J. All wires shall be numbered at both ends and at all intermediate junction points. Screw type terminations shall be made with forked tongue (spade), self-insulated, crimp terminals. All other wire terminations shall be made on appropriate terminal strips.

3.02 TESTS

- A. Upon the completion of the pulling-in of and prior to the terminating/connecting of the 600 Volt wiring, all wires shall be individually checked and tested for continuity and short circuits, and each wire/cable shall be meggered to check insulation resistance. The test voltage shall be not less than 500 Volts. Three (3) copies of these test results shall be submitted to the County.
- B. An authorized representative(s) of the County shall witness all testing. The County shall be notified at least two (2) days in advance of the testing.
- C. Any faulty conditions and/or shortcomings found during the testing shall be corrected at no cost to the County. However, a retest to demonstrate compliance shall be conducted before any hook-ups or terminations are made. Any such requisite retesting shall be witnessed by an authorized representative(s) of the County.

3.03 GUARANTEES AND WARRANTIES

- A. The Contractor shall guarantee and warrant all materials and labor provided under this Section in accordance with Section 01740 and Section 16050 of these Specifications.

END OF SECTION

SECTION 16200 LOW-VOLTAGE AC INDUCTION MOTORS**PART 1 GENERAL****1.01 RELATED SECTIONS**

- A. This section applies only when referenced by a motor-driven equipment specification. Application, horsepower, enclosure type, mounting, shaft type, synchronous speed, and deviations from this section will be listed in the equipment specification. Where such deviations occur, they shall take precedence over this section.

1.02 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Bearing Manufacturers Association (ABMA):
 - a. 9, Load Ratings and Fatigue Life for Ball Bearings.
 - b. 11, Load Ratings and Fatigue Life for Roller Bearings.
 2. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - a. 112, Standard Test Procedure for Polyphase Induction Motors and Generators.
 - b. 620, Guide for the Presentation of Thermal Limit Curves for Squirrel Cage Induction Machines.
 - c. 841, Standard for Petroleum and Chemical Industry—Premium Efficiency Severe Duty Totally Enclosed Fan-Cooled (TEFC) Squirrel Cage Induction Motors—Up to and Including 370 kW (500 hp).
 3. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).
 - b. C50.41, Polyphase Induction Motors for Power Generating Stations.
 - c. MG 1, Motors and Generators.
 4. National Fire Protection Association (NFPA): 70, National Electrical Code (NEC).
 5. Underwriters Laboratories (UL):
 - a. 83, Standard for Safety for Thermoplastic-Insulated Wire and Cables.
 - b. 674, Standard for Safety for Electric Motors and Generators for Use in Division 1 Hazardous (Classified) Locations.
 - c. 2111, Standard for Safety for Overheating Protection for Motors.

1.03 DEFINITIONS

- A. CISD-TEFC: Chemical industry, severe-duty enclosure.
- B. DIP: Dust-ignition-proof enclosure.
- C. EXP: Explosion-proof enclosure.

- D. Inverter Duty Motor: Motor meeting applicable requirements of NEMA MG 1, Section IV, Parts 30 and 31.
- E. Motor Nameplate Horsepower: That rating after any derating required to allow for extra heating caused by the harmonic content in the voltage applied to the motor by its controller.
- F. ODP: Open drip-proof enclosure.
- G. TEFC: Totally enclosed, fan-cooled enclosure.
- H. TENV: Totally enclosed, nonventilated enclosure.
- I. WPI: Open weather protected enclosure, Type I.
- J. WPII: Open weather protected enclosure, Type II.

1.04 SUBMITTALS

- A. Action Submittals:
 - 1. Descriptive information.
 - 2. Nameplate data in accordance with NEMA MG 1.
 - 3. Additional Rating Information:
 - a. Service factor.
 - b. Locked rotor current.
 - c. No load current.
 - d. Multispeed load classification (for example, variable torque).
 - e. Adjustable frequency drive motor load classification (for example, variable torque) and minimum allowable motor speed for that load classification.
 - f. Guaranteed minimum full load efficiency and power factor.
 - 4. Enclosure type and mounting (such as, horizontal, vertical).
 - 5. Dimensions and total weight.
 - 6. Conduit box dimensions and usable volume as defined in NEMA MG 1 and NFPA 70.
 - 7. Bearing type.
 - 8. Bearing lubrication.
 - 9. Bearing life.
 - 10. Space heater voltage and watts.
 - 11. Description, ratings, and wiring diagram of motor thermal protection.
 - 12. Motor sound power level in accordance with NEMA MG 1.
 - 13. Maximum brake horsepower required by the equipment driven by the motor.
- B. Informational Submittals:
 - 1. Factory test reports certified.
 - 2. Operation and Maintenance Data: As specified in Section 01730, Operation and Maintenance Data.
 - 3. Manufacturer's Certificate of Proper Installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
 1. General Electric.
 2. Reliance Electric.
 3. Siemens Energy and Automation, Inc., Motors and Drives Division.
 4. Toshiba International Corp., Industrial Division.

2.02 GENERAL

- A. For multiple units of the same type of equipment, furnish identical motors and accessories of a single manufacturer.
- B. In order to obtain single source responsibility, use a single supplier to provide drive motor, its driven equipment, and specified motor accessories.
- C. Meet requirements of NEMA MG 1.
- D. For motors used in hazardous (classified) locations, Class I, Division 1, Groups B, C, and D, and Class II, Division 1, Groups E, F, and G provide motors that conform to UL 674 and have an applied UL listing mark.
- E. Motors shall be specifically designed for the use and conditions intended, with a NEMA design letter classification to fit the application.
- F. Lifting lugs on motors weighing 100 pounds or more.
- G. Operating Conditions:
 1. Maximum ambient temperature not greater than 40 degrees C.
 2. Motors shall be suitable for operating conditions without reduction being required in nameplate rated horsepower or exceeding rated temperature rise.
 3. Overspeed in either direction in accordance with NEMA MG 1.

2.03 HORSEPOWER RATING

- A. As designated in motor-driven equipment specification.
- B. Constant Speed Applications: Brake horsepower of driven equipment at any operating condition or at any head capacity point on pump curve not to exceed motor nameplate horsepower rating, excluding service factor.
- C. Adjustable Frequency and Adjustable Speed Applications (Inverter Duty Motor): Driven equipment brake horsepower at any operating condition or at any head capacity point on pump curve not to exceed motor nameplate horsepower rating, excluding service factor.

2.04 SERVICE FACTOR

- A. Inverter-duty Motors: 1.0 at rated ambient temperature, unless otherwise noted.
- B. Other Motors: 1.15 minimum at rated ambient temperature, unless otherwise noted.

2.05 VOLTAGE AND FREQUENCY RATING

- A. System Frequency: 60-Hz.
- B. Voltage Rating: Unless otherwise indicated in motor-driven equipment specification:

Voltage Rating		
Size	Voltage	Phase
1/2 hp and smaller	115	1
3/4 hp and larger	460	3

- C. Suitable for full voltage starting.
- D. 50 hp and larger also suitable for reduced voltage starting with 65 percent or 80 percent voltage tap settings on reduced inrush motor starters.
- E. Suitable for accelerating the connected load with supply voltage at motor starter supply terminals dipping to 90 percent of motor rated voltage.

2.06 EFFICIENCY AND POWER FACTOR

- A. For all motors except single-phase, under 1 hp, multispeed, short-time rated and submersible motors, or motors driving gates, valves, elevators, cranes, trolleys, and hoists:
 - 1. Efficiency:
 - a. Tested in accordance with NEMA MG 1, Paragraph 12.59.
 - b. Guaranteed minimum at full load in accordance with NEMA MG 1 Table 12-12, Full-load Efficiencies for NEMA Premium Efficiency Electric Motors Rated 600 Volts or Less (Random Wound), or as indicated in motor-driven equipment specification.
 - 2. Power Factor: Guaranteed minimum at full load shall be manufacturer's standard or as indicated in motor-driven equipment specification.

2.07 LOCKED ROTOR RATINGS

- A. Locked rotor kVA Code F or lower, if motor horsepower not covered by NEMA MG 1 tables.
- B. Safe Stall Time: 12 seconds or greater.

2.08 INSULATION SYSTEMS

- A. Single-Phase, Fractional Horsepower Motors: Manufacturer's standard winding insulation system.
- B. Motors Rated Over 600 Volts: Sealed windings in accordance with NEMA MG 1.
- C. Three-phase and Integral Horsepower Motors: Unless otherwise indicated in motor-driven equipment specification, Class F with Class B rise at nameplate horsepower and designated operating conditions, except EXP and DIP motors which must be Class B with Class B rise.
- D. Motors With Form-Wound Coils: Locked coil bracing system in accordance with NEMA C50.41.

2.09 ENCLOSURES

- A. Enclosures to conform to NEMA MG 1.
- B. TEFC and TENV: Furnish with drain hole with porous drain/weather plug.
- C. Explosion-Proof (EXP):
 - 1. TEFC listed to meet UL 674 and NFPA 70 requirements for Class I, Division 1, Group C and D hazardous locations.
 - 2. Drain holes with drain and breather fittings.
 - 3. Integral thermostat opening on excessive motor temperature in accordance with UL 2111 and NFPA 70.
 - 4. Terminate thermostat leads in terminal box separate from main terminal box.
- D. Dust-Ignition-Proof (DIP):
 - 1. TEFC listed to meet UL 674 and NFPA 70 requirements for Class II, Division 1, Group E.
 - 2. Integral thermostat opening on excessive motor temperature in accordance with UL 2111 and NFPA 70.
 - 3. Thermostat leads to terminate in a terminal box separate from main terminal box.
- E. Chemical Industry, Severe-Duty (CISD-TEFC): In accordance with Article Special Motors.

