

RESOLUTION NO. 2018 - 75

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA, AUTHORIZING THE COUNTY ADMINISTRATOR, OR DESIGNEE, TO AWARD BID NO. 18-36 AND TO EXECUTE AN AGREEMENT FOR CRANES LAKE, REMINGTON, AND MERGANZER LIFT STATION UPGRADES

RECITALS

WHEREAS, the County desires to enter into a contract with G&H Underground Construction, Inc. to complete the Cranes Lake, Remington, and Merganzer Lift Station Upgrades; and

WHEREAS, The project includes the provision of all labor, materials, tools, equipment and incidentals required for the upgrading of three sewer lift stations in the Ponte Vedra system converting them from above ground centrifugal pumps to submersible pumps below ground for the lifts stations at the sites listed below, per technical specifications and drawings.

The work for this bid is located at three separate lift stations site:

1. Cranes Lake LS # 199; located at 299 Cranes Lake Dr., Ponte Vedra, FL 32082
2. Remington LS # 201; located at 3 Ponte Vedra Lakes Blvd, Ponte Vedra, FL 32082
3. Merganzer LS # 209; located at 8010 Merganzer Dr., Ponte Vedra, FL 32082

Work to include but not limited to mobilization/demobilization, site work, force main piping, bypass pumping, upgrades of each lift station, all instrumentation and electrical, testing and all permits per the plans provided in the bid documents; and

WHEREAS, through the County's formal Bid process, G&H Underground Construction, Inc. was the lowest, responsive, responsible bidder to enter into a contract with the County to perform the work referenced above; and;

WHEREAS, the County has reviewed the terms, provisions, conditions and requirements of the proposed contract (attached hereto, an incorporated herein) and finds that entering into contracts to complete the work services serves a public purpose.

WHEREAS, the contract will be in substantial conformance with the attached draft contract.

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA, as follows:

Section 1. The above Recitals are incorporated by reference into the body of this Resolution and such Recitals are adopted as finds of fact.

Section 2. The County Administrator, or designee, is hereby authorized to award Bid 18-36 to Cranes Lake, Remington, and Merganzer Lift Station Upgrades and to execute a contract for the services set forth therein.

Section 3. Upon Board approval, the County Administrator, or designee, is authorized to execute an agreement in substantially the same form and format as the attached draft on behalf of the County to provide the scope of services as specifically provided in Bid 18-36.

Section 4. To the extent that there are typographical and/or administrative errors that do not change the tone, tenor, or concept of this Resolution, then this Resolution may be revised without subsequent approval by the Board of County Commissioners.

PASSED AND ADOPTED by the Board of County Commissioners of St. Johns County, Florida, this 6th day of March, 2018.

BOARD OF COUNTY COMMISSIONERS OF
ST. JOHNS COUNTY, FLORIDA

By: Paul M. Waldron
Vice-Chair

ATTEST: Hunter S. Conrad, Clerk
By: Lam Battenman
Deputy Clerk

RENDITION DATE 3/8/18





**STANDARD AGREEMENT
BETWEEN
OWNER AND CONTRACTOR
(1992 EDITION, REVISED 12/18/13)**

This Contract Agreement ("Agreement") is made as of _____, 2018 by and between **ST. JOHNS COUNTY, FL** ("Owner"), a political subdivision of the State of Florida, whose principal offices are located at 500 San Sebastian View, St. Augustine, FL 32084, and **G&H Underground Construction, Inc.** ("Contractor"), with offices located at: 2200 N Ponce De Leon Blvd, Suite 11, St. Augustine, FL 32084, Phone: (904) 829-8199, Fax: (904) 810-0531, and E-mail: ghunderground@bellsouth.net, under seal for Construction of **BID NO: 18-36, Cranes Lake, Remington, and Merganzer Lift Station Upgrades**, hereinafter referred to as the "Project".

The Owner and the Contractor hereby agree as follows:

**ARTICLE I
THE CONTRACT AND THE CONTRACT DOCUMENTS**

1.1 The Contract

1.1.1 The Contract between the Owner and the Contractor, of which this Agreement is a part, consists of the Contract Documents. It shall be effective on the date this Agreement is executed by the last party to execute it.

1.2 The Contract Documents

1.2.1 The Contract Documents consist of this Agreement, the Bid Documents and Bid Forms, Specifications, all Change Orders and Field Orders issued hereafter and executed by the parties and the Engineers, any other amendments hereto executed by the parties hereafter, together with the following: Bid Documents, Addendum 1, Bonds and Insurance.

Documents not enumerated in this Paragraph 1.2.1 are not Contract Documents and do not form part of this Agreement.

1.3 Entire Agreement

1.3.1 The Contract, together with the Contractor's Public Construction Bond for the Project, constitutes the entire and exclusive agreement between the Owner and the Contractor with reference to this Project. Specifically, but without limitation, this Agreement supersedes any Bid Documents not listed among the Contract Documents described above and all prior written or oral communications, representations and negotiations, if any, between the Owner and Contractor.

1.4 No Privity with Others

1.4.1 Nothing contained in this Agreement shall create, or be interpreted to create, privity or any other contractual agreement between the Owner and any person or entity other than the Contractor.

1.5 Intent and Interpretation

1.5.1 The intent of this Agreement is to require complete, correct and timely execution of the Work. Any work that may be required implied or inferred by the Contract Documents, or any one or more of them, as necessary to produce the intended result shall be provided by the Contractor for the Contract Price.

1.5.2 The Contract is intended to be an integral whole and shall be interpreted as internally consistent. What is required by any one Contract Document shall be considered as required by the Contract.

1.5.3 When a word, term or phrase is used in this Agreement, it shall be interpreted or construed, first, as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

1.5.4 The words "include," "includes" or "including," as used in this Agreement, shall be deemed to be followed by the phrase "without limitation."

1.5.5 The specification herein of any act, failure, refusal, omission, event, occurrence, or condition as constituting a material breach of this Agreement shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence, or condition shall be deemed not to constitute a material breach of this Agreement.

1.5.6 Words or terms used as nouns in this Agreement shall be inclusive of their singular and plural forms, unless the context of their usage clearly requires a contrary meaning.

1.5.7 The Contractor shall have a continuing duty to read, carefully study and compare each of the Contract Documents, the Shop Drawings and the Product Data and shall give written notice to the Engineer and the Owner of any inconsistency, ambiguity, error or omission which the Contractor may discover with respect to these documents before proceeding with the affected Work. The issuance, or the express or implied approval by the Owner or the Engineer of the Contract Documents, Shop Drawings, or Product Data shall not relieve any such approval by evidence of the Contractor's compliance with the Contract. The Owner has requested the Engineer to only prepare documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated, and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. By the execution hereof, the Contractor acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that the Contractor has not, does not, and shall not rely upon any representation or warranties by the Owner concerning such documents as no such representation or warranties have been or are hereby made.

1.5.8 As between numbers and scaled measurements on the Drawings and in the Design, the numbers shall govern; as between larger scale and smaller scale drawings, the larger scale shall govern.

1.5.9 Neither the organization of any of the Contract Documents into divisions, sections, paragraphs, articles, (or other categories), nor the organization or arrangement of the Design, shall control the Contractor in dividing the Work or in establishing the extent or Scope of Work to be performed by Subcontractors.

1.6 Ownership of Contract Documents

1.6.1 The Contract Documents, and each of them, shall remain the property of the Owner. The Contractor shall have the right to keep one record set of the Contract Documents upon completion of the Project; provided, however, that in no event shall Contractor use, or permit to be used, any or all of such Contract Documents on other projects without Owner's prior written authorization.

ARTICLE II THE WORK

2.1 Scope of Work

The Contractor shall perform all of the Work required, implied, or reasonably inferable from, this Agreement.

2.1.1 The term "Work" shall mean whatever is done by or required of the Contractor to perform and complete its duties under this Agreement, including the following: construction of the whole or a designated part of the Project in the manner set forth in the Contract Documents; furnishing of any required Surety Bonds and insurance; and the provision or furnishing of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, permits and licenses required of the Contractor, fuel, heat, light, cooling and all other utilities as required by this Agreement. The Work to be performed by the Contractor is generally described as follows:

The project includes the provision of all labor, materials, tools, equipment and incidentals required for the upgrading of three sewer lift stations in the Ponte Vedra system converting them from above ground centrifugal pumps to submersible pumps below ground for the lifts stations at the sites listed below, per technical specifications and drawings.

The work for this bid is located at three separate lift stations site:

1. Cranes Lake LS # 199; located at 299 Cranes Lake Dr., Ponte Vedra, FL 32082
2. Remington LS # 201; located at 3 Ponte Vedra Lakes Blvd, Ponte Vedra, FL 32082
3. Merganzer LS # 209; located at 8010 Merganzer Dr., Ponte Vedra, FL 32082

Work to include but not limited to mobilization/demobilization, site work, force main piping, bypass pumping, upgrades of each lift station, all instrumentation and electrical, testing and all permits.

All work shall be performed in accordance with the plans and specifications under Bid No. 18-36.

ARTICLE III CONTRACT TIME

3.1 Time and Liquidated Damages

3.1.1 The Contractor shall commence the Work within ten (10) days upon receipt of the Notice to Proceed and shall Substantially Complete all Work within **Two Hundred Seventy (270)** consecutive calendar days. Final Completion shall be reached by or before **Thirty (30)** consecutive calendar days after Substantial Completion.

The number of calendar days from the date on which the Work is permitted to proceed, through the date set forth for Final Completion, shall constitute the "Contract Time."

3.1.2 The Contractor shall pay the Owner the sum of **\$1,584.00** per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth herein for Substantial Completion of the Work. Any sum's due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing this Agreement. When the Owner reasonably believes that Substantial Completion shall be inexcusably delayed the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages.

3.2 Substantial Completion

3.2.1 "Substantial Completion" shall mean that stage in the progression of the Work when the Work is sufficiently complete in accordance with this Agreement that the Owner can enjoy beneficial use or occupancy of the Work and can utilize the Work for its intended purpose.

3.3 Time is of the Essence

3.3.1 All limitations of time set forth in the Contract Documents are of the essence of this Agreement.

ARTICLE IV CONTRACT PRICE

4.1 The Contract Price

4.1.1 The Owner shall pay, and the Contractor shall accept, as full and complete payment for all the Work required herein a total Lump Sum price of **Seven Hundred Thirty Thousand dollars (\$730,000.00)**.

The sum set forth in the Paragraph 4.1 shall constitute the Contract Price, which shall not be modified except by Change Order as provided in this Agreement.

ARTICLE V PAYMENT OF THE CONTRACT PRICE

5.1 Schedule of Values

5.1.1 Within ten (10) calendar days of the effective date hereof, the Contractor shall submit to the Owner and to the Project Director a Schedule of Values allocating the Contract Price to the various portions of the Work. The Contractor's Schedule of Values shall be prepared in such form, with such detail, and supported by such data as the Project Director or the Owner may require to substantiate its accuracy. The Contractor shall not imbalance its Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Agreement. The Schedule of Values shall be used only as a basis for the Contractor's Applications for Payment and shall only constitute such basis after it has been agreed upon in writing by the Project Director and the Owner. The Owner may terminate this Agreement without liability of any kind if the Schedule of Values is not agreed upon within fifteen (15) calendar days of the effective date hereof.

5.2 Payment Procedure

5.2.1 The Owner shall pay the Contract Price to the Contractor as provided below.

5.2.2 Progress Payments - On or before the fifteen (15) day of each month after commencement of the Work, the Contractor shall submit an Application for Payment for the period ending the thirtieth (30th) day of the previous month to the Project Director in such form and manner, and with such supporting data and content, as the Project Director may require. Therein, the Contractor may request payment based upon the amount of work done or completed. All partial estimates and payments shall be subject to correction when submitted. Based upon the Contractor's Applications for Payment submitted to the Project Director and upon Certificates for Payment subsequently issued to the Owner by the Project Director, payments will be made in accordance with the Local Government Prompt Payment Act.

5.2.3 The amount of such payments shall be the total value of the Work done to the date of the estimate, based upon the quantities and the Contract unit and/or lump sum prices, less an amount retained and less payments previously made. The amount retained shall be determined in accordance with Section 255.078 of the Florida Statutes:

(a) Owner may withhold from each progress payment made to the Contractor an amount not to exceed ten (10) percent of the payment as retainage until fifty (50) percent completion of the Work.

(b) After fifty (50) percent completion of the Work is purchased pursuant to this Agreement, Owner will reduce to five (5) percent the amount of retainage withheld from each subsequent progress payment made to the Contractor. The term "fifty (50) percent completion" as used in this provision means the point at which Owner has expensed fifty (50) percent of the total cost of the Work purchased as provided herein, together with all costs associated with existing change orders and other additions or modifications to the Work described herein.

(c) After fifty (50) percent completion of the Work is purchased pursuant to this Agreement, the Contractor may present to the Owner a payment request for up one-half of the retainage held by the Owner. The Owner shall make prompt payment to the Contractor, unless in accordance with Section 255.078(6) of the Florida Statutes, such funds are the subject of a good faith dispute, claim or demand by the Owner or the Contractor.

5.2.4 Each Application for Payment shall be signed by the Contractor and shall constitute the Contractor's representation that the Work has progressed to the level for which payment is requested that the Work has been properly installed or performed in full accordance with this Agreement, and that the Contractor knows of no reason why payment should not be made as requested. Thereafter, the Project Director and Engineer shall review the Application for Payment and may also review the Work at the project site or elsewhere to determine whether the quantity and quality of the Work is as represented in the Application for Payment and is as required by this Agreement. The Project Director shall determine and certify to the Owner the amount properly owing to the Contractor. The Owner shall make partial payments on accounts of the Contract Price within thirty (30) days following the Project Director's receipt of each Application for Payment. The amount of each partial payment shall be the amount certified for payment by the Project Director less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Agreement. The Project Director's certification of the Contractor's Application for Payment shall not preclude the Owner from the exercise of any of its rights as set forth in Paragraph 5.3 herein below.

5.2.5 The Contractor warrants that title to all Work covered by an Application shall pass to the Owner no later than time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which payments have been received from the Owner shall be free and clear of liens, claims, security interest or other encumbrances in favor of the Contractor or any other person or entity whatsoever.

5.2.6 The Contractor shall promptly pay each Subcontractor out of the amount paid to the Contractor on account of such Subcontractor's Work, the amount to which such Subcontractor is entitled. In the event the Owner becomes informed that the Contractor has not paid a Subcontractor as herein provided, the Owner shall have the right, but not the duty, to issue future checks in payment to the Contractor of amounts otherwise due hereunder naming the Contractor and such Subcontractor as joint hereunder naming the Contractor and such Subcontractor as joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Owner to repeat the procedure in the future.

5.2.7 No progress payment, nor any use or occupancy of the Project by the Owner, shall be interpreted to constitute an acceptance of any Work not in strict accordance with this Agreement.

5.3 Withheld Payment

5.3.1 Owner may decline to make payment, may withhold funds and, if necessary, may demand the return of some or all of the amounts previously paid to the Contractor, to protect the Owner from loss because of:

- a) Defective Work not remedied by the Contractor and, in the opinion of the Owner, not likely to be remedied by the Contractor;
- b) claims of third parties against the Owner or the Owner's property;
- c) Failure by the Contractor to pay Subcontractors or others in a prompt and proper fashion;
- d) Evidence that the balance of the Work cannot be completed in accordance with the Contract for unpaid balance of the Contract Price;
- e) Evidence that the Work shall not be completed in the time required for Substantial or Final Completion;
- f) Persistent failure to carry out the Work in accordance with the Contract;
- g) Damage to the Owner or a third party to whom the Owner is, or may be, liable.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in this Subparagraph 5.3.1, the Contractor shall promptly comply with such demand.

5.4 Unexcused Failure to Pay

5.4.1 If within ten (10) days after the date established herein for payment to the Contractor by the Owner, the Owner, without cause or basis hereunder, fails to pay the Contractor any amount due and payable to the Contractor, then the Contractor may after seven (7) additional days, written notice to the Owner and the Project Director, and without prejudice to any other available rights or remedies it may have, stop the Work until payment of those amounts due from the Owner have been received. Any payment not made within ten (10) days after the date due shall bear interest at the rate of 12 percent (12%) per annum.

5.5 Substantial Completion

5.5.1 When the Contractor believes the Work is Substantially Complete, the Contractor shall submit to the Project Director a list of items to be completed or corrected. When the Project Director on the basis of an inspection determines that the Work is in fact Substantially Complete, he shall prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for Project security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. Guarantees required by the Contract shall commence on the date of Substantial Completion of the Work. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such certificate.

Until Final Completion and acceptance of the Work by the Owner, the Owner shall pay the Contractor an amount equal to ninety percent (90%) of the Contract price. Ten Percent (10%) of the Contract Price shall be retained until Final Completion, acceptance of the Work by the Owner and Final Payment to the Contractor.

5.6 Final Completion and Final Payment

5.6.1 When all the Work is finally complete and the Contractor is ready for a Final Inspection, it shall notify the Owner and the Project Director thereof in writing. Thereupon, the Project Director shall make Final Inspection of the Work and, if the Work is complete in full accordance with this Agreement and this Agreement has been fully performed, the Project Director shall promptly issue a Final Certificate for Payment and if required to repeat its Final Inspection of the Work, the Contractor shall bear the cost of such repetition of the Work, the Contractor shall bear the cost of such repeat Final Inspection(s) which cost may be deducted by the Owner and all other Authorities having jurisdiction under Florida Laws or regulations.

5.6.1.1 If the Contractor fails to achieve Final Completion within the time fixed therefore by the Engineer in its Certificate of Substantial Completion, the Contractor shall pay the Owner liquidated damages at the sum shown in Paragraph 3.1.2. per day for each and every calendar day of unexcused delay in achieving Final Completion beyond the date set forth herein for Final Completion of the Work. Any sum's due and payable hereunder by the Contractor shall be payable, not as penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing the Contract. When the Owner reasonably believes that Final Completion shall be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages

applicable to such delays. If and when the Contractor overcomes the delay in achieving Final Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages.

5.6.2 The Contractor shall not be entitled to Final Payment unless and until it submits to the Project Director its affidavit that all payrolls, invoices for materials and equipment, and other liabilities connected with the Work for which the Owner, or the Owner's property might be responsible, have been fully paid or otherwise satisfied; releases and waivers of claims and lien from all Subcontractors of the Contractor and of any and all other parties required by the Project Director or the Owner; consent of Surety, if any, to Final Payment. If any third party fails or refuses to provide a release of claim or waiver of a lien as required by Owner the Contractor shall furnish a bond satisfactory to the Owner to discharge any such lien or indemnify the Owner from liability.

5.6.3 The Owner shall make Final Payment of all sums, due the Contractor within thirty (30) days of the Project Director's execution of a Final Certificate for Payment.

5.6.4 Acceptance of Final Payment shall constitute a waiver of all claims against the Owner by the Contractor except for those claims previously made in writing against the Owner by the Contractor, pending at the time of Final Payment, and identified in writing by the Contractor as unsettled at the time of its request for Final Payment.

ARTICLE VI THE OWNER

6.1 Information, Services and Things Required from Owner

6.1.1 The Owner shall furnish to the Contractor, at the time of executing this Agreement, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material and for no other purpose. By furnishing such material, the Owner does not represent, warrant, or guarantee its accuracy either in whole, in part, implicitly, or at all, and shall have no liability therefore. The Owner shall also furnish surveys, legal limitations and utility locations (if known), and a legal description of the Project site. Copies may be provided instead of originals.

6.1.2 Excluding permits and fees normally the responsibility of the Contractor, the Owner shall obtain all approvals, easements, and the like required for construction.

6.1.3 The Owner shall furnish the Contractor, free of charge, 5 copies of the Contract Documents for execution of the Work. The Contractor shall be charged, and shall pay the Owner \$25.00 per additional set of Contract Documents which it may require.

6.2 Right to Stop Work

6.2.1 If the Contractor persistently fails or refuses to perform the Work in accordance with this Agreement, the Owner may order the Contractor to stop the Work, or any described portion thereof, until the cause for stoppage has been corrected, no longer exists, or the Owner orders that Work be resumed. In such event, the Contractor shall immediately obey such order.

6.3 Owner's Right to Perform Work

6.3.1 If the Contractor's Work is stopped by the Owner under Paragraph 6.2, and the Contractor fails within seven (7) days of such stoppage to provide adequate assurance to the Owner that the cause of such stoppage shall be eliminated or corrected, the Owner may, without prejudice to any other rights or remedies the Owner may have against the Contractor, proceed to carry out the subject Work.

In such a situation, an appropriate Change Order shall be issued deducting from the Contract Price the cost of correcting the subject deficiencies, and compensation for the Owner's additional services and expenses necessitated thereby, if any. If the unpaid portion of the Contract Price is insufficient to cover the amount due the Owner, the Contractor shall pay the difference to the Owner.

**ARTICLE VII
THE CONTRACTOR**

7.1 The Contractor is again reminded of its continuing duty set forth in Subparagraph 1.5.7. The Contractor shall perform no part of the Work at any time without adequate Contract Documents or, as appropriate, approved Shop Drawings, Product Data or Samples for such portion of the Work. If the Contractor performs any of the Work where Contractor knows or should know such work involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Project Director and the Owner, the Contractor shall bear responsibility for such performance and shall bear the cost of correction.

7.2 The Contractor shall perform the Work strictly in accordance with this Agreement.

7.3 The Contractor shall supervise and direct the Work using the Contractor's best skill, effort and attention. The Contractor shall be responsible to the Owner for any and all acts or omissions of the Contractor, its employees and other engaged in the Work on behalf of the Contractor.

7.4. Warranty

7.4.1 The Contractor warrants to the Owner that all labor furnished to progress the Work under this Agreement shall be competent to perform the tasks undertaken, that the product of such labor shall yield only first-class results, that materials and equipment furnished shall be of good quality, free from faults and defects and in strict conformance with this Agreement. This warranty shall survive termination of this Agreement and shall not be affected by Final Payment hereunder. All Work not conforming to these requirements may be considered defective.

7.5 Contractor shall obtain and pay for all permits, fees and licenses necessary and ordinary for the Work. The Contractor shall comply with all lawful requirements applicable to the Work and shall give and maintain any and all notices required by applicable law pertaining to the Work.

7.6 Supervision

7.6.1 The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Absent written instruction from the Contractor to the contrary, the superintendent shall be deemed the Contractor's authorized representative at the site and shall be authorized to receive and accept any and all communications from the Owner or Assignees.

7.6.2 Key supervisory personnel assigned by the Contractor to this Project are as follows:

Name	Function
_____	_____
_____	_____
_____	_____

So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed above subsequently assume one or more of those functions listed above, the Contractor shall be bound by the provisions of this Subparagraph 7.6.2 as though such individuals have been listed above.

7.7 The Contractor, prior to commencing the Work, shall submit to the Project Director for his information, the Contractor's schedule for completing the Work. The Contractor's schedule shall be revised no less frequently than monthly (unless the parties otherwise agree in writing) and shall be revised to reflect conditions encountered from time to time and shall be related to the entire Project. Each sum revision shall be furnished to the Project Director. Failure by the Contractor to strictly comply with the provisions of this Paragraph 7.7 shall constitute a material breach of this Agreement.

7.8 The Contractor shall continuously maintain at the site, for the benefit of the Project Director, one record copy of this Agreement marked to record on a current basis changes, selections and modifications made during construction.

Additionally, the Contractor shall maintain at the site for the Project Director the approved Product Data, Samples and other similar required submittals. Upon Final Completion of the Work, all of these record documents shall be delivered to the Owner.

7.9 Product Data and Samples

7.9.1 Product Data, Samples and other submittals from the Contractor do not constitute Contract Documents. Their purpose is merely to demonstrate the manner in which the Contractor intends to implement the Work in conformance with the information received from the Contract Documents. All Product Data, Samples and other submittals shall belong to the Owner and shall be delivered, or returned to Owner, as applicable, prior to Submittals shall belong to Owner and shall be delivered, or returned to Owner, as applicable, prior to Substantial Completion.

7.10 Cleaning the Site and the Project

7.10.1 The Contractor shall keep the site reasonably clean during performance of the Work. Upon Final Completion of the Work, the Contractor shall clean the site and the Project and remove all waste, together with all of the Contractor's property therefrom.

7.11 Access to Work

7.11.1 The Owner and the Project Director shall have access to the Work at all times from commencement of the Work through Final Completion. The Contractor shall take whatever steps necessary to provide access when requested.

7.12 Indemnity

7.12.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, employees and officials from, and against, any, and all, administrative/legal/equitable liability, claims, damages, losses and expenses, including attorneys' fees, arising out of or resulting from performance of the work, noted in either the Scope of Work, or the Contract Documents, that are referenced and considered a part of this Agreement. It is specifically noted that such liability, claims, damages, loss or expense includes any of those referenced instances attributable to bodily injury, sickness, disease, or death, or to injury to, or destruction of, personal and/or real property, including the loss of use resulting therefrom or incident to, connected with, associated with or growing out of direct and/or indirect negligent or intentional acts or omissions by the Contractor, a Subcontractor, or anyone directly, or indirectly employed by them, or anyone for whose acts the Contractor or Subcontractor may be liable, regardless of whether or not such liability, claim, damage, loss or expense is caused in part by a party indemnified hereunder.

7.12.2 In claims against any person or entity indemnified under this Paragraph 7.12 by an employee of the Contractor, a Subcontractor, any one directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 7.12 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 benefits acts or other employee benefit acts.

7.13 Safety

7.13.1 The Contractor shall be responsible for supervising all safety precautions, including initiating and maintaining such programs in connection with the performance of the Contract and for adequate maintenance of traffic.

7.13.2 The Contractor shall designate a member of the on-site construction team whose duty shall be the prevention of accidents. Unless notified otherwise in writing by the Contractor to the Owner and the Engineer, this person shall be the Contractor's Superintendent.

ARTICLE VIII CONTRACT ADMINISTRATION

8.1 Project Director

8.1.1 The Project Director, unless otherwise directed by the Owner shall perform those duties and discharge those responsibilities allocated to the Project Director as set forth in this Agreement. The Project Director shall be the Owner's representative from the effective date of this Agreement until Final Payment has been made. The Project Director shall be authorized to act on behalf of the Owner only to the extent provided in this Agreement.

8.1.2 - The Owner and the Contractor shall communicate with each other in the first instance through the Project Director.

8.1.3 The Project Director shall be the initial interpreter of the requirements of the drawings and specifications and the judge of the performance there under by the Contractor. The Project Director shall render written or graphic interpretations necessary for the proper execution or progress of the Work with reasonable promptness on request of the Contractor.

8.1.4 The Project Director shall review the Contractor's Applications for Payment and shall certify to the Owner for payment to the Contractor, those amounts then due to the Contractor as provided in this Agreement.

8.1.5 The Project Director shall have authority to reject Work, which is defective or does not conform to the requirements of this Agreement. If the Project Director deems it necessary or advisable, the Project Director shall have authority to require additional inspection or testing of the Work for compliance with Contract requirements at Contractor's expense.

8.1.6 The Project Director shall review and approve, or take other appropriate action as necessary, concerning the Contractor's submittals including Product Data and Samples. Such review, approval or other action shall be for the sole purpose of determining conformance with the design concept and information given through the Contract Documents.

8.1.7 The Project Director shall prepare Change Orders and may authorize minor changes in the Work by field order as provided elsewhere herein.

8.1.8 The Project Director shall, upon written request from the Contractor, conduct inspections to determine the date of Substantial Completion and the date of Final Completion, shall receive and forward to the Owner for the Owner's review and records, written warranties and related documents required by this Agreement and shall issue a Final Certificate for Payment upon compliance with the requirements of this Agreement.

8.1.9 The Project Director's decision in matters relating to aesthetic effect shall be final if consistent with the intent of this Agreement.

8.2 Claims by the Contractor

8.2.1 All Contractor claims shall be initiated by written notice and claim to the Project Director. Such written notice and claims must be furnished within seven (7) days after occurrence of the event, or the first appearance of the condition, giving rise to the claim.

8.2.2 Pending final resolution of any claim of the Contractor, the Contractor shall diligently proceed with performance of this Agreement and the Owner shall continue to make payments to the Contractor in accordance with this Agreement. The resolution of any claim under this Paragraph 8.2 shall be reflected by a Change Order executed by the Project Director and the Contractor.

8.2.3 Claims for Concealed and Unknown Conditions - Should concealed and unknown conditions encountered in the performance of the Work (a) below the surface of the ground or (b) in an existing structure be at variance with the conditions indicated by this Agreement, or should unknown conditions of an usual nature differing materially from those ordinarily encountered in the area and generally recognized as inherent in Work of the character provided for in this Agreement, be encountered, wherein the Contract Documents or Standard Construction industry practices have not placed the responsibility of discovering such concealed and unknown conditions upon the Contractor prior to the Contractor submitting his Bid for the Work, the Contract Price shall be equitably adjusted by Change Order upon the written notice and claim by either party made within seven (7) days after the first observance of the condition. As a condition precedent to the Owner having any liability to the Contractor for concealed or unknown conditions, the Contract must give the Project Director written notice of, and an opportunity to observe, the condition prior to disturbing it. The failure by the Contractor to make the written notice and claim as provided in this Subparagraph shall constitute a waiver by the Contractor of any claim arising out of or relating to such concealed or unknown condition.

8.2.4 Claims for Additional Costs - If the Contractor wishes to make a claim for an increase in the Contract Price, as a condition precedent to any liability of the Owner therefore, the Contractor shall give the Project Director written notice of such claim within seven (7) days after the occurrence of the event, or the first appearance of the condition, giving rise to such claim. Such notice shall be given by the Contractor before proceeding to execute any additional or changed Work. The failure by the Contractor to give such notice prior to executing the Work shall constitute a waiver of any claim for additional compensation.

8.2.4.1 In connection with any claim by the Contractor against the Owner for compensation in excess of the Contract Price, any liability of the Owner for the Contractor's costs shall be strictly limited to direct costs incurred by the Contractor and shall in no event include indirect costs or consequential damages of the Contractor.

The Owner shall not be liable to the Contractor for claims of third parties, including Subcontractors, unless and until liability of the Contractor has been established therefore in a court of competent jurisdiction.

8.2.5 Claims for Additional Time - If the Contractor is delayed in progressing any task which at the time of the delay is then critical or which during the delay becomes critical, as the sole result of any act or neglect to act by the Owner or someone acting in the Owner's behalf, or by changes ordered in the Work, unusual delay in transportation, unusually adverse weather conditions not reasonably anticipated, fire or any causes beyond the Contractor's control, then the date for achieving Substantial Completion of the Work shall be extended upon the written notice and claim of the Contractor to the Project Director, for such reasonable time as the Project Director may determine.

Any notice and claims for an extension of time by the Contractor shall be made not more than seven (7) days after the occurrence of the event or the first appearance of the condition giving the rise to the claim and shall set forth in detail the Contractor's basis for requiring additional time in which to complete the Project. In the event the delay to the Contractor is continuing one, only one notice and claim for additional time shall be necessary. If the Contractor fails to make such claim for an extension shall be waived. This paragraph shall not be deemed to waive any damages for delay that are covered by insurance.

8.2.5.1 Delays and Extensions of Time - An extension of Contract Time shall not be given due to weather conditions unless such weather conditions more severe than average have caused a delay. In requesting extension of time for weather conditions; Contractor shall present complete records and such requests shall document how weather conditions delayed progress of Work.

8.3 Field Orders

8.3.1 The Project Director shall have authority to order minor changes in the Work not involving a change in the Contract Price or in Contract Time and not inconsistent with the intent of the Contract. Such changes shall be effected by field order and shall be binding upon the Contractor. The Contractor shall carry out such field orders promptly.

ARTICLE IX SUBCONTRACTORS

9.1 Definition

9.1.1 A Subcontractor is an entity, which has a direct Contract with the Contractor to perform a portion of the Work.

9.2 Award of Subcontracts

9.2.1 Upon execution of the Contract, the Contractor shall furnish the Project Director, in writing, the names of persons or entities proposed by the Contractor to act as a Subcontractor on the Project. The Project Director shall promptly reply to the Contractor, in writing, stating any objections the Project Director may have to such proposed Subcontractor. The Contractor shall not enter into a Subcontract with a proposed Subcontractor with reference to whom the Project Director has made a timely objection.

9.2.2 All subcontracts shall afford the Contractor rights against the Subcontractor, which correspond to those rights afforded to the Owner by Subparagraph 12.2.1 below.

ARTICLE X CHANGES IN THE WORK

10.1 Changes Permitted

10.1.1 Changes in the Work within the general scope of this Agreement, consisting of additions, deletions, revisions, or any combination thereof, may be ordered without invalidating this Agreement, by Change Order or by Field Order.

10.1.2 Changes in the Work shall be performed under applicable provisions of this Agreement and the Contractor shall proceed promptly with such changes.

10.2 Change Order Defined

10.2.1 Change Order shall mean a written order to the Contractor executed by the Project Director, issued after execution of this Agreement, authorizing and directing a change in the Work or an adjustment in the Contract Price or the Contract Time, or any combination thereof. Only the Change Order may change the Contract Price and the Contract Time.

10.3 Changes in the Contract Price

10.3.1 Any change in the Contract Price resulting from a Change Order shall be determined as follows: (a) by mutual agreement between the Owner and the Contractor as evidenced by (1) the change in the Contract Price being set forth in the Change Order, (2) such change in the Contract Price, together with any conditions or requirements related thereto, being initialed by both parties and (3) the Contractor's execution of the Change Order, or (b) if no mutual agreement occurs between the Owner and the Contractor, then, as provided in Subparagraph 10.3.2 below.

10.3.2 If no mutual agreement occurs between the Owner and the Contractor as contemplated in Subparagraph 10.3.1 above, the change in the Contract Price, if any, shall then be determined by the Project Director on the basis of the reasonable expenditures or savings of those performing, deleting or revising the Work attributable to the change, including, in the case of an increase or decrease in the Contract Price, a reasonable allowance for direct job site overhead and profit. In such case, the Contractor shall present, in such form and with such content as the Owner or the Project Director requires, an itemized accounting of such expenditures or savings shall be limited to the following: reasonable costs of materials, supplies, or equipment including delivery costs, reasonable costs of labor, including social security, old age and unemployment insurance, fringe benefits required by a pre-existing agreement or by custom, and workers' compensation insurance, reasonable costs of premiums for all Bonds and insurance, permit fees, and sales, use or other taxes related to the Work and paid by the Contractor, and reasonable costs of directly attributable to the change. In no event shall any expenditure or savings associated with the Contractor's home office or other non-jobsite overhead expenses be included in any change in the Contract Price. Pending final determination of reasonable expenditures or savings to the Owner, payments on account shall be made to the Contractor on the Owner's Certificate of Payment.

10.3.3 If Unit Prices are provided in the Contract, and if the quantities contemplated are so changed in proposed Change Order that application of such Unit Prices to the quantities of Work proposed shall cause substantial inequity to the Owner or to the Contractor, that applicable Unit Prices shall be equitable adjusted.

10.4 Minor Changes

10.4.1 The Project Director shall have authority to order minor changes in the Work not involving a change in the Contract Price or an extension of the Contract Time and not inconsistent with the intent of this Agreement. Such minor changes shall be made by written Field Order, and shall be binding upon the Owner and the Contractor. The Contractor shall promptly carry out such written Field Orders.

10.5 Effect of Executed Change Order

10.5.1 The execution of a Change Order by the Contractor shall constitute conclusive evidence of the Contractor's agreement to the ordered changes in the Work, this Agreement as thus amended, the Contract Price and the Contract Time. The Contractor, by executing the Change Order, waives and forever releases any claim against the Owner for additional time or compensation for matters relating to or arising out of or resulting from the Work included within or affected by the executed Change Order.

10.6 Notice to Surety; Consent

10.6.1 The Contractor shall notify and obtain the timely consent and approval of the Contractor's surety with reference to all Change Orders if such notice, consent or approval is required by the Contractor's surety or by law. The Contractor's warranty to the Owner that the surety has been notified of and consents to, such Change Order and the surety shall be conclusively deemed to have been notified of such Change Order and to have expressly consented thereto.

ARTICLE XI UNCOVERING AND CORRECTING WORK

11.1 Uncovering Work

11.1.1 If any of the Work is covered contrary to the Project Director's request or to any provision of this Agreement, it shall, if required by the Project Director, be uncovered for the Project Director's inspection and shall be properly replaced at the Contractor's expense without change in the Contract Time.

11.1.2 If any of the Work is covered in a manner not described in Subparagraph 11.1.1 above, it shall, if required by the by the Project Director or Owner, be uncovered for the Project Director's inspection. If such Work conforms strictly to this Agreement, costs of uncovering and proper replacement shall by Change Order be charged to the Owner. If such Work does not strictly conform to this Agreement, the Contractor shall pay the costs of uncovering and proper replacement.

11.2 Correcting Work

11.2.1 The Contractor shall immediately proceed to correct Work rejected by the Project Director as defective or failing to conform to this Agreement. The Contractor shall pay all costs and expenses associated with correcting such rejected Work, including any additional testing and inspections, and reimbursement to the Owner for the Project Director's services and expenses made necessary thereby.

11.2.2 If within one (1) year after Substantial Completion of the Work, if any of the Work is found to be defective or not in accordance with this Agreement, the Contractor shall correct it within seven (7) days at the Contractor's expense upon receipt of written notice from the Owner. This obligation shall survive Final Payment by the Owner and termination of this Agreement. With respect to Work first performed and completed after Substantial Completion, this one (1) year obligation to specifically correct defective and nonconforming Work shall be extended by the period of time which elapses between Substantial Completion and completion of the subject Work.

11.2.3 Nothing contained in this Paragraph 11.2 shall establish any period of limitation with respect to other obligations, which the Contractor has under this Agreement. Establishment of the one (1) year time period in Subparagraph 11.2.2 relates only to the duty of the Contractor to specifically correct the Work, and has no relationship to the time which the obligation to comply with the Contract Documents may be sought to be enforced.

11.3 Owner May Accept Defective or Nonconforming Work

11.3.1 If the Owner chooses to accept defective or nonconforming Work, the Owner may do so. In such events, the Contract Price shall be reduced by the greater of (a) the reasonable cost of removing and correcting the defective or nonconforming Work, and (b) the difference between the fair market value of the Project had it not been constructed in such manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Contract Price, if any, is insufficient to compensate the Owner for its acceptance or defective or nonconforming Work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming Work.

ARTICLE XII CONTRACT TERMINATION

12.1 Termination by the Contractor

12.1.1 If the Work is stopped for a period of ninety (90) days by an order of any court or as a result of an act of the Government, through no fault of the Contractor or any person or entity working directly or indirectly for the Contractor, the Contractor may, upon ten (10) days written notice to the Owner, terminate performance under this Agreement and recover from the Owner payment for the actual reasonable expenditures of the Contractor (as limited in Subparagraph 10.3.2 above) for all Work executed and for materials, equipment, tools, construction equipment and machinery actually purchased or rented solely for the Work, less any salvage value of any such items.

12.1.2 If the Owner shall persistently or repeatedly fail to perform any material obligation to the Contractor for a period of fifteen (15) days after receiving written notice from the Contractor of its intent to terminate if such failure is not substantially corrected within fifteen (15) days, the Contractor may terminate performance under this Agreement by written notice to the Project Director. In such event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Agreement for convenience pursuant to Subparagraph 12.2.1 hereunder.

12.2 Termination by the Owner

12.2.1 For Convenience

12.2.1.1 The Owner may terminate this Agreement for convenience. In such instance, the Owner shall provide written notice of such termination to the Contractor specifying when termination shall become effective.

12.2.1.2 The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under terminated orders or subcontracts to the Owner or its designee.

12.2.1.3 The Contractor shall transfer title and deliver to the Owner such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has.

12.2.1.4 (a) The Contractor shall submit a termination claim to the Project Director specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the Project Director. If the Contractor fails to file a termination claim within one (1) year from the effective date of termination, the Owner shall pay the Contractor, an amount derived in accordance with subparagraph (c) below.

(b) The Owner and the Contractor may agree to compensation, if any, due to the Contractor hereunder.