2.10 TERMINAL (CONDUIT) BOXES

- A. Oversize main terminal boxes for motors.
- B. Diagonally split, rotatable to each of four 90-degree positions. Threaded hubs for conduit attachment.
- C. Except ODP, furnish gaskets between box halves and between box and motor frame.
- D. Minimum usable volume in percentage of that specified in NEMA MG 1, Section 1, Paragraph 4.19 and NFPA 70, Article 430:

Terminal Box Usable Values		
Voltage	Horsepower	Percentage
Below 600	15 through 125	500
Below 600	150 through 300	275
Below 600	350 through 600	225

- E. Terminal for connection of equipment grounding wire in each terminal box.
- F. Coordinate motor terminal box conduit entries versus size and quantity of conduits shown on Drawings.

2.11 BEARINGS AND LUBRICATION

- A. Horizontal Motors:
 - 1. 3/4 hp and Smaller: Permanently lubricated and sealed ball bearings, or regreasable ball bearings in labyrinth sealed end bells with removable grease relief plugs.
 - 2. 1 hp through 200 hp: Regreasable ball bearings in labyrinth sealed end bells with removable grease relief plugs.
 - 3. Minimum 100,000 hours L-10 bearing life for ball and roller bearings as defined in ABMA 9 and ABMA 11.
- B. Vertical Motors:
 - 1. Thrust Bearings:
 - a. Antifriction bearing.
 - b. Manufacturer's standard lubrication 100 hp and smaller.
 - c. Oil lubricated 125 hp and larger.
 - d. Minimum 50,000 hours L-10 bearing life.
 - 2. Guide Bearings:
 - a. Manufacturer's standard bearing type.
 - b. Manufacturer's standard lubrication 200 hp and smaller.
 - c. Minimum 100,000 hours L-10 bearing life.
- C. Regreasable Antifriction Bearings:
 - 1. Readily accessible, grease injection fittings.
 - 2. Readily accessible, removable grease relief plugs.
- D. Oil Lubrication Systems:
 - 1. Oil reservoirs with sight level gauge.
 - 2. Oil fill and drain openings with opening plugs.
 - 3. Provisions for necessary oil circulation and cooling.
- E. Inverter Duty Rated Motors, Bearing Isolation: Motors larger than 5 hp shall have electrically isolated bearings to prevent stray current damage.

2.12 NOISE

- A. Measured in accordance with NEMA MG 1.

- B. Motors controlled by adjustable frequency drive systems shall not exceed sound levels of 3 dBA higher than NEMA MG 1.

2.13 BALANCE AND VIBRATION CONTROL

- A. In accordance with NEMA MG 1, Part 7.

2.14 EQUIPMENT FINISH

- A. Protect Motor for Service Conditions:
 - 1. ODP Enclosures: Indoor industrial atmospheres.
 - 2. Other Enclosures: Outdoor industrial atmospheres, including moisture and direct sunlight exposure.
- B. External Finish: Prime and finish coat manufacturer's standard.
- C. Internal Finish: Bore and end turns coated with clear polyester or epoxy varnish.

2.15 SPECIAL FEATURES AND ACCESSORIES

- A. Screen Over Air Openings: Stainless steel on motors with ODP, WPI, and WPII enclosures meeting requirements for guarded machine in NEMA MG 1, and attached with stainless steel screws.
- B. Winding Thermal Protection:
 - 1. Thermostats:
 - a. Motors for constant speed application 10 hp through 100 hp. Motors for adjustable speed application 10 hp through 100 hp.
 - b. Bi-metal disk or rod type thermostats embedded in stator windings.
 - c. Automatic reset contacts rated 120 volts ac, 5 amps minimum, opening on excessive temperature. (Provide manual reset at motor controller.)
 - d. Leads extending to separate terminal box for motors 100 hp and larger.
 - 2. Thermistors:
 - a. Motors for constant speed application 125 hp through 250 hp. Motors for adjustable speed application 125 hp through 250 hp.
 - b. Thermistor embedded in each stator phase winding before winding dip and bake process.
 - c. In intimate contact with winding conductors.
 - d. Epoxy-potted, solid-state thermistor control module mounted in NEMA 250 Type 4 box on motor, by motor manufacturer, individual thermistor circuits factory-wired to control module.
 - e. Control module rated for 120V ac power supply.
 - f. Control module automatically reset contact for external use rated 120 V ac, 5 amps minimum, opening on abnormally high winding temperature. Provide manual reset at motor controller.
 - 3. Resistance Temperature Detector:
 - a. Motors for constant speed application 300 hp and larger, and motors for adjustable speed application 300 hp and larger.
 - b. 100-ohm platinum, three-wire, precision resistors with calibrated resistance-temperature characteristics.

- c. Six (two each phase) positioned to detect highest winding temperature and located between coil sides in stator slots.
 - d. Compatible with monitoring instrumentation provided with motor controller and with adjustable speed control equipment.
 - e. Leads brought to separate motor terminal box.
- C. Space Heaters:
- 1. Motors 10 hp and larger.
 - 2. Provide winding space heaters with leads wired out to motor separate conduit or terminal box.
 - 3. Provide extra hole or hub on motor terminal box as required.
 - 4. Unless shown otherwise, heater shall be suitable for 120V ac supply, with wattage suitable for motor frame size.
- D. Nameplates:
- 1. Raised or stamped letters on stainless steel or aluminum.
 - 2. Display motor data required by NEMA MG 1, Paragraph 10.39 and Paragraph 10.40 in addition to bearing numbers for both bearings.
 - 3. Premium efficiency motor nameplates to display NEMA nominal efficiency, guaranteed minimum efficiency, full load power factor, and maximum allowable kVAR for power factor correction capacitors.
- E. Anchor Bolts: Provide meeting manufacturer's recommendations and of sufficient size and number for specified seismic condition.

2.16 SPECIAL MOTORS

- A. Requirements in this article take precedence over conflicting features specified elsewhere in this section.
- B. Chemical Industry, Severe-Duty (CISD-TEFC):
- 1. In accordance with IEEE 841.
 - 2. TEFC in accordance with NEMA MG 1.
 - 3. Suitable for indoor or outdoor installation in severe-duty applications including high humidity, chemical (corrosive), dirty, or salty atmospheres.
 - 4. Motor Frame, End Shields, Terminal Box, and Fan Cover: Cast iron.
 - 5. Ventilating Fan: Corrosion-resistant, nonsparking, external.
 - 6. Drain and Breather Fittings: Stainless steel.
 - 7. Nameplate: Stainless steel.
 - 8. Gaskets between terminal box halves and terminal box and motor frame.
 - 9. Extra slinger on rotor shaft to prevent moisture seepage along shaft into motor.
 - 10. Double shielded bearings.
 - 11. 125,000 hours minimum L-10 bearing life for direct-connected loads.
 - 12. External Finish: Double-coated epoxy enamel.
 - 13. Coated rotor and stator air gap surfaces.
 - 14. Insulation System, Windings, and Connections:
 - a. Class F insulation, Class B rise or better at 1.0 service factor.

- b. Multiple dips and bakes of nonhygroscopic polyester varnish.
- 15. Service Factor:
 - a. At 40 Degrees C Ambient: 1.15.
 - b. At 65 Degrees C Ambient: 1.00.
- 16. Safe Stall Time Without Injurious Heating: 20 seconds minimum.
- C. Severe-duty Explosion-proof: Meet requirements for EXP enclosures and CISC-TEFC motors.
- D. Severe-duty, Dust-ignition-proof: Meet requirements for DIP enclosures and CISC-TEFC motors.
- E. Multispeed: Meet requirements for speeds, number of windings, and load torque classification indicated in motor-driven equipment specification.
- F. Inverter Duty Motor:
 - 1. Motor supplied power by adjustable voltage and adjustable frequency drives shall be inverter duty rated.
 - 2. Suitable for operation over entire speed range indicated.
 - 3. Provide forced ventilation where speed ratio is greater than published range for motor provided.
 - 4. When installed in Division 1 hazardous (classified) location shall be identified as acceptable for variable speed when used in Division 1 location.
 - 5. Shaft Grounding Device: Motors larger than 5 hp shall be provided with shaft grounding brush or conductive micro fiber shaft grounding ring. Shaft grounding device shall be solidly bonded to grounded motor frame per manufacturer's recommendations.
 - a. Manufacturers:
 - 1) Grounding Brush: Sohre Turbomachinery, Inc.
 - 2) Grounding Ring: EST-Aegis.

2.17 FACTORY TESTING

- A. Tests:
 - 1. In accordance with IEEE 112 for polyphase motors.
 - 2. Routine (production) tests in accordance with NEMA MG 1. Test multispeed motors at all speeds.
 - 3. For energy efficient motors, test efficiency and power factor at 50 percent, 75 percent, and 100 percent of rated horsepower:
 - a. In accordance with IEEE 112, Test Method B, and NEMA MG 1, Paragraph 12.59 and Paragraph 12.60.
 - b. For motors 500 hp and larger where facilities are not available to test by dynamometer (Test Method B), determine efficiency by IEEE 112, Test Method F.
 - c. On motors of 100 hp and smaller, furnish certified copy of motor efficiency test report on an identical motor.
 - 4. Additional Required Tests: Temperature rise at rated horsepower for motors 300.
 - 5. Vibration (balance).
 - 6. Provide certified test reports for all polyphase motors.
- B. Test Report Forms:
 - 1. Routine Tests: IEEE 112, Form A-1.