(c) Absent agreement to the amount due to the Contractor, the Owner shall pay the Contractor the following amounts;

(d) Contract prices for labor, materials, equipment, and other services accepted under this Agreement;

(e) Reasonable costs incurred in preparing to perform and in performing a portion of the Work prior to termination and not included in (d) or (e), and in terminating the Contractor's performance, plus a fair and reasonable allowance for overhead and profit thereon (such profit shall not include anticipated profit or consequential damages); provided, however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract had been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

(f) Reasonable costs of settling and paying claims arising out of the termination of Subcontracts or orders pursuant to Subparagraph 12.2.1.2 of this Paragraph. These costs shall not include amounts paid in accordance with other provisions hereof.

The total sum to be paid the Contractor under this Subparagraph 12.2.1 shall not exceed the total Contract Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

12.2.2 For Cause

12.2.2.1 If the Contractor persistently or repeatedly refuses or fails to perform the Work in a timely manner, supply enough properly skilled Workers, supervisory personnel or proper equipment or materials, or if it fails to make prompt payment to Subcontractors, or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise substantially violates a material provision of this Agreement, then the Owner may, by written notice to the Contractor, without prejudice to any other right or remedy, terminate the employment of the Contractor and take possession of the site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever methods it may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished.

12.2.2.2 If the unpaid balance of the Contract Price less any liquidated damages due under this Agreement, exceeds the cost of finishing the Work, including compensation for the Project Director's additional services and expenses made necessary thereby, such exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive the termination of the Contract.

12.2.2.3 In the event the employment of the Contractor is terminated by the Owner for cause pursuant to Subparagraph 12.2.2 and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination for Convenience under Subparagraph 12.2.1 and the provisions of Subparagraph 12.2.1 shall apply.

ARTICLE XIII INSURANCE

13.1 Contractor's Insurance:

The Contractor shall not commence work under this Agreement until he/she has obtained all insurance required under this section and such insurance has been approved by the County. All insurance policies shall be issued by companies authorized to do business under the laws of the State of Florida. The Contractor shall furnish proof of Insurance to the County prior to the commencement of operations. The Certificate(s) shall clearly indicate the Contractor has obtained insurance of the type, amount, and classification as required by contract and that no material change or cancellation of the insurance shall be effective without thirty (30) days prior written notice to the County. **Certificates shall specifically include the County as Additional Insured for all lines of coverage except Workers' Compensation and Professional Liability. A copy of the endorsement must accompany the certificate.** Compliance with the foregoing requirements shall not relieve the Contractor of its liability and obligations under this Agreement.

Certificate Holder Address: St. Johns County, a political subdivision of the State of Florida
500 San Sebastian View
St. Augustine, FL 32084

The Contractor shall maintain during the life of this Agreement, Comprehensive General Liability Insurance with minimum limits of \$1,000,000 per occurrence, \$2,000,000 aggregate, to protect the Contractor from claims for damages for bodily injury, including wrongful death, as well as from claims of property damages which may arise from any operations under this contract, whether such operations be by the Contractor or by anyone directly employed by or contracting with the Contractor.

The Contractor shall maintain Umbrella or Excess Liability Insurance covering workers compensation, commercial general liability and business auto liability with minimum limits of liability of \$1,000,000.

The Contractor shall maintain during the life of this Contract, Comprehensive Automobile Liability Insurance with minimum limits of \$2,000,000 combined single limit for bodily injury and property damage liability to protect the Contractor from claims for damages for bodily injury, including the ownership, use, or maintenance of owned and non-owned automobiles, including rented/hired automobiles whether such operations be by the Contractor or by anyone directly or indirectly employed by a Contractor.

The Contractor shall maintain during the life of this Agreement, adequate Workers' Compensation Insurance in at least such amounts as is required by the law for all of its employees per Florida Statute 440.02.

The Contractor shall maintain during the life of this Agreement, Professional Liability or Errors and Omissions Insurance with minimum limits of \$1,000,000, if applicable.

In the event of unusual circumstances, the County Administrator or his designee may adjust these insurance requirements.

ARTICLE XIV MISCELLANEOUS

14.1 Governing Law & Venue

14.1.1 The Contract shall be governed by the laws of the State of Florida. Venue for any administrative and/or legal action arising under the Contract shall be St. Johns County, Florida.

14.2 Successors and Assigns

14.2.1 The Owner and Contractor bind themselves, their successors, assigns and legal representatives to the other party hereto and to successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in this Agreement. The Contractor shall not assign this Agreement without written consent of the Owner.

14.3 Surety Bonds

14.3.1 The Contractor shall furnish a separate Public Construction Bond to the Owner. Such Bonds shall set forth a penal sum in an amount not less than the Contract Price. The Bond furnished by the Contractor shall incorporate by

reference the terms of this Agreement as fully as though they were set forth verbatim in such Bonds. The Public Construction Bond shall provide that in the event the Contract Price is adjusted by Change Order executed by the Contractor. The Public Construction Bond furnished by the Contractor shall be in form suitable to the Owner and shall be executed by a Surety, or Sureties, reasonably suitable to the Owner.

14.4. Safety of Persons and Property

14.4.1 When existing utility lines shown on the Drawings are to be removed or relocated, the Contractor shall notify the Engineer in ample time for taking measures for prevention of the interruption of any required services prior to the beginning of operations. In the event that the Contractor damages any existing utility lines not shown on the Drawings, the location of which is not known to the Contractor report thereof shall be made immediately to the Engineer.

14.4.2 Locations of existing utility lines shown on the Drawings are based on the best information available to the Engineer, but shall not be considered exact either as to location or number of such lines.

14.4.3 Contractor shall protect utility lines constructed under terms of the agreement and those discovered or shown on Drawings to be existing. Damage occurring to utility lines due to Contractor's operations shall be repaired at no cost to the Owner.

ARTICLE XV EQUAL EMPLOYMENT OPPORTUNITY

15.1 Contractor's Employment Opportunity

15.1.1 The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin or age.

The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, national origin or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertisement, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

15.1.2 The Contractor and all Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants shall receive consideration for employment without regard to race, religion, color, sex, national origin or age.

ARTICLE XVI APPRENTICESHIP LAW REQUIREMENTS

16.1 Apprenticeship Law (Chapter 446, Florida Statutes)

16.1.1 The Contractor shall make a diligent effort to hire for Performance of the Contract a number of apprentices in each occupation which bears to the average number of journeyman in that occupation to be employed in the performance of the Contract, the ratio of at least one (1) apprentice or trainee to every five (5) journeymen.

16.1.2 The Contractor shall, when feasible and except when the number of apprentices or trainees to be hired is fewer than four (4), assure that twenty-five (25) percent of such apprentices or trainees are in their first year of training. Feasibility here involves a consideration of the availability of training opportunities for first year apprentices or trainees, the hazardous nature of the Work for beginning workers, and excessive unemployment of apprentices or trainees in their second or subsequent years of training.

16.1.3 The Contractor, during the performance of the Contract, shall make diligent efforts to employ the number of apprentices or trainees necessary to meet requirements of Subparagraphs a. and b. However, on-the-job training programs shall only be established in non-apprenticable trades or occupations to meet the requirements of this section.

16.1.4 The Contractor agrees to return records of employment, by trade, of the number of apprentices or trainees by first year of training, and the number of journeymen and the wages paid, and hours of work, of such persons on a form as prescribed by the Bureau of Apprenticeship of the Division of Labor at three (3) month intervals. Submission of duplicate copies of forms submitted to the United States Department of Labor shall be sufficient compliance with the provisions of

the section.

16.1.5 The Contractor agrees to supply the Bureau of Apprenticeship of the Division of Labor, at three (3) months intervals, a statement describing steps taken toward making diligent effort and containing a breakdown by craft or hours worked and wages paid for first year apprentices or trainees, other apprentices or trainees and journeymen.

16.1.6 The Contractor agrees to insert in any Subcontract under this Agreement the requirements contained in this section. "The term Contractor" as used in such clauses and any Subcontract shall mean the Subcontractor.

16.1.7 Anything herein to the Contrary notwithstanding, Contractor agrees to comply with all of the provisions of Florida Statutes 446 and all regulations prescribed by the Bureau of Apprenticeship of the Division of Labor.

ARTICLE XVII PUBLIC RECORDS

17.1 Public Records

17.1.1 The cost of reproduction, access to, disclosure, non-disclosure, or exemption of records, data, documents, and/or materials, associated with this Agreement shall be subject to the applicable provisions of the Florida Public Records Law (Chapter 119, Florida Statutes), and other applicable State and Federal provisions. Access to such public records, may not be blocked, thwarted, and/or hindered by placing the public records in the possession of a third party, or an unaffiliated party.

17.1.2 In accordance with Florida law, to the extent that Contractor's performance under this Contract constitutes an act on behalf of the County, Contractor shall comply with all requirements of Florida's public records law. Specifically, if Contractor is expressly authorized, and acts on behalf of the County under this Agreement, Contractor shall:

- (1) Keep and maintain public records that ordinarily and necessarily would be required by the County in order to perform the Services;
- (2) Upon request from the County's custodian of public records, provide the County 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 as provided in Chapter 119, Florida Statutes, or as otherwise provided by law;
- (3) Ensure that public records related to this Agreement that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by applicable law for the duration of this Agreement and following completion of this Agreement if the Contractor does not transfer the records to the County; and
- (4) Upon completion of this Agreement, transfer, at no cost, to the County all public records in possession of the Contractor or keep and maintain public records required by the County to perform the Services.

17.1.3 If the Contractor transfers all public records to the County upon completion of this 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 this Agreement, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the County's custodian of public records, in a format that is compatible with the County's information technology systems.

17.1.4 Failure by the Contractor to comply with the requirements of this section shall be grounds for immediate, unilateral termination of this Agreement by the County.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO ITS DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT: OCA, ATTN: Public Records Manager, 500 San Sebastian View, St. Augustine, FL 32084, PH: (904) 209-0805, EMAIL: publicrecords@sjcfl.us.

BID NO: 18-36, Cranes Lakes, Remington, and Merganzer Lift Station Upgrades

Owner

St. Johns County, FL (Seal)
(Typed Name)

By: _____
Signature of Authorized Representative

Jaime T. Locklear, MPA, CPPB, FCCM
Printed Name

Assistant Purchasing Manager
Title

Date of Execution

Contractor

G&H Underground Construction, Inc. (Seal)
(Typed Name)

By: _____
Signature of Authorized Representative

Printed Name & Title

Date of Execution

ATTEST:
St. Johns County, FL
Clerk of Courts

By: _____
Deputy Clerk

Date of Execution

Legally Sufficient:

Deputy County Attorney

Date of Execution



**ST. JOHNS COUNTY
PURCHASING DEPARTMENT**

500 San Sebastian View
St. Augustine, Florida 32084

I N T E R O F F I C E M E M O R A N D U M

TO: Scott Trigg, P.E., Chief Engineer – Capital Projects
FROM: Leigh Daniels, CPPB, Procurement Supervisor
SUBJECT: Department Approval for Bid No. 18-36, Cranes Lake, Remington, and Merganzer Lift Station Upgrades
DATE: January 31, 2018

Attached is a copy of the technical proposal review summary sheet.

Please review, evaluate and make a written recommendation for this project. Also, indicate the budgeted amount for this item along with the appropriate charge code and return at your earliest convenience. We will prepare the agenda item and contract.

Please let me know if I can assist your department in any other way.

Department Head Approval Scott Trigg

Date 1/31/18

Budget Amount \$ 800,000

Account Funding Title 2017 Crown Pump Stations Rehab

Funding Charge Code 4463-56302-66022-56302

Award to G & H Underground Construction, Inc.

Award Amount \$ 730,000

ST JOHNS COUNTY

FEB 06 '18

PURCHASING

**ST. JOHNS COUNTY
BID TABULATION**

LD
LEIGH DANIELS
BRYAN MATUS

BID TITLE CRANES LAKE, REMINGTON, AND MERGANZER LIFT STATION UPGRADES

ANY BIDDER AFFECTED ADVERSELY BY AN INTENDED DECISION WITH RESPECT TO THE AWARD OF ANY BID, SHALL FILE WITH THE PURCHASING DEPARTMENT FOR ST. JOHNS COUNTY, A WRITTEN NOTICE OF INTENT FILE A PROTEST NOT LATER THAN SEVENTY-TWO (72) HOURS (EXCLUDING SATURDAY, SUNDAY AND LEGAL HOLIDAYS) AFTER THE POSTING OF THE BID TABULATION. PROTEST PROCEDURES MAY BE OBTAINED IN THE PURCHASING DEPARTMENT.

OPENED BY
TABULATED BY
VERIFIED BY

BID NUMBER 18-36

OPENING DATE/TIME January 31, 2018 2:00 PM

POSTING DATE/TIME

<u>FROM</u>	<u>UNTIL</u>
01/31/18 4:30 PM	02/05/18 4:30 PM

BIDDERS	TOTAL LUMP SUM BID PRICE	BID BOND	ADDENDUM # 1				
KIEWIT INFRASTRUCTURE SOUTH CO.	\$1,447,000.00	YES	YES				
HINTERLAND GROUP INC	\$778,000.00	YES	YES				
G&H UNDERGROUND CONSTRUCTION, INC	\$730,000.00	YES	YES				
U.S. WATER SERVICES CORPORATION	\$818,900.00	YES	YES				
PETTICOAT SCHMITT CIVIL CONTRACTORS INC	\$833,690.00	YES	YES				

BID AWARD DATE - _____

BID NO: 18-36

OFFICIAL COUNTY BID FORM
ST. JOHNS COUNTY, FLORIDA

PROJECT: CRANES LAKE, REMINGTON, AND MERGANZER LIFT STATION UPGRADES

TO: THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA

DATE SUBMITTED: January 31, 2018

BID PROPOSAL OF

G&H Underground Construction, Inc

Full Legal Company Name

2200 N Ponce De Leon Blvd St Augustine, Fl. 32084

904-829-8199

904-810-0531

Mailing Address

Telephone Number

Fax Number

Bidders: Having become familiar with requirements of the project, and having carefully examined the Bidding Documents and Specifications entitled for Bid No: 18-36, CRANES LAKE, REMINGTON AND MERGANZER LIFT STATION UPGRADES in St. Johns County, Florida, the undersigned proposes to furnish all materials, labor and equipment, supervision and all other requirements necessary to comply with the Contract Documents to submit the following Bid Proposal summarized as follows:

TOTAL LUMP SUM BID PRICE: (As per plans and specifications)

\$ 730,000.00

Total Lump Sum Bid Price (Numerical)

Seven Hundred Thirty Thousand dollars

Total Lump Sum Bid Price (Amount written or typed in words) _____/100 Dollars

Bidder shall insert the Total Lump Sum Bid Price in numerals and in words. Any discrepancy between the two submitted amounts shall be determined by the amount written in words.

During the preparation of the Bid, the following addenda, if any, were received:

No.: 1 Date Received: 1-19-2018

No.: _____ Date Received:

No.: _____ Date Received:

We, the undersigned, hereby declare that no person or persons, firm or corporation, other than the undersigned are interested, in this proposal, as principals, and that this proposal is made without collusion with any person, firm or corporation, and we have carefully and to our satisfaction examined the Bid Documents and Project Specifications.

We have made a full examination of the location of the proposed work and the sources of supply of materials, and we hereby agree to furnish all necessary labor, equipment and materials, fully understanding that any quantities shown therewith are approximate only, and that we will fully complete all requirements therein as prepared by the Owner, within the same time limit specified in the Bid Documents as indicated above.

If the Undersigned is notified of the acceptance of this Bid Proposal by the Board within ninety (90) calendar days for the time set for the opening of Bids, the Undersigned further agrees, to execute a contract for the above work within ten (10) days after notice that his Bid has been accepted for the above stated compensation in the form of a Contract presented by the Owner.

The Undersigned further agrees that security in the form of a Bid Bond, certified or cashier's check in the amount of not less than five percent (5%) of Total Lump Sum Bid Price, payable to the Owner, accompanies this Bid; that the amount is not to be construed as a penalty, but as liquidated damages which said Owner will sustain by failure of the Undersigned to execute and deliver the Contract and Bond within ten (10) days of the written notification of the Award of the Contract to him; thereupon, the security shall become the property of the Owner, but if this Bid is not accepted within ninety (90) days of the time set for the submission of Bids, or if the Undersigned delivers the executed Contract upon receipt, the Security shall be returned to the Bidder within seven (7) working days.

CORPORATE/COMPANY

Full Legal Company Name: G&H Underground Construction, Inc (Seal)

By: Wade Gibby Wade Gibby, President
Signature of Authorized Representative (Name & Title typed or printed)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

Address: 2200 N Ponce De Leon Blvd Ste 11 St Augustine, Fl. 32084
Telephone No.: (904) 829-8199 Fax No.: (904) 810-0531

Email Address for Authorized Company Representative: ghunderground@bellsouth.net
Federal I.D. Tax Number: 06-1747700 DUNS #: _____
(If applicable)

INDIVIDUAL

Name: _____
(Signature) (Name typed or printed) (Title)

Address: _____
Telephone No.: (____) _____ Fax No.: _____
Email Address: _____
Federal I.D. Tax Number: _____

- Submittal Requirements:
- Official County Unit Price Bid Form
 - Attachment "A" – St Johns County Board of County Commissioners Affidavit
 - Attachment "B" – Certificate as to Corporate Principal
 - Attachment "C" – License / Certification List
 - Attachment "D" – List of Proposed Sub-Contractors/Suppliers
 - Attachment "E" – Conflict of Interest Disclosure Form
 - Attachment "F" – Certificate of Compliance with Florida Trench Safety Act
 - Attachment "G" – Proof of Insurance
 - Attachment "H" – Experience of Bidder Form
 - Bid Bond Form
 - Fully Acknowledged Addenda Applicable to this bid

Official County Bid Form, Attachments "A", "B", "C", "D", "E", "F", "G", "H" and Bid Bond must be completed, along with a fully acknowledged copy of each Addendum applicable to this Bid and submitted with each copy of the Bid Proposal. One (1) original and two (2) copies of all required forms must be submitted.

BID NO.: 18-36

ATTACHMENT "A"

ST. JOHNS COUNTY, BOARD OF COUNTY COMMISSIONERS AFFIDAVIT

TO: ST. JOHNS COUNTY, BOARD OF COUNTY COMMISSIONERS,
ST. JOHNS COUNTY, ST. AUGUSTINE, FLORIDA.

At the time the proposal is submitted, the Bidder shall attach to his Bid a sworn statement.

This sworn statement shall be an affidavit in the following form, executed by an officer of the firm, association, or corporation submitting the proposal, and shall be sworn to before a person who is authorized by law to administer oaths.

STATE OF FLORIDA, COUNTY OF ST. JOHNS

Before me, the Undersigned authority, personally appeared Wade Gibby who being duly sworn, deposes and says he is President (Title) of the firm of G&H Underground Construction, Inc Bidder submitting the attached proposal for the services covered by the bid documents for Bid No: 18-36; Cranes Lake, Remington, and Merganzer Lift Station Upgrades, in St. Johns County, Florida.

The affiant further states that no more that one proposal for the above-referenced project will be submitted from the individual, his firm or corporation under the same or different name, and that such Bidder has no financial interest in the firm of another bidder for the same work. That neither he, his firm, association nor corporation has either directly or indirectly entered into any agreement, participated in any collusion, nor otherwise taken any action in restraint of free competitive bidding in connection with this firm's Bid on the above-described project. Furthermore, neither the firm nor any of its officers are barred from participating in public contract lettings in the State of Florida or any other state.

G&H Underground Construction, Inc

(Bidder)

By: Wade Gibby

President

(Title)

Sworn and subscribed to me this 31 day
of January, 2018.

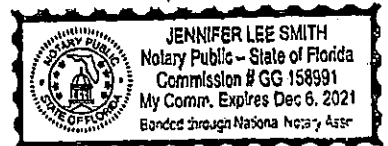
Notary Public:

Jennifer Lee Smith

Signature

Jennifer Smith

Printed



My commission Expires: 12-06-2021

BIDDER ON ALL COUNTY PROJECTS MUST EXECUTE AND ATTACH THIS AFFADAVIT TO EACH BID.

BID NO.: 18-36

ATTACHMENT "B"
CERTIFICATES AS TO CORPORATE PRINCIPAL

I, Wade Gibby, certify that I am the Secretary of the Corporation named as Principal in the attached bond; that Wade Gibby who signed the said bond on behalf of the Principal, was then President of said Corporation; that I know his signature, and his signature hereto is genuine; and that said bond was duly signed, sealed, and attested for and in behalf of said Corporation by authority of its governing body.

Wade Gibby
Secretary Corporate Seal

(STATE OF FLORIDA
COUNTY OF ST. JOHNS)

Before me, a Notary Public duly commissioned, qualified and acting, personally appeared Ben Pow to me well known, who being by me first duly sworn upon oath, says that he is the Attorney-In-Fact, for the Surety and that he has been authorized by Merchants Bonding to execute the foregoing bond on behalf of the surety named therein in favor of St. Johns County, Florida.

Subscribed and sworn to me this 31st day of January, 2018, A.D.



NOTARY PUBLIC
State of Florida-at-large

Jennifer Smith

My Commission Expires: 2-06-2021

(Attach Power of Attorney to original Bid Bond and Financial Statement of Surety Company)



Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

RACHEL D. CONE
INTERIM SECRETARY

May 9, 2017

G&H UNDERGROUND CONSTRUCTION INC
2200 N PONCE DE LEON BLVD
ST AUGUSTINE, FL

RE: CERTIFICATE OF QUALIFICATION

Dear Sir/Madam:

The Department of Transportation has qualified your company for the type of work indicated below. Unless your company is notified otherwise, this Certificate of Qualification will expire 6/30/2018. However, the new application is due 4/30/2018.

In accordance with S.337.14 (1) F.S. your next application must be filed within (4) months of the ending date of the applicant's audited annual financial statements.

If your company's maximum capacity has been revised, you can access it by logging into the Contractor Prequalification Application System via the following link:
[HTTPS://fdotwpl.dot.state.fl.us/ContractorPreQualification/](https://fdotwpl.dot.state.fl.us/ContractorPreQualification/)

Once logged in, select "View" for the most recently approved application, and then click the "Manage" and "Application Summary" tabs.

FDOT APPROVED WORK CLASSES:

DRAINAGE, FLEXIBLE PAVING, GRADING, GRASSING, SEEDING AND SODDING, SIDEWALK,
Underground Utilities (Water & Sewer).

You may apply for a Revised Certificate of Qualification at any time prior to the expiration date of this certificate according to Section 14-22.0041(3), Florida Administrative Code (F.A.C.), by accessing your most recently approved application as shown above and choosing "Update" instead of "View." If certification in additional classes of work is desired, documentation is needed to show that your company has done such work with your own forces and equipment or that experience was gained with another contractor and that you have the necessary equipment for each additional class of work requested.

All prequalified contractors are required by Section 14-22.006(3), F.A.C., to certify their work underway monthly in order to adjust maximum bidding capacity to available bidding capacity. You can find the link to this report at the website shown above.

Sincerely,

Alan Butry, Manager
Contracts Administration Office

THIS RECEIPT IS ISSUED PURSUANT
TO COUNTY ORDINANCE 87-93

2017/2018 ST. JOHNS COUNTY LOCAL BUSINESS TAX RECEIPT

MUST BE DISPLAYED IN A CONSPICUOUS PLACE

ACCOUNT 25043
EXPIRES September 30, 2018

TYPE OF BUSINESS 000264 LAND CLEARING SERVICE

BUSINESS ADDRESS 2200 N PONCE DE LEON BLVD STE 11
ST. AUGUSTINE, FL 32084

BUSINESS NAME G & H CONSTRUCTION
OWNER GIBBY WADE D& HARDWICK JEFFERY

MAILING ADDRESS 2200 N PONCE DE LEON BLVD #11
ST. AUGUSTINE, FL 32084

XNEW BUSINESS	
TRANSFER	
ORIGINAL TAX	22.00
AMOUNT	22.00
PENALTY	.00
COLLECTION COST	
TOTAL	22.00

THIS FORM BECOMES A RECEIPT ONLY WHEN VALIDATED

PAID - 8154673.0001-0001 501 09/28/2017 22.00

DENNIS W. HOLLINGSWORTH

ST. JOHNS COUNTY TAX COLLECTOR

This receipt does not constitute a franchise, an agreement, or permission or authority to perform the services or operate the business described herein when a franchise, agreement, or other county commission, state or federal permission of authority is required by county, state or federal law.

RICK SCOTT, GOVERNOR

KEN LAWSON, SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

LICENSE NUMBER

CUC1224124

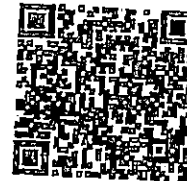
The UNDERGROUND UTILITY & EXCAVATION CO
Named below IS CERTIFIED
Under the provisions of Chapter 489 FS.
Expiration date: AUG 31, 2018

HARDWICK, JEFFERY L
G & H UNDERGROUND CONSTRUCTION INC
4980 PORTER ROAD
ST. AUGUSTINE FL 32095

ISSUED: 06/22/2016

DISPLAY AS REQUIRED BY LAW

SEQ # L1606220001195



BID NO.: 18-36

ATTACHMENT "E"

**St. Johns County Board of County Commissioners
Conflict of Interest Disclosure Form**

Project (RFQ, RFP, BID) Number/Description: Bid No 18-36: Cranes Lake, Remington and Merganzer Lift Station Upgrades

The term "conflict of interest" refers to situations in which financial or other considerations may adversely affect, or have the appearance of adversely affecting a consultant's/contractor's professional judgment in completing work for the benefit of St. Johns County ("County"). The bias such conflicts could conceivably impart may inappropriately affect the goals, processes, methods of analysis or outcomes desired by the County.

Consultants/Contractors are expected to safeguard their ability to make objective, fair, and impartial decisions when performing work for the benefit of the County. Consultants/Contractors, therefore must there avoid situations in which financial or other considerations may adversely affect, or have the appearance of adversely affecting the consultant's/contractor's professional judgement when completing work for the benefit of the County.

The mere appearance of a conflict may be as serious and potentially damaging as an actual distortion of goals, processes, methods of analysis or outcomes. Reports of conflicts based upon appearances can undermine public trust in ways that may not be adequately restored even when the mitigating facts of a situation are brought to light. Apparent conflicts, therefore, should be disclosed and evaluated with the same vigor as actual conflicts.

It is expressly understood that failure to disclose conflicts of interest as described herein may result in immediate disqualification from evaluation or immediate termination from work for the County.

Please check the appropriate statement:



I hereby attest that the undersigned Respondent has no actual or potential conflict of interest due to any other clients, contracts, or property interests for completing work on the above referenced project.



The undersigned Respondent, by attachment to this form, submits information which may be a potential conflict of interest due to other clients, contracts or property interests for completing work on the above referenced project.

Legal Name of Respondent:

G&H Underground Construction, Inc

Authorized Representative(s):

Wade Gibby

Signature

Wade Gibby/ President
Print Name/Title

Signature

Print Name/Title

BID NO.: 18-36

ATTACHMENT "F"

CERTIFICATE OF COMPLIANCE WITH FLORIDA TRENCH SAFETY ACT

Bidder acknowledges that he is solely responsible for complying with the Florida Trench Safety Act (ACT) and Occupational Safety and Health Administrations excavation safety standard 29 CFR 1926.650 (Subpart P as amended) and the St. Johns County Trenching and Excavation Safety Program. If there is a conflict between the ACT and the St. Johns County Trenching and Excavation Safety Program, the more stringent requirement would apply. Bidder further acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990 and the Occupational Safety and Health Administrations excavation safety standard.

By: Wade Gibby

G&H Underground Construction, Inc
Bidder

Wade Gibby
Authorized Signature

1-31-18
Date

BID NO.: 18-36

ATTACHMENT "G"

CERTIFICATE OF INSURANCE

INSERT CERTIFICATE OF INSURANCE HERE



G&HUNDE-01

JSMITH

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
06/07/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Cecil W. Powell & Company 219 N. Newnan Street Jacksonville, FL 32202	CONTACT NAME: Joanne Smith, CIC		
	PHONE (A/C, No, Ext): (904) 353-3181	FAX (A/C, No): (904) 353-5722	
E-MAIL ADDRESS: Jsmith@cwpowellins.com			
INSURED G & H Underground Construction, Inc. 1175 Woodlawn Rd. St. Augustine, FL 32084	INSURER(S) AFFORDING COVERAGE		NAIC #
	INSURER A: Southern Owners Ins Co		10190
	INSURER B: Owners Insurance Co		32700
	INSURER C: Bridgefield Casualty Ins Co		
	INSURER D:		
	INSURER E:		
INSURER F:			

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	X	X	7824226117	06/07/2017	06/07/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COM/OP AGG \$ 2,000,000
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			5124226100	06/07/2017	06/07/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Pers Inj Protec \$ 10,000
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTIONS			5124226101	06/07/2017	06/07/2018	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory In NH) <input type="checkbox"/> Y/N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		19643270	06/07/2017	06/07/2018	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
 St. Johns County Board of County Commissioners is an additional insured and a waiver of subrogation applies with respect to general liability per the attached policy forms.

CERTIFICATE HOLDER St. Johns County Board of County Commissioners 500 San Sebastian View Saint Augustine, FL 32084	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE: <i>Susan Jordan</i>
--	--

BID NO.: 18-36

ATTACHMENT "H"

EXPERIENCE OF BIDDER

Bidder acknowledges that he is fully licensed to perform work in the STATE OF FLORIDA.

The Bidder shall provide the following information regarding experience within the past five (5) years of this solicitation. Bidder must demonstrate the successful completion of three (3) projects of similar complexity, nature, size, and dollar amount of project.

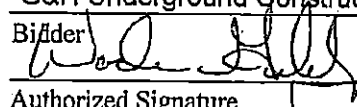
Any material misrepresentation, as determined by the County, shall result in disqualification.

By: G&H Underground Construction, Inc

1-31-18

Bidder

Date


Authorized Signature

DATE OF CONTRACT	CLIENT'S NAME, ADDRESS, PHONE AND EMAIL	CONTRACT AMOUNT	PROJECT AND LOCATION
April 2016	City of St Augustine PO Box 210 St Augustine, Fl. 32085 Marcus Pinson 904-823-2204 / mpinson@citystaug.com	850,000.00	City of St Augustine Annual COstruction Services for Roadway Drainage, and Underground Utilities
March 2011- 2012	City of Jacksonville Beach 1460 A Shelter Ave Jacksonville Beach, Fl. 32250 Denis Dupries 904-247-6286 ddupries@jaxhchfl.net	532,515.00	Modification to Lift Station # 3 Jacksonville Beach
March 2012 - Sept 2012	City of St Augustine PO Box 210 St Augustine, Fl. 32085 Marcus Pinson 904-823-2204 / mpinson@citystaug.com	719,000.00	Lift Station 51 & 52 City of St Augustine

Do you have any similar work in progress at this time? Yes No

Length of time in business: 12 years Years

Is your company currently involved in any active litigation? No If Yes, explain: _____

Has your company ever been sued? No If Yes, explain and/or submit court decision or judgment, as applicable: _____

BID NO.: 18-36

BID BOND

STATE OF FLORIDA
COUNTY OF ST. JOHNS

KNOW ALL MEN BY THESE PRESENTS, that G & H Underground Construction, Inc. as Principal, and as Surety, are held and firmly bound unto St. Johns County, Florida, in the penal sum of Dollars (\$5%) lawful money of the United States, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

*Merchants Bonding Company

THE CONDITION OF THIS OBLIGATIONS IS SUCH that whereas the Principal has submitted the accompanying Bid dated January 31st, 2018.

For

CRANES LAKE, REMINGTON AND MERGANZER LIFT STATION UPGRADES

St. Johns County, Florida

NOW THEREFORE,

- (a) If the Principal shall not withdraw said Bid within ninety (90) days after Bid Award date, and shall within ten (10) days after prescribed forms are presented to him for signature, enter into a written Contract with the County in accordance with the Bid as accepted, and give Bond with good and sufficient Surety or Sureties, as may be required, for the faithful performance and proper fulfillment of such Contract, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.
- (b) In the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such Bond within the time specified, if the Principal shall pay the County the difference between the amount specified, in said Bid and the amount for which the County may procure the required Work and supplies, if the latter amount be in excess of the former, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals, this 31st day of January A.D., 2018, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

BID NO.: 18-36

WITNESSES:

(If Sole Ownership or Partnership two (2) Witnesses required).
(If Corporation, Secretary only will attest and affix seal).

WITNESSES:

Jennifer Smith
Qui Burnaby

WITNESS:

Kassandra S. Sullins
Kassandra S. Sullins, Witness

Wade Hill
PRINCIPAL:

G & H Underground Construction, Inc.
NAME OF FIRM:

Wade Hill
SIGNATURE OF AUTHORIZED
OFFICER (AFFIX SEAL)

President
TITLE

2200 N Ponce de Leon Blvd., Ste. 11
BUSINESS ADDRESS

St. Augustine, FL 32084
CITY STATE

SURETY:

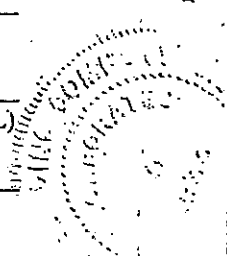
Merchants Bonding Company
CORPORATE SURETY

Benjamin K. Powell
ATTORNEY-IN-FACT (AFFIX SEAL)

P.O. Box 14498
BUSINESS ADDRESS

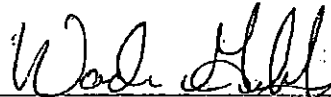
Des Moines, IA 50306
CITY STATE

Cecil W. Powell & Company
NAME OF LOCAL INSURANCE AGENCY



ATTACHMENT C
CERTIFICATES AS TO CORPORATE PRINCIPAL

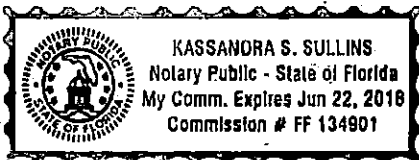
I, Wade Gibby, certify that I am the Secretary of the Corporation named as Principal in the attached bond; that Wade Gibby who signed the said bond on behalf of the Principal, was then President of said Corporation; that I know his signature, and his signature hereto is genuine; and that said bond was duly signed, sealed, and attested for and in behalf of said Corporation by authority of its governing body.

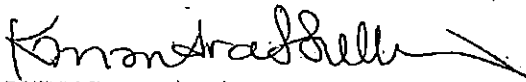

Secretary Corporate Seal

(STATE OF FLORIDA
COUNTY OF ST. JOHNS)

Before me, a Notary Public duly commissioned, qualified and acting, personally appeared Benjamin K. Powell to me well known, who being by me first duly sworn upon oath, says that he is the Attorney-In-Fact, for the Merchants Bonding Company and that he has been authorized by Merchants Bonding Company to execute the foregoing bond on behalf of the surety named therein in favor of St. Johns County, Florida.

Subscribed and sworn to me this 31st day of January, 2018, 2018, A.D.




NOTARY PUBLIC
State of Florida-at-large
My Commission Expires: 06/22/2018

(Attach Power of Attorney to original Bid Bond and Financial Statement of Surety Company)

Bid No. ~~0033~~

MERCHANTS
BONDING COMPANYTM
POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa (herein collectively called the "Companies") do hereby make, constitute and appoint, Individually, Benjamin Powell; Fitzhugh K Powell Jr; Robert T Theus; Susan W Jordan

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015.

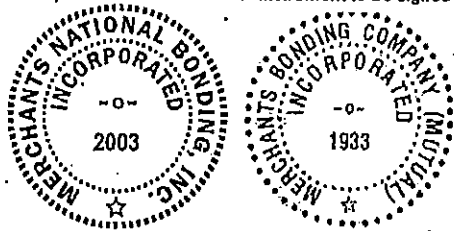
"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 27th day of April, 2017.

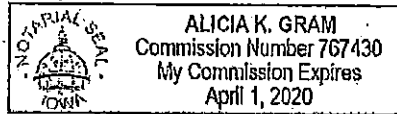


MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By *Larry Taylor*
President

STATE OF IOWA
COUNTY OF DALLAS ss.

On this this 27th day of April, 2017, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

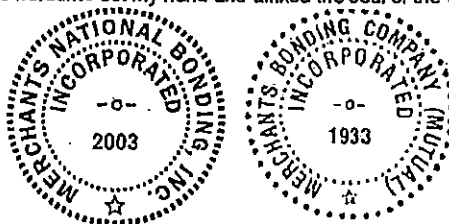


Alicia K. Gram
Notary Public

(Expiration of notary's commission does not invalidate this instrument)

I, William Warner, Jr., Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 31st day of January, 2018.



William Warner Jr.
Secretary



St. Johns County Board of County Commissioners

Purchasing Division

January 18, 2018

ADDENDUM #1

To: Prospective Bidders
From: St. Johns County Purchasing Department
Subject: BID NO.: 18-36 Cranes Lake, Remington and Merganzer Lift Station Upgrades

This Addendum #1 is issued for further bidder's information and is hereby incorporated into the bid documents. Each bidder will ascertain before submitting a proposal that he/she has received all Addenda. *Please return a signed copy of this Addendum with Bid Proposal (1 original).*

ADDENDUM #1 SHALL BE INCORPORATED INTO THE AGREEMENT DOCUMENTS,
PROPOSAL REQUIREMENTS, AGREEMENT FORMS, CONDITIONS OF THE AGREEMENT,
AND TECHNICAL SPECIFICATIONS
DATED JANUARY 2018

Proposers on the Project are hereby notified that this Addendum shall be attached to and made a part of the above-named Proposal Documents and Specifications. These items shall have full force and effect as the Proposal Documents and Specifications and cost involved shall be included in the Proposal Contract Prices. Proposals to be submitted on the specified bid date shall conform with the additions/deletions/revisions listed herein.

IN THE TECHNICAL SPECIFICATIONS

1. Remove Specification Section 11306 and Replace in its entirety (enclosed).

ON THE DRAWINGS

1. Install an additional 1-inch tee on the pressure transmitter line at each pump station. Refer to sketch enclosed.
2. Remove Sheets E-4, E-5, and E-6 and Replace in its entirety (enclosed).

ANSWERS TO QUESTIONS RECEIVED DURING BIDDING, CLARIFICATION AND GENERAL INFORMATION

1. Can more information be provided on the buried utilities at Remington in the location of the horizontal directional drill?

Answer: The Contractor shall locate all existing utilities prior to horizontal directional drill work. Coordinate with the property owner, Beaches Energy and SJCUD as required.

2. Can more information be provided on upstream manholes?

Answer: Yes, aerials showing the location of upstream manholes are enclosed.

3. Please advise if this bid has a minimum subcontractor participation goal (DBE/MWBE etc) requirements?

Answer: No requirements.

4. Please advise the contractors/companies that are pre-qualified by St Johns County for the Horizontal Directional Drilling work as noted in 18-36_Bid_Specifications, section 1.07A on page 02413-11.

Answer: Contractor to submit company of their choice for approval. No companies pre-qualified.

5. Please advise the contractors/companies that are pre-qualified by St Johns County for the SCADA system modifications as noted on as noted on drawing E-6, Note #1.

Answer: Companies approved Star Controls, Curry, CDM Smith, Revere and ITG.

6. Please confirm if the items noted in 18-36_Bid_Specification page 11306-1 section 1.01 A are now to be purchased by Contractor as noted in the pre-bid meeting.

Answer: Yes, Contractor to purchase listed material. See revised

7. Please advise if there is an opportunity for site visit to inspect the existing wet well condition for coating application.

Answer: Site visit available upon request.

8. Is the contractor to provide pump and control package?

Answer: Yes, Contractor to purchase listed material.

9. Is contractor to provide Wet Well hatch?

Answer: Yes

10. Who is responsible for Utility locates at Ponte Vedra Lakes where electric has to be directional bored under parking lot?

Answer: The Contractor shall locate all existing utilities. Coordinate with the property owner, Beaches Energy and SJCUD as required.

11. Is SCADA existing and to be re used and if replaced is contractor to provide SCADA system New SCADA to be installed Contractor to purchase?

Answer: Approved companies: Star Controls, Curry, CDM Smith, Revere and ITG.

12. Is sufficient power from utility provider to site?

Answer: Contractor to coordinate with Beaches Energy.

13. What are flows to each station?

Answer: Flows are listed in specifications Section 01014, paragraph 1.03. Also listed in plans. These flows are also to be used for by-passing.

14. Do these stations pump into another force main?

Answer: Cranes Lake and Remington pump to a forcemain. Merganzer pumps to a receiving manhole.

15. Are Sewpercoat or Strong Seal approved wet well coating?

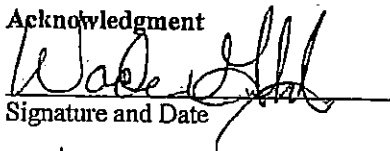
Answer: Specta shield or Raven are approved per the Contract Documents. Sewpercoat or Strong Seal is not approved.

ATTACHMENTS TO ADDENDUM #1

- Section 11306 Submersible Solids Handling Pumps
- Site Aerials and Upstream Manhole Locations
- Pressure Transmitter Sketch
- Sheets E-4, E-5, and E-6

THE BID DUE DATE IS CURRENTLY January 31, 2018 by 2:00 P.M.

Acknowledgment


Signature and Date

Sincerely,

Leigh Daniels, CPPB
Procurement Supervisor
Purchasing Department

Wade Gibby Pres.
Printed Name and Title

G+H Underground Construction, Inc.
Company Name (Print)

END OF ADDENDUM #1

**CONSTRUCTORS QUALIFICATION QUESTIONNAIRE
ORGANIZATION AND BACKGROUND**

Name: G & H Underground Construction Inc.

Address: 2200 N Ponce De Leon Blvd Ste 11 City, State, Zip: St. Augustine, Florida
32084

Phone: 904-829-8199 Fax: 904-810-0531

Fed I.D.# 06-1747700 Contractors License Number: CUC1224124

Date business formed: May 5, 2005 Date Incorporated: May 5, 2005

PRINCIPLE OFFICERS OF THE COMPANY

Name: Wade Gibby

Position: President / Owner

% of ownership: 50%

Experience: 40 years Sup. & GM

Name: Jeffery Hardwick

Position: Treasurer / Owner

% of Ownership: 50%

Experience: 36 years Sup. & GM

TYPE OF WORK PERFORMED:

Commercial Roadwork
Excavation Water System
Sewers Storm Systems

GEOGRAPHICAL AREAS OF OPERATION:

St. Johns County Volusia County
Duval County Flagler County
Clay County

LIST OF MOST RECENT CONTRACTS IN LAST TWELVE YEARS:

St Johns County Purchasing
500 San Sebastian View
St Augustine, Fl .32084

Contract Amount:530,240.00
June 2017 - Present

Project :Ocean Village Club, Salt
Water Cowboys, & Seaplace
Lift Station Upgrades

St Johns County Purchasing
500 San Sebastian View
St Augustine, Fl .32084

Contract Amount:476,360.00
June 2017 - Present

Project: Ponce De Leon Villas,
Raintree, Anastasia Oaks
Lift Station Upgrades

Uniflorida IV LLC
5975 Sunset Drive
Miami, Fl. 33143

Contract Amount: 1,343,702.90
March 2017 - Present

Project: Villages of Selo
y 2B

St Johns County Purchasing
500 San Sebastian View
St Augustine, Fl .32084

Contract Amount:304,857.00
March 2016 - Present

Project: Six Mile 1 Master
Lift Station

City of St Augustine
75 King St
St Augustine, Fl. 32085

Contract Amount: 561,213.72
February 2017- Present

Project: Davenport Park / County
Library

St Johns County Purchasing 500 San Sebastian View St Augustine, Fl .32084	Contract Amount:191,816.05 November 2016 - Present	Project: Stone Gate Lift Station Improvements
R.B. Gay Construction P.O. Box 3995 Jacksonville, FL 32206 Contact: Alan Reeves	Contract Amount: \$319,623.00 January 2017 - Present Phone: 904-354-8201	Project: 2 nd St North Parking Lot Improvements Jacksonville Beach
City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount: 267,799.20 July 2016 - January 2017	Project: Pump Station 50-51 Water Main Improvements
City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount: 441,611.34 June 2016 - Jan 2017	Project: Sidney Storm Water Improvements
Coastal Contracting 3491 Pall Mall Dr Ste 201 Jacksonville, FL. 32257	Contract Amount:397,704.51 April 2016 - September 2016	Project: Gates of St Johns
Uniflorida IV LLC 5975 Sunset Drive Miami, Fl. 33143	Contract Amount: 1,215,823.20 August 2016 - Present	Project: Villages of Selo 2A
Uniflorida IV LLC 5975 Sunset Drive Miami, Fl. 33143	Contract Amount: 265,000 April 2016- Present	Project: Villages of Selo Lift Station 1
St Johns County Purchasing 500 San Sebastian View St Augustine, Fl .32084.	Contract Amount:294,305.00 April 2016 - Present	Project: Lift Station Imp Osprey & Sawgrass Marriott
Flores Construction Co. 5470 East Busch Blvd #511 Tampa, Fl. 33617	Contract Amount: 280,521.00 March 2016 - Present	Project: City of Jacksonville Beach South Beach Park Pond Removal
City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount: 957,551.00 March 2015-November 2015	Project: Magnolia Ave Area Water Main Improvements
Petticoat Schmitt Civil Contractors 6380 Philips Hwy Jacksonville, Fl. 32216	Contract Amount: 807,729.08 November 2014 - September 2015	Project: Dobbs Rd / Kings Estate Rd
City of Jacksonville Beach 11 th North Third St Jacksonville Beach, Fl. 32250	Contract Amount \$ 3,597,507.20 May 2013 - March 2015	Project: Williams Coastal Blvd Heights & South Beach Infra.

City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount \$605,209.98	Project: Abbott Tract Utility Imp.
City of Jacksonville Beach. 11 th North Third St Jacksonville Beach, Fl. 32250	Contract Amount \$ 865,868.86 February 2014 – January 2015	Project: Phase IIIB Improvements
City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount \$169,105.50 April 2014-June 2014	Project: North City Imp Old Mission Ave Water Main
City of Jacksonville Beach 11 North Third St Jacksonville, Fl. 32250	Contract Amount \$521,116.70 June 2012 – May 2013	Project : Duval Drive Roadway & Drainage Improvement
City of Jacksonville Beach 11 th North ThirdSt Jacksonville Beach, Fl. 32250	Contract Amount \$ 1,303,131.40 April 2012 – November 2012	Project: Ocean Forest Drainage Improvements
City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount: 185,961.00 October 2015-December 2015	Project: Isla Drive Drainage Improvements
City of Atlantic Beach 1200 Sandpiper Lane Atlantic Beach. Fl. 32233	Contract Amount: 91,150.00	Project: Russell Park Multi Purpose Path
City of Atlantic Beach 1200 Sandpiper Lane Atlantic Beach. Fl. 32233	Contract Amount: 380,000.00 April 2015-November 2015	Project: Salt Air Neighborhood Storm Water Improvements
City of St Augustine 75 King St St Augustine, Fl. 32085	Contract Amount \$50,842.00 July 2014 - September 2014	Project: Palmetto Ave City of St Augustine Maintenance
C&D Construction, Inc P.O. Box 236577 Cocoa, Fl. 32923-6577	Contract Amount \$445,369.53	Project: Avenida Menendez Seawall
City of Jacksonville Beach 11 North Third St Jacksonville, Fl. 32250	Contract Amount \$633,010.00	Project : 12 th Ave South Erosion Control

City of St Augustine 75 King St St Augustine, Fl. 32084	Contract Amount : \$340,587.01	Project: Palmer St water Main ; Upgrade
City of Jacksonville Beach 11 North third St Jacksonville, Fl. 32250	Contract Amount \$ 171,162.00	Project: Water main Valve Rep. Various Locations
City of St Augustine 75 King St St Augustine, Fl. 32084	Contract Amount \$467,990.00	Project: Lincolnville Water Main Improvements
City of St Augustine 75 King St St Augustine, Fl. 32084	Contract Amount : \$ 719,080.00 February 2012-September 2012	Project: Lift Station 51 & 52
City of Jacksonville Beach 11 North third Street Jacksonville, Fl. 32250	Contract Amount : \$532,515.00	Project: Modification to LS # 3
City of St Augustine 75 King St St Augustine, Fl. 32084	Contract Amount : \$ 268,275.00 December 2011 - February 2012	Project: Storm Water Upgrades
City of Jacksonville Beach 11 North Third Street Jacksonville, FL 32250 Contact Junior Lilly	Contract Amount: \$455,000.00 March 2001-February 2012 Phone: 904-247-6286	Project: Lake Mildred Storm Water Pump station
City of Jacksonville Beach 11 North Third Street Jacksonville, FL 32250 Contact Junior Lilly	Contract Amount: \$455,000 Phone: 904-247-6286	Project: 2 nd & 4 th Ave North Water Main Imp.
City Of St Augustine 75 King Street St Augustine Fl, 32084 Attn: Marcus Pinson	Contract Amount: \$44,750.00 Contract Amount: \$55,559.00 Contract Amount: \$37,391.00 Marcus Pinson: 904-209-4278	Project: Ribault Project: Andreas Project: North Matanzas
City Of St Augustine 75 King Street St Augustine Fl, 32084 Attn: Marcus Pinson	Contract Amount: \$72,000.00 Phone: 904-209-4278	Project: Pump Station No 2 Rehabilitation

St Johns County
2446 Dobbs Rd
System Improvements
St Augustine, FL 32086
Aaron Zambo

Contract Amount: \$413,953.00
November 2009-November 2010

Project: Sevilla Gardens
Sewer

Phone: 904-209-2628

St Johns County
2446 Dobbs Rd
St Augustine, FL 32086
Aaron Zambo

Contract Amount: \$838,393.40
November 2009-November 2010

Project: Woodland West
Subdivision . Sewer System Imp.

Phone: 904-260-6288

City Of Palatka
201 North 2nd St
Palatka, FL 32177
Daryl Myers

Contract Amount: \$819,419.72
October 2009-May 2010

Project: Dunham Street Water Main
Extension

Phone: 904-260-6288

Pat Cook Construction
1904 Manatee Ave W #300
Bradenton, FL 34205
Mark Coyne

Contract Amount: \$100,650.00

Project: Wards Creek &
Timberlin Creek Elementary
Sewer/Gravity

Phone: 941-749-1959

City of Atlantic Beach
Project
800 Seminole Road
Atlantic Beach, FL 32233
Contact: Rick Carper

Contract Amount: \$39,252.68

Project: George Street Sidewalk
and Drainage CDBG

Phone: 904-247-5834

St. Johns County BOCC
2740 Industry Center Road
St. Augustine, FL 32084
Contact Joan Anderson

Contract Amount: \$195,011.00

Project: Shores Blvd
Pipe Replacement

Phone: 904-209-0128

St. Johns County BOCC
1205 SR 16
Main Improvements
St. Augustine, FL 32084
Contact Robert Zammataro, PE

Contract Amount: \$490,761.98
February 2009-October 2009

Project: Treasure Beach
Water

Phone: 904-209-2604

City of St. Augustine
P.O. Box 210
St. Augustine, FL 32085
Contact: Paul Spangler

Contract Amount: \$215,290.00

Project: Pump Station
23 Repairs

Phone: 904-825-1042

City of Jacksonville Beach 11 North Third Street Jacksonville, FL 32250 Contact Junior Lilly	Contract Amount: \$1,519,325.95 Phone: 904-247-6286	Project: Infrastructure Improvements Parts A, B & C
R.B. Gay Construction P.O. Box 3995 Jacksonville, FL 32206 Contact: Alan Reeves	Contract Amount: \$778,727.87 December 2005-December 2006 Phone: 904-354-8201	Project: EOC
Ruggeri Construction 815 S.R. 206 East St. Augustine, FL 32086	Contract Amount: \$156,960.00 Phone: 904-797-0201	Project: Forest Oaks
Halifax Paving P.O. Box 730549 Ormond Beach, FL. 32173 Contact: Ruth	Contract Amount: \$ 2,350,000 December 2005-December 2006	Project: Conservatory
PCI 3702 Olson Drive Daytona Beach, FL. 32124 Contact: Cathy Cobb	Contract Amount: \$ 1,070,000 August 2006-June 2007 Phone: 386-258-3807	Project: Old Kings Road Tymber Creek
R.B. Gay Construction P.O. Box 3995 Jacksonville, FL. 32206 Contact: George Durance	Contract Amount: \$ 1,010,000 Phone: 904-354-8201	Project: St. Johns Co. Fire & Rescue
Cats Paw Marina 220 Nix Boat Yard Rd. St. Augustine, FL. 32086 Contact: Sonya Jenson	Contract Amount: \$ 327,000 May 2007-November 2007 Phone: 904-829-0840	Project: Cats Paw Marina
Lucas Marine 1100 Shelter Ave. Jacksonville, FL. 32250 Contact: Frank Subjenski	Contract Amount: \$ 172,400 Phone: 904-246-6017	Project: FLA # *8 Shoreline

Largest work on-hand position of company, at any one time was \$ 2,500,000

ADDITIONAL REFERENCES:

Dennis Deprise
11 North Third St
City of Jacksonville Beach
Jacksonville Beach, 32250
Email : ddupries@jaxbchfl.net
904-247-6286

Bill Mendez

City of St Augustine
75 King St
St Augustine, Fl. 32085
Email: bmendez@citystaug.com
904-825-1040

Rueben Franklin
City of St Augustine
75 King St
St Augustine, Fl. 32085
Email: rfranklin@citystaug.com
904-209-4279

Marcus Pinson
City of St Augustine
75 King St
St Augustine, Fl. 32085
Email: mpinson@citystaug.com
904-823-2204

Brian Hepburn
Edmunds & Associates
1100 Cesery Terrace
Jacksonville, Fl. 32211
Email: bhepburn@jonesedmunds.com
904-744-5401

Tom Moore
GAI Consultants
1301 Riverplace Blvd Suite 900
Jacksonville, Fl. 32207
Email: t.moore@gaiconsultants.com
904-363-1110

John Moyer
Waitz & Moyer
3738 Southside Blvd #101
Jacksonville, Fl. 32216

Mike Adams
St Johns County Project Administrator
Email: madams@sjcfl.us
904-209-0655



St. Johns County Board of County Commissioners

Purchasing Division

January 18, 2018

ADDENDUM #1

To: Prospective Bidders
From: St. Johns County Purchasing Department
Subject: BID NO.: 18-36 Cranes Lake, Remington and Merganzer Lift Station Upgrades

This Addendum #1 is issued for further bidder's information and is hereby incorporated into the bid documents. Each bidder will ascertain before submitting a proposal that he/she has received all Addenda. *Please return a signed copy of this Addendum with Bid Proposal (1 original).*

ADDENDUM #1 SHALL BE INCORPORATED INTO THE AGREEMENT DOCUMENTS,
PROPOSAL REQUIREMENTS, AGREEMENT FORMS, CONDITIONS OF THE AGREEMENT,
AND TECHNICAL SPECIFICATIONS
DATED JANUARY 2018

Proposers on the Project are hereby notified that this Addendum shall be attached to and made a part of the above-named Proposal Documents and Specifications. These items shall have full force and effect as the Proposal Documents and Specifications and cost involved shall be included in the Proposal Contract Prices. Proposals to be submitted on the specified bid date shall conform with the additions/deletions/revisions listed herein.

IN THE TECHNICAL SPECIFICATIONS

1. Remove Specification Section 11306 and Replace in its entirety (enclosed).

ON THE DRAWINGS

1. Install an additional 1-inch tee on the pressure transmitter line at each pump station. Refer to sketch enclosed.
2. Remove Sheets E-4, E-5, and E-6 and Replace in its entirety (enclosed).

ANSWERS TO QUESTIONS RECEIVED DURING BIDDING, CLARIFICATION AND GENERAL INFORMATION

1. Can more information be provided on the buried utilities at Remington in the location of the horizontal directional drill?

Answer: The Contractor shall locate all existing utilities prior to horizontal directional drill work. Coordinate with the property owner, Beaches Energy and SJCUD as required.

2. Can more information be provided on upstream manholes?

Answer: Yes, aerials showing the location of upstream manholes are enclosed.

3. Please advise if this bid has a minimum subcontractor participation goal (DBE/MWBE etc) requirements?

Answer: No requirements.

4. Please advise the contractors/companies that are pre-qualified by St Johns County for the Horizontal Directional Drilling work as noted in 18-36_Bid_Specifications, section 1.07A on page 02413-11.

Answer: Contractor to submit company of their choice for approval. No companies pre-qualified.

5. Please advise the contractors/companies that are pre-qualified by St Johns County for the SCADA system modifications as noted on as noted on drawing E-6, Note #1.

Answer: Companies approved Star Controls, Curry, CDM Smith, Revere and ITG.

6. Please confirm if the items noted in 18-36_Bid_Specification page 11306-1 section 1.01 A are now to be purchased by Contractor as noted in the pre-bid meeting.

Answer: Yes, Contractor to purchase listed material. See revised

7. Please advise if there is an opportunity for site visit to inspect the existing wet well condition for coating application.

Answer: Site visit available upon request.

8. Is the contractor to provide pump and control package?

Answer: Yes, Contractor to purchase listed material.

9. Is contractor to provide Wet Well hatch?

Answer: Yes

10. Who is responsible for Utility locates at Ponte Vedra Lakes where electric has to be directional bored under parking lot?

Answer: The Contractor shall locate all existing utilities. Coordinate with the property owner, Beaches Energy and SJCUD as required.

11. Is SCADA existing and to be re used and if replaced is contractor to provide SCADA system New SCADA to be installed Contractor to purchase?

Answer: Approved companies: Star Controls, Curry, CDM Smith, Revere and ITG.

12. Is sufficient power from utility provider to site?

Answer: Contractor to coordinate with Beaches Energy.

13. What are flows to each station?

Answer: Flows are listed in specifications Section 01014, paragraph 1.03. Also listed in plans. These flows are also to be used for by-passing.

14. Do these stations pump into another force main?

Answer: Cranes Lake and Remington pump to a forcemain. Merganzer pumps to a receiving manhole.

15. Are Sewpercoat or Strong Seal approved wet well coating?

Answer: Specta shield or Raven are approved per the Contract Documents. Sewpercoat or Strong Seal is not approved.

ATTACHMENTS TO ADDENDUM #1

- Section 11306 Submersible Solids Handling Pumps
- Site Aerials and Upstream Manhole Locations
- Pressure Transmitter Sketch
- Sheets E-4, E-5, and E-6

THE BID DUE DATE IS CURRENTLY January 31, 2018 by 2:00 P.M.

Acknowledgment

Sincerely,

Signature and Date

**Leigh Daniels, CPPB
Procurement Supervisor
Purchasing Department**

Printed Name and Title

Company Name (Print)

END OF ADDENDUM #1

ST. JOHNS COUNTY UTILITY DEPARTMENT

ST. JOHNS COUNTY, FLORIDA

SJCUD PROJECT NO: 4483-56302-6704-53180



UTILITIES

GROUP 3 LIFT STATION UPGRADES AUGUST 2017

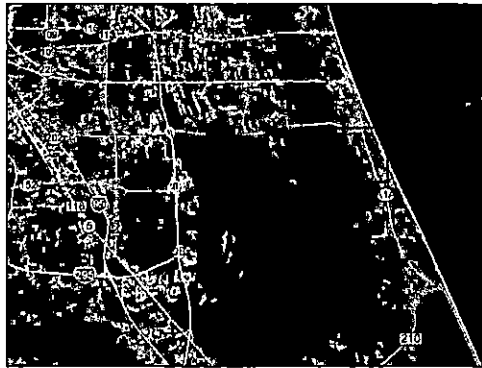


IMAGE OBTAINED FROM GOOGLE EARTH PRO, NOVEMBER 2015

AREA MAP

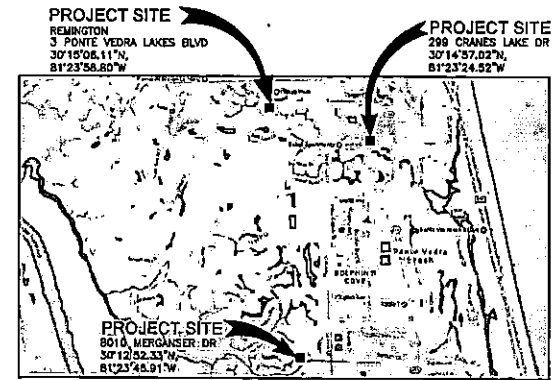


IMAGE OBTAINED FROM MICROSOFT MAPPOINT, DECEMBER 2016

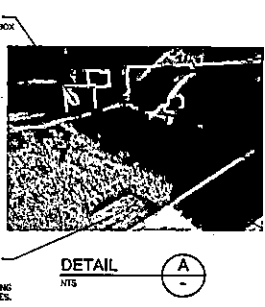
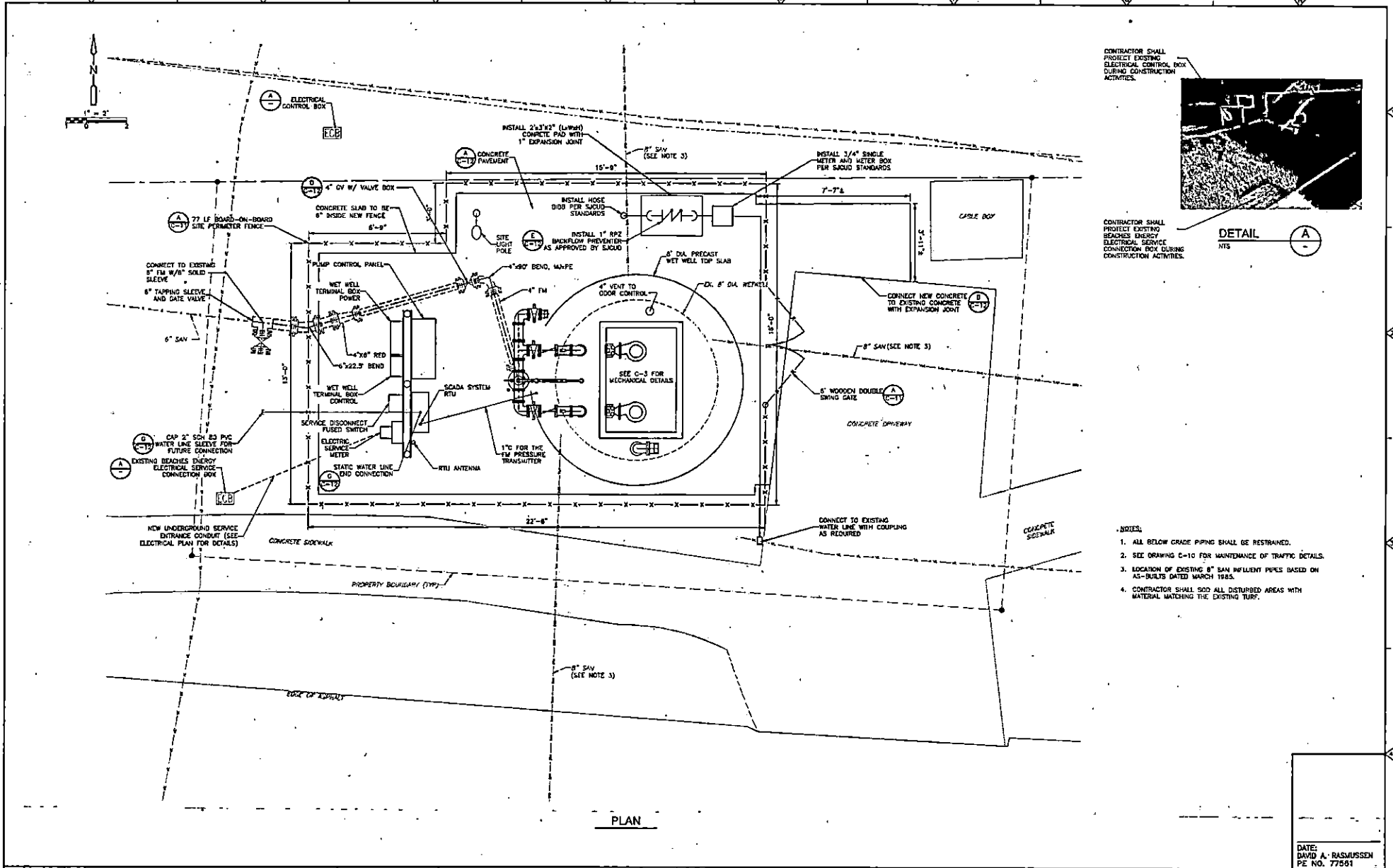
LOCATION MAP

**CDM
Smith**

8381 Dix Ellis Trail, Suite 400
Jacksonville, FL 32256
Tel: 904-731-7109
FL. COA NO: EB-0000020
PROJECT NUMBER: 6334-216744

ISSUED FOR BID

REVISIONS: (DATE, DRAWING NO., DESCRIPTION, DRAWN BY, CHECKED BY) PROJECT: (2017)0813, SHEET (01)
 LAST REVISED BY: AUCS/CP DATE: 8/18/2017 10:15:40 AM
 PROJECT: ST. JOHN'S COUNTY UTILITY DEPARTMENT GROUP 3 LIFT STATION UPGRADES
 DRAWN BY: D. PUSKASSEN
 CHECKED BY: J. HEALY
 DATE: AUGUST 2017
 PROJECT: ST. JOHN'S COUNTY UTILITY DEPARTMENT GROUP 3 LIFT STATION UPGRADES



CONTRACTOR SHALL PROTECT EXISTING ELECTRICAL CONTROL BOX DURING CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL PROTECT EXISTING BEACHES ENERGY ELECTRICAL SERVICE CONNECTION BOX DURING CONSTRUCTION ACTIVITIES.

- NOTES:
1. ALL BELOW GRADE PIPING SHALL BE RESTRAINED.
 2. SEE DRAWING C-10 FOR MAINTENANCE OF TRAFFIC DETAILS.
 3. LOCATION OF EXISTING 8" SAN INFLUENT PIPES BASED ON AS-BUILTS DATED MARCH 1985.
 4. CONTRACTOR SHALL SOD ALL DISTURBED AREAS WITH MATERIAL MATCHING THE EXISTING TURF.

REV. NO.	DATE	DRWN	CHKD	REMARKS

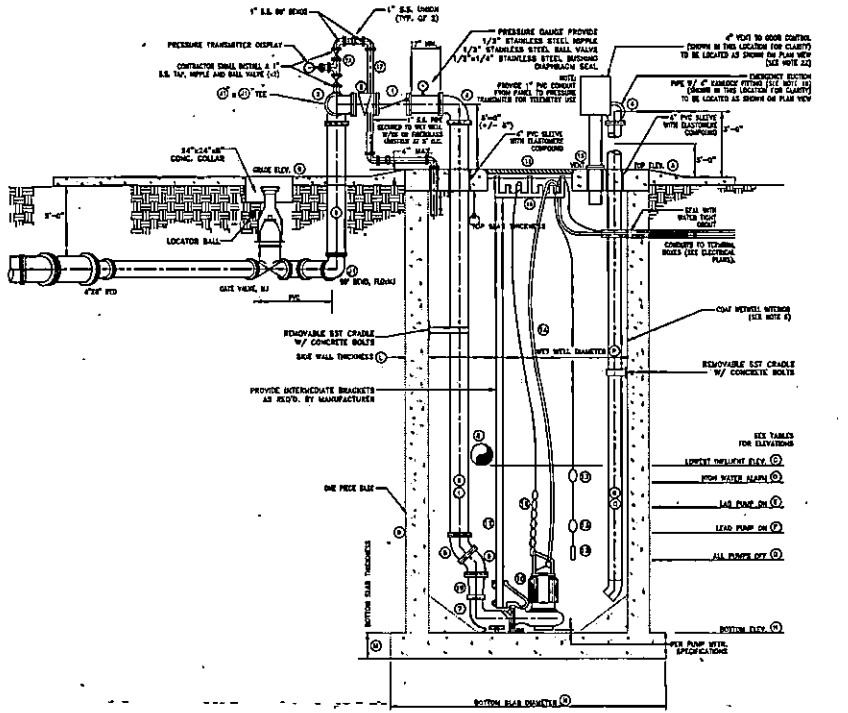
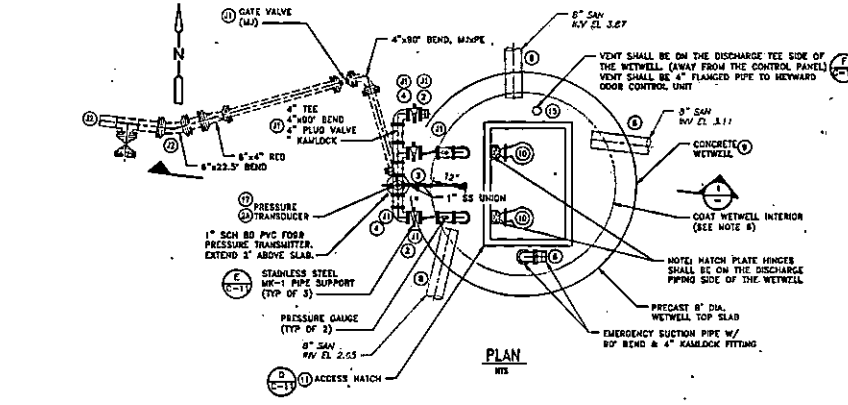
DESIGNED BY: R. SCHROEDER
 DRAWN BY: A. EDWARDS
 SHEET CHECKED BY: J. HEALY
 CHECKED BY: J. O'NEAL
 APPROVED BY: D. PUSKASSEN
 DATE: AUGUST 2017

CDM Smith
 6361 Old Lake Road, Suite 400
 Jacksonville, FL 32208
 Tel: 904.773.1000
 Fax: 904.773.0222

ST. JOHN'S COUNTY UTILITY DEPARTMENT
 ST. JOHN'S COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

CRANES LAKE PROPOSED SITE PLAN

DATE: DAVID A. RASJUSSEN
 PE NO. 77581
 PROJECT NO. 6334-218744
 FILE NAME: C002STPL201C
 SHEET NO. C-2



LIFT STATION	
STATION ELEVATIONS	
1 TOP ELEVATION	14.03
2 GRADE ELEVATION	13.80
3 LOWEST INFLUENT INVERT	2.63
4 HIGH WATER ALARM	2.31
5 LAG PUMP ON (NO. 2)	1.83
6 LEAD PUMP ON (NO.1)	1.33
7 ALL PUMPS OFF	-0.82
8 BOTTOM OF WET WELL	-5.01
STATION INFORMATION	
1 PUMP DISCHARGE PIPING SIZE	4"
2 FORCE MAIN PIPING SIZE	4"
3 FORCE MAIN PIPING SIZE	8"
4 TOP SLAB THICKNESS (MIN)	8"
5 SIDE WALL THICKNESS (MIN)	1'-3"
6 BOTTOM SLAB THICKNESS	12"
7 BOTTOM SLAB DIAMETER (MIN)	10'-4"
8 WET WELL DIAMETER	8'-0"
9 EMERGENCY SUCTION PIPING SIZE	4"
PUMP INFORMATION	
NUMBER OF PUMPS	3
PUMP MANUFACTURER	FLYGT
NON-CLOG SUBMERSIBLE	
PUMP MODEL	MP102S31
DISCHARGE	3" MOTOR RPM 3,450
HP	210 VOLTS 3 PHASE 60 HZ
MANFOLD COND.	235-OPM AT 52 FT. TDH
BEH-OUT COND.	275-OPM AT 10 FT. TDH
PUMP ACCESS HATCH SIZE	2'-8" W x 4'-0" H
ELECTRICAL SERVICE AMPS (100 or 200)	100

MECHANICAL EQUIPMENT SCHEDULE	
1	CHECK VALVE, SWING-TYPE LEVER FACING OUTSIDE, LEVER AND SPRING OPERATED, IRON BODY, BRONZE MOUNTED
2	PLUG VALVE, CAST IRON BODY, LEVER ACTUATED
3	CONTRACTOR TO INSTALL: 2"-1" STAINLESS STEEL BALL VALVES 1"-1/4" STAINLESS STEEL TEE 1"-1/2" DIAPHRAGM 1/2"x1/2" MALE TO MALE NIPPLE
4	STAINLESS STEEL TEE
5	STAINLESS STEEL SHORT RADII 90° BEND
6	STAINLESS STEEL 45° BEND
7	316 STAINLESS STEEL PIPE (SCH 40)
8	DUCTILE IRON PUMP BASE
9	BUFFLE PIPE (SEE PLANS)
10	CONCRETE WETWELL
11	FLYGT PUMP (AS APPROVED BY ST. JOHNS COUNTY UTILITY DEPARTMENT)
12	ALUMINUM WETWELL ACCESS HATCH (OPENING PER PUMP MANUFACTURER)
13	STAINLESS STEEL GUIDE BARS
14	PUMP CONTROL AND HIGH ALARM FLOATS PROVIDED BY PUMP MANUFACTURER
15	PUMP MOTOR CABLE
16	4" FLANGED SCHEDULE 40 316SS AIR VENT TO HEYWARD DOOR CONTROL UNIT
17	STAINLESS STEEL CABLE HOLDER
18	1" STAINLESS BLOW OFF LINE TO WETWELL-SECURE LINE TO WETWELL SLAB WITH UNISTRUT WITH UNIONS
19	1/4" STAINLESS STEEL WITH 18" OF CHAIN LINKS
20	4"x3" STAINLESS STEEL REDUCER

NOTES:

- ACCESS HATCH FOR THE WETWELL SHALL BE 1/4" ALUM. TREAD PLATE WITH STAINLESS STEEL HARDWARE. HATCH SHALL BE PROVIDED WITH LIFTING HANDLE, LATCHING HANDLE AND SAFETY LATCH TO HOLD HATCHES OPEN. OPENING IN WETWELL SLAB AS PER MANUFACTURER'S SPECIFICATIONS.
- SEE DETAIL A FOR CONCRETE DRIVEWAY DETAILS.
- 3" BOLT MOUNTING HOLE AND CONDUIT HOLES SHALL BE CORE DRILLED IN THE FIELD AS PER SHOP DRAWINGS OR ACTUAL FIELD REQUIREMENTS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRECAST WETWELL TOP SLAB. SHOP DRAWINGS SHALL INCLUDE ALL NECESSARY STRUCTURAL AND FLOTATION CALCULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ELECTRICAL POWER TO THE PUMPING STATION. THREE PHASE POWER IS REQUIRED. THIS WORK IS TO BE COORDINATED WITH FLORIDA POWER AND LIGHT.
- THE INTERIOR OF THE WET WELL AND RECEIVING MANHOLE SHALL BE COATED WITH LINER BY APPROVED MANUFACTURER. SEE SPECIFICATION 02605 FOR WETWELL COATING REQUIREMENTS.
- A LIGHTNING ARRESTER SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
- A SURGE SUPPRESSOR SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
- AN AUDIBLE ALARM SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
- THE SURFACE OF THE WET WELL SHALL FIRST BE PREPARED BY GROUTING THE WET WELL AS REQUIRED TO OBTAIN A SMOOTH SURFACE. THE COATING SHALL BE WARRANTED FOR A MINIMUM OF 10 YEARS FOR MATERIAL AND WORKMANSHIP.
- PLUG VALVE OPERATOR SHALL BE MOUNTED PARALLEL TO GROUND AND FACE OUTWARD.
- PLUG VALVE SEAT SHALL BE INSTALLED ADJACENT TO CHECK VALVE REGARDLESS OF FLOW ARROW ON VALVE.
- RPZ BACKFLOW PREVENTER PIPING ABOVE GRADE SHALL BE THREADED BRASS WITH BRASS OR STAINLESS STEEL FITTINGS AND VALVES.
- SITE GRADING SHALL PROVIDE FOR DRAINAGE OF WATER TO THE DRIVEWAY SIDE OF SITE.
- SIZES SHOWN IN "STATION INFORMATION" ABOVE ARE MINIMUMS AND MAY NEED TO BE LARGER BASED ON SPECIFIC SITE DESIGN.
- ALL ABOVE GRADE FITTINGS SHALL BE PAINTED FOREST GREEN (OIL BASED), EXCLUDING STAINLESS STEEL PIPE AND FITTINGS.
- ONE STAINLESS STEEL SUPPORT SHALL BE INSTALLED UNDER EACH PLUG VALVE.
- ALL PIPE SHALL BE FLANGED.
- ALL STAINLESS STEEL PIPE AND FITTINGS SHALL BE 316 SS (SCH 40).
- ROTATE THE PRESSURE TRANSDUCER DISPLAY TO MATCH THE HORIZONTAL INSTALLATION; ROTATE THE PRESSURE TRANSDUCER MOUNTING TEE SUCH THAT THE PRESSURE TRANSDUCER DISPLAY FACES NORTH.
- OWNER IS PRE-PURCHASING PUMPS, GUIDE RAILS, CONTROL PANEL AND ACCESSORIES. REFER TO SPECIFICATION SECTION 11306 FOR ADDITIONAL INFORMATION.
- REFER TO SPECIFICATION SECTION 11250 FOR ADDITIONAL DETAILS ON THE ODOOR CONTROL UNIT.