2. Efficiency and power factor by Test Method B, IEEE 112, Form A-2, and NEMA MG 1, Table 12-12.
3. Efficiency and power factor by Test Method F, IEEE 112, Forms F-1, F-2, and F-3.
4. Temperature Test: IEEE 112, Form A-2.

PART 3 EXECUTION

3.01 INSTALLATION

- A. In accordance with manufacturer's instructions and recommendations.
- B. Align motor carefully and properly with driven equipment.
- C. Secure equipment to mounting surface with anchor bolts.

3.02 MANUFACTURER'S SERVICES

- A. Furnish manufacturer's representative at Site in accordance with Section 01005, General Requirements, for installation assistance, inspection, equipment testing, and startup assistance for motors larger than 100 hp.
- B. Manufacturer's Certificate of Proper Installation.

END OF SECTION

SECTION 16450 GROUNDING**PART 1 GENERAL****1.01 SCOPE OF WORK**

- A. Furnish and install a complete grounding system in strict accordance with Article 250 of the National Electrical Code and/or as hereinafter specified and/or as shown on the Contract Drawings.

1.02 SUBMITTALS

- A. The requirements of Section 01340 and Section 16050 shall be met.
- B. Test results as indicated in 3.02 C shall be submitted.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Ground Rods: The ground rods shall be solid copper or copper-clad steel having a diameter of 5/8-inch and a length of 10-feet. The ground rods shall be as manufactured by Copperweld, or approved equal.
- B. Grounding Conductors
 - 1. All grounding conductors shall be copper. Aluminum or copper-clad aluminum grounding conductors will not be allowed.
 - 2. The grounding conductors shall be sized in accordance with the latest edition of the National Electrical Code, Table 250-94 or Table 250-95, whichever is applicable to the particular grounding conductor.
- C. Ground Rod Clamps: The ground rod clamps shall be malleable iron or cast bronze fittings suitable for use with copper conductors. The ground rod clamps shall be as manufactured by Bridgeport Fittings, Inc.; ITT Blackburn, Inc.; or approved equal.
- D. Dissimilar Metals Junctions: Connections between different metals shall be sealed using NO-OXIDE paint, Grade A, or approved equal.

PART 3 EXECUTION**3.01 INSTALLATION**

- A. Wherever possible, the Contractor shall connect to an existing plant, area or building grounding grid. Where no such grounding grid exists, the Contractor shall provide grounding as hereinafter specified and/or as shown on the Contract Drawings.
- B. Building grounding grid conductors shall be embedded in backfill material around the structures.

- C. All underground conductors shall be laid slack and, where exposed to mechanical injury, shall be protected by pipes or other substantial guards. If guards are iron pipe or other magnetic material, conductors shall be electrically connected to both ends of the guard.
- D. Grounding electrodes shall be driven as required. Where rock is encountered, grounding plates may be used in lieu of grounding rods.
- E. All equipment enclosures, motor and transformer frames, conduit systems, cable armor, exposed structural steel and similar items as required by Article 250 of the NEC shall be grounded.
- F. All steel building columns shall be bonded together and connected to the building ground grid.
- G. Exposed connections shall be made utilizing approved grounding clamps. Buried connections shall be Cadweld, or approved equal, welding process.
- H. The ground bus of service entrance equipment shall be connected to the plant, area or building ground grid, whichever is applicable.
- I. For reasons of mechanical strength, grounding conductors extending from the plant, area or building grounding grid or service entrance ground bus, whichever is applicable, to the ground buses of motor control centers and/or unit substations shall be No. 1/0 AWG bare copper.
- J. Lighting transformer neutrals shall be grounded to the nearest grounding electrode.
- K. Conduits stubbed-up below a motor control center shall be fitted with insulated grounding bushings and connected to the motor control center ground bus. Boxes mounted below motor control centers shall be bonded to the motor control center ground bus. The grounding wire shall be sized in accordance with Table 250-95 of the National Electrical Code, except that a minimum No. 12 AWG shall be used.
- L. The Contractor shall exercise care to insure good ground continuity, in particular between conduits and equipment frames and enclosures. Where necessary, jumper wires shall be installed.

3.02 TESTS

- A. The Contractor shall test the ground resistance of the system. The Contractor shall provide all test equipment of which the County shall have approval.
- B. The dry season resistance of the system shall not exceed five (5) ohms. If a single driven rod does not produce this value, the Contractor shall drive additional rods and/or take other measures as directed by the County without any cost to the County.
- C. The Contractor shall furnish to the County three (3) copies of the test report certifying that the system is in compliance with the ohmic value requirement. The certified test report shall include, but not necessarily be limited to, the following:
 - 1. Description of the test.
 - 2. Type of test equipment used.

3. Moisture content of the soil.
4. Date and time of the test.
5. Resistance measurement of each rod cluster.
6. Name of individual(s) performing the test.
7. Contractor's certification stamp or seal.

3.03 GUARANTEES AND WARRANTIES

- A. The Contractor shall guarantee and warrant all materials and labor provided under this Section in accordance with Section 01740 and Section 16050 of these Specifications.

END OF SECTION

DIVISION 40 PROCESS INTEGRATION

SECTION 40900 INSTRUMENTATION AND CONTROL FOR PROCESS SYSTEMS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Major Work Items: Includes but is not limited to engineering, furnishing, installing, calibrating, adjusting, testing, documenting, starting up, and training as specified herein and shown on the drawings.
 - 1. Provide and install the following process instruments and dataloggers as shown on the drawings and specified herein:
 - a) Magnetic flowmeter and datalogger.
 - b) Level Instrument with integral datalogger.
 - c) Pressure sensor/recorder instrument.

1.02 SUBMITTALS

- A. General: Provide the following information for the field instruments and datalogger:
 - 1. Bill of Materials: List of required equipment.
 - a) Data Included:
 - 1) Description.
 - 2) Manufacturer, complete model number and all options not defined by model number.
 - 3) Quantity supplied.
 - b) Formats: Hard copy and Microsoft Excel.
 - 2. Catalog Cuts: I&C components, electrical devices, and mechanical devices:
 - a) Catalog information, marked to identify proposed items and options.
 - b) Descriptive literature.
 - c) External power and signal connections.
 - 3. Installation Details: Include installation details for instruments and datalogger which includes scaled drawings showing exterior dimensions and location of electrical and mechanical devices, mounting racks, sun shields, surge protection devices, and any modifications to the existing ASR well for the new installations.
 - 4. Operation and Maintenance Data:
 - a) General:
 - 1) Provide sufficient detail to allow operation, removal, installation, adjustment, calibration, maintenance and purchasing replacements for the supplied instruments and datalogger.
 - 2) Field configuration and set-up instructions for as-installed datalogger.
 - 3) Data retrieval instructions from level instrument, pressure

instrument, and datalogger to laptop computer.

- 4) Manufacturer's O&M manuals for the supplied instruments, components, and datalogger:
 - a. Content for Each O&M Manual:
 - i. Table of Contents.
 - ii. Operations procedures.
 - iii. Installation requirements and procedures.
 - iv. Maintenance requirements and procedures.
 - v. Troubleshooting procedures.
 - vi. Calibration procedures.
 - vii. Internal schematic and wiring diagrams.
 - viii. Component and I/O Module Calibration Sheets from field quality control calibrations.
 - b) Provide PDF file with linked index to all manuals.
- 5) List of spares, expendables, test equipment and tools provided.
- 6) List of additional recommended spares, expendables, test equipment, and tools. Include quantities, unit prices, and total
- 7) Provide Manufacturer's certificate of proper installation and warranty for each installation.
- 8) Refer to specification section 01730 for further requirements for the Operation and Maintenance data.
5. Testing Submittal: Provide field test and start-up submittal which includes a checklist for each installed instrument and datalogger for functionality and inspection of the installation. Each checklist shall include a sign-off signature line for the Owner, Contractor, and Engineer. Completed field calibration sheets shall also be included for each instrument.
6. Training Submittal: Provide a training submittal for operations and maintenance of the supplied instruments and dataloggers. Training submittal shall include a syllabus and schedule for the proposed training.

PART 2 PRODUCTS

2.01 DATALOGGER

- A. General: Provide a datalogger to monitor and record the ASR flows. Datalogger shall be Campbell Scientific, CR1000X model or equal and provided with the following requirements and options:
 1. Datalogger: Measurement and control datalogger with 3-year standard warranty, operational temperature of minus 40 to plus 70 degrees Celcius.
 2. 12V Power Supply with charging regulators and 7Ah sealed rechargeable battery with 1-year warranty.
 3. Power Supply: 120VAC, 60Hz. Provide 5 ft cable with plug (Input 120VAC; Output 24VDC).
 4. Enclosure (NEMA 4X) and sun shield to cover back, sides and top of enclosure. Mounting rack for datalogger.

5. Datalogger support software.
6. Terminal input module for each analog signal input (4-20mA).

B. Refer to the drawings for further details on installation and location.

2.02 FIELD INSTRUMENTS

- A. Refer to the drawings for the following:
1. Magnetic flowmeter and surge protection specification, installation details, and location.
 2. Level sensor/transmitter with integral datalogger specification, installation detail, and location.
 3. Pressure sensor/recorder specification, installation detail, and location.