DATE: 02/04/2014 10:00:00 AM PROJECT: ST. JOHNS COUNTY UTILITY DEPARTMENT CRANES LAKE PROPOSED LIFT STATION GROUP 3 LIFT STATION UPGRADES
 DRAWN BY: J. MEYER DATE: 01/23/2017 7:43:34 AM
 CHECKED BY: B. SCHMIDT DATE: 01/23/2017 7:43:34 AM
 DESIGNED BY: B. SCHMIDT DATE: 01/23/2017 7:43:34 AM
 PROJECT NO: 1334-318744
 SHEET NO: C-3
 FILE NAME: C003.S07.DWG
 ISSUED FOR: BIDDING

REV.	DATE	BY	CHKD	REVISION

DESIGNED BY: B. SCHMIDT
 DRAWN BY: J. MEYER
 CHECKED BY: B. SCHMIDT
 APPROVED BY: B. SCHMIDT
 DATE: AUGUST 2012

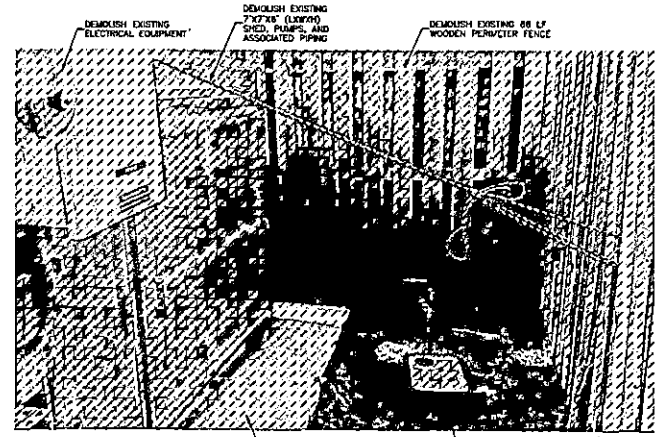
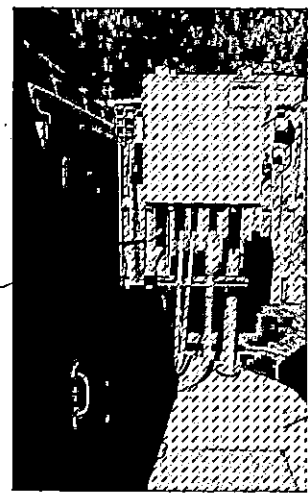
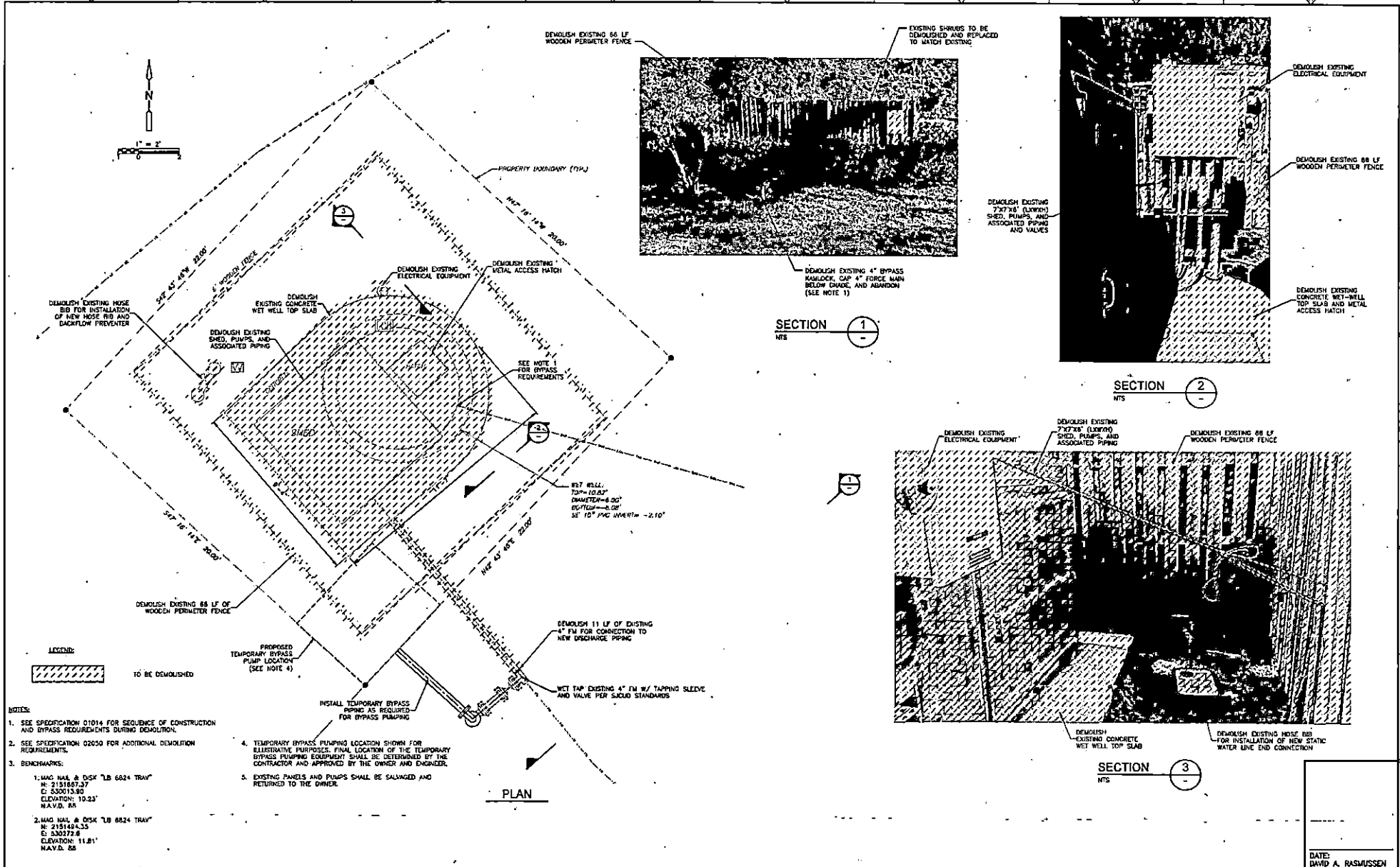
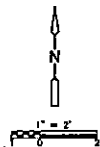
3331 Old Erie Road, Suite 400
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 TEL: 904.771.7100
 FAX: 904.771.7101

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
GROUP 3 LIFT STATION UPGRADES

**CRANES LAKE PROPOSED LIFT STATION
 DETAILS**

DATE: DAVID A. RASMUSSEN PE NO. 77501
PROJECT NO: 1334-318744
FILE NAME: C003.S07.DWG
SHEET NO: C-3

ISSUED FOR BIDDING



SECTION 1
NTS

SECTION 2
NTS

SECTION 3
NTS

PLAN

- NOTES:**
- SEE SPECIFICATION 01014 FOR SEQUENCE OF CONSTRUCTION AND BYPASS REQUIREMENTS DURING DEMOLITION.
 - SEE SPECIFICATION 02050 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
 - BENCHMARKS:
 - 1. MAG NAIL & DISK "LB 6624 TRAV" N: 2131887.37 E: 330013.80 ELEVATION: 10.23' N.A.V.D. RR
 - 2. MAG NAIL & DISK "LB 8824 TRAV" N: 2131484.35 E: 330272.6 ELEVATION: 11.81' N.A.V.D. 88
 - TEMPORARY BYPASS PUMPING LOCATION SHOWN FOR ILLUSTRATIVE PURPOSES. FINAL LOCATION OF THE TEMPORARY BYPASS PUMPING EQUIPMENT SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE OWNER AND ENGINEER.
 - EXISTING PANELS AND PUMPS SHALL BE SALVAGED AND RETURNED TO THE OWNER.



DATE: [REDACTED] PROJECT: [REDACTED] DRAWN: [REDACTED] CHECKED: [REDACTED] APPROVED: [REDACTED]
 FILE NAME: [REDACTED]

REV.	DATE	BY	CHKD.	REMARKS

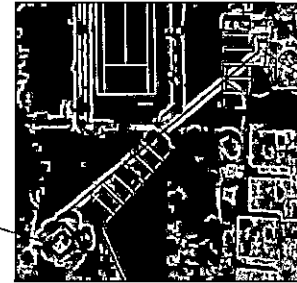
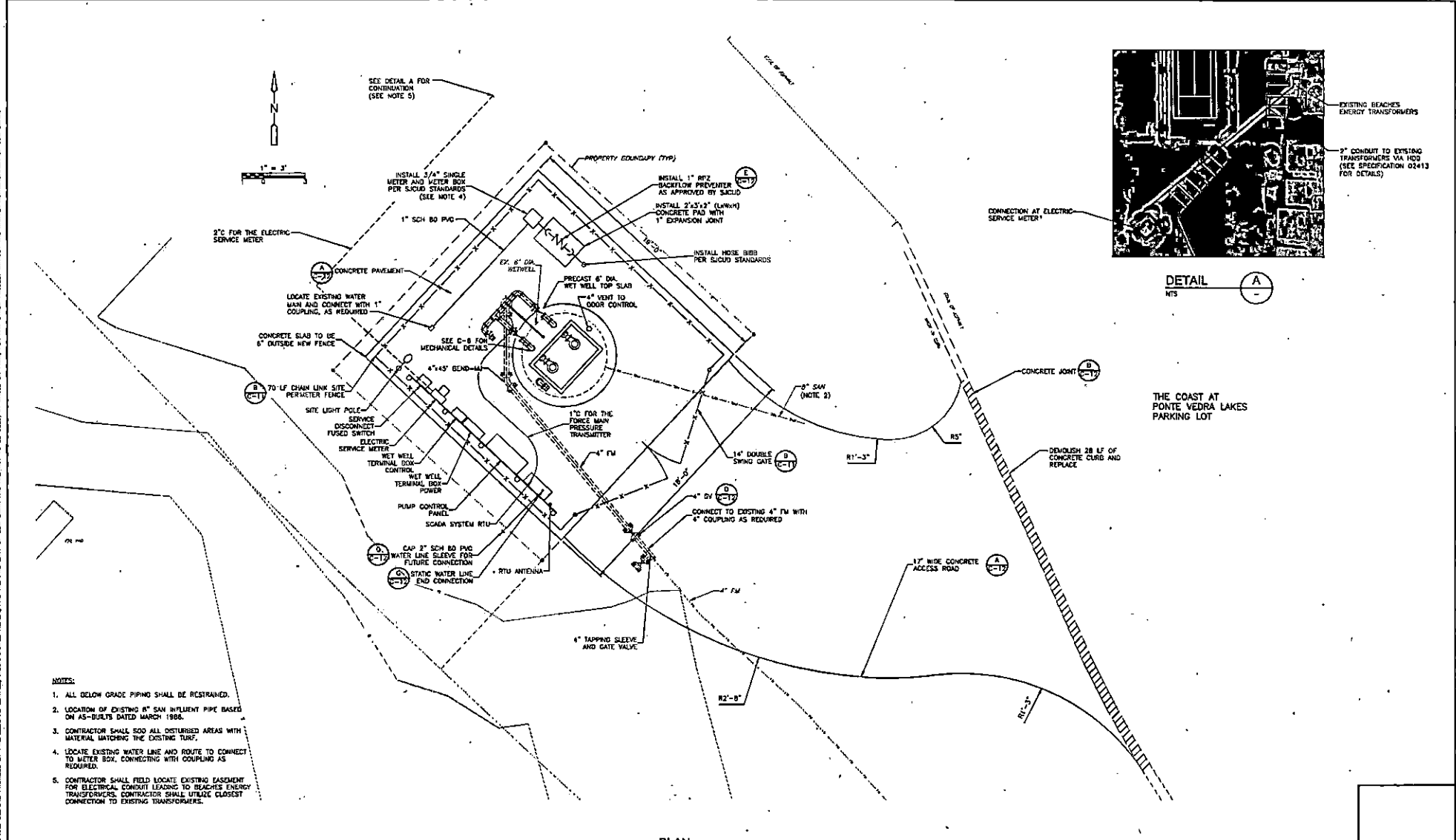
DESIGNED BY: B. SCHEIDT
 DRAWN BY: A. EDWARDS
 SHEET CHECKED BY: J. SEAL
 CHECKED BY: J. O'NEAL
 APPROVED BY: D. RASMUSSEN
 DATE: AUGUST 2012



ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

REMINGTON SITE SURVEY,
 DEMOLITION, AND PROPOSED BYPASS PLAN

DATE: DAVID A. RASMUSSEN
 PE NO. 77561
 PROJECT NO. 0304-218744
 FILE NAME: 004504_PLDWG
 SHEET NO. C-4



DETAIL A
N.T.S.

EXISTING REACHES ENERGY TRANSFORMERS
2" CONDUIT TO EXISTING TRANSFORMERS VIA HDG (SEE SPECIFICATION 02413 FOR DETAILS)

THE COAST AT PONTE VEDRA LAKES PARKING LOT

PLAN

- NOTES:
1. ALL BELOW GRADE PIPING SHALL BE RESTRAINED.
 2. LOCATION OF EXISTING 8" SAN INFLUENT PIPE BASED ON AS-BUILTS DATED MARCH 1988.
 3. CONTRACTOR SHALL SOO ALL DISTURBED AREAS WITH MATERIAL MATCHING THE EXISTING TURF.
 4. LOCATE EXISTING WATER LINE AND ROUTE TO CONNECT TO METER BOX, CONNECTING WITH COUPLING AS REQUIRED.
 5. CONTRACTOR SHALL FIELD LOCATE EXISTING EASIMENT FOR ELECTRICAL CONDUIT LEADING TO BEACHES ENERGY TRANSFORMERS. CONTRACTOR SHALL UTILIZE CLOSEST CONNECTION TO EXISTING TRANSFORMERS.

NOTES: (SEE SHEET 02413 FOR DETAILS) DATE: 8/27/2013 4:11:53 PM
 User: david.rasmussen\cadd\dwg\02413\02413.dwg
 PROJECT: REMINGTON PROPOSED LIFT STATION UPGRADES
 SHEET: GROUP 3 LIFT STATION UPGRADES

REV.	DATE	BY	CHKD.	REMARKS

DESIGNED BY: D. SCHUBERT
 DRAWN BY: A. EDWARDS
 SHEET CHECK BY: J. MEANY
 CHECKED BY: J. MEANY
 APPROVED BY: D. RASMUSSEN
 DATE: AUGUST 2013

CDM Smith
 4301 Old Dixie Hwy. Suite 400
 Jacksonville, FL 32256
 TEL: 904.774.1700
 FL CORP. REG. # 08-0000022

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
GROUP 3 LIFT STATION UPGRADES

REMINGTON PROPOSED SITE PLAN
 SHEET NO. C-5

DATE: DAVID A. RASMUSSEN
 FE NO. 77561
 PROJECT NO. 8334-318744
 FILE NAME: C0053TLP.DWG
 SHEET NO. C-5

REV.	DATE	BY	CHKD	REMARKS
1				
2	04/20/2011	D. ROSSIGNOL		ISSUED FOR BID
3		A. BARNETT		
4		J. BRYAN		
5		D. ROSSIGNOL		

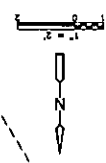
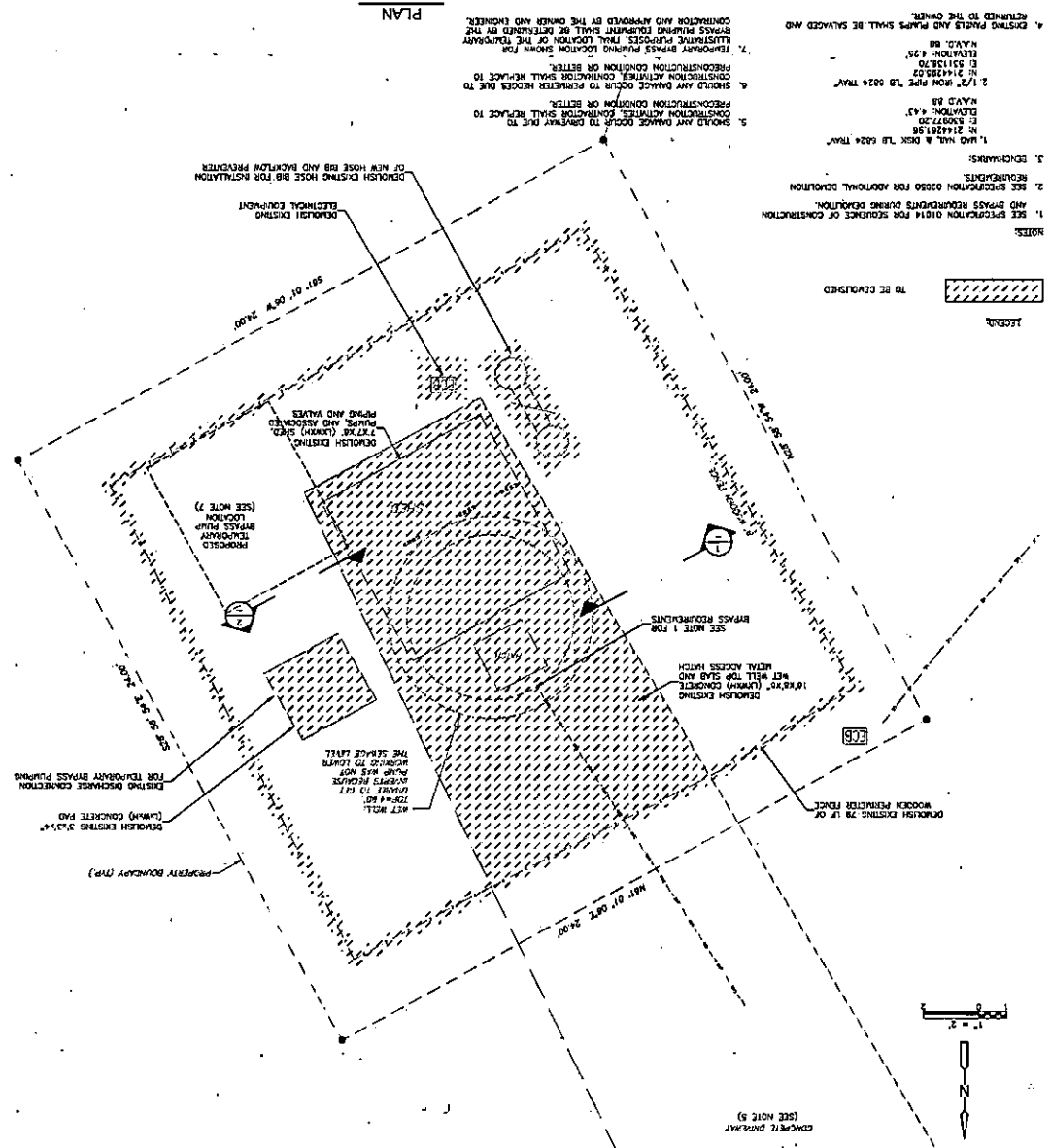
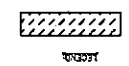
ST. JOHN'S COUNTY UTILITY DEPARTMENT
 ST. JOHN'S COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

MORGANZER SITE SURVEY,
 DEMOLITION, AND PROPOSED BYPASS PLAN

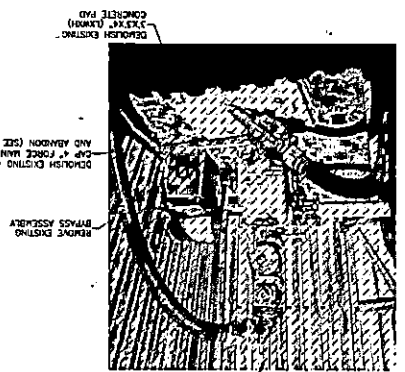
SHEET NO. C-7
 PROJECT NO. 11-14-2010-0001
 FILE NAME: C007504.DWG

DATE: 04/20/2011
 DRAWN BY: D. ROSSIGNOL
 P.E. NO.: 77381

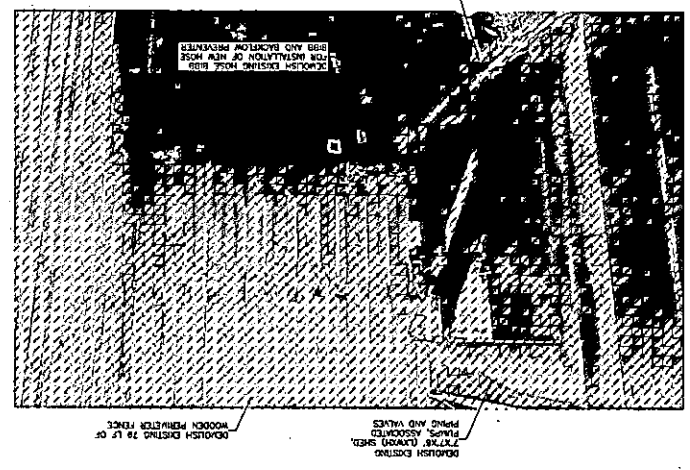
- NOTES:
- SEE SPECIFICATION 0114 FOR SEQUENCES OF CONSTRUCTION AND BYPASS REQUIREMENTS DURING DEMOLITION.
 - SEE SPECIFICATION 0200 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
 - EDICAREMENTS.
 - SHOULD ANY DAMAGE OCCUR TO PROTECTORS REPAIR TO RECONSTRUCTION CONDITION OR BETTER.
 - SHOULD ANY DAMAGE OCCUR TO DRIVEWAY DUE TO CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL REPLACE TO ORIGINAL CONDITION OR BETTER.
 - CONSTRUCTION ACTIVITIES CONTRACTOR SHALL REPLACE TO ORIGINAL CONDITION OR BETTER.
 - CONSTRUCTION ACTIVITIES CONTRACTOR SHALL REPLACE TO ORIGINAL CONDITION OR BETTER.
 - TEMPORARY BYPASS PUMPING LOCATION SHOWN FOR BYPASS PUMPING EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR. PROTECTORS SHALL BE PROVIDED BY THE CONTRACTOR AND APPROVED BY THE OWNER AND ENGINEER.
 - EXISTING POLES AND WALKS SHALL BE MAINTAINED AND RETURNED TO THE OWNER.



SECTION 2

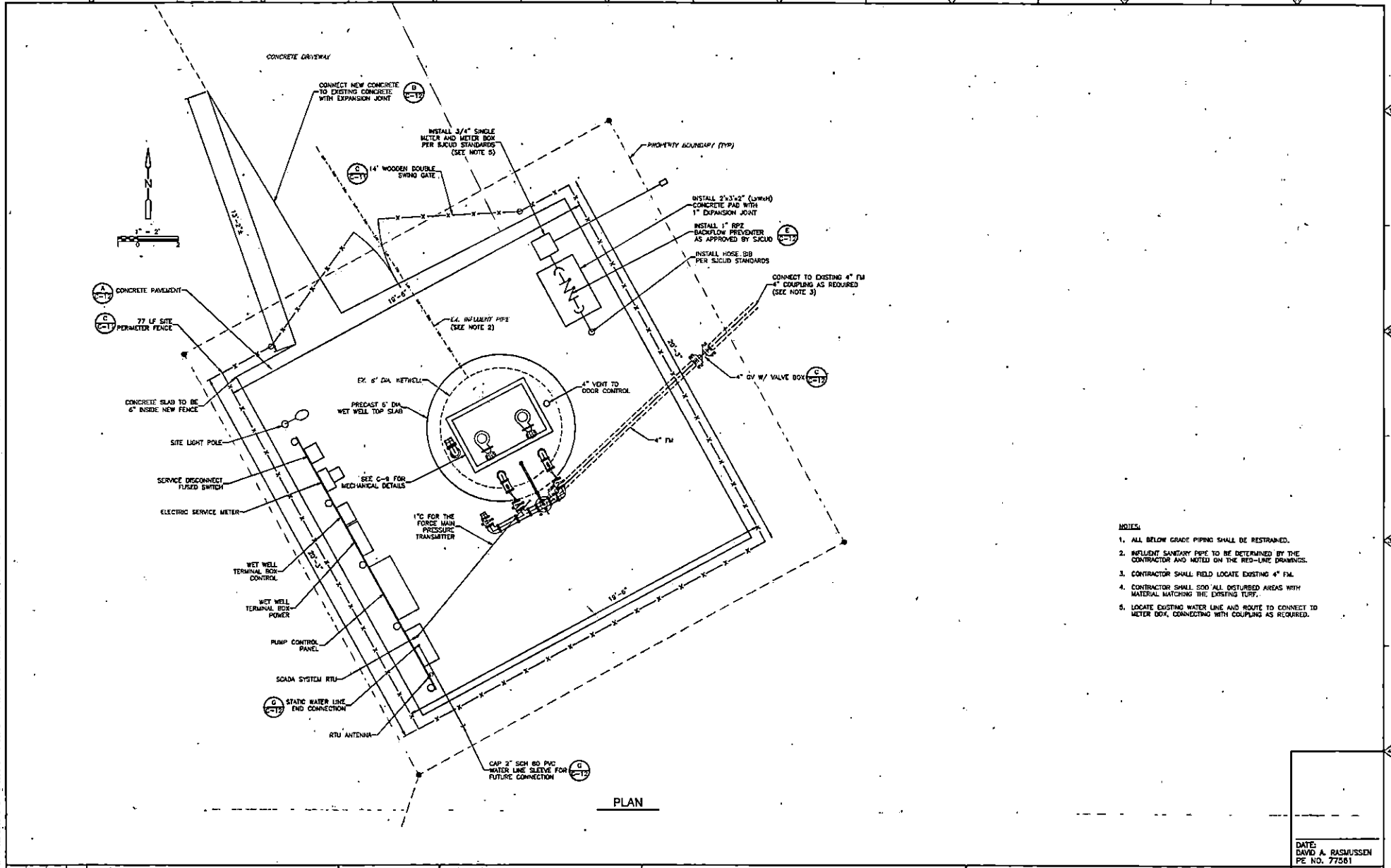


SECTION 1



ISSUED FOR BID

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- NOTES:
1. ALL BELOW GRADE PIPING SHALL BE RESTRAINED.
 2. INFLEET SANITARY PIPE TO BE DETERMINED BY THE CONTRACTOR AND NOTED ON THE RED-LINE DRAWINGS.
 3. CONTRACTOR SHALL FIELD LOCATE EXISTING 4" FM.
 4. CONTRACTOR SHALL SOO ALL DISTURBED AREAS WITH MATERIAL MATCHING THE EXISTING TOP.
 5. LOCATE EXISTING WATER LINE AND ROUTE TO CONNECT TO METER BOX, CONNECTING WITH COUPLING AS REQUIRED.

REV.	DATE	DRWN	CHGD	REMARKS

DESIGNED BY: G. BISHOP
 DRAWN BY: P. ANTONY
 SHEET CHECKED BY: J. THOMAS
 PROJECT CHECKED BY: J. THOMAS
 APPROVED BY: D. RASMUSSEN
 DATE: AUGUST 2011

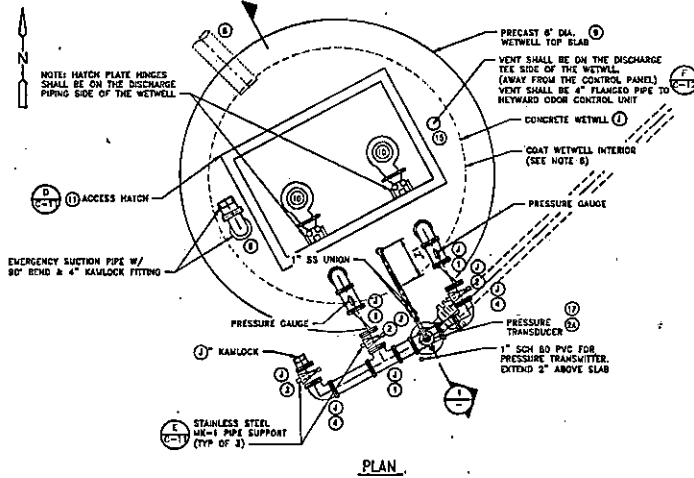
CDM Smith
 3301 DRUMMERS ROAD, SUITE 400
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 TEL: 813.281.7200
 FAX: 813.281.7200

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
GROUP 3 LIFT STATION UPGRADES

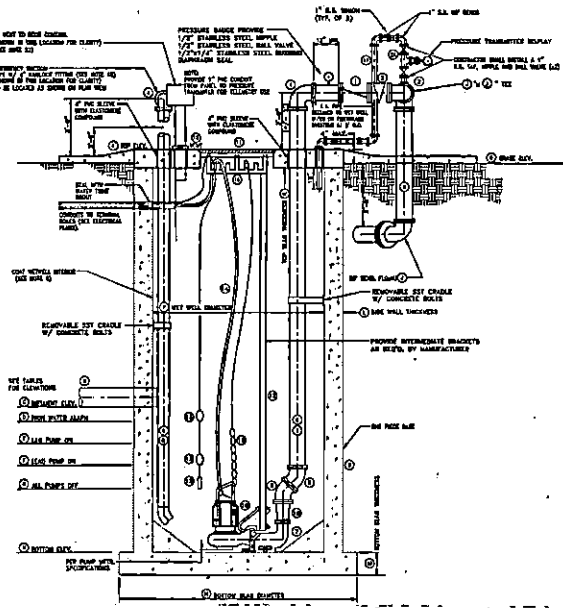
MERGANZER PROPOSED SITE PLAN

DATE: DAVID A. RASMUSSEN
 PE NO. 77561
 PROJECT NO.: 8334-218744
 FILE NAME: C00RSTPLDWG
 SHEET NO.: C-8
 ISSUED FOR BID

NOTE: MATCH PLATE HINGES SHALL BE ON THE DISCHARGE PIPING SIDE OF THE WETWELL.



PLAN



SECTION 1 NTS

LIFT STATION	
STATION ELEVATIONS	
② TOP ELEVATION	4.93'
③ GRADE ELEVATION	-3.60'
④ INFLUENT BAYLEY	-3.77'
⑤ HIGH WATER ALARM	-3.77'
⑥ LAG PUMP ON (NO. 2)	-3.77'
⑦ LEAD PUMP ON (NO.1)	-3.77'
⑧ ALL PUMPS OFF	-3.77'
⑨ BOTTOM OF WET WELL	-11.18'
STATION INFORMATION	
① PUMP DISCHARGE PIPING SIZE	4"
② FORCE MAIN PIPING SIZE	4"
③ TOP SLAB THICKNESS (MIN)	8"
④ SIDE WALL THICKNESS (MIN)	8"
⑤ BOTTOM SLAB THICKNESS	12"
⑥ BOTTOM SLAB DIAMETER (MIN)	3'-4"
⑦ WET WELL DIAMETER	6'-0"
⑧ EMERGENCY SUCTION PIPING SIZE	4"
PUMP INFORMATION	
NUMBER OF PUMPS	2
PUMP MANUFACTURER	FLOYD
NON-BLOCK SUBMERSIBLE	
PUMP MODEL	MF2522HML, IMPELLER ID 4-1/2"
DISCHARGE	4" MOTOR RPM 3,310
	2.7 HP 230 VOLTS 3 PHASE 60 HZ
MANIFOLD COND.	113 GPM AT 45.0 FT. TDH
RUN-OUT COND.	343 GPM AT 124.3 FT. TDH
PUMP ACCESS HATCH SIZE	2'-5" x 4'-0"
ELECTRICAL SERVICE AMPS (100 @ 200)	100

MECHANICAL EQUIPMENT SCHEDULE	
①	CHECK VALVE, BOWEN-TYPE LEVER FACING OUTSIDE, LEVER AND SPRING OPERATED, IRON BODY, BRONZE MOUNTED
②	PLUG VALVE, CAST IRON BODY, LEVER ACTUATED
③	CONTRACTOR TO INSTALL:
③-1	2" STAINLESS STEEL BALL VALVES
③-2	1" STAINLESS STEEL FEE
③-3	1" x 1/2" DIAPHRAGM - SEE INSTRUMENTATION
③-4	1/2" x 1/2" MALE TO MALE NIPPLE
④	STAINLESS STEEL FEE
⑤	STAINLESS STEEL SHORT RADIUS 90° BEND
⑥	STAINLESS STEEL 45° BEND
⑦	316 STAINLESS STEEL PIPE (SCH 40)
⑧	DUCTILE IRON PUMP BASE
⑨	INFLUENT PIPE (SEE PLANS)
⑩	CONCRETE WETWELL
⑪	FLOYD PUMP (AS APPROVED BY ST. JOHNS COUNTY UTILITY DEPARTMENT)
⑫	ALUMINUM WETWELL ACCESS HATCH (OVERRIDE PER PUMP MANUFACTURER)
⑬	STAINLESS STEEL GUIDE RAILS
⑭	PUMP CONTROL AND HIGH ALARM FLOATS PROVIDED BY PUMP MANUFACTURER
⑮	PUMP MOTOR CABLE
⑯	4" FLANGED SCHEDULE 40 316 STAINLESS STEEL AIR VENT TO HEYWARD ODOOR CONTROL UNIT
⑰	STAINLESS STEEL CABLE HOLDER
⑱	1" STAINLESS BLOW OFF LINE TO WETWELL-SECURE LINE TO WETWELL SLAB WITH UNISTRUT WITH UNIKINS
⑲	1/4" STAINLESS STEEL WITH 18" OF CHAIN LINKS
⑳	4"x3" STAINLESS STEEL REDUCER

NOTES:

- ACCESS HATCH FOR THE WETWELL SHALL BE 1/4" ALUM. TREAD PLATE WITH STAINLESS STEEL HARDWARE. HATCH SHALL BE PROVIDED WITH LIFTING HANDLE, LOCKING HASP AND SAFETY LATCH TO HOLD HATCHES OPEN. OPENING IN WETWELL SLAB AS PER MANUFACTURERS SPECIFICATIONS.
- SEE DETAIL A ON C-12 FOR CONCRETE DRIVEWAY DETAILS.
- 1" BOLT MOUNTING HOLE AND CONDUIT HOLES SHALL BE CORE DRILLED IN THE FIELD AS PER SHOP DRAWINGS OR ACTUAL FIELD REQUIREMENTS.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRECAST WETWELL TOP SLAB. SHOP DRAWINGS SHALL INCLUDE ALL NECESSARY STRUCTURAL AND FLOTATION CALCULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ELECTRICAL POWER TO THE PUMPING STATION. THREE PHASE POWER IS REQUIRED. THIS WORK IS TO BE COORDINATED WITH FLORIDA POWER AND LIGHT.
- THE INTERIOR OF THE WET WELL AND RECEIVING MANHOLE SHALL BE COATED WITH LINER BY APPROVED MANUFACTURER. SEE SPECIFICATION 02605 FOR WETWELL COATING REQUIREMENTS.
- A LIGHTNING ARRESTER SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
- A SURGE SUPPRESSER SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
- AN AUDIBLE ALARM SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
- THE SURFACE OF THE WET WELL SHALL FIRST BE PREPARED BY GROUTING THE WET WELL AS REQUIRED TO OBTAIN A SMOOTH SURFACE. THE COATING SHALL BE WARRANTED FOR A MINIMUM OF 10 YEARS FOR MATERIAL AND WORKMANSHIP.
- PLUG VALVE OPERATOR SHALL BE MOUNTED PARALLEL TO GROUND AND FACE OUTWARD.
- PLUG VALVE SEAT SHALL BE INSTALLED ADJACENT TO CHECK VALVE REGARDLESS OF FLOW ARROW ON VALVE.
- R.P.Z. BACKFLOW PREVENTER PIPING ABOVE GRADE SHALL BE THREADED BRASS WITH BRASS OR STAINLESS STEEL FITTINGS AND VALVES.
- SITE GRADING SHALL PROVIDE FOR DRAINAGE OF WATER TO THE DRIVEWAY SIDE OF SITE.
- SIZES SHOWN IN "STATION INFORMATION" ABOVE ARE MINIMUMS AND MAY NEED TO BE LARGER BASED ON SPECIFIC SITE DESIGN.
- ALL ABOVE GRADE FITTINGS SHALL BE PAINTED FOREST GREEN (OIL BASED), EXCLUDING STAINLESS STEEL PIPE AND FITTINGS.
- ONE STAINLESS STEEL SUPPORT SHALL BE INSTALLED UNDER EACH INDIVIDUAL DISCHARGE PIPE.
- ALL PIPE SHALL BE FLANGED.
- ALL STAINLESS STEEL PIPE AND FITTINGS MUST BE SCHEDULE 40.
- ROTATE THE PRESSURE TRANSMITTER DISPLAY TO MATCH THE HORIZONTAL INSTALLATION. ROTATE THE PRESSURE TRANSMITTER MOUNTING TEE SUCH THAT THE PRESSURE TRANSMITTER DISPLAY FACES NORTH.
- OWNER IS PRE-PURCHASING PUMPS, GUIDE RAILS, CONTROL PANEL AND ACCESSORIES. REFER TO SPECIFICATION SECTION 11306 FOR ADDITIONAL INFORMATION.
- REFER TO SPECIFICATION SECTION 11238 FOR ADDITIONAL DETAILS ON THE ODOOR CONTROL UNIT.

DATE: 08/01/2012, 09:58:00 AM, PROJECT: ST. JOHNS COUNTY UTILITY DEPARTMENT, SHEET: MERGANZER PROPOSED LIFT STATION GROUP 3 LIFT STATION UPGRADES, DRAWING NO.: 20120801, DESIGNER: CDM SMITH, CHECKED: J. MEANY, APPROVED: C. PROSSER, DATE: AUGUST 2012

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: B. SCHNEIDER
 DRAWN BY: M. BARNIA
 CHECKED BY: J. MEANY
 CDSM CHG TO: A. J. MEANY
 APPROVED BY: C. PROSSER
 DATE: AUGUST 2012

CDM Smith
 3451 SW 15th St., Suite 400
 Fort Lauderdale, FL 33309
 TEL: (954) 771-7100
 FAX: (954) 771-7100

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
GROUP 3 LIFT STATION UPGRADES

**MERGANZER PROPOSED LIFT STATION
 DETAILS**

DATE: DAVID A. RASMUSSEN
 PE NO. 77951
 PROJECT NO.: 8334-218744
 P.E. NAME: C0001SDT.CWG
 SHEET NO.
C-9

DATE: 08/01/2017 11:31 AM
 User: david.rasmussen@stjohnscountyfla.gov
 PROJECT: ST. JOHNS COUNTY UTILITY DEPARTMENT - GROUP 3 LIFT STATION UPGRADES
 STATE OF FLORIDA
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GENERAL NOTES

- At the top of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.
- At the bottom of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.
- At the top of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.
- At the bottom of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

SYMBOLS

- Work Area
- Lane Closure - Direction of Traffic

CONDITIONS

These notes apply to all work areas. The contractor shall install the signs as shown on this sheet. The signs shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

DATE	DESCRIPTION	BY	NO.
07/22/17	DESIGN STANDARDS	FDOT	605

FY 2016-17
 DESIGN STANDARDS
 TWO-LANE, TWO-WAY, WORK OUTSIDE SHOULDER
 SHEET NO. 605
 1 of 1

SYMBOLS

- Work Area
- Lane Closure - Direction of Traffic
- Work Area
- Lane Closure - Direction of Traffic

GENERAL NOTES

- At the top of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.
- At the bottom of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.
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- At the bottom of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

CONDITIONS

These notes apply to all work areas. The contractor shall install the signs as shown on this sheet. The signs shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

CROSSWALK CLOSURE AND PEDESTRIAN DETOUR

SIDEWALK DETOUR

SIDEWALK DIVERSION

DATE	DESCRIPTION	BY	NO.
07/22/17	DESIGN STANDARDS	FDOT	660

FY 2016-17
 DESIGN STANDARDS
 PEDESTRIAN CONTROL FOR CLOSURE OF SIDEWALKS
 SHEET NO. 660
 1 of 1

CONDITIONS

These notes apply to all work areas. The contractor shall install the signs as shown on this sheet. The signs shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

CONDITIONS

These notes apply to all work areas. The contractor shall install the signs as shown on this sheet. The signs shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

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- At the bottom of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.
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- At the bottom of each work area, the contractor shall install a sign as shown on this sheet. The sign shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

SYMBOLS

- Work Area
- Lane Closure - Direction of Traffic
- Work Area
- Lane Closure - Direction of Traffic

DURATION NOTES

These notes apply to all work areas. The contractor shall install the signs as shown on this sheet. The signs shall be placed on the right side of the road, in the center of the lane, and shall be visible from a distance of 100 feet.

DATE	DESCRIPTION	BY	NO.
07/22/17	DESIGN STANDARDS	FDOT	605

FY 2016-17
 DESIGN STANDARDS
 TWO-LANE, TWO-WAY, WORK NEAR INTERSECTION
 SHEET NO. 605
 1 of 1

SIGNS NOTES:

- THE CONTRACTOR SHALL CARRY ON THE WORK IN A MANNER, WHICH WILL CAUSE A MINIMUM OF INTERRUPTION TO TRAFFIC, WHERE TRAFFIC MUST CROSS OPEN TRENCHES. THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES AT STREET INTERSECTIONS AND DRIVEWAYS. THE CONTRACTOR SHALL POST SUITABLE SIGNS INDICATING THAT A STREET IS CLOSED AND NECESSARY DETOUR SIGNS FOR THE PROPER MAINTENANCE OF TRAFFIC. PRIOR TO CLOSURE OF ANY STREETS, THE CONTRACTOR SHALL NOTIFY AND OBTAIN THE APPROVAL OF RESPONSIBLE AUTHORITIES AND THE COUNTY.
- UNLESS PERMISSION TO CLOSE A STREET IS RECEIVED IN WRITING FROM THE PROPER AUTHORITY (COUNTY, CITY, FDOT, ETC.), 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 WAYS, ERECT WHEEL GUARDS OR FENCES, OR TAKE OTHER MEASURES FOR SAFETY SATISFACTORY TO THE COUNTY.
- DETOURS AROUND CONSTRUCTION WILL BE SUBJECTED TO THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION AND THE COUNTY. WHERE DETOURS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES AND SIGNS ARE REQUIRED TO DIVERT THE FLOW OF TRAFFIC. WHILE TRAFFIC IS DETOURED, THE CONTRACTOR SHALL EXPEDITE CONSTRUCTION OPERATIONS. PERIODS WHEN TRAFFIC IS BEING DETOUR WILL BE SIMULTANEOUSLY CONTROLLED BY THE COUNTY.
- IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO TAKE PRECAUTIONS TO PREVENT INJURY TO THE PUBLIC DUE TO OPEN TRENCHES. NIGHT WATCHMEN MAY BE REQUIRED WHERE SPECIAL HAZARDS EXIST, OR POLICE PROTECTION PROVIDED FOR TRAFFIC WHILE WORK IS IN PROGRESS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR DAMAGE OR INJURIES WHETHER OR NOT POLICE PROTECTION HAS BEEN PROVIDED.
- CONTRACTOR SHALL COORDINATE WITH SIGNS RIGHT-OF-WAY INSPECTOR BEFORE PERFORMING WORK IN THE RIGHT-OF-WAY.

DATE	DESCRIPTION	BY	NO.
07/22/17	DESIGN STANDARDS	FDOT	605

FY 2016-17
 DESIGN STANDARDS
 TWO-LANE, TWO-WAY, WORK NEAR INTERSECTION
 SHEET NO. 605
 1 of 1

DATE: DAVID A. RASMUSSEN
 PE NO. 77551
 PROJECT NO. 8331-218744
 FILE NAME: CD10NDTL.DWG
 SHEET NO.
 C-10

DESIGNED BY: B. SCHROEDER
 DRAWN BY: A. FOWLER
 SHEET CHECKED BY: J. OSELY
 CHECKED BY: J. OSELY
 APPROVED BY: D. RASMUSSEN
 DATE: AUGUST 2017

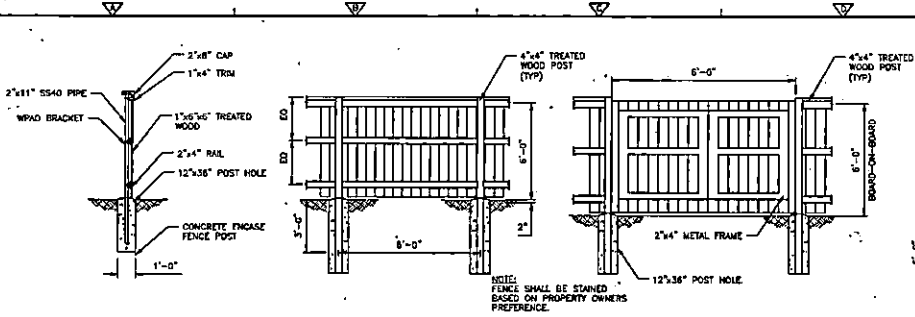
CDM Smith
 8341 SW 15th Street, Suite 400
 Jacksonville, FL 32209
 Tel: 904.732.2200
 Fax: 904.732.2200

REV.	DATE	DRWN	CHKD	REMARKS

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

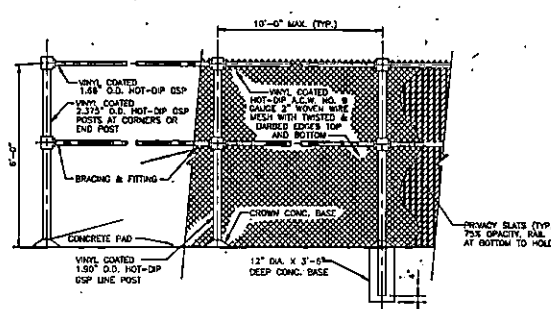
MAINTENANCE OF TRAFFIC DETAILS

ISSUED FOR BID



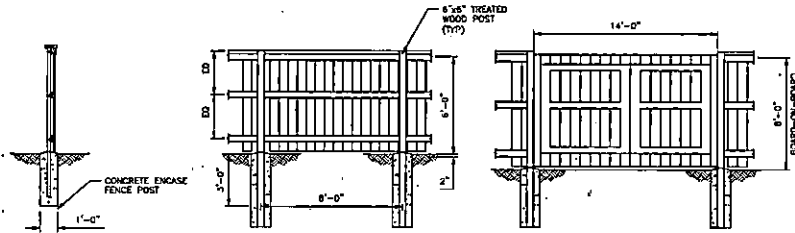
CRANES LAKE 6' PRIVACY FENCE AND DOUBLE SWING GATE

DETAIL A
NTS



REMINGTON 6' PRIVACY FENCE AND DOUBLE SWING GATE

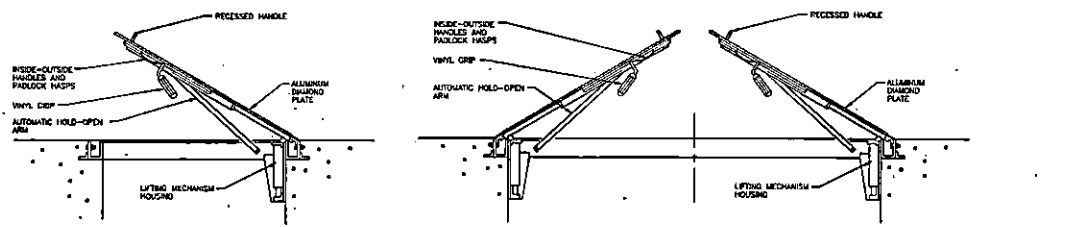
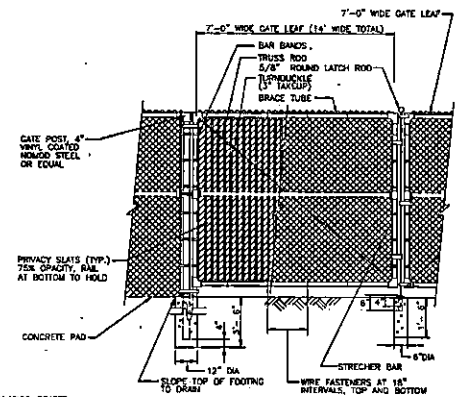
DETAIL B
NTS



MERGANSER 6' PRIVACY FENCE AND DOUBLE SWING GATE

DETAIL C
NTS

NOTE:
FENCE SHALL BE PRESSURE-TREATED PINE WOOD WITH 0.40 ALKALINE COPPER QUATERNARY (ACQ) PRESERVATIVE. FENCE SHALL CONSIST OF 3/4" X 6" PICKETS WITH SQUARE-CUT TOPS, CONSTRUCTED UTILIZING STAINLESS STEEL 2" RING SHANK NAILS. THE PICKET TOP SHALL HAVE A MINIMUM 1/4" FASMA WITH HORIZONTAL TRIM CAP OF 5/8" X 6" WITH ALL TRIM BOARDS TO HAVE SIMILAR 0.40 ACQ PRESERVATIVE TREATMENT. CONNECTIONS ON HORIZONTAL FENCE PANELS SHALL UTILIZE STAINLESS STEEL SCREWS SIZED FOR THE LOAD, OR STAINLESS CONNECTORS. POST CAPS TO HAVE 0.5" DADO REVEAL 3" BELOW A METAL DECORATIVE POST CAP MANUFACTURED BY WARD IRON. 6" X 6" PYRAMID ORNAMENTAL ALUMINUM POST CAP, OR APPROVED EQUAL. THE ENTIRE FENCE CONSTRUCTION SHALL NOT UTILIZE IRON OR GALVANIZED NAILS OR SCREWS. THE POST TOP SHALL EXTEND 3" ABOVE THE FENCE TRIM. THE DARK SIDE OF THE FENCE PICKETS AND TRIM SHALL BE TURNED OUT OR UP. NO STAIN COLOR SHALL BE APPLIED TO THE FENCE SYSTEM.

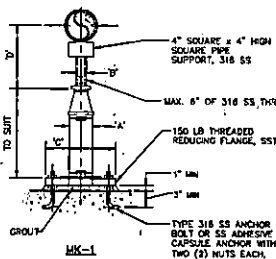


SINGLE LEAF HATCH
NOTES:
1. THIS CONFIGURATION SHALL BE USED AS SINGLE LEAF HATCH.
2. NO SAFETY CHAIRING SHALL BE PROVIDED FOR PLATE.
3. CONFIRM HATCH SITE WITH THE PUMP MANUFACTURER.
4. SINGLE OR DOUBLE LEAF HATCH TO BE DETERMINED AS REQUIRED BY PUMP MANUFACTURER.

HATCH NOTES
1. ALUMINUM HATCHES TO BE SUPPLIED WITH STAINLESS STEEL HATCHWORK.
2. ALL HATCHES TO BE SUPPLIED WITH HIGH SECURITY DETONATOR LOCKS.
3. HATCH PINS SHALL NOT BE ACCESSIBLE WHEN THE HATCH IS IN THE CLOSED POSITION.
4. ALL OUTDOOR HATCHES SHALL BE WATER-TIGHT.
5. SINGLE OR DOUBLE LEAF HATCH TO BE DETERMINED AS REQUIRED BY PUMP MANUFACTURER.

TYPICAL HATCH DETAILS AND SCHEDULE

DETAIL D
NTS



ADJUSTABLE PIPE SUPPORT APPROX DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN	D MAX
2 1/2	2 1/2	1 1/2	9	8	11 1/2
3	2 1/2	1 1/2	9	8 1/4	11 3/4
3 1/2	2 1/2	1 1/2	9	8 1/2	12
4	3	2 1/2	9	10 1/4	14
6	3	2 1/2	9	11 5/8	15 1/4
8	3	2 1/2	9	13 5/8	16 1/2
10	3	2 1/2	9	14 5/8	16 3/4
12	3	2 1/2	9	15 5/8	16 3/4
14	4	3	11	16 5/8	20 3/4
16	4	3	11	18 7/8	22 1/4
18	6	3 1/2	13 1/2	21 1/4	24
20	6	3 1/2	13 1/2	23 1/4	25 1/2
24	8	4	13 1/2	26 1/2	28 1/4
30	8	4	13 1/2	28 5/8	31 1/2
32	8	4	13 1/2	30 5/8	32 3/4
38	8	4	13 1/2	32 5/8	34 3/4

NOTES:
1. UNDER VALVES, MOTORS OR OTHER SPECIAL APPURTENANCES A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABLE TO ENGINEER.
2. CONTRACTOR SHALL COAT/PAIN THE SUPPORT IMMEDIATELY AFTER INSTALLATION.

ADJUSTABLE PIPE SUPPORT

DETAIL E
NTS

PROJECT: (C-11) GROUP 3 LIFT STATION UPGRADES
 DATE: 8/23/2017 7:56:32 AM
 DRAWN BY: A. EDWARDS
 CHECKED BY: J. MENA
 APPROVED BY: D. RICHARDS
 DATE: AUGUST 2017

DESIGNED BY: B. SCHROEDER
 DRAWN BY: A. EDWARDS
 CHECKED BY: J. MENA
 CROSS CHECKED BY: J. OSTENAL
 APPROVED BY: D. RICHARDS
 DATE: AUGUST 2017

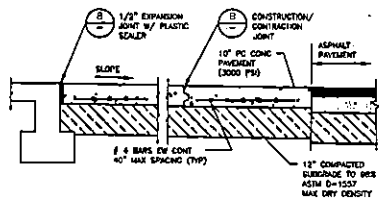


3241 SW 7TH STREET SUITE 400
 MIAMI, FL 33135
 TEL: (305) 721-4100
 FAX: (305) 721-0000

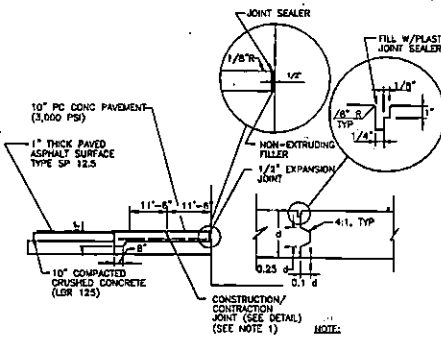
ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

MISCELLANEOUS DETAILS I

DATE: DAVID A. RASMUSSEN
 PE NO. 77561
 PROJECT NO. 4334-214744
 FILE NAME: C011MOTL.DWG
 SHEET NO.
 C-11

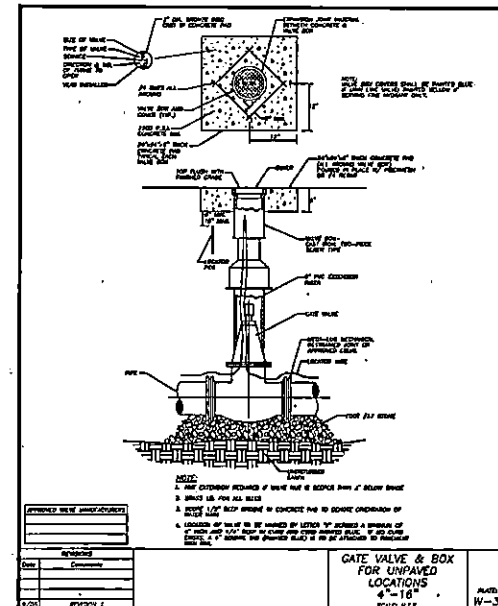


HEAVY DUTY CONCRETE PAVEMENT
DETAIL A
NTS

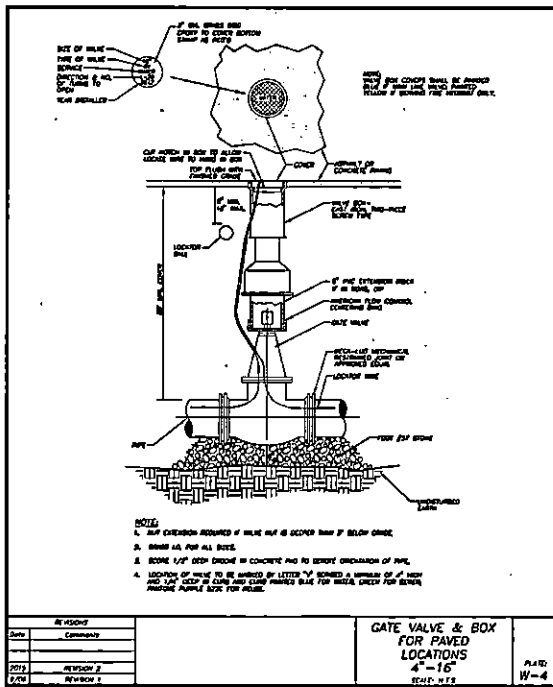


CONCRETE JOINT
DETAIL B
NTS

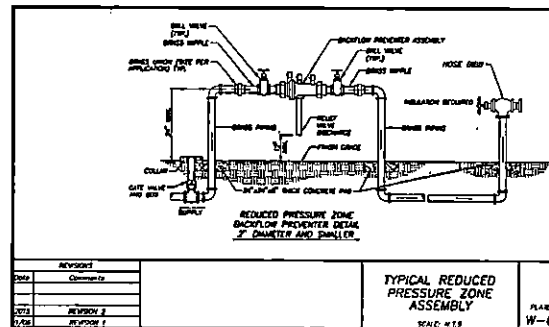
NOTE:
1. PROVIDE CONSTRUCTION JOINT EVERY 10'-0" SQUARE.



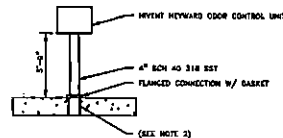
GATE VALVE AND BOX FOR UNPAVED LOCATIONS
DETAIL C
NTS



GATE VALVE AND BOX FOR PAVED LOCATIONS
DETAIL D
NTS

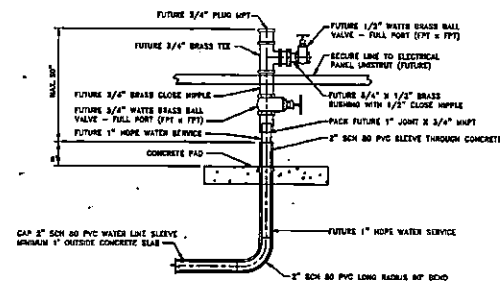


DETAIL E
NTS



DETAIL F
NTS

NOTE:
1. CONTRACTOR SHALL INSTALL ODOR CONTROL UNIT IN ACCORDANCE WITH SPECIFICATION 1153A.
2. CONTRACTOR SHALL COAT INTERIOR OF CONCRETE OPENING FOR VENT AND ODOR CONTROL UNIT WITH EPICREASOLDO PRIOR TO INSTALLATION OF ODOR CONTROL UNIT AND ASSOCIATED VENT PIPING AND BASKET.



STATIC WATER LINE END CONNECTION
DETAIL G
NTS

NOTES: (CONC. 2433) DESIGN: [REDACTED] DATE: 10/01/2017
 DATE: 10/01/2017
 TIME: 11/10/2017 10:01:01 AM
 USER: [REDACTED]
 PROJECT: [REDACTED]
 SHEET: [REDACTED]
 SHEET NO.: [REDACTED]

REV.	DATE	BY	CHKD	REVISIONS

DESIGNED BY: S. SCHNEIDER
 DRAWN BY: P. ANDRZEJ
 SHEET CHECK BY: J. KEANEY
 CHECKED BY: J. GONZA
 APPROVED BY: D. RASMUSSEN
 DATE: AUGUST 2011



ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

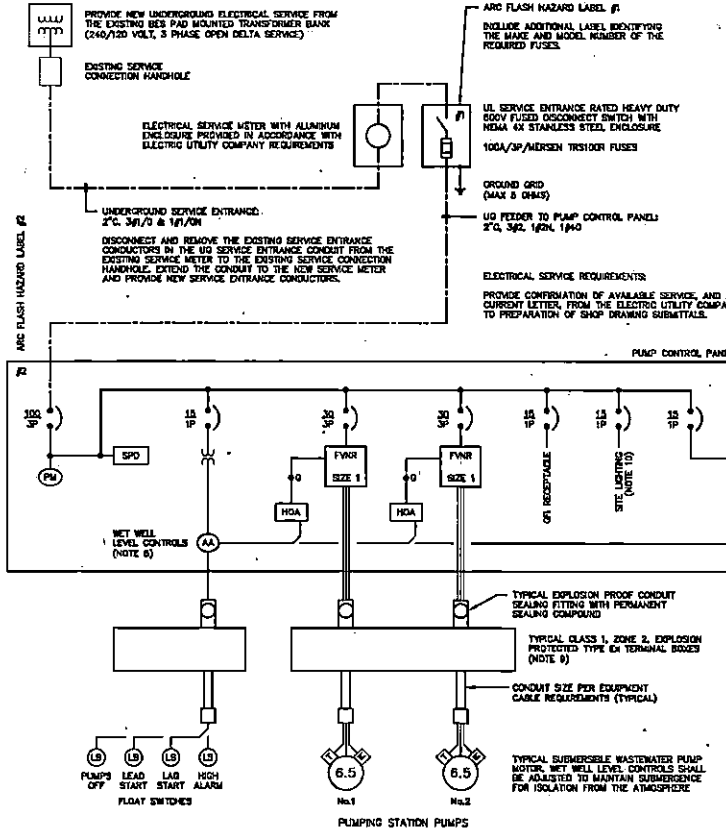
SJCUD STANDARD DETAILS
 SHEET NO. C-12

DATE: DAVID A. RASMUSSEN
 PE NO. 77581
 PROJECT NO. 6334-21674
 FILE NAME: C0125/SJ-DRG
 SHEET NO. C-12

ISSUED FOR BID

NOTES

- DESIGN DRAWINGS AND DIAGRAMS AND OUTLINES TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH ST. JOHNS COUNTY DESIGN STANDARDS AND SPECIFICATIONS.
- ALL MATERIAL SHALL BE NEW AND SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS' LABORATORIES, INC., AMERICAN NATIONAL STANDARDS INSTITUTE, NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION, INSULATION POWER CABLE ENGINEERS ASSOCIATION, AND INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS. IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIALS IN QUESTION.
- THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.
- ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC. SHALL BE TAKEN OUT AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.
- ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.
- THE PROJECT'S GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS BONDED TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION ELEMENTS. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.
- UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE 12" ALUMINUM OR 316 STAINLESS STEEL. CONDUCTORS SHALL BE STRANDED AND TYPE THHN-2 COPPER. UNDERGROUND CONDUIT SHALL BE 3/4" 60 PVC SERVICED CONDUIT SHALL BE 3/4" 80 PVC CONDUIT INTO THE WET WELL SHALL BE PVC COATED RIGID ALUMINUM SUPPORT CHANNEL, AND GROUNDING STRIP SHALL BE MINIMUM 1/2" x 1/2" ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKETS, ETC. NUTS AND BOLTS WITH ANTI-OXIDE COATING SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".
- THE PUMP CONTROL PANEL, WET WELL LEVEL CONTROL SYSTEM SHALL INCLUDE LEAD PUMP SELECTOR SWITCH AND AUTOMATIC ALTERNATOR FOR AUTOMATIC LEAD/LAG PUMP CONTROL AND ALTERNATION AND 24V CONTROL POWER TRANSFORMER AND HIGH/LEAD/OFF LEVEL. FLOAT SWITCHES FOR PUMP CONTROL AND HIGH LEVEL ALARM.
- DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONALLY, DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.
- PROVIDE SITE LIGHT POLE WITH SERVICE FROM THE PUMP CONTROL PANEL (3/4" 3/4"). PROVIDE W/ DUPLEX OR RECEPTACLE WITH CAST ALUMINUM BOX AND COVER, MOUNTED ADJACENT TO THE PUMP CONTROL PANEL. SITE LIGHT POLE SHALL BE FINGERLESS DIRECT BURIED POLE WITH BLACK FINISH LUMINAIRE SHALL BE ALL MODEL LNK-110-110V-150-BA-SH WITH 10" LONG ALUMINUM SPOKE BRACKET ARM. LUMINAIRE MOUNTING HEIGHT SHALL BE 12'. LOCATE LIGHT POLE ON RIGHT-HAND SIDE OF THE PUMP CONTROL PANEL.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE NEW PUMP CONTROL PANEL, EXPLOSION PROTECTED TYPE EX TERMINAL BOXES, WET WELL LEVEL CONTROLS, AND UL SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH SHALL BE FURNISHED BY THE SUCO APPROVED LIFT STATION ELECTRICAL EQUIPMENT SUPPLIER.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE SCADA SYSTEM RTU, ANTENNA MAST, AND ANTENNA SHALL BE PROVIDED BY A SUCO APPROVED SCADA SYSTEM INTEGRATOR. FOR STATIONS EQUIPPED WITH FORCE MAIN PRESSURE SENSORS AND/OR WATER MAIN PRESSURE SENSORS, THE PRESSURE SENSORS SHALL BE PROVIDED BY THE SCADA SYSTEM INTEGRATOR.



ELECTRICAL LEGEND

- CIRCUIT BREAKER (TRIP RATING/POLES)
- SHOP MAIN BREAKER, TEST EMERGENCY BREAKER
- POD PUMP MOTOR BREAKER
- MAGNETIC TYPE COMBINATION MOTOR STARTER
- NEMA SIZE AS INDICATED (3"V FULL VOLTAGE, 2"V REDUCED VOLTAGE, "M" NON-REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
- MOTOR (NUMERAL INDICATES HORSEPOWER)
- TRANSFORMER (3"CT CURRENT TRANSFORMER, "CPT" CONTROL POWER TRANSFORMER)
- GREEN "TRAINING" PILOT LIGHT (LED TYPE)
- HAND OFF AUTO SELECTOR SWITCH
- AUTOMATIC ALTERNATOR
- THREE PHASE POWER MONITOR
- LEVEL SWITCH
- LEVEL CONTROLLER
- SURGE PROTECTION DEVICE

ALL ALL EQUIPMENT LOCATED WITHIN THE WET WELL AND EXPOSED TO POTENTIAL HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS, SHALL BE RATED FOR CLASS I, DIVISION 1, GROUP D LOCATIONS. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE SUITABLE FOR CORROSIVE CONDITIONS.

CRANES LAKE LIFT STATION - SINGLE LINE DIAGRAM

ELECTRICAL SYSTEMS ANALYSIS

- THE CONTRACTOR SHALL INCLUDE A BID ALLOWANCE IN THE AMOUNT OF \$20,000 TO OBTAIN THE SERVICES OF AN INDEPENDENT SPECIALTY ENGINEERING FIRM TO PROVIDE A PRELIMINARY AND A FINAL SHORT CIRCUIT, POWER EVALUATION, PROTECTIVE DEVICE COORDINATION AND FLASH STUDY OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM, IN ACCORDANCE WITH SUCO STANDARDS.
- THE CONTRACTOR SHALL PROVIDE, WITH THE SHOP DRAWING SUBMITTALS, A LISTING OF THE FOLLOWING INFORMATION FOR EACH POWER DISTRIBUTION FEEDER: CONDUIT SIZE, CONDUIT TYPE, CONDUCTION SIZE, CONDUCTOR TYPE, CONDUCTOR LENGTH.
- THE SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH FUSE SELECTION SHALL BE IN ACCORDANCE WITH THE SUCO STANDARDIZED FUSES PERMAZ SHANLEY TENSION AND TENSION, HOWEVER, SELECTION OF AN INTERMEDIATE TRIP-R FUSE SHALL BE UTILIZED WHEN POSSIBLE TO REDUCE THE DOWNSTREAM HAZARD RISK CATEGORY.
- THE CONTRACTOR SHALL PROVIDE THE SERVICE ENTRANCE FUSE SIZE - DETERMINED BY THE FINAL APPROVED ELECTRICAL SYSTEMS ANALYSIS.

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP NO.1	8.5 HP	18 AMPS
LIFT STATION PUMP NO.2	8.5 HP	18 AMPS
TOTAL MOTOR LOAD		32 AMPS
LIGHTING AND CONTROLS	3 kVA	25 AMPS
TOTAL CONNECTED LOAD		57 AMPS
TOTAL NON-COINCIDENTAL LOAD		9 AMPS
PEAK DEMAND AMPS		57 AMPS
PEAK DEMAND kVA		19 kVA
0.75 X LARGEST MOTOR		4 AMPS
NON SERVICE DIVERSITY 3 PHASE		61 AMPS
MIN MAIN BREAKER SIZE		71 AMPS
ELECTRICAL SERVICE		100 AMP, 240/120 VOLT, 3 PHASE

WD Lassiter, P.E.
3637 Dunedin Trail East
Dunedin, FL 32727
804-743-1583

WD Lassiter, P.E.
NO. 37971

REV.	DATE	BY	CHKD	REMARKS

DESIGNED BY: D. LASSETTER
 DRAWN BY: D. LASSETTER
 CHECKED BY: D. LASSETTER
 CROSS CHECK BY: D. LASSETTER
 APPROVED BY: D. LASSETTER
 DATE: AUGUST 2017

CDM Smith
 3311 FAIRVIEW DRIVE, SUITE 400
 JACKSONVILLE, FL 32228
 TEL: 904.721.2700
 FAX: 904.721.2820

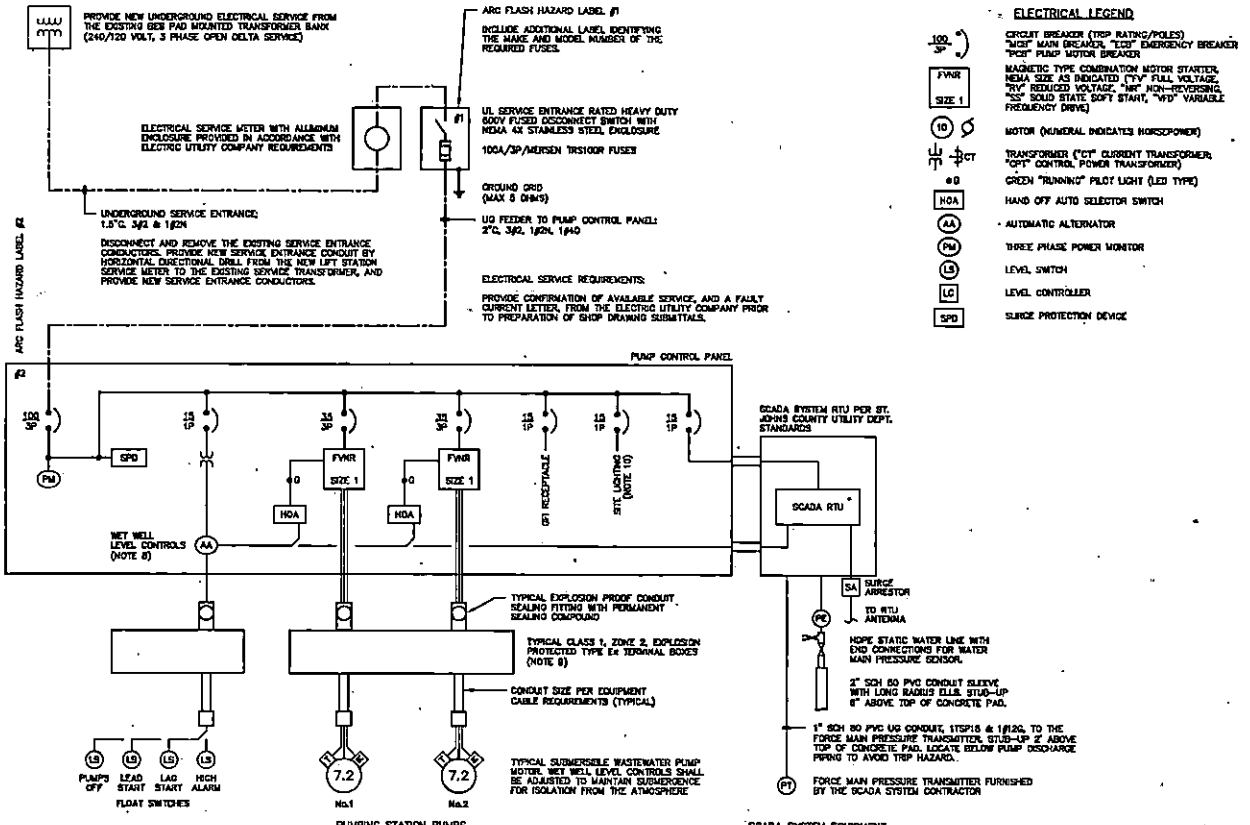
ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
**CRANES LAKE LIFT STATION
 GROUP 3 LIFT STATION UPGRADES**

**CRANES LAKE LIFT STATION
 ELECTRICAL PLAN**
 E-1

PROJECT NO. 8334-218744
 FILE NAME: 833404P.LDW
 SHEET NO. E-1
 ISSUED FOR BID

NOTES

- DESIGN DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH ST. JOHNS COUNTY DESIGN STANDARDS AND SPECIFICATIONS.
- ALL MATERIAL SHALL BE NEW AND SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS LABORATORIES, INC., AMERICAN NATIONAL STANDARDS INSTITUTE, NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION, INSULATED POWER CABLE ENGINEERS ASSOCIATION, AND INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS. IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIALS IN QUESTION.
- THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.
- ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED, AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC., SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.
- ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEED PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.
- THE PROJECT'S GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH ALL SPECIFICATIONS, BEMERD TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION EQUIPMENT. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.
- UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 12/WR ALUMINUM OR 316 STAINLESS STEEL. CONDUCTORS SHALL BE STRANDED AND TYPE 90AH-1 COPPER UNDERGROUND CONDUIT SHALL BE SCH 40 PVC. EXPOSED CONDUIT SHALL BE SCH 40 PVC. CONDUIT INTO THE WET WELL SHALL BE PVC COATED FIBER GLASS ALUMINUM. SUPPORT CHANNEL AND MOUNTING STRIP SHALL BE ALUMINUM 1.5" x 1.5". ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKET, RINGS, NUTS AND BOLTS WITH ANTI-SIEDE COMPOUND SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".
- THE PUMP CONTROL PANEL, WET WELL LEVEL CONTROL SYSTEM SHALL INCLUDE LEAD PUMP SELECTION SWITCH AND AUTOMATIC ALTERNATOR FOR AUTOMATIC LEAD/LAG PUMP CONTROL AND ALTERNATION, 24V CONTROL POWER TRANSFORMER AND HIGH/LAG/LEAD/OFF LEVEL FLOAT SWITCHES FOR PUMP CONTROL, AND HIGH LEVEL ALARM.
- DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONAL DUCT SEAL REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.
- PROVIDE SITE LIGHT POLE WITH SERVICE FROM THE PUMP CONTROL PANEL (3/4" 3/4"). PROVIDE NP DUPLEX OR RECEPTACLE WITH EAST ALUMINUM BOX AND COVER, AND NP LIGHT SWITCH WITH EAST ALUMINUM BOX AND COVER MOUNTED ADJACENT TO THE PUMP CONTROL PANEL. SITE LIGHT POLE SHALL BE PRESSURIZED DIRECT BURIED POLE WITH BLACK FINISH. LAMPHARE SHALL BE AEL MODEL LANC-115-110VLT-ED-DA-24 WITH 15" LONG ALUMINUM SPOKE BRACKET ARM. LAMPHARE MOUNTING HEIGHT SHALL BE 12'. LOCATE LIGHT POLE ON RIGHT-HAND SIDE OF THE PUMP CONTROL PANEL.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE NEW PUMP CONTROL PANEL, EXPLOSION PROTECTED TYPE EX TERMINAL BOXES, WET WELL LEVEL CONTROLS, AND UL SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH SHALL BE FURNISHED BY THE SAID APPROVED LIFT STATION ELECTRICAL EQUIPMENT SUPPLIER.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE SCADA SYSTEM RTU, ANTENNA MAST, AND ANTENNA SHALL BE PROVIDED BY A SAID APPROVED SCADA SYSTEM INTEGRATOR. FOR STATIONS EQUIPPED WITH FORCE MAIN PRESSURE SENSORS AND/OR WATER MAIN PRESSURE SENSORS, THE PRESSURE SENSORS SHALL BE PROVIDED BY THE SCADA SYSTEM INTEGRATOR.



ALL ALL EQUIPMENT LOCATED WITHIN THE WET WELL AND EXPOSED TO POTENTIAL HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS, SHALL BE RATED FOR CLASS I, DIVISION 1, GROUP D LOCATIONS. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE SUITABLE FOR CORROSIVE CONDITIONS.

REMINGTON LIFT STATION - SINGLE LINE DIAGRAM

ELECTRICAL SYSTEMS ANALYSIS:

- THE CONTRACTOR SHALL INCLUDE A BID ALLOWANCE IN THE AMOUNT OF \$2,000.00 TO OBTAIN THE SERVICES OF AN INDEPENDENT SPECIALTY ENGINEERING FIRM TO PROVIDE A PRELIMINARY AND A FINAL SHORT CIRCUIT, DEVICE EVALUATION, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH STUDY OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM, IN ACCORDANCE WITH SAID STANDARDS.
- THE CONTRACTOR SHALL PROVIDE, WITH THE SHOP DRAWING SUBMITTALS, A LISTING OF THE FOLLOWING INFORMATION FOR EACH POWER DISTRIBUTION FEEDER: CONDUIT SIZE, CONDUIT TYPE, CONDUCTOR SIZE, CONDUCTOR TYPE, CONDUCTOR LENGTH.
- THE SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH FUSE SELECTION SHALL BE IN ACCORDANCE WITH THE SAID STANDARDIZED FUSES. FEDERAL SHANNON DESIGN AND TESTING, HOWEVER, SELECTION OF AN INTERMEDIATE TRIP-R FUSE SHALL BE UTILIZED WHEN POSSIBLE TO REDUCE THE DOWNSTREAM HAZARD RISK CATEGORY.
- THE CONTRACTOR SHALL PROVIDE THE SERVICE ENTRANCE FUSE SIZE DETERMINED BY THE FINAL APPROVED ELECTRICAL SYSTEMS ANALYSIS.

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP N0.1	7.2 HP	17 AMPS
LIFT STATION PUMP N0.2	7.2 HP	17 AMPS
TOTAL MOTOR LOAD		34 AMPS
LIGHTING AND CONTROLS	3 KW	25 AMPS
TOTAL CONNECTED LOAD		59 AMPS
TOTAL NON-COINCIDENTAL LOAD		0 AMPS
PEAK DEMAND AMPS		59 AMPS
PEAK DEMAND KVA		17 KVA
D.S.S. LARGEST MOTOR		8 AMPS
NON SERVICE CAPACITY 3 PHASE		84 AMPS
NON MAIN BREAKER SIZE		74 AMPS

ELECTRICAL SERVICE:
100 AMP, 240/120 VOLT, 3 PHASE

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NO. 37971

THIS DRAWING IS THE PROPERTY OF CDM SMITH AND SHALL REMAIN THE PROPERTY OF CDM SMITH AND SHALL NOT BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

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ST. JOHNS COUNTY UTILITY DEPARTMENT
ST. JOHNS COUNTY, FLORIDA

**REMINGTON LIFT STATION
GROUP 3 LIFT STATION UPGRADES**

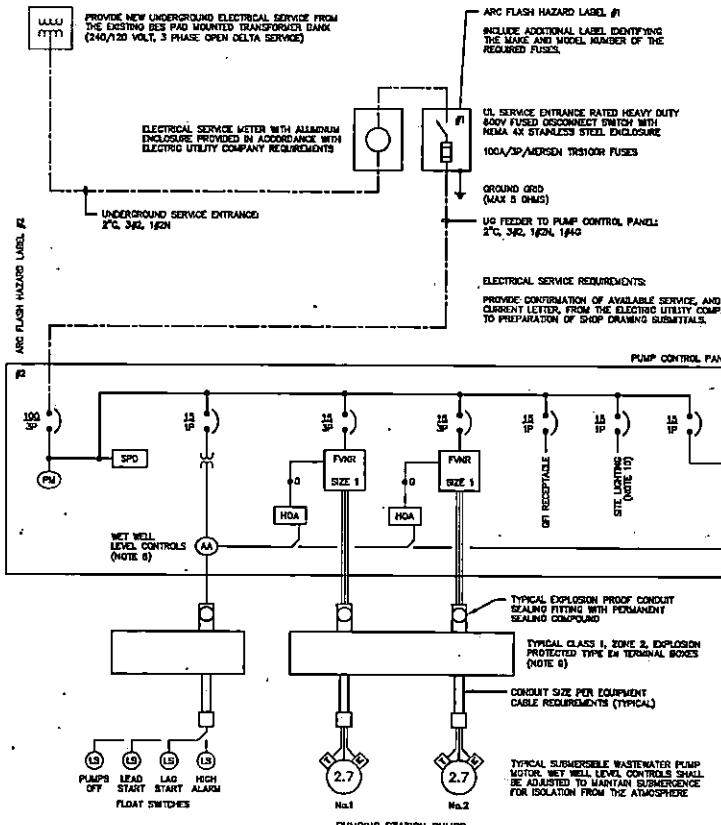
**REMINGTON LIFT STATION
ELECTRICAL PLAN**

SHEET NO. **E-2**

PROJECT NO.: 8330-218744
FILE NAME: 830200A.DWG
ISSUED FOR BID

NOTES

- DESIGN DRAWINGS ARE DIAGNOSTIC AND INTENDED TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH ST. JOHNS COUNTY DESIGN STANDARDS AND SPECIFICATIONS.
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- THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.
- ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED, AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC., SHALL BE TAKEN OUT AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.
- ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEED PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.
- THE PROJECT'S GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS. BONDING TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION EQUIPMENT. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.
- UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 12/WR ALUMINUM OR 316 STAINLESS STEEL. CONDUCTORS SHALL BE STRANDED AND TYPE 90W-2 COPPER UNDERGROUND CONDUIT SHALL BE SCH 40 PVC EXPOSED CONDUIT SHALL BE SCH 80 PVC CONDUIT INTO THE NET WELL SHALL BE PVC COATED IRON ALUMINUM SUPPORT CHANNEL AND MOUNTING BRACKET SHALL BE ALUMINUM 1/2" x 1/2" ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKETS, NUTS AND BOLTS WITH ANTI-SEIZE COMPOUND SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".
- THE PUMP CONTROL PANEL, NET WELL LEVEL CONTROL SYSTEM SHALL INCLUDE LEAD PUMP SELECTOR SWITCH AND AUTOMATIC ALTERNATOR FOR AUTOMATIC LEAD/LAG PUMP CONTROL AND ALTERNATOR, AND 24V CONTROL POWER TRANSFORMER AND HIGH/LOW/OFF LEVEL FLOAT SWITCHES FOR PUMP CONTROL AND HIGH LEVEL ALARM.
- DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONAL DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.
- PROVIDE SITE LIGHT POLE WITH SERVICE FROM THE PUMP CONTROL PANEL (3/4" C. SPS). PROVIDE RP DUPLEX (OR RECEPTACLE WITH CAST ALUMINUM BOX AND COVER, AND RP LIGHT SWITCH WITH CAST ALUMINUM BOX AND COVER) MOUNTED ADJACENT TO THE PUMP CONTROL PANEL. SITE LIGHT POLE SHALL BE PNEUMATIC EXHAUST DURED POLE WITH BLACK FINISH. LUMINAIRE SHALL BE AEL MODEL LINC-LUS-INVOL-83-BA-SH WITH 18" LONG ALUMINUM SPINCE BRACKET AND LUMINAIRE MOUNTING BRACKET SHALL BE 1/2". LOCATE LIGHT POLE ON RIGHT-HAND SIDE OF THE PUMP CONTROL PANEL.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE NEW PUMP CONTROL PANEL, EXPLOSION PROTECTED TYPE, EX TERMINAL BOXES, NET WELL LEVEL CONTROLS, AND UL SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH SHALL BE FURNISHED BY THE SUDO APPROVED LIFT STATION ELECTRICAL EQUIPMENT SUPPLIER.
- IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE SCADA SYSTEM RTU, ANTENNA MAST, AND ANTENNA, SHALL BE PROVIDED BY A SUDO APPROVED SCADA SYSTEM INTEGRATOR. FOR STATIONS EQUIPPED WITH FORCE MAIN PRESSURE SENSORS AND/OR WATER MAIN PRESSURE SENSORS, THE PRESSURE SENSORS SHALL BE PROVIDED BY THE SCADA SYSTEM INTEGRATOR.