2.03 ELECTRICAL REQUIREMENTS

- A. All electrical components, terminals, wires, and enclosures UL recognized or UL listed.
- B. Wires within Enclosures:
1. ac Circuits:
 - a. Type: 600-volt, Type MTW stranded copper.
 - b. Size: For current to be carried, but not less than No. 18 AWG.
 2. Analog Signal Circuits:
 - a. Type: 600-volt stranded copper, twisted shielded pairs or triad with a 100 percent, aluminum-polyester shield, rated 60 degrees C.
 - b. Panels with Circuits Less Than 600 volts: Rated at 600 volts. Belden No. 18 AWG Type 9341, Triad Belden No. 1121A.
 - c. Size: No. 18 AWG, minimum.
 3. Other dc Circuits.
 - a. Type: 600-volt, Type MTW stranded copper.
 - b. Size: For current carried, but not less than No. 18 AWG.
 4. Special Signal Circuits: Use manufacturer's standard cables.
 5. Wire Identification: Numbered and tagged at each termination.
 - a. Wire Tags: Machine printed, heat shrink.
 - b. Manufacturers:
 - Brady Perma Sleeve.
 - Tyco Electronics.
- C. Terminate and identify wires entering or leaving enclosures as follows:
1. Analog and discrete signal, terminate at numbered terminal blocks.
 2. Special signals terminated using manufacturer's standard connectors.
 3. Identify wiring in accordance with requirements in Section 26 05 05, Conductors.
- D. Terminal Blocks for Enclosures:

1. Quantity:
 - a. Accommodate present and spare indicated needs.
 - b. Wire spare PLC I/O points to terminal blocks.
 - c. One wire per terminal for field wires entering enclosures.
 - d. Maximum of two wires per terminal for No. 18 AWG wire for internal enclosure wiring.
 - e. Spare Terminals: 20 percent of connected terminals, but not less than 10 per terminal block, unless otherwise shown on Drawings.

E. Grounding of Enclosures:

1. Furnish isolated copper grounding bus for signal and shield ground connections.
2. Ground this ground bus at a common signal ground point in accordance with National Electrical Code requirements.
3. Single Point Ground for Each Analog Loop:
 - a. Locate signal ground at dc power supply for loop.
 - b. Use to ground wire shields for loop.
 - c. Group and ground wire shields in following locations:
 - 1) Locate signal ground at dc power supply for loop.
 - 2) Use to ground wire shields for loop.
4. Ground terminal block rails to ground bus.

F. Analog Signal Isolators:

1. Furnish signal isolation for analog signals that are sent from one enclosure to another.
2. Do not wire in series instruments on different panels, cabinets, or enclosures.

G. Intrinsic Safety System Installation:

1. Comply with NEC Article 504, Intrinsically Safe Systems.
2. Install intrinsically safe circuits in a separate wire way that:
 - a. Is separated from nonintrinsically safe circuits as specified by NEC.
 - b. Is colored light blue and has message "Intrinsically Safe Circuits Only" on raceway cover every 6 inches.

H. Wiring Interface: Terminate and identify wiring entering or leaving enclosures.

1. Analog and Discrete Signal Wires: Terminate at numbered terminal blocks as shown on the wiring diagrams.
2. Wiring for Special Signals: Terminate communications, digital data, and multiplexed signals using manufacturer's standard connectors for the device to which the signals terminate.

I. Electrical Transient Protection: Refer to drawings for surge protection specification and locations.

2.04 PANEL FABRICATION

- A. General:
 - 1. Nominal Panel Dimensions: Refer to drawings.
 - 2. Panel Construction and Interior Wiring: In accordance with the National Electrical Code (NEC), state and local codes, and applicable sections of NEMA, ANSI, UL, and ICECA.
 - 3. UL Listing Mark for Enclosures: Mark stating "Listed Enclosed Industrial Control Panel" per UL 508A.
 - 4. Electrical Work: In accordance with the applicable requirements of Division 16, Electrical.
- B. Non-freestanding Panel Construction:
 - 1. Panel Construction:
 - a. Enclosure Type: NEMA 4X.
 - b. Materials: Type 304 stainless steel.
 - c. For outdoor applications, paint exterior of panel white to reduce solar effects.
 - 2. Metal Thickness: 14-gauge, minimum.
 - 3. Doors:
 - a. Rubber-gasketed with continuous hinge.
 - b. Stainless steel lockable quick-release clamps.
 - 4. Manufacturers:
 - a. Hoffman Engineering Co.
- C. Breather and Drains: Furnish with NEMA 250, Type 4 and 4X panels:
 - 1. Manufacturer and Product:
 - a. Cooper Crouse-Hinds; ECD Type 4X Drain and Breather; Drain Model ECD1-N4D, Breather Model ECD1-N4B.
 - b. Hoffman; H2Omit Stainless Steel Vent Drain.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Material and Equipment Installation: Follow manufacturers' installation instructions, unless otherwise indicated or directed by Engineer.
- B. Wiring connected to instruments, datalogger, components and assemblies, including power wiring in accordance with requirements Division 16.

3.02 FIELD TESTING

- A. General:

1. Coordinate testing with Owner and Engineer. Notify Engineer Test schedule 2 weeks prior to start of test.
2. Engineer's decision will be final regarding acceptability and completeness of testing.

B. Onsite Supervision:

1. Require Contractor to observe equipment installation to extent required in order to provide Certificates of Proper Installation.

C. Testing:

1. Prior to field testing, inspect and test each instrument and datalogger and document that each one is ready for operation.
2. Instrument Calibration Sheets: Calibration sheets shall include as a minimum the following information:
 - a. Instrument type.
 - b. Manufacturer name
 - c. Model/serial number.
 - d. Actual inputs and outputs of analog devices at 0, 10, 50, and 100 percent of span, rising and falling.
 - e. Space for comments and signatures.
3. Performance Test: Demonstrate the operation of each instrument and datalogger as specified. Document on test forms provided in testing submittal.

3.03 TRAINING

A. General:

1. Perform hands-on field training to meet specific needs of Owner's personnel.
2. Provide instruction on one working shift as needed to accommodate the Owner's personnel schedule.
3. Owner reserves the right to reuse videotapes of training sessions.

B. Operations and Maintenance Training:

1. Operations & Maintenance Training: For Owner's operations & maintenance personnel on operation of the supplied field instruments and dataloggers.
 - a. Training Session Duration: Four hours.
 - b. Number of Training Sessions: Two.
 - c. Location: Project Site.
 - d. Course Objective, Operation: Develop skills needed to use instruments

and dataloggers including software for each instrument datalogger.

e. Course Objective, Maintenance:

- i. Instrument calibration.
- ii. Troubleshooting and diagnosis for equipment and software.
- iii. Replacing lamps, chart paper, and fuses.
- iv. Electrical or I&C components removal and replacement.
- v. Periodic preventive maintenance.

3.04 GUARANTEES AND WARRANTIES

- A. The Contractor shall guarantee and warrant all materials and labor provided under this Section in accordance with Section 01740.

END OF SECTION

SECTION 40999 PACKAGE CONTROL SYSTEMS

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. The Institute of Electrical and Electronics Engineers, Inc. (IEEE): C62.41, IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
 - 2. International Society of Automation (ISA): S50.1, Compatibility of Analog Signals for Electronic Process Instruments.
 - 3. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).
 - b. AB 1, Molded Case Circuit Breakers and Molded Case Switches.
 - c. ICS 2, Industrial Control Devices, Controllers and Assemblies.
 - National Fire Protection Association (NFPA): 70, National Electrical Code (NEC).
 - Underwriters Laboratories Inc. (UL): 508A, Standards for Safety, Industrial Control Panels.

1.02 SYSTEM DESCRIPTION

- A. Assemble panels and install instruments and wiring in equipment manufacturer's factories.
- B. Test panels and panel assemblies for proper operation prior to shipment from equipment manufacturer's factory.

1.03 SUBMITTALS

- A. Action Submittals:
 - 1. Bill of material, catalog information, descriptive literature, wiring diagrams, and Shop Drawings for components of control system.
 - 2. Catalog information on electrical devices furnished with system.
 - 3. Shop Drawings, catalog material, and dimensional layout drawings for control panels and enclosures.
 - 4. Panel elementary diagrams of prewired panels. Include in diagrams control devices and auxiliary devices, for example, relays, alarms, fuses, lights, fans, and heaters.
 - 5. Interconnection wiring diagrams that include numbered terminal designations showing external interfaces.
 - 6. Calculations for heat dissipation and power requirements.
- B. Informational Submittals:
 - 1. Programmable Controller Submittals:
 - a. Complete set of user manuals.

- b. Fully documented ladder logic listings.
- c. Function listing for function blocks not fully documented by ladder logic listings.
- d. Cross-reference listing.
- 2. Manufacturer's list of proposed spares, expendables, and test equipment.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Prior to shipment, include corrosive-inhibitive vapor capsules in shipping containers and related equipment as recommended by capsule manufacturer.

1.05 EXTRA MATERIALS

- A. Spares, Expendables, and Test Equipment:
 - 1. Selector Switch, Pushbutton, and Indicating Light: 20 percent, one minimum, of each type used.
 - 2. Light Bulb: 100 percent, 2 minimum, of each type used.
 - 3. Fuse: 100 percent, 5 minimum, of each type used.
 - 4. Surge Suppressors: 20 percent, one minimum, of each type used.