ELECTRICAL LEGEND

	CIRCUIT BREAKER (TRIP RATING/POLES)
	"MSB" MAIN BREAKER, "EDS" EMERGENCY BREAKER
	MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED (TV= FULL VOLTAGE, "TV" REDUCED VOLTAGE, "M" AND "REV" REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
	MOTOR (NUMERAL INDICATES HORSEPOWER)
	TRANSFORMER (CT= CURRENT TRANSFORMER, "C" CONTROL POWER TRANSFORMER)
	GREEN "RUNNING" PILOT LIGHT (LED TYPE)
	HAND OFF AUTO SELECTOR SWITCH
	AUTOMATIC ALTERNATOR
	THREE PHASE POWER MONITOR
	LEVEL SWITCH
	LEVEL CONTROLLER
	SURGE PROTECTION DEVICE

ALL ALL EQUIPMENT LOCATED WITHIN THE NET WELL AND EXPOSED TO POTENTIAL HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS, SHALL BE RATED FOR CLASS I, DIVISION 1, GROUP D LOCATIONS. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE SUITABLE FOR CORROSIVE CONDITIONS.

ELECTRICAL SYSTEMS ANALYSIS

- THE CONTRACTOR SHALL INCLUDE A BID ALLOWANCE IN THE AMOUNT OF \$10,000.00 TO OBTAIN THE SERVICES OF AN INDEPENDENT SPECIALTY ENGINEERING FIRM TO PROVIDE A PRELIMINARY AND A FINAL SHORT CIRCUIT, DEVICE EVALUATION, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH STUDY OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM, IN ACCORDANCE WITH SUDO STANDARDS.
- THE CONTRACTOR SHALL PROVIDE, WITH THE SHOP DRAWING SUBMITTALS, A LISTING OF THE FOLLOWING INFORMATION FOR EACH POWER DISTRIBUTION FEEDER: CONDUIT SIZE, CONDUIT TYPE, CONDUITOR SIZE, CONDUITOR TYPE, CONDUITOR LENGTH.
- THE SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH FUSE SELECTION SHALL BE IN ACCORDANCE WITH THE SUDO STANDARDS. FUSES, FUSED ISMANTU TRISIDON AND TRISIDON, HOWEVER, SELECTION OF AN INTERMEDIATE "TIE-IN" FUSE SHALL BE UTILIZED WHEN POSSIBLE TO REDUCE THE DOWNSTREAM HAZARD RISK CATEGORY.
- THE CONTRACTOR SHALL PROVIDE THE SERVICE ENTRANCE FUSE SIZE DETERMINED BY THE FINAL APPROVED ELECTRICAL SYSTEMS ANALYSIS.

MERANGER LIFT STATION - SINGLE LINE DIAGRAMMER

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP No.1	2.7 HP	8 AMPS
LIFT STATION PUMP No.2	2.7 HP	8 AMPS
TOTAL MOTOR LOAD		16 AMPS
LIGHTING AND CONTROLS	3 KVA	25 AMPS
TOTAL CONNECTED LOAD		41 AMPS
TOTAL NON-COINCIDENTAL LOAD		0 AMPS
PEAK DEMAND AMPS		41 AMPS
PEAK DEMAND KVA		0 KVA
0.25 X LARGEST MOTOR		2 AMPS
MIN SERVICE AMPACITY 3 PHASE		43 AMPS
MIN MAIN BREAKER SIZE		62 AMPS

ELECTRICAL SERVICE:
100 AMP, 240/120 VOLT, 3 PHASE

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904-743-1560

WD LASSITER, PE
NO. 37971

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: D. LASSITER
 DRAWN BY: D. LASSITER
 CHECKED BY: D. LASSITER
 CADD CHECK BY: D. LASSITER
 APPROVED BY: D. LASSITER
 DATE: AUGUST 2012

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ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA

GROUP 3 LIFT STATION UPGRADES

**MERANGER LIFT STATION
 ELECTRICAL PLAN**

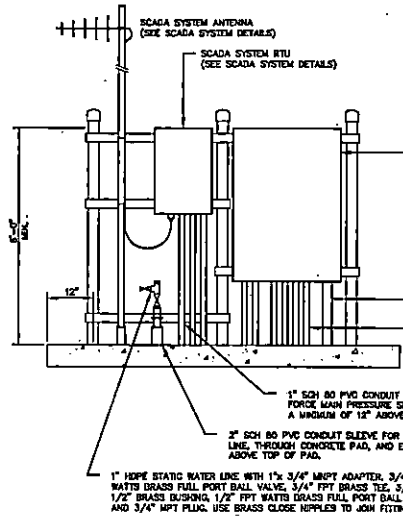
SHEET NO.
E-3

PROJECT NO. 655-218544
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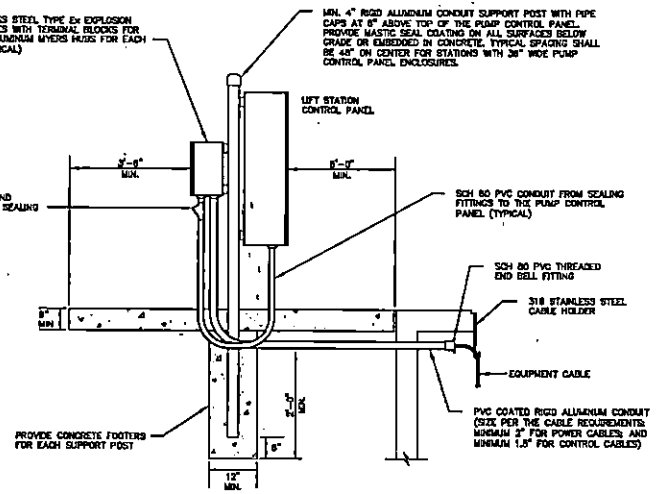
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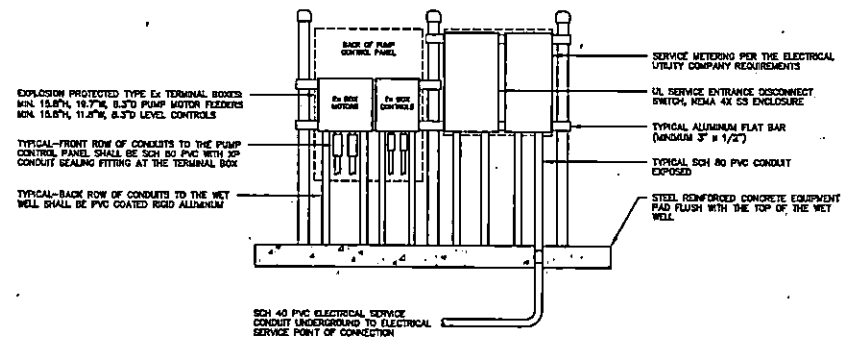
1. THE CONTRACTOR SHALL SCHEDULE AN ELECTRICAL PRE-CONSTRUCTION COORDINATION SITE MEETING WITH SUDJ AND THE ELECTRICAL DESIGN ENGINEER TO COORDINATE SITE SPECIFIC REQUIREMENTS OF THE ELECTRICAL EQUIPMENT INSTALLATION.
2. THE CONTRACTOR SHALL SCHEDULE AN ELECTRICAL ROUGH-IN SITE INSPECTION WITH SUDJ AND THE ELECTRICAL DESIGN ENGINEER TO INSPECT THE ELECTRICAL EQUIPMENT INSTALLATION PRIOR TO POURING CONCRETE.
3. GROUNDING ELECTRODE SYSTEM: PROVIDE A GROUND RING PER NEC 250.82, ENVELOPING THE ELECTRICAL SERVICE EQUIPMENT, CONSISTING OF CONTINUOUS #10 THREADED COPPER CONDUCTOR AT 30" BELOW GRADE.
4. PROVIDE GROUND RODS (MINIMUM 3/4" DIAMETER, 20' LONG COPPER CLAD STEEL) BONDED TO EACH END OF THE GROUND RING, AT LEAST 20' APART. GROUND ROD SECTIONS SHALL BE BONDED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING ELECTRODE SYSTEM.
5. GROUNDING ELECTRODE CONDUCTOR: PROVIDE MINIMUM #10 THREADED COPPER GROUNDING ELECTRODE CONDUCTOR FROM THE GROUND RING TO THE SERVICE ENTRANCE DISCONNECT SWITCH, PUMP CONTROL PANEL, RTU, SCADA SYSTEM ANTENNA TOWER, ELECTRICAL EQUIPMENT RACK END POSTS, AND FENCE. INSTALL GROUNDING ELECTRODE CONDUCTORS IN 3/4" SCH 80 PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION.



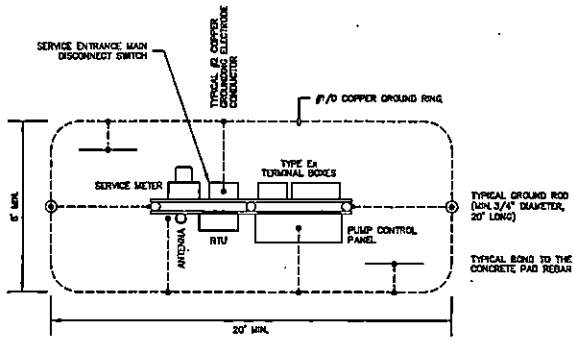
FRONT ELEVATION



SIDE VIEW



BACK ELEVATION



ELECTRICAL EQUIPMENT GROUNDING SYSTEM DETAIL
NOT TO SCALE

TYPICAL LIFT STATION ELECTRICAL EQUIPMENT INSTALLATION DETAIL
NOT TO SCALE

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REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: D. LASSETTER
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 CROSS CHECKED BY: D. LASSETTER
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 DATE: AUGUST 2010

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ST. JOHNS COUNTY UTILITY DEPARTMENT
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GROUP 3 LIFT STATION UPGRADES

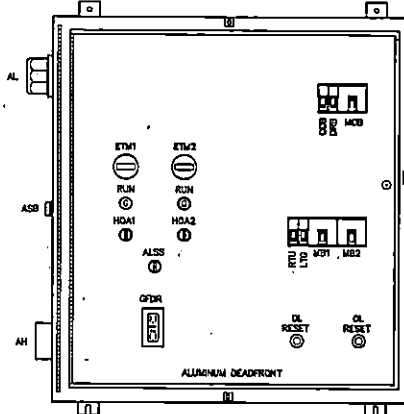
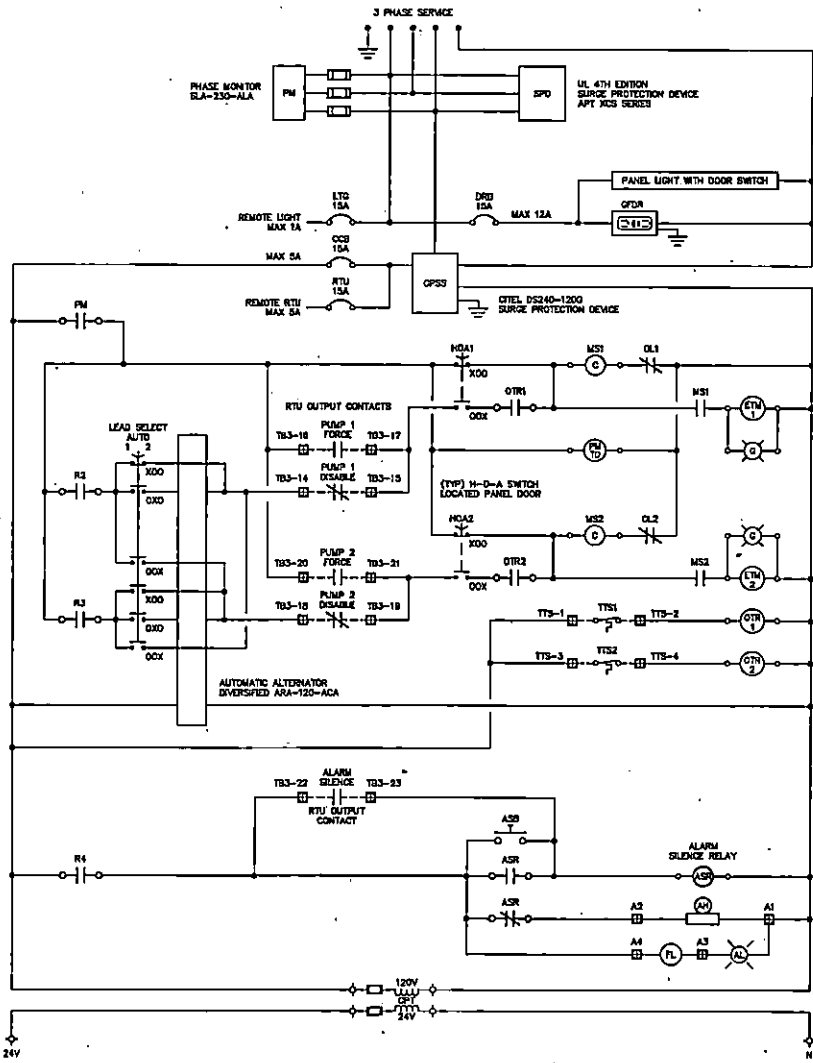
TYPICAL ELECTRICAL DETAILS

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 904-743-1663

HD LASSETTER, PE
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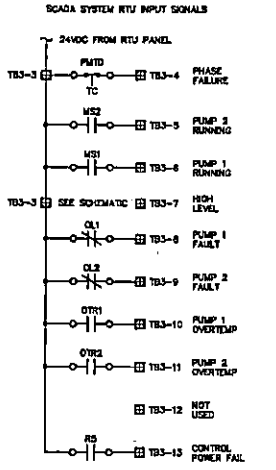
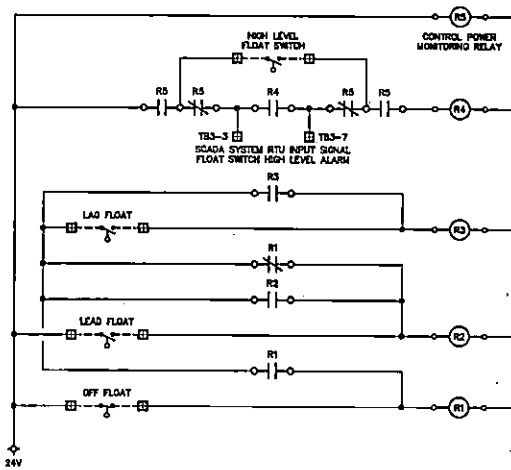
PROJECT NO. 8334-018744
 FILE NAME: 803020P3.DWG
 SHEET NO.
E-4

ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR VERIFYING THE ACCURACY OF ALL FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR VERIFYING THE ACCURACY OF ALL FIELD CONDITIONS.



- CONTROL PANEL LEGEND**
- AH - ALARM HORN
 - AL - ALARM LIGHT
 - ASB - ALARM SILENCE BUTTON
 - ASR - ALARM SILENCE RELAY
 - ALSS - ALTERNATOR LEAD SELECTOR SWITCH
 - CPSS - CONTROL POWER SURGE SUPPRESSOR
 - CCB - CONTROL CIRCUIT BREAKER
 - DPDT - DOUBLE POLE DOUBLE THROW
 - DRB - DUPLEX RECEPTACLE BREAKER
 - ETM - ELAPSED TIME METER
 - F - FUSE
 - FB - FUSE BLOCK
 - FL - FLASHER
 - G - GREEN LED "RUNNING" PILOT LIGHT
 - GFR - GROUND FAULT DUPLEX RECEPTACLE
 - LCB - LIGHTING CIRCUIT BREAKER
 - MB - MOTOR BREAKER
 - MCS - MAIN CIRCUIT BREAKER
 - MS - MOTOR STARTER
 - OL - OVERLOAD
 - OT - OVERTEMP
 - PB - POWER BLOCK
 - PM - PHASE MONITOR
 - R - RELAY
 - RCB - RTU CIRCUIT BREAKER
 - RL - RUNNING LIGHT
 - SPD - SURGE PROTECTION DEVICE
 - TB - TERMINAL BLOCK
 - TB8 - TERMINAL TERMINAL STRIP

- NOTES:**
- ALL PANEL WIRING SHALL BE TUNED CONDUCTORS.
 - ALL CONTROL RELAYS SHALL BE TPDT.
 - POWER MONITOR TIME DELAY RELAY "PMTD" SHALL BE EXTON WITH CONTINUOUS HINGE RELAY PROVIDING OFF DELAY FUNCTION WITHOUT REQUIRING INPUT VOLTAGE DURING OFF TIME DELAY. SET OFF TIME DELAY AT 30 SECONDS.
 - FIELD TERMINAL BLOCKS SHALL BE ANGLE MOUNTED TO FACILITATE FIELD CONNECTIONS.



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 NO. 37971

REV.	DATE	DRWN	CHKD	REMARKS

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 CROSS CHECKED BY: R. BASHAM
 APPROVED BY: D. LASSETTER
 DATE: AUGUST 2012

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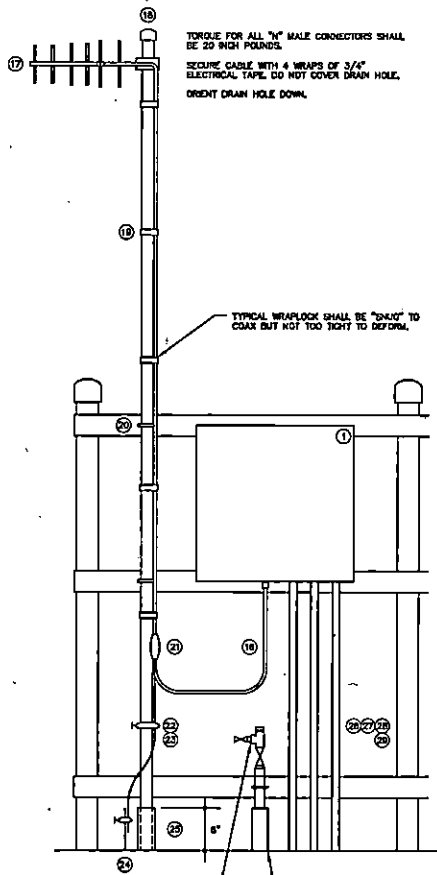
ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

TYPICAL PUMP CONTROL PANEL DETAILS
 100 AMP, 240/120 VOLTS, 3 PHASE
 PROJECT NO. 6334-818744
 FILE NAME: 030209AL009
 SHEET NO. E-5

PROJECT NO. 6334-818744
 FILE NAME: 030209AL009
 SHEET NO. E-5

SCADA SYSTEM NOTES:

1. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A SOLID PRE-APPROVED SCADA SYSTEM INTEGRATOR TO PERFORM ALL SCADA SYSTEM ADDITIONS AND MODIFICATIONS INCLUDING NEW RTU, ANTENNA, AND ANTENNA MAST.
2. THE SCADA SYSTEM SUPPLIER SHALL VERIFY AND UPDATE THE EXISTING SOLID MASTER SCADA SYSTEM AS REQUIRED TO INCORPORATE THE NEW FACILITIES.
3. THE CONTRACTOR AND THE SCADA SYSTEM SUPPLIER SHALL COORDINATE ALL SCADA SYSTEM INSTALLATION WITH THE SOLID SCADA SYSTEM SUPERVISOR.
4. THE SCADA SYSTEM RTU SHALL BE A SOLID STANDARD LIFT STATION RTU WITH MOTOROLA ACE3600 RTU DOWNLOADED WITH MOVED I/O MODULES AS INDICATED. PROVIDE POWER AND SIGNAL LINE SURGE PROTECTION.
5. PRIOR TO SHOP DRAWING SUBMITTALS, THE SCADA SYSTEM SUPPLIER SHALL CONFIRM RADIO/ANTENNA SELECTION WITH THE SOLID SCADA SYSTEM SUPERVISOR.
6. IN ORDER TO MAINTAIN FCC PART 18 COMPLIANCE, ALL ANTENNA WORK MUST BE PERFORMED OR CERTIFIED BY AN FCC CERTIFIED TECHNICIAN. THE SOLID SCADA SUPERVISOR WILL INSPECT AND CERTIFY (AT NO CHARGE) BUT WILL NOT PERFORM CORRECTIVE ACTIONS.
7. ANTENNA MAST GROUND ROD SHALL BE BONDED (UNDERGROUND) TO THE STATION ELECTRICAL SYSTEM GROUNDING GRID.
8. ALL "LIGHTNING PROTECTION" GROUNDING CONDUCTORS SHALL HAVE AN EVEN SLOPE FROM POINT OF CONTACT TO THE GROUND ROD (NO 90° BENDS).
9. ALL GROUND CONTACT POINTS SHALL BE PROTECTED BY AN ANTI-OXIDATION COMPOUND.
10. ALL RF CONNECTORS SHALL BE TIGHTENED TO MANUFACTURER SPECIFICATIONS, AND SHALL BE PROPERLY SEALED. COLD SOLDER IS NOT ACCEPTABLE.
11. DRAIN HOLES ON ANTENNAS MUST BE ORIENTED DOWN.
12. ALL THREADED CONNECTIONS, EXCEPT ANTENNA CONNECTIONS, SHALL BE PROTECTED WITH ANTI-SEIZE TREATMENT.
13. THE "POWER" CONDUIT FROM THE RTU TO THE PUMP CONTROL PANEL SHALL BE USED FOR ALL 120 VAC CONDUCTORS, INCLUDING THE RTU OUTPUT POWER AND THE DIGITAL OUTPUT CONDUCTORS.
14. THE "CONTROL" CONDUIT FROM THE RTU TO THE PUMP CONTROL PANEL SHALL BE USED FOR ONLY 24 VDC CONDUCTORS, INCLUDING THE DIGITAL INPUT SIGNAL CONDUCTORS AND THE ANALOG INPUT SIGNAL CABLES. PROVIDE 120#/8 CABLE FOR EACH ANALOG INPUT SIGNAL.
15. PROVIDE ONE RAIL ON EACH PLANE AT THE RTU RADIO MOUNTING LOCATION FOR THE 4RF RADIO MOUNTING BRACKET. MOUNT THE ONE RAIL USING EXISTING TAPPED SCREW HOLES. DO NOT DRILL AND TAP NEW HOLES.
16. THE SCADA SYSTEM SUPPLIER SHALL PROVIDE THE FORCE MAIN PRESSURE TRANSMITTER INCLUDING AS-SHOPT TYP. 330 FLUSH DIAPHRAGM SEAL, AND ALUMINUM M20x1.5 METRIC TO 1/2" NPT CONDUIT CONNECTION ADAPTER.

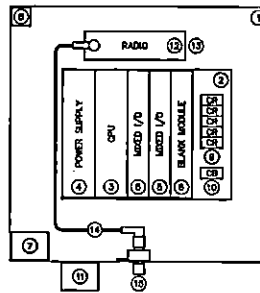


PROVIDE 1" HOPE STATIC WATER LINE WITH 1 1/2" 3/4" WPT ADAPTER, 3/4" PPT WATER BRASS FULL PORT BALL VALVE, 3/4" PPT BRASS TEE, 3/4" 1/2" BRASS BUSHING, 1/2" PPT WATER BRASS FULL PORT BALL VALVE, AND 3/4" NPT FLG.

2" SCH 80 PVC CONDUIT SLEEVE FOR STATIC WATER LINE THROUGH CONCRETE PAD, AND EXTENDING 6" ABOVE TOP OF PAD.

SCADA SYSTEM ANTENNA DETAIL
NOT TO SCALE

SCADA SYSTEM EQUIPMENT SCHEDULE	
ITEM	DESCRIPTION
1	RTU ENCLOSURE, SCHAEFER'S ELECTRICAL ENCLOSURE MODEL SP44L-2020B-733, DO NOT SUBSTITUTE, NEMA 12/3R ALUMINUM ENCLOSURE, PADLOCK PROVISIONS, ALUMINUM TOP, SIDES, AND DOOR SUN SHIELDS
2	MOTOROLA ACE3600 METAL CHASSIS WITH 3 I/O SLOT FRAME V214/V103
3	MOTOROLA ACE3600 RTU WITH UPGRADE TO CPU3680 AND SECURITY ENABLE OPTION F7509/V448/V400300AA
4	MOTOROLA CPU F100-IN ETHERNET 10/100 M PORT V212
5	MOTOROLA ACE3600 AC POWER SUPPLY WITH BATTERY CHARGER V281
6	MOTOROLA ACE3600 MIXED I/O MODULE 180V, 400 EZ, 4A, 220 mA WITH FLOATING POWER SUPPLY V245/V204
7	MOTOROLA ACE3600 BLANK I/O MODULE V20
8	MOTOROLA BATTERY POWER CABLE F06376
9	BATTERY BACKUP 12V, 7AH, SEALED RECHARGEABLE SLA BATTERY, TOYO-USP BFWS7
10	INTRUSION SWITCH WITH PULL TO DEFEAT FEATURE HONEYWELL MICRO SWITCH 1DM401
11	DIN RAIL MOUNTED DIGITAL OUTPUT CONTROL RELAYS OMRON G2R-1-SN1-DC12-S, 12VDC, SPDT, PTT
12	DIN RAIL MOUNTED CIRCUIT BREAKER SUPPLEMENTARY PROTECTOR EATON FAZ-C10/1-SP
13	4RF DIGITAL RADIO MODEL APS0-N220-SS0-10-22-DNA4
14	4RF DIGITAL RADIO DIN RAIL MOUNTING BRACKET APS0-M8RX-DN (NOTE 15)
15	RADIO POWER CABLE 12VDC WITH PLUG COMPATIBLE WITH MOTOROLA POWER SUPPLY
16	RADIO COMMUNICATION CABLE TYPE 568B ETHERNET CABLE, 1M
17	LMR-185 FLEXIBLE COAX, RIGHT ANGLE N MALE/RIGHT ANGLE TNC MALE CONNECTORS, 36" LONG
18	TIMES MICROWAVE LP-HBX-NFF COAX SURGE ARRESTER
19	TIMES MICROWAVE LMR-400-DB COAX, TYPE N MALE CONNECTORS EZ-400-NMH-D
20	ASTRON MODEL 220-B11 ANTENNA
21	ANTENNA MAST 2" x 20' LONG SCHEDULE 40 ALUMINUM PIPE, WHITE PVC CAP
22	1/2" SS WRAPLOCK BANDS, 3" ON CENTER. THE WRAPS ARE NOT ACCEPTABLE.
23	3/8" SS U-BOLTS, ANTI-SEIZE MUST BE USED ON ALL THREADS.
24	TESSCO GK-538 COAX GROUND KIT
25	GROUNDING CLAMP RATED FOR DIRECT BURIAL
26	NO. 4 AWG SOLID TINNED COPPER CONDUCTOR
27	COPPER CLAD STEEL GROUND ROD, 5/8" DIAMETER, 10' LONG
28	2.5" SCHEDULE 40 GRAY PVC CONDUIT SLEEVE THROUGH SLAB
29	1" SCH 80 PVC "POWER" CONDUIT TO PUMP CONTROL PANEL, 120 VAC CONDUCTORS
30	1" SCH 80 PVC "CONTROL" CONDUIT TO PUMP CONTROL PANEL, 24 VDC CONDUCTORS
31	1" SCH 80 PVC CONDUIT TO THE LIFT STATION FORCE MAIN PRESSURE TRANSMITTER
32	FORCE MAIN PRESSURE TRANSMITTER: WKA UPT-20 PART NUMBER 52571718 (SEE NOTE 16)



SCADA SYSTEM RTU DETAIL
NOT TO SCALE

RTU I/O SCHEDULE			
MIXED I/O MODULE		MIXED I/O MODULE	
DI	SIGNAL DESCRIPTION	DI	SIGNAL DESCRIPTION
01	RTU INTRUSION SWITCH	01	SPARE
02	HIGH LEVEL	02	SPARE
03	PHASE FAILURE	03	SPARE
04	PUMP 1 RUNNING	04	SPARE
05	PUMP 2 RUNNING	05	SPARE
06	PUMP 1 FAIL	06	SPARE
07	PUMP 2 FAIL	07	SPARE
08	CONTROL POWER	08	SPARE
09	PUMP 1 OVERTEMP	09	SPARE
10	PUMP 2 OVERTEMP	10	SPARE
11	TRANSDUCER HIGH LEVEL	11	SPARE
12	SPARE	12	SPARE
13	SPARE	13	SPARE
14	SPARE	14	SPARE
15	SPARE	15	SPARE
16	SPARE	16	SPARE
DO	SIGNAL DESCRIPTION	DO	SIGNAL DESCRIPTION
01	PUMP 1 DISABLE	01	ALARM SILENCE
02	PUMP 2 DISABLE	02	SPARE
03	PUMP 1 REMOTE RUN	03	SPARE
04	PUMP 2 REMOTE RUN	04	SPARE
A1	SIGNAL DESCRIPTION	A1	SIGNAL DESCRIPTION
01	WET WELL LEVEL	01	SPARE
02	FORCE MAIN PRESSURE	02	SPARE
03	WATER MAIN PRESSURE	03	SPARE
04	SPARE	04	SPARE

TYPICAL SCADA SYSTEM DETAILS

WD Lassetter, P.E.
3627 Biscayne Blvd East
Jacksonville, FL 32277
904-743-1080

WD LASSETTER, PE
NO. 37971

PROJECT NO. 8334-218744
FILE NAME: 803020P.LXD

SHEET NO.

E-6

ISSUED FOR BID

DESIGN AND CONSTRUCTION OF THIS PROJECT WAS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, AND THE PROPERTY OF CDM SMITH AND NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: D. LASSETTER
 DRAWN BY: D. LASSETTER
 CHECKED BY: D. LASSETTER
 APPROVED BY: D. LASSETTER
 DATE: AUGUST 2012

CDM Smith
 8341 De La Torre Blvd, Suite 400
 Jacksonville, FL 32217
 Tel: 904-721-1100
 Fax: 904-721-0000

ST. JOHNS COUNTY UTILITY DEPARTMENT
 ST. JOHNS COUNTY, FLORIDA
 GROUP 3 LIFT STATION UPGRADES

TYPICAL SCADA SYSTEM DETAILS

E-6

ISSUED FOR BID

**TECHNICAL
SPECIFICATIONS
ISSUED FOR BID**

**Group 3 Lift Station Upgrades
St. Johns County Utility Department
Project No. 4483-56302-6704-53180**

St. Johns County

August 2017

**CDM
Smith**

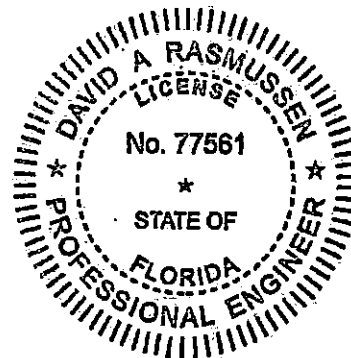
**CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS
ISSUED FOR BID SUBMITTAL**


**GROUP 3 LIST STATION UPGRADES
MERGANZER (PS 209)
CRANES LAKE (PS 142)
REMINGTON (PS 201)**

FOR

ST. JOHNS COUNTY, FLORIDA

AUGUST 2017



 9-15-17

David Alan Rasmussen, P.E. Date
Florida Registered P.E. No. 77561
General, Civil, Mechanical
Specification Sections: Division 1, Division 2, Division
11, Division 15

**CDM Smith
8381 Dix Ellis Trail Suite 400
Jacksonville, FL 32256
Phone: (904) 731-7109
Fax: (904) 519-7090
FL COA No. EB-0000020**

TABLE OF CONTENTS

DIVISION 1 GENERAL REQUIREMENTS

01010	Summary of Work
01014	Construction Sequence
01026	Application for Payment
01050	Project Controls (Surveying)
01110	Environmental Protection Procedures
01170	Special Provisions
01300	Submittals
01310	Construction Scheduling
01370	Schedule of Values
01465	Equipment Testing and Startup
01600	Delivery, Storage, and Handling
01700	Contract Closeout
01710	Project Cleaning
01720	Project Record Documents
01730	Operating and Maintenance Data
01740	Warranties and Bonds

DIVISION 2 CIVIL AND SITE WORK

02050	Demolition and Modifications
02100	Site Preparation
02413	Horizontal Directional Drilling
02605	Precast Concrete and Coatings
02616	Ductile Iron Pipe and Fittings
02622	Polyvinyl Chloride (PVC) Pressure Pipe
02623	High Density Polyethylene Pipe and Fittings (Pressure Pipe)
02910	Sodding

DIVISION 11 EQUIPMENT

11258	Passive Odor Control System
11306	Submersible Solids Handling Pumps

DIVISION 15 MECHANICAL

15064	Plastic Pipe and Fittings
15066	Stainless Steel Pipe and Fittings
15100	Valves
15120	Piping Specialties

END OF SECTION

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SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.01 LOCATION OF WORK

A. The work of this Contract is located at three lift stations owned by the St. Johns County Utility Department. The sites are located in Ponte Vedra Beach, Florida at the following locations:

1. Merganzer (PS 209): 30°12'52.33" N, 81°23'46.91" W
2. Cranes Lake (PS 142): 30°14'57.02" N, 81°23'24.52" W
3. Remington (PS 201): 30°15'06.11" N, 81°23'58.80" W

1.02 SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals required and construct the Group 3 Lift Station Upgrades Project in its entirety as shown on the Drawings and as specified herein.

B. The Work includes, but is not necessarily limited to, the following:

1. Mobilization/Demobilization, General Requirements, Bonds and Insurance, Project Controls, Testing, and As-Builts.
2. Demolition
 - a. Existing pumps and above grade lift station piping at each site
 - b. Existing top slabs at each site
 - c. Existing electrical equipment at each site
 - d. Existing fiberglass enclosure at each site
3. Salvage: The Owner reserves the right to salvage equipment at the pump station sites. The Contractor shall turn over the equipment to the Owner once it is removed.
 - a. Pumps and accessories
 - b. Pump control panels
4. Coating of the existing wet wells at each site.
5. Bypass pumping of the flow for each existing lift station as required to complete the Work.
6. Installation of new submersible pumps, associated piping, valves and appurtenances at each site.
7. All instrumentation and electrical components including conduit, wire, control panels, and field instruments as shown on the drawings and specified herein.

1.03 WORK BY OTHERS

A. Under no circumstances shall activities of the Contractor or the Contractor's subcontractors cause any interruption to the service, and operation of the existing facilities without prior authorization of the Owner and Engineer.

1.04 WORK SEQUENCE

- A. Perform Work in a sequence to accommodate Owner's occupancy during the construction period and to ensure completion of the Work in the Contract Time. Completion dates of the various stages shall be in accordance with the approved construction schedule submitted by the Contractor.
- B. Refer to Section 01014 for Sequence of Construction Requirements.

1.05 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit the use of the premises for his/her Work and for storage to allow for:
 - 1. Owner occupancy
- B. Coordinate use of premises with Owner.
- C. Contractor shall assume full responsibility for security of all his/her and his/her subcontractors' materials and equipment stored on the site.
- D. If directed by the Owner, move any stored items which interfere with operations of Owner.
- E. Obtain and pay for use of additional storage or work areas if needed to perform the Work.

1.06 OWNER OCCUPANCY

- A. Owner will occupy premises during performance of the work for the conduct of his/her normal operations. Coordinate all construction operations with Owner to minimize conflict and to facilitate Owner usage.

END OF SECTION

SECTION 01014
CONSTRUCTION SEQUENCE

PART 1 GENERAL

1.01 SITE CONDITIONS

- A. Construction under this Contract shall be coordinated with the Owner and accomplished in a logical order to maintain operation or allow flow to be bypassed at each lift station. The Contractor shall be fully responsible for bypassing wastewater flow to each lift station during periods of construction which require the existing lift stations to be taken out of service.
- B. When access through construction areas must be disrupted, provide alternate acceptable access for Owner operators.
- C. When the work requires an existing facility to be taken out of operation, temporarily or permanently, notify the Engineer and Owner 2 weeks in advance.
- D. During Start-Up Testing, make available the manpower, equipment and manufacturer's representatives required to make any necessary adjustments and training.

1.02 SUBMITTALS

- A. Contractor shall submit a bypass pumping plan for each lift station to be reviewed by Engineer prior to bypass activities.

1.03 CONSTRUCTION CONSTRAINTS

- A. The following is a list of constraints to consider in developing the overall plan of construction. This list is not intended to release the Contractor from the responsibility to coordinate the work in any manner which will ensure project completion within the time allowed. The following areas are not necessarily listed in their required sequence of construction.
 - 1. Each lift station will require temporary bypass pumping during construction periods where the existing station is out of service and the new station is not in service. At a minimum bypass pumping shall be required while the existing wet well is being coated, when the existing pumps and piping are removed, to install the new submersible pumps, discharge piping and appurtenances and during testing as required. The Contractor shall be completely responsible for providing the bypass pump, any required piping, fuel, operation of the system, controls, valves, or other appurtenances as required and for continuous operation of the bypass pump system. The minimum flows and head required to bypass each lift station shall be as listed below for each lift station. The head requirements may vary based on the bypass pump and piping configuration which shall be incorporated into the system and be the complete responsibility of the Contractor.
 - a. Cranes Lake (PS 199): 235 gallons per minute (gpm) at 59 feet (ft)
 - b. Remington (PS 201): 205 gpm at 68 ft
 - c. Merganzer (PS 209): 100 gpm at 112 ft
 - 2. It is the intent for bypass pumping at each pump station to be accomplished with flow through plugs installed in the influent pipes of the existing wet wells. The flow through

plug piping will be routed to the temporary bypass pumping system and pumped to the existing or new discharge connection as shown on the Contract Drawings.

3. The temporary bypass pumping system shall include a minimum of one primary pump and one backup pump. The backup pump shall be controlled to start in the case that the primary pump fails.
4. The temporary bypass piping shall be high density polyethylene (HDPE) piping. Contractor shall determine pressure class for HDPE piping and shall be suitable for operating conditions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01026
APPLICATION FOR PAYMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to the Engineer in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.
- B. The accepted Schedule of Values, Section 01370, shall be used as the basis for the Contractor's Application for Payment.

1.02 RELATED WORK

- A. Agreement between Owner and Contractor is included in the Front End Documents Provided by Owner.
- B. Standard General Conditions of the Construction Contract are included in the Front End Documents provided by Owner.
- C. Project Controls is included in Section 01050.
- D. Schedule of Values are included in Section 01370.
- E. Contract Closeout is included in Section 01700.
- F. Project Record Documents are included in Section 01720.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, applications typed on forms provided by the Owner, Application for Payment, with itemized data typed on 8-1/2-in by 11-in or 8-1/2-in by 14-in white paper continuation sheets.
- B. Provide itemized data on continuation sheet.
 - 1. Format, schedules, line items and values: Those of the Schedule of Values accepted by the Engineer and Owner.
- C. Provide construction photographs in accordance with Section 01380.
- D. Provide Construction Redline Mark-ups per Paragraph 1.05.D.