PART 2 PRODUCTS

2.01 SIGNAL CHARACTERISTICS

- A. Analog Signals:
 - 1. to 20 mA dc, in accordance with compatibility requirements of ISA S50.1.
 - 2. Unless otherwise specified or shown, use Type 2, two-wire circuits.
 - 3. Transmitters: Load resistance capability conforming to Class L.
 - 4. Fully isolate input and output signals of transmitters and receivers.
- B. Pulse Frequency Signals: dc pulses whose repetition rate is linearly proportional to process variable over 10:1 range. Generate pulses by contact closures or solid-state switches.
 - 1. Power source: Less than 30V dc.
- C. Discrete Signals:
 - 1. Two-state logic signals.
 - 2. Utilize 120V ac sources for control and alarm signals.
 - 3. Alarm signals shall be normally open, close to alarm isolated contacts rated for 5-ampere at 120V ac and 2-ampere at 30V dc.

2.02 CONTROL PANEL

- A. Panel Construction and Interior Wiring: In accordance with the National Electrical Code (NEC), UL 508, state and local codes, and applicable sections of NEMA, ANSI, and ICECA.
- B. Conform to NEMA ratings as specified in individual equipment sections.

- C. Minimum Metal Thickness: 14-gauge.
- D. NEMA 250, Type 4X Panels:
 - 1. Type 304 stainless steel construction unless otherwise specified.
 - 2. For outdoor applications, paint exterior of panel white to reduce solar effects.
- E. Doors:
 - 1. Rubber-gasketed with continuous hinge.
 - 2. Lockable three-point rate to appropriate enclosure rating.
- F. Cutouts: punched, or drilled and finished smoothly with rounded edges.
- G. Access: Front, suitable for installation with back and sides adjacent to or in contact with other surfaces, unless otherwise specified.
- H. Temperature Control:
 - 1. Design panels to adequately dissipate heat generated by equipment mounted on or in the panel.
 - 2. Furnish cooling fans with air filters or A/C if required to dissipate heat.
 - 3. For panels outdoors or in unheated areas, furnish thermostatically controlled heaters to maintain temperature above 40 degrees F.
- I. Push-to-Test Circuitry: For each push-to-test indicating light, provide a fused push-to-test circuit.
- J. Lighting: Minimum of one hand switch controlled internal 100-watt light for panels 12 cubic feet and larger.
- K. Minimum of one 120-volt GFCI duplex receptacle for panels 12 cubic feet and larger.
- L. Finish:
 - 1. Metallic External Surfaces (Excluding Aluminum and Stainless Steel): Manufacturer's standard gray unless otherwise specified.
 - 2. Internal Surfaces: White enamel.
- M. Panel Manufacturers:
 - 1. Hoffman.
 - 2. H.F. Cox.
- N. Breather and Drains: Furnish with NEMA 250, Type 4 and 4X panels.
 - 1. Manufacturer and Product: Cooper Crouse-Hinds; ECD Type 4X Drain and Breather; Drain Model ECD1-N4D, Breather Model ECD1-N4B.

2.03 CONTROL PANEL ELECTRICAL

- A. UL Listing Mark for Enclosures: Mark stating "Listed Enclosed Industrial Control Panel" per UL 508A.
- B. I&C and electrical components, terminals, wires, and enclosures UL recognized or UL listed.
- C. Control Panels without Motor Starters:
 - 1. Furnish main circuit breaker and a circuit breaker on each individual branch circuit distributed from power panel.
 - 2. Locate to provide clear view of and access to breakers when door is open. Group on single subpanel. Provide typed directory.
 - 3. Circuit Breakers:
 - a. Coordinate for fault in branch circuit trips, branch breaker, and not main breaker.
 - b. Branch Circuit Breakers: 15 amps at 250V ac.
 - c. Breaker Manufacturers and Products:
 - 1) Heineman Electric Co.; Series AM.
 - 2) Airpax/North American Philips Controls Corp.; Series 205.
- D. Control Panels with Three-Phase Power Supplies and Motor Starters:
 - 1. Interlock main circuit breaker with panel door.
 - a. Mount logic controls, branch circuit breakers, overload reset switches, and other control circuit devices.
 - b. Mount operator controls and indications on front access door.
 - 2. Circuit Breakers:
 - a. In accordance with NEMA AB 1.
 - b. 18,000-ampere RMS symmetrical rating, minimum at 480 volts, unless otherwise specified.
 - c. Breakers, except Motor Branch Breakers: Molded case thermal magnetic.
 - d. 65,000-ampere RMS symmetrical rating, minimum at 480 volts, unless otherwise specified in package system equipment Specification sections.
 - e. Tripping: Indicate with operator handle position.
 - 3. Magnetic Motor Starters:
 - a. Full voltage, NEMA ICS 2, Class A, Size O minimum.
 - b. Include three-pole bimetallic or eutectic alloy thermal overload relays sized for each motor.
 - c. Manual reset type with reset button mounted on panel door.
 - 4. Motor Control: 120V ac (except intrinsically safe circuits where applicable).
 - a. Power Control Transformer:
 - 1) Sufficient capacity to serve connected load, including 200VA for duplex outlet plus 100VA (minimum).
 - 2) Limit voltage variation to 15 percent during contact pickup.
 - 3) Fuse one side of secondary winding and ground the other.
 - 4) Furnish primary winding fuses in ungrounded conductors.

5. Power Monitoring Relay:
 - a. Protect three-phase equipment from single phasing, phase imbalance, or phase reversal.
 - b. Separate, isolated contact outputs to stop motors and activate alarm light during abnormal conditions.
 - c. Transient Voltage Protection: 10,000 volts.
 - d. Manufacturer and Product: Furnas; Class 47.
6. Power Distribution Blocks: Furnish to parallel feed tap on branch circuit protective devices. Do not "leap frog" power conductors.
7. Terminations for Power Conductors: Suitable for use with 75 degrees C wire at full NFPA 70, 75 degrees C ampacity.

E. Wiring:

1. ac Circuits:
 - a. Type: 600-volt, Type MTW stranded copper.
 - b. Size: For current to be carried, but not less than 14 AWG.
2. Analog Signal Circuits:
 - a. Type: 600-volt, Type 2 stranded copper, twisted shielded pairs.
 - b. Size: 18 AWG, minimum.
3. Other dc Circuits.
 - a. Type: 600-volt, Type MTW stranded copper.
 - b. Size: 18 AWG, minimum.
4. Separate analog and other dc circuits by at least 6 inches from ac power and control wiring, except at unavoidable crossover points and at device terminations.
5. Enclose wiring in sheet metal raceways or plastic wiring ducts.
6. Wire Identification: Numbered and tagged at each termination.
 - a. Wire Tags: Machine printed, heat shrink.
 - b. Manufacturers:
 - 1) Brady PermaSleeve.
 - 2) Tyco Electronics.

F. Wiring Interface:

1. For analog and discrete signal, terminate at numbered terminal blocks.
2. For special signals, terminate power (240 volts or greater) at manufacturer's standard connectors.
3. For panel, terminate at equipment on/with which it is mounted.

G. Terminal Blocks:

1. Quantity:
 - a. For external connections.
 - b. Wire spare or unused panel mounted elements to their panels' terminal blocks.
 - c. Spare Terminals: 20 percent of connected terminals, but not less than 10.
2. General: Group to keep 120V ac circuits separate from 24V dc circuits.
 - a. Connection Type: Screw connection clamp.
 - b. Compression Clamp:

- 1) Hardened steel clamp with transversal grooves penetrating wire strands providing a vibration-proof connection.
- 2) Guides strands of wire into terminal.
- c. Screws: Hardened steel, captive, and self-locking.
- d. Current Bar: Copper or treated brass.
- e. Insulation:
 - 1) Thermoplastic rated for minus 55 to plus 110 degrees C.
 - 2) Two funnel shaped inputs to facilitate wire entry.
- f. Mounting:
 - 1) Rail.
 - 2) Terminal block can be extracted from an assembly without displacing adjacent blocks.
 - 3) End Stops: One at each end of rail, minimum.
- g. Wire Preparation: Stripping only.
- h. Jumpers: Allow jumper installation without loss of space on terminal or rail.
- i. Marking System:
 - 1) Terminal number shown on both sides of terminal block.
 - 2) Allow use of preprinted and field marked tags.
 - 3) Terminal strip numbers shown on end stops.
 - 4) Mark terminal block and terminal strip numbers as shown.
3. Terminal Block, 120-Volt Power:
 - a. Rated Voltage: 600V ac.
 - b. Rated Current: 30 amp.
 - c. Wire Size: 22 through 10 AWG.
 - d. Rated Wire Size: 10 AWG.
 - e. Color: Gray body.
 - f. Spacing: 0.25 inch, maximum.
 - g. Manufacturer and Product: Entrelec; Type M4/6.
4. Terminal Block, Ground:
 - a. Wire Size: 22 through 12 AWG.
 - b. Rated Wire Size: 12 AWG.
 - c. Color: Green and yellow body.
 - d. Spacing: 0.25 inch, maximum.
 - e. Grounding: Ground terminal blocks electrically grounded to the mounting rail.
 - f. Manufacturer and Product: Entrelec; Type M4/6.P.
5. Terminal Block, Blade Disconnect Switch:
 - a. Use: Provide one for each discrete input and output field interface wire.
 - b. Rated Voltage: 600V ac.
 - c. Rated Current: 10 amp.
 - d. Wire Size: 22 through 12 AWG.
 - e. Rated Wire Size: 12 AWG.
 - f. Color: Gray body, orange switch.
 - g. Spacing: 0.25 inch, maximum.
 - h. Manufacturer and Product: Entrelec; Type M4/6.SN.
6. Terminal Block, Fused, 24V dc:

- a. Rated Voltage: 600V dc.
- b. Rated Current: 6.3 amp.
- c. Wire Size: 22 through 12 AWG.
- d. Rated Wire Size: 12 AWG.
- e. Color: Gray body.
- f. Fuse: 5 by 20 GMA fuses.
- g. Fuse Marking: Fuse amperage rating shown on top of terminal block.
- h. Indication: LED diode 24V dc.
- i. Leakage Current: 5.2 mA, maximum.
- j. Spacing: 0.32 inch, maximum.
- k. Manufacturer and Product: Entrelec; Type M4/6.SFD.
- 7. Terminal Block, Fused, 120V ac:
 - a. Rated Voltage: 600V ac.
 - b. Rated Current: 6.3 amp.
 - c. Wire Size: 22 through 12 AWG
 - d. Rated Wire Size: 12 AWG.
 - e. Color: Gray body.
 - f. Fuse: 5 by 20 GMA fuses.
 - g. Fuse Marking: Fuse amperage rating shown on top of terminal block.
 - h. Indication: Neon lamp 110V ac.
 - i. Leakage Current: 1.8 mA, maximum.
 - j. Spacing: 0.32 inch, maximum
 - k. Manufacturer and Product: Entrelec; Type M4/6.SFL.
- H. Grounding: Internal copper grounding bus for ground connections on panels, consoles, racks, and cabinets.
- I. Relays:
 - 1. General:
 - a. Relay Mounting: Plug-in type socket.
 - b. Relay Enclosure: Provide dust cover.
 - c. Socket Type: Screw terminal interface with wiring.
 - d. Socket Mounting: Rail.
 - e. Furnish holddown clips.
 - 2. Control Circuit Switching Relay, Nonlatching:
 - a. Type: Compact general purpose plug-in.
 - b. Contact Arrangement: 3 Form C contacts.
 - c. Contact Rating: 10A at 28V dc or 240V ac.
 - d. Contact Material: Silver cadmium oxide alloy.
 - e. Coil Voltage: As noted or shown.
 - f. Coil Power: 1.8 watts (dc), 2.7VA (ac).
 - g. Expected Mechanical Life: 10,000,000 operations.
 - h. Expected Electrical Life at Rated Load: 100,000 operations.
 - i. Indication Type: Neon or LED indicator lamp.

- j. Push-to-test button.
 - k. Manufacturer and Product: Potter and Brumfield; Series KUP.
- 3. Control Circuit Switching Relay, Latching:
 - a. Type: Dual coil mechanical latching relay.
 - b. Contact Arrangement: 2 Form C contacts.
 - c. Contact Rating: 10A at 28V dc or 120V ac.
 - d. Contact Material: Silver cadmium oxide alloy.
 - e. Coil Voltage: As noted or shown.
 - f. Coil Power: 2.7 watts (dc), 5.3VA (ac).
 - g. Expected Mechanical Life: 500,000 operations.
 - h. Expected Electrical Life at Rated Load: 50,000 operations.
 - i. Manufacturer and Product: Potter and Brumfield; Series KB/KBP.
- 4. Control Circuit Switching Relay, Time Delay:
 - a. Type: Adjustable time delay relay.
 - b. Contact Arrangement: 2 Form C contacts.
 - c. Contact Rating: 10A at 240V ac.
 - d. Contact Material: Silver cadmium oxide alloy.
 - e. Coil Voltage: As specified or shown.
 - f. Operating Temperature: Minus 10 to 55 degrees C.
 - g. Repeatability: Plus or minus 2 percent.
 - h. Delay Time Range: Select range such that time delay setpoint fall between 20 to 80 percent or range.
 - i. Time Delay Setpoint: As specified or shown.
 - j. Mode of Operation: As specified or shown.
 - k. Adjustment Type: Integral potentiometer with knob external to dust cover.
 - l. Manufacturer and Products: Potter and Brumfield.
 - 1) Series CB for 0.1-second to 100-minute delay time ranges.
 - 2) Series CK for 0.1- to 120-second delay time ranges.
- J. Intrinsic Safety Barriers:
 - 1. Intrinsically Safe Relays: Monitor discrete signals that originate in hazardous area and are used in a safe area.
 - a. Manufacturer and Product: MTL, Inc.; Series MTL 5000.
 - 2. Intrinsically Safe Barriers: Interface analog signals as they pass from hazardous area to safe area.
 - a. Manufacturer and Product: MTL, Inc.; Series MTL 5000.
- K. Analog Signal Isolators:
 - 1. Furnish signal isolation for analog signals that are sent from one enclosure to another.
 - 2. Do not wire in series instruments on different panels, cabinets, or enclosures.
- L. Power Supplies:
 - 1. Furnish as required to power instruments requiring external dc power, including two-wire transmitters and dc relays. Provide dual power supplies with diode auctioneered outputs.

2. Convert 120V ac, 60-Hz power to dc power of appropriate voltage(s) with sufficient voltage regulation and ripple control to assure that instruments being supplied can operate within their required tolerances.
 3. Provide output over voltage and over current protective devices to:
 - a. Protect instruments from damage due to power supply failure.
 - b. Protect power supply from damage due to external failure.
 4. Enclosures: NEMA 1.
 5. Mount such that dissipated heat does not adversely affect other components.
- M. Front-of-Panel Devices Used in Conjunction with NEMA 250, Type 4X Panels:
1. Potentiometer, Watertight:
 - a. Three-terminal, heavy-duty NEMA 250, Type 4X watertight construction, resolution of 1 percent and linearity of plus or minus 5 percent.
 - b. Single-hole, panel mounting accommodating panel thicknesses between 1/8 and 1/4 inch.
 - c. Include engraved legend plates with service markings.
 - d. Finger-safe.
 - e. Manufacturer and Product: Allen-Bradley; Bulletin 800HC.
 2. Indicating Lights, Watertight:
 - a. Heavy-duty, push-to-test type, NEMA 250, Type 4X watertight, industrial type with integral transformer for 120V ac applications and corrosion-resistant service.
 - b. Screwed on prismatic lenses and factory engraved legend plates for service legend.
 - c. Finger-safe.
 - d. Manufacturers and Products:
 - 1) Square D; Type SK, finger-safe style.
 - 2) Allen-Bradley; Type 800HC.
 3. Pushbutton, Momentary, Watertight:
 - a. Heavy-duty, NEMA 250, Type 4X watertight, industrial type with momentary contacts rated for 120V ac service at 10 amperes continuous and corrosion-resistant service.
 - b. Standard size, black field, legend plates with white markings for service legend.
 - c. Finger safe.
 - d. Manufacturers and Products:
 - 1) Square D; Type SK, finger-safe style.
 - 2) Allen-Bradley; Type 800HC.
 4. Selector Switch, Watertight:
 - a. Heavy-duty, NEMA 250, Type 4X watertight, industrial type with contacts rated for 120V ac service at 10 amperes continuous and corrosion-resistant service.
 - b. Standard size, black field, legend plates with white markings, for service legend.
 - c. Operators: Black knob type.
 - d. Single-hole mounting, accommodating panel thicknesses from 1/16 to 1/4 inch.
 - e. Finger safe.
 - f. Manufacturer and Products:
 - 1) Square D; Class 9001, Type SK, finger safe style.
 - 2) Allen-Bradley; Type 800HC.

2.04 INSTRUMENT TAG NUMBERS

- A. A shorthand tag notation is used. For example:

XXX-AI-YYY-ZZ [BB]

<u>Notation</u>	<u>Explanation</u>
XXX	Unit process number
AI	ISA designator for Analysis Indicator
YYY	Loop number
ZZ	Unit Number
[BB]	Same notation shown at 2 o'clock position on ISA circle symbol on Process and Instrument Diagram

2.05 NAMEPLATES, NAMETAGS, AND SERVICE LEGENDS

- A. Nametags: Permanently mounted bearing entire ISA tag number.
1. Panel Mounted: Plastic, mounted to instrument behind panel face.
 2. Field Mounted: Engraved Type 316 stainless steel, 22-gauge minimum thickness, attached with stainless steel.
- B. Service Legends (Integrally Mounted with Instrument) and Nameplates:
1. Engraved, rigid, laminated plastic type with adhesive back. Furnish service legends and nameplates to adequately describe functions of panel face mounted instruments.
 2. Color: Black with white letters.
 3. Letter Height: 3/16 inch.
 4. For each panel, face mounted laminated nameplate inscribed with the panel name and tag number. Color shall be black with white letters 1/2-inch high.
- C. Standard Light Colors and Inscriptions: Unless otherwise specified in individual equipment specifications, use the following color code and inscriptions:

Tag	Inscription(s)	Color
ON	ON	Red
OFF	OFF	Green
OPEN	OPEN	Red
CLOSED	CLOSED	Green
LOW	LOW	Amber
FAIL	FAIL	Amber
HIGH	HIGH	Amber
AUTO	AUTO	White
MANUAL	MANUAL	Yellow

Tag	Inscription(s)	Color
LOCAL	LOCAL	White
REMOTE	REMOTE	Yellow
FORWARD	FORWARD	Red
REVERSE	REVERSE	Blue

1. Lettering: Black on white and amber lenses; white on red and green lenses.
2. Standard Pushbutton Colors and Inscriptions:
 - a. Use following unless otherwise noted in Instrument List:

Tag Function	Inscription(s)	Color
OO	ON OFF	Black Black
OC	OPEN CLOSE	Black Black
OCA	OPEN CLOSE AUTO	Black Black Black
OOA	ON OFF AUTO	Black Black Black
MA	MANUAL AUTO	Black Black
SS	START STOP	Black Black
RESET	RESET	Black
EMERGENCY STOP	EMERGENCY STOP	Red

- b. Lettering Color:
 - 1) Black on white and yellow buttons.
 - 2) White on black, red, and green buttons.

2.06 ELECTRICAL SURGE AND TRANSIENT PROTECTION

- A. Equip control panels with surge-arresting devices to protect equipment from damage as a result of electrical transients induced in interconnecting lines from lightning discharges and nearby electrical devices.
- B. Suppressor Locations:
 1. At point of connection between an equipment item, including ac powered transmitters, and power supply conductor (direct-wired equipment).
 2. On analog pairs at each end when the pair travels outside of building.
 3. In other locations where equipment sensitivity to surges and transients requires additional protection beyond that inherent to design of equipment.

- C. Suppressor Design:
 - 1. Construction: First-stage, high-energy metal oxide varistor and second-stage, bipolar silicon avalanche device separated by series impedance; includes grounding wire, stud, or terminal.
 - 2. Response: 5 nanoseconds maximum.
 - 3. Recovery: Automatic.
 - 4. Temperature Range: Minus 20 degrees C to plus 85 degrees C.
 - 5. Enclosure Mounted: Encapsulated inflame retardant epoxy.
- D. Suppressors on 120V ac Power Supply Connections:
 - 1. Occurrences: Tested and rated for a minimum of 50 occurrences of IEEE C62.41 Category B test waveform.
 - 2. First-Stage Clamping Voltage: 350 volts or less.
 - 3. Second-Stage Clamping Voltage: 210 volts or less.
 - 4. Power Supplies for Continuous Operation:
 - a. Four-Wire Transmitter or Receiver: Minimum 5 amps at 130V ac.
 - b. All Other Applications: Minimum 30 amps at 130V ac.
- E. Suppressors on Analog Signal Lines:
 - 1. Test Waveform: Linear 8-microsecond rise in current from 0 amp to a peak current value followed by an exponential decay of current reaching one-half the peak value in 20 microseconds.
 - 2. Surge Rating: Tested and rated for 50 occurrences of 2,000-amp peak test waveform.
 - a. dc Clamping Voltage: 20 percent to 40 percent above operating voltage for circuit.
 - b. dc Clamping Voltage Tolerance: Plus or minus 10 percent.
 - c. Maximum Loop Resistance: 18 ohms per conductor.
- F. Manufacturers and Products:
 - 1. Panel Mounted Analog Signals Lines (SS2): Emerson Edco PC-642 or SRA-64 series.
 - 2. 120V ac Lines (SS1): Emerson Edco HSP-121.
 - 3. 480-Volt, Three-Phase Power Supplies: Square D Model SDSA3650.
 - 4. Field Mounted at Two-Wire Instruments (SS3):
 - a. Encapsulated in stainless steel pipe nipples.
 - b. Emerson Edco SS64 series.
 - 5. Field Mounted at Four-Wire Instruments (SS4): With 120V ac outlet, ac circuit breaker, and 10-ohm resistor on signal line, all in enclosure.
 - a. Enclosure:
 - 1) NEMA 4X Type 316 stainless steel with door.
 - 2) Maximum Size: 12 inches by 12 inches by 8 inches deep.
 - b. Emerson Edco; SLAC series.
 - 6. Equivalent Phoenix Contact products are permissible.

- G. Grounding:
 - 1. Coordinate surge suppressor grounding in field panels and field instrumentation with suppressor manufacturer's requirements.
 - 2. Provide control panels with an integral copper grounding bus for connection of suppressors and other required instrumentation.

PART 3 EXECUTION

3.01 ELECTRICAL POWER AND SIGNAL WIRING

- A. Restrain control and signal wiring in control panels by plastic ties or ducts. Secure hinge wiring at each end so bending or twisting will occur around the longitudinal axis of wire. Protect bend area with a sleeve.
- B. Arrange wiring neatly, cut to proper length, and remove surplus wire. Install abrasion protection for wire bundles passing through holes or across edges of sheet metal.
- C. Use manufacturer's recommended tool with sized anvil for crimp terminations. No more than one wire may be terminated in a single crimp lug. No more than two lugs may be installed on a single screw terminal.
- D. Do not splice or tap wiring except at device terminals or terminal blocks.

END OF SECTION

DIVISION 44 PUMPING EQUIPMENT
SECTION 44425 VERTICAL TURBINE PUMPS

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Society for Testing and Materials (ASTM):
 - a. A48, Standard Specification for Gray Iron Castings.
 - b. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - c. A276, Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
 - d. B62, Standard Specification for Composition Bronze or Ounce Metal Castings.
 - e. B148, Standard Specification for Aluminum-Bronze Sand Castings.
 - f. B584, Standard Specification for Copper Alloy Sand Castings for General Applications.
 2. American Iron and Steel Institute (AISI): Type 1045 Carbon Steel.
 3. American Water Works Association (AWWA): E101, Vertical Turbine Pumps-Line Shaft and Submersible Types.
 4. Institute of Electrical and Electronics Engineers (IEEE): 112, Standard Test Procedure for Polyphase Induction Motors and Generators.
 5. National Electrical Manufacturer's Association (NEMA): MG 1, Motors and Generators.

1.02 DEFINITIONS

- A. Terminology pertaining to pumping unit performance and construction shall conform to the ratings and nomenclature of the Hydraulic Institute Standards and of AWWA E101, American National Standard for Vertical Turbine Pumps.

1.03 SUBMITTALS

- A. Shop Drawings:
1. Make, model, weight, and horsepower of each equipment assembly.
 2. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.
 3. Performance data curves showing head, capacity, horsepower demand, and pump efficiency over the entire operating range of the pump, from shutoff to maximum capacity. Indicate separately the head, capacity, horsepower demand, overall efficiency, and minimum submergence required at the

- guarantee point.
 - 4. Pump maximum downthrust or upthrust in pounds.
 - 5. Detailed Structural, Mechanical, and Electrical Drawings showing the equipment dimensions, size, and locations of connections and weights of associated equipment.
 - 6. Power and control wiring diagrams, including terminals and numbers.
 - 7. Complete motor nameplate data, as defined by NEMA, motor manufacturer, and including any motor modifications. Motor descriptive literature.
 - 8. Factory finish system.
 - 9. Fabrication drawings for column pipe casing centralizer assembly.
- B. Quality Control Submittals:
- 1. Factory Functional and Performance Test Reports and Log.
 - 2. Manufacturer's Certification of Compliance that the factory finish system is identical to the requirements specified herein.
 - 3. Special shipping, storage and protection, and handling instructions.
 - 4. Manufacturer's printed installation instructions.
 - 5. Manufacturer's Certificate of Proper Installation describing field testing performed and measured results of each test performed.
 - 6. Suggested spare parts list to maintain the equipment in service for a period of 5 years. Include a list of special tools required for checking, testing, parts replacement, and maintenance with current price information.
 - 7. List special tools, materials, and supplies furnished with equipment for use prior to and during startup and for future maintenance.
 - 8. Operation and Maintenance Manual per Section 01730, Operating and Maintenance Data.

1.04 EXTRA MATERIALS

- A. One complete set of any special tools required to dismantle pump.

PART 2 PRODUCTS

2.01 GENERAL

- A. The pump system described in this section is to be a replacement to the existing pump, drive, and electrical controls.
- B. Coordinate pump requirements with drive manufacturer and be responsible for pump and drive requirements.
- C. Furnish a complete and coordinated replacement pump system complete with pump, drive, and electrical controls.

2.02 SUPPLEMENTS

- A. Specific requirements are attached to this section as supplements.

2.03 ACCESSORIES

- A. Equipment Identification Plate: 16-gauge stainless steel with 1/4-inch die-stamped equipment tag number securely mounted in a readily visible location.
- B. Lifting Lugs: Equipment weighing over 100 pounds.
- C. Anchor Bolts: Type 316 stainless steel, sized by equipment manufacturer, and as specified in Section 05500, Miscellaneous Metal.

2.04 FACTORY FINISHING

- A. Ferrous metal surfaces located inside well casing or in contact with pumped fluid shall be coated with NSF approved immersion service epoxy system unless otherwise specified. Tnemec Epoxoline Series 141 (16 mils DFT minimum), or equal.
- B. Exterior ferrous metal surfaces shall have SSPC SP-10 surface preparation and receive 1 coat epoxy primer (2.5 mils DFT minimum), 1 coat high-build epoxy (4 mils DFT minimum), and 1 coat polyurethane enamel (3 mils DFT minimum); Tnemec or equal. Full paint system shall be factory applied and shall only require field touch-up. Final coat color shall be Pantone purple 522 C.
- C. Motor shall be provided with manufacturer's standard enamel finish.
- D. No coating required for stainless steel surfaces.

2.05 SOURCE QUALITY CONTROL

- A. Factory Inspections: Inspect adjustable speed drive for required construction, electrical connection, and intended function.
- B. Factory Tests and Adjustments: Test all equipment actually furnished.
- C. Factory Test Report: Include test data sheets, curve test results, and performance test logs.
- D. Functional Test: Perform manufacturer's standard test. Include vibration test, as follows:
 - 1. Dynamically balance rotating parts of each pump and its driving unit before final assembly in accordance with API 610 and furnish a manufacturer's certificate of balance.