1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. The application shall be in accordance with St. Johns County Asset Code Management System Practices.
- B. Application Form

1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
3. Execute certification with signature of a responsible officer of Contract firm.

C. Continuation Sheets

1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.
3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
 - a. List by Change Order Number and description, as for an original component item of work.
4. To receive approval for payment on component material stored on site, submit copies of the original paid invoices with the application for payment.

1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, submit suitable information, with a cover letter identifying.
 1. Project.
 2. Application number and date.
 3. Detailed list of enclosures.
 4. For stored products:
 - a. Item number and identification as shown on application.
 - b. Description of specific material.
- B. Submit one copy of data and cover letter for each copy of application.
- C. As a prerequisite for payment, submit a "Surety Acknowledgement of Payment Request" letter showing amount of progress payment which the Contractor is requesting.
- D. Maintain an updated set of drawings to be used as record drawings in accordance with Section 01700. As a prerequisite for monthly progress payments, exhibit the updated record drawings for review by the Owner and the Engineer. As a prerequisite for monthly progress payments, exhibit a clean and legible set of the updated red-line record drawings and surveyed as-built drawings for review by the Owner and Engineer. Failure to do so may delay the progress payments and the Owner and Engineer shall not be responsible for such delays in any regards.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700.
- C. Submit all Project Record Documents in accordance with Section 01700.

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to the Engineer at the times stipulated in the Agreement.
- B. Number: Two copies of each Application.
- C. When the Engineer finds Application properly completed and correct, he/she will transmit certificate for payment to Owner, with copy to Contractor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01050
PROJECT CONTROLS (SURVEYING)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide and pay for field engineering services required for project; including but not limited to:
 - 1. Survey work required for project controls and layout.
 - 2. Certified as-built surveys specified herein.
 - 3. Civil, Structural, or other professional engineering services specified or required to execute Contractor's construction methods.
- B. Retain the services of a registered land surveyor licensed in the state of Florida to:
 - 1. Identify existing control points and property line corners indicated on the Drawings.
 - 2. Verify and record all existing structure locations in the vicinity of, or adjacent to, the proposed Work; and, the locations of all proposed structures and facilities.
 - 3. Maintain an accurate record of locations of all new buried piping and existing buried piping and other buried existing facilities (piping, conduits, and structures) encountered and/or relocated during construction of the new Work.
 - 4. Maintain accurate locations of all new structures, including corner locations and equipment locations within the project site, as required by St. Johns County Utility Department Standards Section 3.1.11 except the following requirements:
 - a. Part I
 - b. Part C: The Professional Engineer certification requirement
 - c. Part C: Certification block requirement.
 - d. Part F: St. Johns County Development Review Manual 15.03.A.1-2: Professional Engineer signature requirement.
 - e. Part F: St. Johns County Development Review Manual 15.03.C.5: Professional Engineer signature requirement.

1.02 RELATED WORK

- A. Contract Closeout is included in Section 01700.
- B. Project Record Documents are included in Section 01720.
- C. As-Built Drawing Requirements in St. Johns County Utility Department Standards in Manual of Water, Wastewater, and Reuse Design Standards & Specifications.

1.03 SUBMITTALS

- A. Submit, to the Engineer, the name, address and state registration and license number of proposed registered land surveyor.

- B. On request of the Engineer, submit documentation to verify accuracy of field engineering work.
- C. At the end of the project, and prior to final payment, submit certified drawing(s) (with the Surveyor's title block) of the items listed below. All surveys shall be tied to the applicable Grid System and shall indicate all pre-existing and new project benchmarks. Vertical Control shall conform to the project elevation datum designated on the plans.
 - 1. Certified site survey at 1-in = 50-ft scale or larger, but not greater than 1-in = 20-ft scale, on 24-in by 36-in sheet(s), indicating the building corners, sidewalks, paved areas and location of all above ground structures within the project site or limits of construction.
 - 2. Certified survey, drawn to the same scale as the Engineer's yard piping drawings, showing the locations, lines and grades in plan and profile views of all below-grade lines (piping and concrete-encased electrical ducts) exterior to buildings and other buried facilities (e.g., valves, tanks, etc). This requirement includes all utilities installed as a part of the scope of this project, as well as existing lines encountered during the installation of the new Work.
 - 3. Certified survey showing the location, lines and grades of all lines 2 inches in diameter and larger buried and exterior to buildings and other buried facilities (e.g., valves, tanks, vaults, etc.) installed as a result of the work. This shall be at the same scale as the Engineer's yard piping drawing.

1.04 QUALIFICATIONS OF SURVEYOR

- A. Registered land surveyor, licensed in the state of Florida.

1.05 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the project are those designated on Drawings.
- B. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.
 - 1. Make no changes or relocations without prior written notice to and approval by the Engineer.
 - 2. Report to the Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - 3. Require the surveyor to correctly replace project control points which may be lost or destroyed. Establish replacements based on original survey control.

1.06 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of two permanent bench marks on site, referenced to data established by survey control points.
 - 1. Record locations, with horizontal and vertical data, on the as-built Survey.

2. Permanent benchmarks shall be installed and spaced for convenient reference and use at locations along the pipeline route and/or on the plant site.
 3. Benchmarks shall be installed to National Geodetic Survey standards and shall include horizontal and vertical data, as well as the installation date.
- B. Establish lines and levels; locate and lay out:
1. Site improvements.
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
 - c. Sidewalks, pavement, fencing, storm drainage facilities, and other finish surface work.
 2. Batter boards for structures.
 3. Controlling lines and levels required for mechanical and electrical trades.
- C. If lines, levels or layouts are lost or destroyed, or if required by the Owner or Engineer, verify layouts by same methods.
- D. Establish all lines and grades prior to construction of line work for all force mains, transmission mains, storm drainage piping, gravity sewers and other new utility lines outside of pump station limits at 100-ft increments, and at defined breaks in grade.

The following dimensional references must be depicted on the As-Built drawings.

1. Depths of various elements of foundation in relation to finish first floor datum.
2. All underground piping and fittings with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of all underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc. **All pipes and valves shall be labeled using the method as per the contract drawings.**
3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
4. Field changes of dimension and detail.
5. Changes made by Field Order or by Change Order.
6. Details not on original contract drawings.
7. Equipment and piping relocations.
8. All underground duct banks with elevations and dimensions, horizontal and vertical locations of underground duct banks, and manholes along duct banks.
9. All underground cable elevations and horizontal locations of underground cables.
10. All existing and new structures clearly indicated.

11. All elevations of new structures clearly indicated.
- E. Complete As-Built survey and drawings to satisfy all requirements of St. Johns County Utility Department Standards 3.1.11, except for the following:
1. Part I: As-Built certification.
 2. Part C: The Professional Engineer certification requirement.
 3. Part C: Certification block requirement.
 4. Part F: St. Johns County Development Review Manual 15.03.A.1-2: Professional Engineer signature requirement.
 5. Part F: St. Johns County Development Review Manual 15.03.C.5: Professional Engineer signature requirement.
- F. All work will be performed in accordance with the Minimum Technical Standards set forth by the Florida Board of Land Surveyors.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 RECORDS

- A. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. **Update the project as-built survey on a monthly basis, based on the work performed during the month. Submit one copy of up to date as-built documentation with Contractor's monthly applications for payment.**
- C. Maintain an accurate record of new and existing piping, conduit and structure changes, revisions, relocations, and modifications.
- D. At the end of the project, submit the following:
 1. Part I: As-Built certification.
 2. Part C: The Professional Engineer certification requirement
 3. Part C: Certification block requirement.
 4. Part F: St. Johns County Development Review Manual 15.03.A.1-2: Professional Engineer signature requirement.
 5. Part F: St. Johns County Development Review Manual 15.03.C.5: Professional Engineer signature requirement.

END OF SECTION

SECTION 01110
ENVIRONMENTAL PROTECTION PROCEDURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment and perform all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Section, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes.
- B. The control of environmental pollution requires consideration of air, water and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, etc. All erosion control measures shall be in place in an area prior to construction activity in that area.
- D. This Section is intended to ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. These are general guidelines. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.

1.02 APPLICABLE REGULATIONS

- A. Comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement.

1.03 NOTIFICATIONS

- A. The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the Engineer, of any non-compliance with State or local requirements. After receipt of such notice from the Engineer or from the regulatory agency through the Engineer, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.04 IMPLEMENTATION

- A. Prior to commencement of the work, meet with the Engineer to develop mutual understandings relative to compliance with these provisions and administration of the environmental pollution control program.
- B. Remove temporary environmental control features, when approved by the Engineer and incorporate permanent control features into the project at the earliest practicable time.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EROSION CONTROL

- A. Provide positive means of erosion control such as shallow ditches around construction to carry off surface water. Erosion control measures, such as siltation basins, hay check dams, mulching, jute netting and other equivalent techniques, shall be used as appropriate. Flow of surface water into excavated areas shall be prevented. Ditches around construction area shall also be used to carry away water resulting from dewatering of excavated areas. At the completion of the work, ditches shall be backfilled and the ground surface restored to original condition.

3.02 PROTECTION OF STREAMS AND SURFACE WATERS

- A. Take all precautions to prevent, or reduce to a minimum, any damage to any stream or surface water from pollution by debris, sediment or other material, or from the manipulation of equipment and/or materials in or near such streams. Water that has been used for washing or processing, that contains oils or sediments that will reduce the quality of the water in the stream, shall not be directly returned to the stream. Divert such waters through a settling basin or filter before being directed into streams or surface waters.

3.03 PROTECTION OF LAND RESOURCES

- A. Restore land resources within the project boundaries and outside the limits of permanent work to a condition, after completion of construction that will appear to be natural and not detract from the appearance of the project. Confine all construction activities to areas shown on the Drawings.
- B. Outside of areas requiring earthwork for the construction of the new facilities, do not deface, injure, or destroy trees or shrubs, nor remove or cut them without prior approval. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, first wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or wire is placed. The Contractor shall in any event be responsible for any damage resulting from such use.
- C. Before beginning operations near them, protect trees that may possibly be defaced, bruised, injured, or otherwise damaged by the construction equipment, dumping or other operations, by placing boards, planks, or poles around them. Monuments and markers shall be protected similarly.

- D. Trees or other landscape features scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to their original condition. The Engineer will decide the method of restoration to be used and whether damaged trees shall be treated and healed or removed and disposed of.
 - 1. All scars made on trees by equipment, construction operations, or by the removal of limbs larger than 1-in in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming or pruning shall be performed in an approved manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted.
- E. The locations of the Contractor's storage and other construction buildings required temporarily in the performance of the work, shall be cleared portions of the job site or areas to be cleared as shown on the Drawings and approved by the Engineer and shall not be within wetlands or floodplains. The preservation of the landscape shall be an imperative consideration in the selection of all sites and in the construction of buildings. Drawings showing storage facilities shall be submitted for approval of the Engineer.
- F. Remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess of waste materials, or any other vestiges of construction as directed by the Engineer. It is anticipated that excavation, filling and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon.
- G. All debris and excess material will be disposed of outside wetland or floodplain areas in an environmentally sound manner.

3.04 PROTECTION OF AIR QUALITY

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

3.05 NOISE CONTROL

- A. Refer to Specification Section 01170.

3.06 MAINTENANCE OF POLLUTION CONTROL FACILITIES DURING CONSTRUCTION

- A. Maintain all facilities constructed for pollution control as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created.

END OF SECTION

SECTION 01170
SPECIAL PROVISIONS

PART 1 GENERAL

1.01 INSTALLATION OF EQUIPMENT

- A. All wedges, shims, filling pieces, keys, packing, grout, or other materials necessary to properly align, level, and secure equipment in place shall be furnished by the Contractor. All parts intended to be plumb or level must be proven exactly so. Perform all grinding necessary to bring parts to proper bearing after erection.
- B. Equipment shall not be started up by the Contractor until Manufacturer has inspected equipment and approved the installation.
- C. The Contractor shall be responsible for negotiating, release and installation of all Owner furnished equipment.
- D. Contractor shall strictly follow the Manual of Water, Wastewater, and Reuse Design Standards and Specifications, September 2006, during construction that is described in this document and shown on the Contract Drawings. Contractor shall issue a Request for Information in the event of a discrepancy between the Contract Documents and design manual for Engineer and Owner to clarify.

1.02 SLEEVES AND OPENINGS

- A. The Contractor shall provide all openings, in new construction and furnish and install anchor bolts and other items to be embedded in concrete, as required to complete the work under this Contract. The Contractor shall do all cutting, coring and rough and finish patching required in existing construction for the work of all trades.

1.03 RELOCATIONS

- A. The Contractor shall be responsible for the relocation of structures, including but not limited to light poles, signs, sign poles, fences, piping, manholes, conduits and drains that interfere with the positioning of the work as set out on the Drawings. The cost of all such relocations shall be included in the bid for the project and shall not result in any additional cost to the Owner.

1.04 GREASE, OIL AND FUEL

- A. All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The Owner shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by the manufacturer with each item of equipment supplied under Divisions 11 and 15.

1.05 TOOLS

- A. Any special tools (including grease guns or other lubricating devices) which may be necessary for the adjustment, operation, and maintenance of any equipment shall be furnished with the respective equipment.

- B. Tools shall be furnished in heavy steel tool boxes complete with lock and duplicate keys.

1.06 PIPE MARKING

- A. Pipe marking shall be the Contractor's responsibility to assist, as required by the Engineer, in identifying pipe contents, direction of flow, and all else required for proper marking of pipe.

1.07 VALVE IDENTIFICATION

- A. The Contractor shall prepare a valve schedule for all valves required for the Work showing a number, the location, type, function, and normal operating position, for each valve. The schedule shall be submitted to the Engineer for approval not less than 90 days prior to start-up.
- B. The Contractor shall furnish tags for all valves required for the Work. Tags on above ground valves shall be 2-in diameter, 19 gauge, stainless steel with stainless steel chains suitable for attaching the tag to the valve operator. Tags for buried valves shall be secured in a concrete base as shown on the Drawings. Tags shall be stamped or etched with the valve number and the information on the valve schedule coded in a system provided by the Owner. Submit two samples of the type of tag proposed and the manufacturer's standard letter styles to the Engineer for approval.
- C. The Contractor shall install valve tags on all valves required for the Work.

1.08 NOISE LIMITATIONS

- A. All equipment to be furnished under this Contract, unless specified otherwise in the technical specifications, shall be designed to ensure that the sound pressure level does not exceed 85 decibels over a frequency range of 37.8 to 9600 cycles per second at a distance of three feet from any portion of the equipment, under any load condition, when tested using standard equipment and methods. Noise levels shall include the noise from the motor. Mufflers or external baffles shall not be acceptable for the purpose of reducing noise. Data on noise levels shall be included with the shop drawing submittal.

1.09 SPARE PARTS

- A. Spare parts for certain equipment have been specified in the pertinent Sections of the Specifications. The Contractor shall collect and store all spare parts so required in an area to be designated by the Engineer. In addition, the Contractor shall furnish to the Engineer an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivery cost.
- B. Spare parts shall be packed in cartons, properly labeled with indelible markings with complete descriptive information including manufacturer, part number, part name and equipment for which the part is to be used, and shall be properly treated for 1 year of storage.

1.10 HURRICANE PREPAREDNESS PLAN

- A. Within 30 days of the date of Notice of Award, submit to the Engineer and the Owner, for approval, a Hurricane Preparedness Plan. The Plan shall describe in detail the necessary

measures which the Contractor will perform, at no additional costs to the Owner, in case of a hurricane watch or warning. Revise Plan as required by the Engineer and Owner.

- B. In the event of inclement weather, the Contractor shall protect the Work and materials from damage or injury from the weather. If, in the opinion of the Engineer, any portion of the Work or materials has been damaged by reason of failure on the part of the Contractor to so protect the Work, such Work and materials shall be removed and replaced with new materials and Work to the satisfaction of the Engineer.

1.11 OBSTRUCTIONS

- A. It is the responsibility of the Contractor to ensure that all utility poles, the stability of which may be endangered by the close proximity of excavation, are temporarily stayed in position while work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

1.12 EXISTING UTILITY PROTECTION

- A. Existing utilities are shown in their approximate locations. It shall be the Contractor's responsibility to locate and protect all utilities whether shown on Drawings or not.
- B. It shall be the Contractor's responsibility to contact utility companies at least 48 hours before starting construction so maintenance personnel can locate and protect facilities, if required by the utility company.

1.13 UTILITY CROSSINGS

- A. It is intended that wherever existing utilities such as water, wastewater, 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 on the Drawings. However, when in the opinion of the Owner or Engineer this procedure is not feasible he may direct the use of fittings for a utility crossing as detailed on the Drawings.

1.14 CONNECTIONS TO EXISTING SYSTEMS

- A. The Contractor shall perform all work necessary to locate, excavate and prepare for connections to the terminus of the existing mains all as shown on the Drawings or where directed by the Engineer. The cost for this work and for the actual connection of the existing mains shall be included in the bid for the project and shall not result in any additional cost to the Owner.

1.15 PROVISIONS FOR THE CONTROL OF DUST

- A. Sufficient precautions shall be taken during construction to minimize the amount of dust created. Wetting down the site may be required or as directed by the Engineer to prevent dust as a result of vehicular traffic.
- B. Dust control will also be necessary on weekends, holidays, and after normal business hours.

1.16 ELECTRICAL POWER AND TESTING EQUIPMENT

- A. Electric power and all equipment and tools required for testing of equipment shall be furnished by the Contractor the cost of which shall be included in the prices quoted in the Bid Form.

1.17 PROTECTION AGAINST ELECTROLYSIS

- A. Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resulting electrolysis. The insulating material shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other approved materials.

1.18 DAMAGE ON ACCOUNT OF HIGH WATER

- A. Contractor shall be responsible for all damage done to his work by heavy rains or floods and he shall take all reasonable precautions to provide against damages by building such temporary dikes, channels, or shoring to carry off storm water as the nature of the work may require.

1.19 EMERGENCY PHONE NUMBERS AND ACCIDENT REPORTS

- A. Emergency phone numbers (fire, medical, police) shall be posted at the Contractor's phone and its locations be made to known to all.
- B. Accidents shall be reported immediately to the Engineer by e-mail or phone.
- C. All accidents shall be documented by the Contractor and a fully detailed written report submitted by the Contractor to the Engineer after each accident.

1.20 BARRIERS AND TRAFFIC CONTROL

- A. The Contractor shall ensure that vehicular flow is maintained in a safe manner and that he shall adhere to all state and local requirements for maintenance of traffic, safety precautions, and lighting.
- B. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage due to construction operations and demolition.
- C. Provide protection for natural vegetation designated to remain. Replace protected vegetation, if damaged.
- D. Protect all landscaping and decorative vegetation. Restore damaged landscaping and vegetation to its original condition.
- E. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- F. Provide signs, signals, cones, barricades and trained flagmen to direct traffic in and around the construction site in accordance with Florida Department of Transportation Work Zone Traffic Control Standards.
 - 1. Prepare a WORK ZONE TRAFFIC CONTROL PLAN and submit that plan to the appropriate officials in all municipalities and jurisdictions where the Work will impact the flow of traffic.

2. Obtain written approval of that plan from all municipalities and jurisdictions, and then provide copies of the plan and all approvals to the Owner and Engineer prior to the start of construction. All approvals must be obtained prior to construction.

1.21 WORK ADJACENT TO ELECTRICAL FACILITIES

- A. The attention of the Contractor is drawn to possible existence of electrical overhead and underground facilities in the area of the Works. The Contractor shall protect all existing power transmission and distribution facilities throughout the period of construction and shall contact the offices of the power company at least 72 hours prior to the start of any construction.
- B. It is the full and complete responsibility of the Contractor to determine the exact location of all overhead and underground power transmission and distribution facilities in the area of the Works whether or not they are indicated on the Drawings.

1.22 WORK ADJACENT TO TELECOMMUNICATIONS FACILITIES

- A. It is the full and complete responsibility of the Contractor to determine the exact location of all overhead and underground telecommunications facilities in the area of the Works whether or not they are indicated on the Drawings.

1.23 ITEMS SPECIFIED ON DRAWINGS

- A. Items of material, equipment, machinery and the like may be specified on the Drawings and not in the Specifications. Such items shall be provided by the Contractor in accordance with the Specification on the Drawings.

1.24 SPECIAL ROCK BEDDING

- A. Special rock bedding shall be used whenever organic soil material has been encountered. This bedding material shall be as herein specified in Division 2 and placed in the trench to the proposed elevation of the centerline to the pipe prior to any pipe laying. This bedding shall not be used under any circumstances as a drain from groundwater. The Contractor shall take all precautions necessary to maintain the bedding in a compacted state and to prevent washing erosion or loosening of this bed. The cost for this special bedding material shall be included in the price per lineal foot of pipe.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01300
SUBMITTALS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section includes the requirements for compiling, processing and transmitting submittals required for execution of the project.
- B. Submittals are categorized into two types: Action Submittals and Informational Submittals, as follows:
 - 1. Action Submittal: Written and graphic information submitted by the Contractor that requires the Engineer's approval. The following are examples of action submittals:
 - a. Shop drawings (including working drawings, valve schedule in accordance with Section 01170, and product data)
 - b. Samples
 - c. Operation & maintenance manuals
 - d. Site Usage Plan (Contractor's staging - including trailer siting and material laydown area)
 - e. Schedule of values
 - f. Payment application format
 - 2. Informational Submittal: Information submitted by the Contractor that does not require the Engineer's approval. The following are examples of informational submittals:
 - a. Shop Drawing Schedule
 - b. Construction Schedule
 - c. Statements of Qualifications
 - d. Health and Safety Plans
 - e. Construction Photography and Videography
 - f. Work Plans
 - g. Maintenance of Traffic Plans
 - h. Outage Requests
 - i. Proposed Testing Procedures
 - j. Test Records and Reports
 - k. Vendor Training Outlines/Plans
 - l. Test and Start-Up Reports
 - m. Certifications
 - n. Record Drawings
 - o. Submittals required by laws, regulations and governing agencies
 - p. Submittals required by funding agencies
 - q. Other requirements found within the technical specifications
 - r. Warranties and Bonds
 - s. As-Built Surveys
 - t. Contract Close-out Documents
- C. All submittals shall be delivered directly to the Office of the Consulting Engineers, CDM Smith, 8381 Dix Ellis Trail, Suite 400, Jacksonville, FL 32256, Attn: Cheryl Gullotto.

- D. All submittals shall be clearly identified by reference section number, paragraph, drawing, or details as applicable.
- E. Submittals shall be clean and legible and of sufficient size for presentation of data.

1.02 RELATED WORK

- A. Additional requirements may be specified in the General Conditions for the Contract.
- B. Additional submittal requirements may be specified in the respective technical Specification Sections.
- C. Applications for Payment are included in Section 01026.
- D. Project Controls (Surveying) 01050.
- E. Construction Schedules are included in Section 01310.
- F. Construction Photos are included in Section 01380.
- G. Contract closeout submittals are included in Section 01700.
- H. Project Record Documents are included in Section 01720.
- I. Operation and Maintenance manuals are included in Section 01730.
- J. Warranties and Bonds are included in Section 01740.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. All submittals shall be clearly identified as follows:
 - 1. Date of Submission.
 - 2. Project Number.
 - 3. Project Name.
 - 4. Contractor Identification.
 - a. Contractor.
 - b. Supplier.
 - c. Manufacturer.
 - d. Manufacturer or supplier representative.
 - 5. Identification of the Product.
 - 6. Reference to Contract Drawing.
 - 7. Reference to specification section number, page and paragraph(s).
 - 8. Reference to applicable standards, such as ASTM or Federal Standards numbers.

9. Indication of Contractor's approval.
 10. Contractor's Certification statement.
 11. Identification of deviations from the Contract Documents, if any.
 12. Reference to previous submittal (for resubmittals).
 13. Made in America (when required by the Contract).
- B. Submittals shall be clear and legible, and of sufficient size for legibility and clarity of the presented data.
- C. Submittal Log. Maintain a log of all submittals. The submittal log shall be kept accurate and up to date. This log should include the following items (as applicable):
1. Description.
 2. Submittal Number.
 3. Date transmitted to the Engineer.
 4. Date returned to Contractor (from Engineer).
 5. Status of Submittal (Approved/Not Approved/etc.).
 6. Date of Resubmittal to Engineer and Return from Engineer (if applicable and repeat as necessary).
 7. Date material released for fabrication.
 8. Projected (or actual) delivery date.
- D. Numbering System. Utilize the following submittal identification numbering system:
1. The first character shall be a D, S, M or I which represents Shop Drawing (including working drawings and product data), Sample, Manual (Operating & Maintenance), or Informational, respectively.
 2. The next five digits shall be the applicable Section Number.
 3. The next three digits shall be the sequential number of each separate item or drawing submitted under each Specification Section, in the chronological order submitted, starting at 001.
 4. The last character shall be a letter, A to Z, indicating the submission (or resubmission) of the same submittal, i.e., "A" = 1st submission, "B" = 2nd submission, "C" = 3rd submission, etc. A typical submittal number would be as follows:
 - a. D-03300-008-B.
 - b. D = Shop Drawing 03300 = Section for Concrete.
 - c. 008 = the eighth different submittal under this Section.
 - d. B = the second submission (first resubmission) of that particular shop drawing.

E. Variances

1. Notify the Engineer in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.
2. Notify the Engineer in writing, at the time of re-submittal (resubmission), of all deviations from previous submissions of that particular shop drawing, except those deviations which are the specific result of prior comments from the Engineer.

F. Action Submittals

1. Shop Drawings, Working Drawings, Product Data and Samples.
 - a. Shop Drawings.
 - 1) Shop drawings as defined in the General Conditions, and as specified in individual Sections may include, but are not necessarily limited to, custom prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, valve schedules, wiring diagrams, coordination drawings, equipment inspection and test reports, and performance curves and certifications, as applicable to the work.
 - 2) Contractor shall verify all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and coordinate each item with other related shop drawings and the Contract requirements.
 - 3) All details on shop drawings shall clearly show the relation of the various parts to the main members and lines of the structure and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted.
 - 4) All shop drawings submitted by subcontractors and vendors shall be reviewed by the Contractor. Contractor shall confirm, materials, dimensions, catalog numbers, technical data and performance criteria; and shall coordinate with other related shop drawings and the Contract requirements. In addition, Contractor shall confirm existing field conditions and dimensions and assure that the submittal is coordinated and compatible with existing conditions. Submittals directly from subcontractors or vendors will not be accepted by the Engineer.
 - 5) The Contractor shall be responsible the accuracy of the subcontractor's or vendor's submittal; and, for their submission in a timely manner to support the requirements of the Contractor's construction schedule. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractor or vendor to correct, before submission to the Engineer. All shop Drawings shall be approved by the Contractor.
 - 6) Delays to construction due to the untimely submission of submittals will constitute inexcusable delays, for which Contractor shall not be eligible for additional cost nor additional contract time. Inexcusable delays consist of any delay within the Contractor's control.
 - 7) Submittals for equipment specified under Divisions [11, 13, 14, 15 and 16] [11, 13, 14, 21, 22, 23, 31, 33, 35, 40 through 46] shall include a listing of installations where identical or similar equipment manufactured by that manufacturer has been installed and in operation for a period of at least five years.
 - b. Working Drawings

- 1) Detailed installation drawings (sewers, equipment, piping, electrical conduits and controls, HVAC work, and plumbing, etc.) shall be prepared and submitted for review and approval by the Engineer prior to installing such work. Installation drawings shall be to-scale and shall be fully dimensioned.
 - 2) Piping working drawings shall show the laying dimensions of all pipes, fittings, valves, as well as the equipment to which it is being connected. In addition, all pipe supports shall be shown.
 - 3) Equipment working drawings shall show all equipment dimensions, anchor bolts, support pads, piping connections and electrical connections. In addition, show clearances required around such equipment for maintenance of the equipment.
 - 4) Electrical working drawings shall show conduits, junction boxes, disconnects, control devices, lighting fixtures, support details, control panels, lighting and power panels, and Motor Control Centers. Coordinate all locations with the Contract Documents and the Contractor's other working drawings.
- c. Product Data
- 1) Product data, as specified in individual Specification Sections, include, but are not limited to, the manufacturer's standard prepared data for manufactured products (catalog data), such as the product specifications, installation instructions, availability of colors and patterns, rough-in diagrams and templates, product photographs (or diagrams), wiring diagrams, performance curves, quality control inspection and reports, certifications of compliance (as specified or otherwise required), mill reports, product operating and maintenance instructions, recommended spare parts and product warranties, as applicable.
- d. Samples
- 1) Furnish, samples required by the Contract Documents for the Engineer's approval. Samples shall be delivered to the Engineer as specified or directed. Unless specified otherwise, provide at least two samples of each required item. Materials or equipment for which samples are required shall not be used in the work unless and until approved by the Engineer.
 - 2) Samples specified in individual Specification Sections, include, but are not limited to: physical examples of the work (such as sections of manufactured or fabricated work), small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and other specified units of work.
 - 3) Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify and Contract Requirements.
 - 4) Approved samples not destroyed in testing shall be sent to the Engineer or stored at the site of the work. Approved samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the approved samples. Samples which fail testing or are not approved will be returned to the Contractor at his expense, if so requested at time of submission.
- e. Professional Engineer (P.E.) Certification Form
- 1) If specifically required in any of the technical Specification Sections, submit a Professional Engineer (P.E.) Certification for each item required, using the form appended to this Section.

2. Contractor's Certification

- a. Each shop drawing, working drawings, product data, and sample shall have affixed to it the following Certification Statement:
 - 1) "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."
 - b. Shop drawings, working drawings, and product data sheets 11-in x 17-in and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The transmittal cover sheet for each identified shop drawing shall fully describe the packaged data and include a listing of all items within the package.
3. The review and approval of shop drawings, working drawings, product data, or samples by the Engineer shall not relieve the Contractor from the responsibility for the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will have no responsibility therefor.
 4. Project work, materials, fabrication, and installation shall conform to approved shop drawings (including working drawings and product data) and applicable samples.
 5. No portion of the work requiring a shop drawing (including working drawings and product data) or sample shall be started, nor shall any materials be fabricated or installed before approval of such item. Procurement, fabrication, delivery or installation of products or materials that do not conform to approved shop drawings shall be at the Contractor's risk. Furthermore, such products or materials delivered or installed without approved shop drawings, or in non-conformance with the approved shop drawings will not be eligible for progress payment until such time as the product or material is approved or brought into compliance with approved shop drawings. Neither the Owner nor Engineer will be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
 6. Operation and Maintenance Data
 - a. Operation and maintenance data shall be submitted in assembled manuals as specified. Such manuals shall include detailed instructions for Owner personnel on safe operation procedures, controls, start-up, shut-down, emergency procedures, storage, protection, lubrication, testing, trouble-shooting, adjustments, repair procedures, and other maintenance requirements.
 7. Schedule of Values
 - a. On projects consisting of lump sums (in whole or in part) submit a proposed schedule of values providing a breakdown of lump sum items in to reasonably small components – generally disaggregated by building, area, and/or discipline. The purpose of the schedule of values is for processing partial payment applications. If requested by the Engineer, provide sufficient substantiation for all or some items as necessary to determine the proposed schedule of values is a reasonable representation of the true cost breakdown of the Work. The schedule of values shall not be unbalanced to achieve early payment or over-payment in excess of the value of work or any other mis-distribution of the costs. If, in the opinion of the Engineer, the schedule of values is unbalanced, Contractor shall reallocate components to achieve a balanced schedule acceptable to Engineer.

8. Payment Application Format
 - a. If an application form is included in the Contract Documents, use that form unless otherwise approved by the Engineer and Owner. If an application form is not included in the Contract Documents, Contractor may propose a form for approval.
9. Site Usage
 - a. Submit a proposed site staging plan, including but not limited to the location of office trailers, storage trailers and material laydown. Such plan shall be a graphic presentation (drawing) of the proposed locations; and, shall include on-site traffic modifications, and temporary utilities, as may be applicable.

G. Informational Submittals

1. Shop Drawing Schedule
 - a. Prepare and submit a schedule indicating when shop drawings are required to be submitted to support the as-planned construction schedule. The submittal schedule shall allow sufficient time for preparation and submittal, review and approval, and fabrication and delivery to support the construction schedule.
2. Construction Schedule
 - a. Prepare and submit construction schedules and monthly status reports as specified.
3. Statements of Qualifications
 - a. Provide evidence of qualification, certification, or registration, as required in the Contract Documents, to verify qualifications of licensed land surveyor, professional engineer, materials testing laboratory, specialty subcontractor, technical specialist, consultant, specialty installer, and other professionals.
 - b. Health and Safety Plans
 - 1) When specified, prepare and submit a general company Health and Safety Plan (HSP), modified or supplemented to include job-specific considerations.
4. Construction Photography and Videography
 - a. Provide periodic construction photographs and videography as specified – including but not limited to preconstruction photographs and/or video, monthly progress photos and/or video and post-construction photographs and/or video.
5. Work Plans
 - a. Prepare and submit copies of all work plans needed to demonstrate to the Owner that Contractor has adequately thought-out the means and methods of construction and their interface with existing facilities.
6. Maintenance of Traffic Plans
 - a. Prepare maintenance of traffic plans where and when required by the Contract Documents and by local ordinances or regulations. If Contractor is not already knowledgeable about local ordinances and regulations regarding maintenance of traffic requirements, become familiar with such requirements and include all costs for preparation and submittal of traffic management plans and all associated costs for permits and fees to implement the traffic management plan, in the bid amount. In addition, unless a supplemental payment provision is provided in the bid form, include the cost of police attendance, when required.

7. Outage Requests
 - a. Provide sufficient notification of any outages required (electrical, flow processes, etc.) as may be required to tie-in new work into existing facilities. Unless specified otherwise elsewhere, a minimum of seven calendar days' notice shall be provided.
8. Proposed Testing Procedures
 - a. Prepare and submit testing procedures it proposes to use to perform testing required by the various technical specifications.
9. Test Records and Reports
 - a. Provide copies of all test records and reports as specified in the various technical specifications.
10. Vendor Training Outlines/Plans
 - a. At least two weeks before scheduled training of Owner's personnel, provide lesson plans for vendor training in accordance with the specification for O&M manuals.
11. Test and Start-up Reports
 - a. Manufacture shall perform all pre-start-up installation inspection, calibrations, alignments, and performance testing as specified in the respective Specification Section. Provide copies of all such test and start-up reports.
12. Certifications
 - a. Provide various certifications as required by the technical specifications. Such certifications shall be signed by an officer (of the firm) or other individual authorized to sign documents on behalf of that entity.
 - b. Certifications may include, but are not limited to:
 - 1) Welding certifications and welders qualifications
 - 2) Certifications of Installation, Testing and Training for all equipment
 - 3) Material Testing reports furnished by an independent testing firm
 - 4) Certifications from manufacturer(s) for specified factory testing
 - 5) Certifications required to indicate compliance with any sustainability or LEEDS accreditation requirements indicated in the Contract Documents
13. Record Drawings
 - a. No later than Substantial Completion, submit a record of all changes during construction not already incorporated into drawings – in accordance with specification on Project Record Documents.
14. Other requirements of the technical Specification Sections
 - a. Comply with all other requirements of the technical specifications.
15. Warranties and Bonds
 - a. Assemble a booklet or binder of all warranties and bonds as specified in the various technical specifications and in accordance with the specification on Warranties and Bonds; and provide two originals to the Engineer.
16. As-Built Surveys
 - a. Engage the services of a licensed land surveyor in accordance with the Project Controls (Surveying) specification. Prior to Final Completion, provide an as-built survey of the constructed facility, as specified.

17. Contract Close-Out Documents

- a. Submit Contract documentation as indicated in the specification for Contract Close-out.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL SCHEDULE

- A. Provide an initial submittal schedule at the pre-construction meeting for review by Owner and Engineer. Incorporate comments from Owner or Engineer into a revised submittal schedule.
- B. Maintain the submittal schedule and provide sufficient copies for review by Owner and Engineer. An up-to-date submittal schedule shall be provided at each project progress meeting.

3.02 TRANSMITTALS

- A. Prepare separate transmittal sheets for each submittal. Each transmittal sheet shall include at least the following: the Contractor's name and address, Owner's name, project name, project number, submittal number, description of submittal and number of copies submitted.
- B. Submittals shall be transmitted or delivered directly to the office of the Engineer, as indicated in the Contact Documents or as otherwise directed by the Engineer.
- C. Provide copies of transmittals forms or cover letters (without attachments) directly to the Resident Project Representative.

3.03 PROCEDURES

A. Action Submittals

1. Contractor's Responsibilities

- a. Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work of other related Sections, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required). Coordinate with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. Extensions to the Contract Time will not be approved for the Contractor's failure to transmit submittals sufficiently in advance of the Work.
- b. The submittals of all shop drawings (including working drawings and product data) shall be sufficiently in advance of construction requirements to allow for possible need of re-submittals, including the specified review time for the Engineer.
- c. No less than 30 calendar days will be required for Engineer's review time for shop drawings and O&M manuals involving only one engineering discipline. No less than 45 calendar days will be required for Engineer's review time for shop drawings and O&M manuals that require review by more than one engineering discipline. Resubmittals will be subject to the same review time.
- d. Submittals of operation and maintenance data shall be provided within 30 days of approval of the related shop drawing(s).
- e. Before submission to the Engineer, review shop drawings as follows:

- 1) make corrections and add field measurements, as required
 - 2) use any color for its notations except red (reserved for the Engineer's notations) and black (to be able to distinguish notations on black and white documents)
 - 3) identify and describe each and every deviation or variation from Contract documents or from previous submissions, except those specifically resulting from a comment from the Engineer on a previous submission
 - 4) include the required Contractor's Certification statement
 - 5) provide field measurements (as needed)
 - 6) coordinate with other submittals
 - 7) indicate relationships to other features of the Work
 - 8) highlight information applicable to the Work and/or delete information not applicable to the Work
- f. Submit the following number of copies:
- 1) Shop drawings (including working drawings and product data) – Submit no fewer than six, and no more than nine; five of which will be retained by the Engineer.
 - 2) Samples – three
 - 3) Site Usage Plan – three copies
 - 4) Schedule of values – four copies
 - 5) Payment application format – two copies
- g. If Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, provide written notice thereof to the Engineer immediately; and do not release for manufacture before such notice has been received by the Engineer.
- h. When the shop drawings have been completed to the satisfaction of the Engineer, carry out the construction in accordance therewith; and make no further changes therein except upon written instructions from the Engineer.
2. Engineer's Responsibilities
- a. Engineer will not review shop drawings (including working drawings and product data) that do not include the Contractor's approval stamp and required certification statement. Such submittals will be returned to the Contractor, without action, for correction.
 - b. Partial shop drawings (including working drawings and product data) will not be reviewed. If, in the opinion of the Engineer, a submittal is incomplete, that submittal will be returned to the Contractor for completion. Such submittals may be returned with comments from Engineer indicating the deficiencies requiring correction.
 - c. If shop drawings (including working drawings and product data) meet the submittal requirements, Engineer will forward copies to appropriate reviewer(s). Otherwise, noncompliant submittals will be returned to the Contractor without action - with the Engineer retaining one copy.
 - d. Submittals which are transmitted in accordance with the specified requirements will be reviewed by the Engineer within the time specified herein. The time for review will commence upon receipt of submittal by Engineer.
3. Review of Shop Drawings (Including Working Drawings and Product Data) and Samples
- a. The review of shop drawings, working drawings, data and samples will be for general conformance with the design concept and Contract Documents. They 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
- b. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- c. If the shop drawings (including working drawings and product data) or samples as submitted describe variations and indicate a deviation from the Contract requirements that, in the opinion of the Engineer are in the interest of the Owner and are so minor as not to involve a change in Contract Price or Contract Time, the Engineer may return the reviewed drawings without noting an exception.
- d. Only the Engineer will utilize the color "RED" in marking submittals.
- e. Shop drawings will be returned to the Contractor with one of the following codes.
 - 1) "APPROVED" – This code is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.
 - 2) "APPROVED AS NOTED" – This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.
 - 3) "APPROVED AS NOTED/CONFIRM" – This combination of codes is assigned when a confirmation of the notations and comments is required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. This confirmation shall specifically address each omission and nonconforming item that was noted. Confirmation is to be received by the Engineer within 15 calendar days of the date of the Engineer's transmittal requiring the confirmation.
 - 4) "APPROVED AS NOTED/RESUBMIT" – This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the entire package. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the Engineer within 30 calendar days of the date of the Engineer's transmittal requiring the resubmittal.
 - 5) "NOT APPROVED" – This code is assigned when the submittal does not meet the intent of the contract documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the requirements of the contract documents.
 - 6) "COMMENTS ATTACHED" – This code is assigned where there are comments attached to the returned submittal, which provide additional data to aid the Contractor.
 - 7) "RECEIPT ACKNOWLEDGED (Not subject to Engineer's Review or Approval)" – This code is assigned to acknowledge receipt of a submittal that is not subject to the Engineer's review and approval, and is being filed for informational purposes only. This code is generally used in acknowledging receipt of means and methods of construction work plans, field conformance test reports, and health and safety plans.
- f. Repetitive Reviews: Shop drawings, O&M manuals and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be

performed at the Contractor's expense. Reimburse the Owner for all costs invoiced by Engineer for the third and subsequent reviews.