2. Limits:
 - a. Driving Unit Alone: Less than 80 percent of NEMA MG 1 limits.
 3. Complete Rotating Assembly Including Coupling, Drive Unit, and Motor: Less than 90 percent of limits established in the Hydraulic Institute Standards.
- E. Factory Performance Test:
1. Conduct on each pump.
 2. Perform under simulated operating conditions.
 3. Test for a continuous 3-hour period without malfunction.
 4. Test Log: Record the following:
 - a. Total head.
 - b. Capacity.
 - c. Horsepower requirements.
 - d. Flow measured by factory instrumentation and storage volumes.
 - e. Average distance from suction well water surface to pump discharge centerline for duration of test.
 - f. Pump discharge pressure converted to feet of liquid pumped and corrected to pump discharge centerline.
 - g. Calculated velocity head at the discharge flange.
 - h. Field head.
 - i. Driving motor voltage and amperage measured for each phase.
 5. Adjust, realign, or modify units and retest in accordance with Hydraulic Institute Standards, if necessary.
 - 6.
- F. Motor Test: See Section 16200, Low-Voltage AC Induction Motors.
- G. Hydrostatic Tests: Pump bowl assembly and discharge head tested at 150 percent of shutoff head. Test pressure maintained for not less than 5 minutes.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's printed instructions.
- B. Adjust pump assemblies such that the driving units are properly aligned, plumb, and level with the driven units and all interconnecting shafts and couplings. Do not compensate for misalignment by use of flexible couplings. The shaft area above the seal or packing gland shall be measured to confirm the total internal reflection is within the manufacturer's acceptable limits.
- C. After the pump and driver have been set in position and aligned in accordance with the manufacturer's requirements, complete bolting between discharge head and existing

tee to securely hold pumping assembly in place. Joint between discharge head and existing tee shall be watertight.

- D. Connect suction and discharge piping without imposing strain to pump flanges.
- E. Anchor Bolts: Accurately place using equipment templates and as specified in Section 05500, Miscellaneous Metal. Anchor bolts shall be located and sized for connecting new discharge head to the existing tee using soleplate subbase supplied by the pump manufacturer.

3.02 FIELD FINISHING

- A. Equipment shall be touched-up according to manufacturer's recommendation.

3.03 FIELD QUALITY CONTROL

- A. Functional Tests: Conduct on each pump.
 - 1. Alignment: Test complete assemblies for correct rotation, proper alignment and connection, and quiet operation.
 - 2. Vibration Test:
 - a. Test with units installed and in normal operation and discharging to the connected piping systems at rates between the low discharge head and high discharge head conditions specified. Vibrations shall not develop at any frequency or in any plane, where peak-to-peak vibration amplitudes are in excess of 80 percent of the limits specified in Hydraulic Institute Standards 9.6.4.
 - b. If units exhibit vibration in excess of the limits specified, adjust or modify as necessary. Units which cannot be adjusted or modified to conform as specified shall be replaced.
 - 3. Flow Output: Measured by flow meter instrumentation provided as part of project.
 - 4. Operating Temperatures: Monitor bearing areas on pump and motor for abnormally high temperatures.
- B. Performance Test: In accordance with Hydraulic Institute Standards.

3.04 MANUFACTURER'S SERVICES

- A. Manufacturer's Representative: Present at Site for minimum person-days listed below, travel time excluded:
 - 1. 1/2 person-day for assessment of existing conditions and to collect field measurements for preparation of shop drawings.
 - 2. 1 person-day for pump system startup, functional performance testing and completion of Manufacturer's Certificate of Proper Installation.

3. 1/2 person-day for training owner personnel in proper operation and maintenance of the furnished equipment.

- B. See Specification Section 01005, General Requirement.

3.05 SUPPLEMENTS

- A. The supplements listed below, following "END OF SECTION," are a part of this Specification.
 1. Supplement 1, SWWRF ASR Well Pump

3.06 GUARANTEES AND WARRANTIES

- A. The Contractor shall guarantee and warrant all materials and labor provided under this Section in accordance with Section 01740.

END OF SECTION

Supplement 1, SSWRF ASR Well Pump

VERTICAL TURBINE PUMP DATA SHEET

Tag Numbers: N/APump: ASR Well Recovery PumpManufacturer and Model Number: (1) Goulds 11CLC 2 Stages(2) Or equal

(3) _____

(4) _____

SERVICE CONDITIONS

Liquid Pumped (Material and Percent): Reclaimed water recovered from a well.Total Dissolved Solids (mg/l): 500Pumping Temperature (Degrees Fahrenheit): Normal: 72 Max.: 90 Min.: 50Specific Gravity at 60 Degrees F: 1.0 Viscosity at 60 Degrees F (cp): 1.122Vapor Pressure at 60 Degrees F: 0.2568 psia. pH: 6.0-8.0Abrasive (Y/N) Y Possible Scale Buildup (Y/N) YLangelier Index: ___Diameter Solid Pump Shall be Capable of Passing: 0.68 inch maximum solids sizeMin. Pressure in Suction Barrel (psi): Vented water well

Pump Location:

☐ Indoor ☐ Heated Min. Temp. (Degrees F): 30☒ Outdoor ☒ Unheated Max. Temp. (Degrees F): 110Electrical Code Classification of Pump Area: Unclassified

PERFORMANCE REQUIREMENTS

Pump Type: ANSI/AWWA; Vertical TurbineNumber of Stages: Two (2)Operating Requirements: The pump curve shall fall within 5 percent of the following points.

Capacity (US gpm):

A: 900 *B: 700 C:

Total Dynamic Head (Ft):

A: 50 *B: 75 C:

Minimum Shutoff Head (ft.): _____ Maximum Shutoff Head (ft.): _____

Maximum Pump Speed at Rated Capacity (rpm): 1,800 Constant (Y/N): Y Adjustable (Y/N): NMinimum Rated Pump Hydraulic Efficiency at Point B (%): 80

*Design Point

VERTICAL TURBINE PUMP DATA SHEETPump (Cont.): ASR Well Recovery Pump**DESIGN AND MATERIALS****DISCHARGE HEAD**Type: Surface Discharge.Size: ANSI 150# 8-inch discharge flange.Material: Cast Iron or Fabricated Steel

Connections: Provide discharge head to match existing connections

Contractor to verify shop drawing dimensions in the field.

Provide with sole plate subbase with tapped holes for mounting discharge head to flange of existing tee fitting.

Provide Type 316 stainless steel bolts to connect discharge head to existing tee fitting.

Well will may at times be artesian; connection between discharge head and existing tee fitting shall be watertight

SHAFTINGLineshaft Type: OpenLineshaft Size: 1-inchLineshaft Material: Type 416 SST with type 416 SST threaded couplingsLineshaft Bearing: RubberBearing Spacing: 10 feet, maximumLineshaft Lubrication: Self lubeStuffing Box Lubrication: WaterHeadshaft Material: Type 416 SSTImpeller Shaft Material: Type 416 SSTShaft Sleeves: Type 316 stainless steel (if applicable).Shaft Seal: Cartridge - SingleMechanical Seal (Y/N): YManufacturer: Chesterton Model: 155Material: Type 316 stainless steel housingAPI Class Code: _____ Rotating Face: Carbon Stationary: Ni-resist**IMPELLER**Impeller Type: Enclosed Impeller Material: BronzeImpeller Wear Ring: Type 316 stainless steel (if applicable)**BOWL AND BELL**Bowl and Suction Case Material: Cast Iron with vitreous porcelain enamel lined interior and potable water duty epoxy system exterior coatingBowl Wear Ring: AL BronzeBowl Suction Case Bearings: BronzeSuction Bell: Cast IronStrainer: Cone Style, Type 316L stainless steel.

VERTICAL TURBINE PUMP DATA SHEETPump (Cont.): ASR Well Recovery Pump**PUMP COLUMN**☐ Can ☒ ColumnMaterial: Steel, Sch. 30Size: 8-inch diameter, 75 feet column length, threaded and coupled, with bearing retainers each with a neoprene rubber bearingProvide drop pipe with fabricated casing centralizer assembly located above pump bowls. Centralizer assembly shall consist of four stainless steel bars attached to the column pipe, located at 90-degree intervals around the pipe, and have a minimum of 12-inches of each bar parallel to the inside face of the well casing.Mating Flange: To mate with discharge head**MOTOR BASE:**Type: Current NEMA design for mated fit.Material: Steel with machined mounting surface.**DRIVE MOTOR** (See Section 16200, Low-Voltage AC Induction Motors)Horsepower: 20 hpVoltage: 460 Phase: 3Synchronous Speed (rpm): 1,800 max Inverter Duty (Y/N) NService Factor: 1.10Enclosure: DIP___ EXP___ ODP___ TEFC X CISD-TEFC___ TENV___ WPI___ WPII_SUBM___Mounting Type: Horizontal___ Vertical: X Nonreverse Ratchet (Y/N) YHollow Shaft: Y Solid Shaft: _____Adjustable Speed Drives (Y/N): NoGuaranteed Minimum Efficiency at Full Load: Refer to Section 16200, Low-Voltage AC Induction Motors.Provide Premium efficiency motorProvide motor with Class F insulation.

VERTICAL TURBINE PUMP DATA SHEET

Pump (Cont.): ASR Well Recovery Pump

TESTING

Pump Tests: Factory Functional (Y/N) Y Factory Vibration (Y/N): Y

Factory Performance (Y/N) Y

Factory Hydrostatic Bowl and Discharge Head Pressure Test (Y/N) Y Other _____

Field Functional (Y/N) Y Field Vibration (Y/N): Y

Field Performance (Y/N) Y

Motor Test: (Y/N) Y Other _____

OPTIONAL FEATURES

☒ Thermal Protection: Thermostat ☒ Space Heater: 120V, single-phase

☒ Oversize main terminal (conduit) box for motors.

☒ Terminal for connection of equipment grounding wire in each terminal box.

REMARKS Motor nameplate horsepower shall not be exceeded at any head capacity point on the pump curve.

Bid Attachment 3

PLAN SET / DRAWINGS