4. Electronic Transmission

- a. Action Submittals may be transmitted by electronic means provided the following conditions are met:
 - 1) The above-specified transmittal form is included.
 - 2) All other requirements specified above have been met including, but not limited to, coordination by the Contractor, review and approval by the Contractor, and the Contractor's Certification.
 - 3) The submittal contains no pages or sheets large than 11 x 17 inches.
 - 4) With the exception of the transmittal sheet, the entire submittal is included in a single file.
 - 5) The electronic files are PDF format (with printing enabled).
 - 6) In addition, transmit three hard-copy (paper) originals to the Engineer.
 - 7) The Engineer's review time will commence upon receipt of the hard copies of the submittal.
 - 8) For Submittals that require certification, corporate seal, or professional embossment (i.e., P.E.s, Surveyors, etc.) transmit at least two hard-copy originals to the Engineer. In addition, provide additional photocopied or scanned copies, as specified above, showing the required certification, corporate seal, or professional seal.

B. Informational Submittals

1. Contractor's Responsibilities

- a. Number of copies: Submit three copies, unless otherwise indicated in individual Specification sections
- b. Refer to individual technical Specification Sections for specific submittal requirements.

2. Engineer's Responsibilities

- a. The Engineer will review each informational submittal within 15 days. If the informational submittal complies with the Contract requirements, Engineer will file for the project record and transmit a copy to the Owner. Engineer may elect not to respond to Contractor regarding informational submittals meeting the Contract requirements.
- b. If an informational submittal does not comply with the Contract requirements, Engineer will respond accordingly to the Contractor within 15 days. Thereafter, the Contractor shall perform the required corrective action, including retesting, if needed, until the submittal, in the opinion of the Engineer, is in conformance with the Contract Documents.

3. Electronic Transmission

- a. Informational submittals may be transmitted by electronic means providing all of the following conditions are met:
 - 1) The above-specified transmittal form is included.
 - 2) The submittal contains no pages or sheets large than 11 x 17 inches.
 - 3) With the exception of the transmittal sheet, the entire submittal is included in a single file.
 - 4) The electronic files are PDF format (with printing enabled).

- 5) For Submittals that require certification, corporate seal, or professional embossment (i.e., P.E.s, Surveyors, etc.) transmit two hard-copy originals to the Engineer.

END OF SECTION

- G. The number of network activities, sufficiency of description, and level of breakdown shall be subject to the Engineer's review and approval to confirm conformance with the specified requirements.
- H. The format of the schedule network graphic shall be a time-scaled logic diagram - with a list of network activities and the specified data fields presented adjacent to the graphic display.
- I. The following general requirements also apply to the network diagram.
 - 1. The Critical Path (the sequence of project network activities that add up to the longest overall duration and thereby determines the shortest time possible to complete the project) shall be identified - preferably in 'red'.
 - 2. Unless otherwise approved by the Engineer the Contractor's work schedule shall be based on 'normal work week' as defined in the Contract Documents - (typically 40 hours per week, consisting of five 8-hour days).
 - 3. The graphics shall indicate the calendar(s) on which activity durations are based (i.e., 5-day workweek or 7 calendar day week). When multiple calendars or work weeks are used, the graphics shall clearly indicate which calendars are used where.
 - 4. The project calendar shall include exclusions for holidays observed by the Contractor and those indicated in the Contract Documents.
- J. Each network activity shall have the following information (fields) listed alongside the activity on the graphic display.
 - 1. Activity ID - a manually assigned designation (numeric or alphanumeric). The Contractor should use a logical approach to assigning identification to network activities to facilitate grouping (sorting) of activities.
 - 2. Activity Description
 - 3. Original Duration - including allowances for adverse weather interruptions - normal for the project location. Normal weather shall mean seasonally average weather conditions, as recorded by NOAA.
 - 4. Percent complete - the Contractor's estimated percent complete for each network activity as of the data date for the respective report.
 - 5. Remaining Duration - a calculated value based on Original Duration of each network activity and the estimated percent of completion for each activity.
 - 6. Early Start Date
 - 7. Early Finish Date
 - 8. Late Start Date
 - 9. Latest Finish Date
 - 10. Total Float

2.03 SUBMITTAL REQUIREMENTS

- A. Each schedule submittal shall include the following elements:
1. Graphics – unless otherwise approved by the Engineer, the network graphics shall be printed on 24-inch by 36-inch sheets; including a list of activities and the specified data fields.
 2. Narrative
 - a. The Narrative shall consist of a written report by the Contractor providing an overview of the schedule – specific to each submittal.
 - b. The Narratives for developmental submittals, i.e., Interim and Preliminary, shall describe the Contractor's approach to executing the project Work.
 - c. The Narrative for the Baseline Schedule shall:
 - 1) explain key activities and assumptions on which the schedule is based;
 - 2) describe the Critical Path;
 - 3) discuss key deliveries that might adversely affect the project schedule; and,
 - 4) explain the Contractor's approach to adverse weather interruptions – normal for the project location. Normal weather shall mean seasonally average weather conditions, as recorded by NOAA.
 - d. The Narratives provided with Monthly Status Reports (updates) shall also identify:
 - 1) any changes the Contractor has made to the CPM logic (including any added, modified or deleted activities,
 - 2) any delays that have been encountered, and
 - 3) remedial actions or recovery steps the Contractor will employ to arrest and/or recover from such delays.

B. Reports

1. The following reports are required to be submitted with Baseline Schedule, when a major revision is made to the schedule, and when requested by the Engineer.
 - a. Activity – a report listing all network activities, sorted by activity ID
 - b. Early Start – a report listing all network activities, sorted by Early Start date
 - c. Total Float – a report listing all network activities, sorted by Total Float (ascending from low to high).
 - d. Predecessor/Successor – a report of all activities, sorted by Activity ID that lists all predecessor and successor activities for each network activity.

2.04 ACCEPTABILITY

- A. The Contractor shall submit the CPM schedule submittals, as specified, and resubmit as needed, until they are in compliance with Contract requirements.
- B. The Engineer's review of the Contractor's construction schedule submittals will only be for conformance with the Contract requirements – including but not limited to contract time and work sequences specified in the contract documents. The Engineer's review of the schedule shall not include the Contractor's means and methods of construction or safety. The Engineer's concurrence, acceptance, or approval of the Contractor's schedule submittals will not relieve the Contractor from responsibility for complying with the Contract Scope, Contract Time or any other contract requirement. Any indication of concurrence, acceptance, or approval of the Contractor's schedule will only indicate a general conformance with the Contract Requirements.

- C. Engineer's review of the Contractor's construction schedule submittals shall not relieve the Contractor from responsibility for any deviations from the Contract Documents unless the Contractor has in writing called Engineer's attention to such deviations at the time of submission and Engineer has given written concurrence to the specific deviations, nor shall any concurrence by the Engineer relieve Contractor from responsibility for errors and omissions in the submittals. Concurrence of the CPM Activity Network by the Engineer is advisory only and shall not relieve the Contractor of responsibility for accomplishing the Work within the Contract completion date(s).
- D. Concurrence, acceptance, or approval of the Contractor's CPM schedule by the Engineer in no way makes the Engineer an insurer of the CPM schedule's success, nor liable for time or cost overruns resulting therefrom.
- E. Failure to include any element of work required for the performance of this Contract will not excuse the Contractor from completing all Work required within the Contract completion date(s), notwithstanding the review of the network by the Engineer.
- F. CPM schedules that contain activities with negative float, or which extend beyond the contract completion date, will not be acceptable.
- G. Except where earlier completions are specified, CPM schedules which show completion of all work prior to the contract completion date may be indicated; however, in no event shall they constitute a basis for claim for delay by the Contractor.

PART 3 EXECUTION

3.01 IMPLEMENTATION SCHEDULE

A. Interim Schedule

1. Within 15 days following the receipt of the Notice to Proceed, submit an Interim Schedule indicating the planned operations during the first 60 calendar days after Notice to Proceed. In addition, the Contractor shall indicate its general approach for the balance of the project.
2. Within 15 days following the receipt of the Notice to Proceed, meet with the Engineer to discuss and agree on the proposed standards for the CPM schedule. At this conference submit to the Engineer a preliminary network defining the planned operations during the first 60 calendar days after Notice to Proceed. In addition, the Contractor shall indicate its general approach for the balance of the project.
3. While the Preliminary schedule is being developed, the Contractor shall update the Interim schedule on a monthly basis – indicating actual progress - until the Preliminary schedule is submitted.

B. Preliminary Schedule

1. Within 45 days following the receipt of Notice to Proceed, submit a proposed Preliminary Schedule to the Engineer. The Preliminary Schedule shall consist of a draft computer-generated CPM-schedule showing the entire Scope of Work. The Preliminary Schedule shall not include any actual progress earned during development of the schedule (i.e., stashed as of the Notice to Proceed).

2. Once the Preliminary Schedule is submitted, Contractor shall discontinue updating the Interim Schedule. Provide monthly updates of the Preliminary Schedule until concurrence, acceptance, or approval of the Baseline Schedule.

C. Baseline (as-planned) Schedule

1. With 10 days of the review meeting on the Preliminary Schedule submittal, the Contractor shall incorporate the Engineer's comments into the network and submit a Baseline Schedule. Resubmit the Baseline Schedule, as required until it is deemed acceptable as stated in Paragraph 2.04, above.
2. Upon concurrence, acceptance, or approval of the Contractor's initial Baseline Schedule, stauted as of the Notice to Proceed date, it shall be recognized as the basis against which the Contractor's progress shall be measured.

D. Monthly Status Reports

1. Monthly Status Reports shall include updated graphics and a narrative. In addition, if requested by the Engineer, Contractor shall provide copies of one or more of the standard reports listed in Paragraph 2.03.B.
2. The Contractor shall provide Monthly Status Reports (schedule updates) commencing approximately 30 days after submission of the Interim Schedule. Unless approved otherwise by the Engineer, the Monthly Status Reports shall be stauted as of the end of each calendar month.
3. While the Preliminary Schedule is being developed, the Contractor shall update the Interim schedule on a monthly basis – indicating actual progress - until the Preliminary Schedule is submitted.
4. While the Baseline Schedule is being developed, the Contractor shall update the Preliminary Schedule on a monthly basis – indicating actual progress - until concurrence, acceptance, or approval of the Baseline Schedule.
5. Once the initial Baseline Schedule is complete, Monthly Status Reports shall be based on the Baseline Schedule.

E. As-Built Schedule

1. Upon achieving Substantial Completion, the Contractor shall submit an as-built schedule, showing all activities from the Notice to Proceed through Substantial Completion. In addition, provide the reports listed in Paragraph 2.03.B. A Narrative is not required.

3.02 DELIVERABLES

- A. Unless approved otherwise by the Engineer, all schedule submittals shall be printed in color on sheets 11-in by 17-in and may be divided into as many separate sheets as required.
- B. Interim Schedule: Submit three copies to the Engineer.
- C. Preliminary Schedule: Submit three hard (paper) copies to the Engineer.

- D. Baseline Schedule: Submit three hard (paper) copies and one electronic copy (PDF) to the Engineer.
- E. Monthly Status Reports: Submit three copies and one electronic copy on CD to the Engineer.
- F. As-Built Schedule: Submit one hard copy; one electronic (PDF), and, if requested, an electronic copy of the program files.

3.03 PROGRESS REPORTING

- A. Progress under the approved CPM schedule shall be reported monthly by the Contractor by submitting a Monthly Status Report. Unless otherwise approved by the Engineer, not less than seven days prior to the due date of the Monthly Status Report, the Contractor shall meet with the Engineer's representative to jointly evaluate the status of each network activity. Each activity shall be updated to reflect the actual progress (percent complete) and the actual dates activities were started and completed, as applicable.
- B. The Monthly Status Report shall include an update of the computer-generated network graphics and a Narrative report. The Narrative shall include:
 - 1. A description of the progress during the reporting period in terms of completed activities
 - 2. A summary of the Critical Path
 - 3. An description or explanation of each delays to network activities
 - 4. A description of problem areas, current and anticipated delaying factors and their anticipated effect on the performance of other activities and completion dates
 - 5. An explanation of corrective action taken or proposed.
 - 6. This report, as well as the CPM Status Report, will be discussed at each progress meeting.

3.04 RESPONSIBILITY FOR SCHEDULE COMPLIANCE

- A. Whenever it becomes apparent from the current CPM schedule and CPM Status Report that delays to the critical path have resulted and the contract completion date will not be met, or when so directed by the Engineer, take some or all of the following actions at no additional cost to the Owner. Submit to the Engineer for approval, a written statement of the steps intended to take to remove or arrest the delay to the critical path in the approved schedule.
 - 1. Increase construction manpower in such quantities and crafts,
 - 2. Increase the number of working hours per shift, shifts per day, working days per week,
 - 3. Increase the amount of construction equipment, and/or
 - 4. Reschedule activities to maximize the concurrence of activities and comply with the revised schedule.
- B. If when so requested by the Engineer, failure to submit a written statement of the steps intended to take or should fail to take such steps as approved by the Engineer, the Engineer may direct

the Contractor to increase the level of effort in man-power (trades), equipment and work schedule (overtime, weekend and holiday work, etc) to be employed by the Contractor in order to remove or arrest the delay to the critical path in the approved schedule and the Contractor shall promptly provide such level of effort at no additional cost to the Owner.

3.05 ADJUSTMENT OF CONTRACT SCHEDULE AND COMPLETION TIME

- A. If the Contractor wants or needs to make changes in his/her execution of the construction schedule that would affect the approved CPM schedule, he/she shall notify the Engineer in writing stating what changes are proposed and the reasons for the changes. If the Engineer approves such changes, the Contractor shall revise and submit a revised schedule for approval - without additional cost to the Owner. The CPM schedule shall be adjusted by the Contractor only after prior approval of his/her proposed changes. Adjustments may consist of changing portions of the activity sequence, activity durations, division of approved activities, or other adjustments as may be approved by the Engineer; however, the addition of extraneous, non-working activities and activities that add unapproved restraints to the CPM schedule will not be allowed.
- B. Shop drawings that are not approved on the first submittal will require the addition of network activities for the resubmittals.
- C. Equipment that does not pass the specified tests will require the addition of network activities for the retesting.
- D. The contract completion time will be adjusted only for causes specified in this Contract. In the event the Contractor requests an extension of any contract completion date, he/she shall furnish such justification and supporting evidence as the Engineer may deem necessary to determine whether the Contractor is entitled to an extension of time under the provisions of this Contract. After receipt of such justification and supporting evidence, the Engineer's shall perform an assessment or evaluation of the appropriate change in contract time based upon the currently approved CPM schedule and on all data relevant to the extension. Inexcusable delays (attributable to the Contractor) and non-critical delays (delays to activities which, according to the CPM schedule, do not affect any contract completion date shown by the Critical Path) shall not be the basis for a change in contract time. The Engineer will provide a written recommendation to the Owner based on its assessment, with a copy to the Contractor. The Contractor shall not change any fixed contract milestones or required completion dates without the approval of the Owner, evidenced by the execution of a contract change order. However, the Contractor should make note of such requests for changes in contract time in the narrative of monthly schedule status reports.
- E. Each request for change in any contract completion date shall be submitted by the Contractor to the Engineer in accordance with the notification requirements stipulated in the form of contract or general conditions. No time extension will be granted for requests that are not submitted in accordance with the Contract requirements.
- F. Total float in the approved CPM network belongs to the project; i.e., either the Owner or Contractor may take advantage of available total float on a first-come, first-served basis: Therefore, without obligation to extend either the overall completion date, or any intermediate completion dates set out in the CPM network, the Owner may initiate changes to the work or delay work that absorb available total float existing at the time of the change or delay. Owner

initiated changes or delays that affect the Critical Path on the approved CPM network shall be the sole grounds for extending (or contracting) contract completion dates or fixed milestones.

END OF SECTION

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SECTION 01370
SCHEDULE OF VALUES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Submit a Schedule of Values allocated to the various portions of the work, within 21 days after the effective date of the Agreement.
- B. Upon request of the Owner or Owner's Representative, support the values with data which will substantiate their correctness.
- C. The accepted Schedule of Values shall be used only as the basis for the Contractor's Applications for Payment.

1.02 RELATED REQUIREMENTS

- A. Standard General Conditions of the Construction Contract are included in Division 0.
- B. Application for Payment is included in Section 01026.
- C. Bid Form is required in Section 00300 as part of Bidding Requirements.

1.03 FORM AND CONTENT OF SCHEDULE OF VALUES

- A. Type schedule on an 8-1/2-in by 11-in or 8-1/2-in by 14-in form to be furnished by Owner; Contractor's standard forms and automated printout will be considered for approval by the Owner or Owner's Representative upon Contractor's request. Identify schedule with:
 - 1. Title of Project and location.
 - 2. Owner and Project number.
 - 3. Name and Address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- B. Schedule 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. Identify each line item with the number and title of the respective Section.
- D. For each major line item list sub-values of major products or operations under the item.
- E. For the various portions of the work:
 - 1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.

2. For items on which progress payments will be requested for stored materials, break down the value into:
 - a. The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by the Owner or Owner's Representative.
 - b. The total installed value.
- F. The sum of all values listed in the schedule shall equal the total Contract Sum.

1.04 SUBSCHEDULE OF UNIT MATERIAL VALUES

- A. Submit a sub-schedule of unit costs and quantities for:
 1. Products on which progress payments will be requested for stored products.
- B. The form of submittal shall parallel that of the Schedule of Values, with each item identified the same as the line item in the Schedule of Values.
- C. The unit quantity for bulk materials shall include an allowance for normal waste.
- D. The unit values for the materials shall be broken down into:
 1. Cost of the material, delivered and unloaded at the site, with taxes paid.
 2. Copies of invoices for component material shall be included with the payment request in which the material first appears.
 3. Paid invoices shall be provided with the second payment request in which the material appears or no payment shall be allowed and/or may be deleted from the request.
- E. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

- c. Should actual test results fail to meet specified test and performance requirements, describe action to be taken prior to re-testing the equipment.
3. Copies of the manufacturer's field service technician's report summarizing the results of his/her initial inspection, operation, adjustment and pre-tests. The report shall include detailed descriptions and tabulations of the points inspected, tests and adjustments made, quantitative results obtained, suggestions for precautions to be taken to ensure proper maintenance, and the equipment supplier's Certificate of Installation in the format specified herein.

1.04 REFERENCE STANDARDS

- A. American Water Works Association (AWWA)
- B. ASTM International
- C. Hydraulic Institute (HI)
- D. Water Environment Federation (WEF)
- E. Standard Methods for the Examination of Water and Wastewater (Latest Revision)
- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Field service technicians shall be competent and experienced in the proper installation, adjustment, operation, testing and startup of the equipment and systems being installed.
- B. Manufacturers' sales and marketing personnel will not be accepted as field service technicians unless they can prove their qualifications.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PRELIMINARY REQUIREMENTS

- A. After installation of the equipment has been completed and the equipment is presumably ready for operation, before it is operated by others, the manufacturer's field service technician shall inspect, operate, test and adjust the equipment. The inspection shall include at least the following points where applicable:
 1. Soundness (without crack or otherwise damaged parts).
 2. Completeness in all details, as specified and required.
 3. Correctness of setting, alignment and relative arrangement of various parts.
 4. Adequacy and correctness of packing, sealing and lubricants as required.

- B. The operation, testing and adjustment shall be as required to prove that the equipment has been left in proper condition for satisfactory operation under the conditions specified.
- C. Upon completion of this work, the manufacturer's field service technician shall submit a signed report of the results of his/her inspection, operation, adjustments and tests.

3.02 WITNESS REQUIREMENTS

- A. Shop tests or factory tests may be witnessed by the Owner and/or Owner's representatives, as required by the various equipment specifications.
- B. Field performance and acceptance tests shall be performed in the presence of the Owner, the Owner's designed personnel and/or Owner's representatives.

3.03 STARTUP AND ACCEPTANCE OF THE LIFT STATION AND RELATED SYSTEMS

A. General Requirements

1. Successfully execute the step-by-step procedure of startup, normal operation, shutdown, and performance demonstration specified herein.
2. The startup and performance demonstration shall be successfully executed prior to Substantial Completion and acceptance by the Owner of the facility and its related systems.
3. All performance tests and inspections shall be scheduled at least 10 working days in advance or as otherwise specified with the Owner and the Engineer. All performance tests and inspections shall be conducted during the work week of Monday through Friday, unless otherwise specified.

B. Preparation for Startup

1. All mechanical and electrical equipment shall be checked to ensure that it is in good working order and properly connected. Preliminary run-ins of the various pumps, and other remaining equipment shall be made. All systems shall be cleaned and purged as required. All pipelines which are hydraulically checked shall be drained and returned to their original condition once the water testing is complete.
2. All instruments and controls shall be calibrated through their full range. All other adjustments required for proper operation of all instrumentation and control equipment shall be made.
3. Perform all other tasks needed for preparing and conditioning the facility for proper operation.
4. No testing or equipment operation shall take place until it has been verified by the Engineer that all specified safety equipment has been installed and is in good working order.
5. No testing or equipment operation shall take place until it has been verified by the Engineer that all lubricants, tools, maintenance equipment, spare parts and approved equipment operation and maintenance manuals have been furnished as specified.

C. Pump Station Startup

1. Startup period shall not begin until all pump stations and equipment have been tested as specified and are ready for operation. The Owner shall receive spare parts, safety equipment, tools and maintenance equipment, lubricants, approved operation and maintenance data and the specified operation and maintenance instruction prior to the startup with wastewater.
2. Demonstrate a 24-hour day period of successful operation of the pump station as a prerequisite of Substantial Completion and Acceptance.
3. In the event of failure to demonstrate satisfactory performance of the pump station on the first or any subsequent attempt, all necessary alterations, adjustments, repairs and replacements shall be made. When the pump station is again ready for operation, it shall be brought on line and a new test shall be started. This procedure shall be repeated as often as necessary until the facility has operated continuously to the satisfaction of the Owner and Engineer, for the specified duration.
4. The Owner will furnish all operating personnel (other than vendor's or subcontractor's service personnel) needed to operate equipment during the final test period; however, said personnel will perform their duties under Contractor's direct supervision. Until performance tests are completed and units and systems are accepted by the Owner as substantially complete, the Contractor shall be fully responsible for the operation and maintenance of all new pump stations.
5. The Owner will provide all necessary electricity. However, the Contractor shall provide all necessary personnel of the various construction trades, i.e., electricians, etc, and field service personnel of the major equipment suppliers on an 8 hour per day basis at the facilities and on a 24 hour per day basis locally during the startup period. Major equipment suppliers shall include, but not be limited to, the following:
 - a. Instrumentation and Control Equipment
 - b. All Pumping Equipment
 - c. Conveyance Systems
6. Do not, at any time, allow the facility to be operated in a manner which subjects equipment to conditions that are more severe than the maximum allowable operating conditions for which the equipment was designed.

EQUIPMENT SUPPLIER'S CERTIFICATE OF INSTALLATION

Owner _____

Project _____

Contract No. _____

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I _____, Authorized representative of
(Print Name)

(Print Manufacturer's Name)

hereby CERTIFY that _____
(Print equipment name and model with serial no.)

installed for the subject project has (have) been installed in a satisfactory manner, has (have) been tested and adjusted, and is (are) ready for final acceptance testing and operation on :

Date _____

Time _____

CERTIFIED BY: _____
(Signature of Manufacturer's Representative)

Date: _____

END OF SECTION

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SECTION 01600
DELIVERY, STORAGE, AND HANDLING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies the general requirements for the delivery handling, storage and protection for all items required in the construction of the work. Specific requirements, if any, are specified with the related item.

1.02 TRANSPORTATION AND DELIVERY

- A. Transport and handle items in accordance with manufacturer's instructions.
- B. Schedule delivery to reduce long-term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer.
- C. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged, or sensitive to deterioration.
- D. Deliver products to the site in manufacturer's original sealed containers or other packing systems, complete with instructions for handling, storing, unpacking, protecting, and installing.
- E. All items delivered to the site shall be unloaded and placed in a manner which will not hamper the Contractor's normal construction operation or those of subcontractors and other contractors and will not interfere with the flow of necessary traffic.
- F. Provide necessary equipment and personnel to unload all items delivered to the site.
- G. Promptly inspect shipment to assure that products comply with requirements, quantities are correct and items are undamaged. For items furnished by others (i.e. Owner, Subcontractors), perform inspection in the presence of the Engineer. Notify Engineer verbally, and in writing, of any problems.
- H. If any item has been damaged, such damage shall be repaired at no additional cost to Owner.

1.03 STORAGE AND PROTECTION

- A. Store and protect products in accordance with the manufacturer's instructions, with seals and labels intact and legible. Storage instruction shall be studied by the Contractor and reviewed with the Engineer by him/her. Instruction shall be carefully followed and a written record of this kept by the Contractor. Arrange storage to permit access for inspection.
- B. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- C. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous, and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease and in a position to prevent accumulations of standing water and to minimize rusting. Precast concrete shall be handled and

stored in a manner to prevent accumulations of dirt, standing water, staining, chipping, or cracking. Brick, block, and similar masonry products shall be handled and stored in a manner to reduce breakage, cracking and spalling to a minimum.

- D. All mechanical and electrical equipment and instruments subject to corrosive damage by the atmosphere if stored outdoors (even though covered by canvas) shall be stored in a weathertight building to prevent injury. The building may be a temporary structure on the site or elsewhere, but it must be satisfactory to the Engineer. Building shall be provided with adequate ventilation to prevent condensation. Maintain temperature and humidity within range required by manufacturer.
1. All equipment shall be stored fully lubricated with oil, grease and other lubricants unless otherwise instructed by the manufacturer.
 2. Moving parts shall be rotated a minimum of once weekly to ensure 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 ensure that the equipment does not deteriorate from lack of use.
 3. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.
 4. 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.
- E. All paint and other coating products shall be stored in areas protected from the weather. Follow all storage requirements set forth by the paint and coating manufacturers.

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section specifies administrative, verification and procedural requirements for project closeout, including but not limited to:
1. Project Controls (Section 01050).
 2. Project scheduling (Section 01310).
 3. Project Cleaning (Section 01710).
 4. Project Record Documents (Section 01720).
 5. Operation and Maintenance Data (Section 01730).
 6. Warranties, guarantees, and bonds (Section 01740) and applicable Sections in Technical Divisions 2 through 15.
 7. Reconciliation of final accounting, final change order, final payment application (General Conditions) and Contractor's releases.
 8. Permit close-outs including Certificate of Occupancy or Certificate of Completion.

1.02 RELATED WORK

- A. Manual of Water, Wastewater and Reuse Design Standards and Specifications, prepared by St. Johns County Utility Department Section 1.4.

1.03 RECORD DOCUMENTS

- A. Maintain on site, one set of the record documents in accordance with Section 01720.

1.04 CLOSEOUT PROCEDURES

- A. Provide all deliverables as specified, prior to submitting the final payment application.
- B. Provide submittals to Owner that are required by governing or other authorities having applicable jurisdiction including but not limited to permit close out information, certificates of occupancy, etc.
- C. Submit Application for Final Payment identifying total adjusted Contract Sum, previous payments and sum remaining due, following submittal and approval of Record Documents and Record Drawings.
- D. Submit Contractor's Final Release and Release of Liens with final payment application.

1.05 FINAL CLEANING

- A. Contractor to complete final cleaning prior to submittal of the final application for payment.
- B. Contractor to comply with requirements as specified in Section 01710.

1.06 ADJUSTING

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

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01710
PROJECT CLEANING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Contractor shall execute cleaning, during progress of the work, and at completion of the work, as required by Contract terms.

1.02 RELATED WORK

- A. Each Section: Cleaning for specific products or work.

1.03 DISPOSAL AND CLEANING

- A. Conduct cleaning and disposal operations to comply with 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. Contractor shall execute periodic cleaning to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
- B. Contractor shall provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Contractor shall 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. Contractor shall clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Contractor shall 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. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
- B. Contractor shall employ skilled workmen for final cleaning.
- C. Contractor shall remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, temporary labels and other foreign materials from sight-exposed interior and exterior surfaces and equipment.
- D. Contractor shall polish glossy surfaces to a clear shine and wash and shine any glazing and mirrors.
- E. Contractor shall broom clean concrete floors and exterior paved surfaces; rake clean other surfaces of the grounds, and vacuum carpeted surfaces.
- F. Contractor shall remove labels that are not permanent labels.
- G. Prior to final completion, or Owner occupancy, conduct an inspection of sight-exposed interior and exterior surfaces and all work areas, to verify that the entire work is clean.
- H. The installing Prime Contractor shall wipe surface of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition.
- I. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even textured surface. All material shall be disposed of properly in a permitted facility.

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SCOPE

- A. The Contractor shall keep and maintain, at the job site, a copy of contract documents, marked up to indicate all changes made during the course of a project, as specified herein.

1.02 RELATED REQUIREMENTS

- A. Project Controls (Surveying) are included in Section 01050.
- B. Submittals are included in Section 01300.
- C. Project Scheduling is included in Section 01310.
- D. Contract close-out submittals are included in Section 01700.
- E. Operation and Maintenance Data is included in Section 01730
- F. Warranties and Bonds are included in Section 01740.

1.03 REQUIREMENTS INCLUDED

- A. Contractor shall maintain a record copy of the following documents, marked up to indicate all changes made during the course of a project:
 - 1. Contract Drawings.
 - 2. Record Drawings.
 - 3. Specifications.
 - 4. Addenda.
 - 5. Change Orders and other modifications to the contract.
 - 6. Engineer's and/or Owner's field orders or written instructions.
 - 7. Approved shop drawings, working drawings and samples.
 - 8. Field Test Records:
 - 9. Construction Photographs and Video.
- B. Contractor shall assemble copies of the following documents for turnover to the Engineer at the end of the project, as specified.
 - 1. Field Orders, Change Orders, Design Modifications, and RFIs

2. Field Test records
3. Permits and permit close-outs (final approval)
4. Certificate of Completion or Occupancy, as applicable
5. Laboratory test reports
6. Certificates of Compliance for materials and equipment
7. Record shop drawings
8. Samples

C. RECORD DRAWINGS

1. The Contractor shall annotate (mark-up) the Contract Drawings to indicate all project conditions, locations, configurations, and any other changes or deviations that vary from the original Contract Drawings. This requirement includes, but is not limited to, buried or concealed construction, and utility features that are revealed during the course of construction. Special attention shall be given to recording the locations (horizontal and vertical) and material of all buried utilities that are encountered during construction – whether or not they were indicated on the Contract Drawings. The record information added to the drawings may be supplemented by detailed sketches, if necessary, clearly indicating, the Work, as constructed.
2. These annotated Contract Drawings constitute The Contractor's Record Drawings and are actual representations of as-built conditions, including all revisions made necessary by change orders, design modifications, requests for information and field orders.
3. Record drawings shall be accessible to the Owner and Engineer at all times during the construction period.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 MAINTENANCE OF RECORD DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 1. Provide files and racks for storage of the record documents.
 2. Provide locked cabinet(s) or secure storage space for storage of samples.
- B. File documents and samples in accordance with Construction Specifications Institute (CSI) format.
- C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.

- D. Make documents and sample available for inspection by the Engineer or Owner at all times.
- E. As a prerequisite for monthly progress payments, the Contractor is to exhibit the currently updated "record documents" for review by the Engineer and Owner.

3.02 MARKING METHOD

- A. Use the color *Red* (indelible ink) to record information on the Drawings and Specifications.
- B. Label each document "PROJECT RECORD" in neat large printed letters.
- C. Unless otherwise specified elsewhere, notations shall be affixed to hardcopies of documents.
- D. Record information contemporaneously with construction progress.
- E. Legibly mark drawings with as-built information:
 - 1. Elevations and dimensions of structures and structural elements.
 - 2. All underground utilities (piping and electrical), structures, valves, and appurtenances
 - a. Changes to existing structure, piping and appurtenance locations.
 - b. Record horizontal and vertical locations of underground structures, piping, valves, utilities and appurtenances, referenced to permanent surface improvements.
 - c. Record actual installed pipe material, class, size, joint type, etc.
 - d. Existing piping or conduit uncovered during project work.

3.03 RECORD INFORMATION COMPILATION

- A. Do not conceal any work until the required information is acquired.
- B. Items to be recorded include, but are not limited to:
 - 1. Location of internal utilities and appurtenances concealed in the construction – referenced to visible and accessible features.
 - 2. Field changes of dimensions and/or details
 - a. Interior equipment and piping relocations.
 - b. Architectural and structural changes, including relocation of doors, windows, etc.
 - c. Architectural schedule changes.
 - 3. Changes made by Field Order, Change Order, design modification, and RFI.
 - 4. Details not indicated on the original Contract Drawings.
 - 5. Specifications - legibly mark each Section to record:
 - 6. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
 - 7. Changes made by Field Order, Change Order, RFI, and approved shop drawing.
 - 8. Coordinates of each valve and fitting.

9. All underground duct banks with elevations and dimensions, horizontal and vertical locations of underground duct banks, and manholes along duct banks.
10. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of all underground utilities, valves, and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc. All pipes shall be labeled using the method as per the contract drawings.
11. All underground cable elevations and horizontal locations of underground cables.
12. All existing and new structures clearly identified.
13. All elevations of new structures (including weirs) clearly indicated.
14. Location, elevation, and datum of Benchmark used.
15. Easements as shown on approved paving and drainage drawings.
16. Locations, elevations, sizes, types and material of the following must be accurately shown and labeled (as applicable) on the As-Built Drawings.
 - a. Corners of Structures
 - b. Valves.
 - c. Water and sewer services.
 - d. Fittings.
17. All water and sewer lines must be identified on the As-Built drawings by their size, material, and DR/SDR classification. Horizontal locations and top of pipe elevations must also be labeled every 25 linear feet. All valves shall be labeled using the method as per the contract drawings.

3.04 SUBMITTAL

- A. If specified under the section for progress payments, monthly applications for payment will be contingent upon up-to-date Record Drawings. If requested by the Engineer or Owner, Contractor shall provide a copy of the Record Drawings, or present them for review prior to processing monthly applications for payment.
- B. Upon substantial completion of the Work and prior to final acceptance, the Contractor shall finalize and deliver a complete set of Record Drawings to the Engineer conforming to the construction records of the Contractor. The set of drawings shall consist of corrected and annotated drawings showing the recorded location(s) of the Work. Unless specified otherwise elsewhere, Record Drawings shall be in the form of a set of prints with annotations carefully and neatly superimposed on the drawings in red.
- C. Upon substantial completion of the Work and prior to final acceptance, the Contractor shall finalize and deliver a complete set of Record Documents to the Engineer conforming to the construction records of the Contractor. The set of documents shall consist of corrected and annotated documents showing the as-installed equipment and all other as-built conditions not indicated on the Record Drawings.

- D. The information submitted by the Contractor into the Record Drawings and Record Documents will be assumed to be correct, and the Contractor shall be responsible for the accuracy of such information, and shall bear the costs resulting from the correction of incorrect data.
- E. Delivery of Record Drawings and Record Documents to the Engineer will be a prerequisite to Final payment.
- F. The Contractor shall maintain a copy of all books, records, and documents pertinent to the performance under this Agreement for a period of five years following completion of the contract.

END OF SECTION

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SECTION 01730
OPERATING AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This Section includes procedural requirements for compiling and submitting operation and maintenance data required to complete the project.

1.02 RELATED WORK

- A. Submittals are included in Section 01300.
- B. Contract closeout is included in Section 01700.
- C. Warranties and Bonds are included in Section 01740.

1.03 OPERATING MANUALS

- A. Provide operation and maintenance instructions for all electrical, mechanical, and instrumentation & controls equipment furnished under various technical specifications Sections.
- B. Six complete sets of operation and maintenance (approved by Owner or Owner's Representative) manuals covering all equipment furnished under various technical specifications Sections shall be delivered at least 30 days prior to scheduled start-up directly to the Owner. One set of originals must be part of the six sets of operation and maintenance instructions required, including original manuals covering components manufactured by others.
- C. An electronic copy of the manual will be provided with each hard copy submittal.
- D. Separate manuals shall be provided for each type of equipment. Each manual shall contain the following specific requirements. Manuals that do not meet the requirements will be rejected and Contractor and/or Equipment Supplier/Manufacturer will bear all expenses to resubmit the manual to meet the following requirements.
 - 1. Format and Materials
 - a. Binders:
 - 1) Commercial quality three ring binders with durable and cleanable plastic covers.
 - 2) Maximum ring width capacity: 3 inches.
 - 3) When multiple binders are used, correlate the data into related consistent groupings/volumes.
 - b. Identification: Identify each volume on the cover and spine with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". Include the following:
 - 1) Title of Project.
 - 2) Identify the general subject matter covered in the manual
 - 3) Identify structure(s) and/or location(s), as applicable
 - 4) Specification Section number
 - c. 20 lb loose leaf paper, with hole reinforcement.

- d. Page size: 8-1/2 inch by 11 inch.
 - e. Provide heavy-duty fly leaves (section separators), matching the table of contents, for each separate product, each piece of operating equipment, and organizational sections of the manual.
 - f. Provide reinforced punched binder tab; bind in with text.
 - g. Reduce larger drawings and fold to the size of text pages - but not larger than 11 inches x 17 inches - or provide a suitable clear plastic pocket (with drawing identification) for such folded drawings/diagrams.
2. Contents:
- a. A table of contents/Index.
 - b. Specific description of each system and components.
 - c. Name, address, telephone number(s) and e-mail address(es) of vendor(s) and local service representative(s).
 - d. Contractor and/or equipment supplier/manufacturer shall clearly strike out portions of manual that do not apply to the project. Manual will be rejected until inapplicable information is deleted and only applicable information is clearly indicated.
 - e. Specific on-site operating instructions (including starting and stopping procedures).
 - f. Safety considerations.
 - g. Project specific operational procedures.
 - h. Project specific maintenance procedures.
 - i. Manufacturer's operating and maintenance instructions – specific to the project.
 - j. Copy of each wiring diagram.
 - k. Copy of approved shop drawing(s) and Contractor's coordination/layout drawing(s).
 - l. List of spare parts and recommended quantities.
 - m. Product Data: Mark each sheet to clearly identify specific products and component parts and data applicable to installation. Delete inapplicable information.
 - n. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
 - o. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.
 - p. Warranties and Bonds, as specified in Section 01740.
 - q. Electronic copy of manual.
3. Transmittals
- a. Prepare separate transmittal sheets for each manual. Each transmittal sheet shall include at least the following: the Contractor's name and address, Owner's name, project name, project number, submittal number, description of submittal and number of copies submitted.
 - b. Submittals shall be transmitted or delivered directly to the office of the Engineer, as indicated in the Contact Documents or otherwise directed by the Engineer.
 - c. Provide copies of transmittals (only, i.e., without copies of the respective submittal) directly to the Resident Project Representative.
- E. Manuals for Equipment and Systems - In addition to the requirements listed above, for each System, provide the following:
1. Overview of system and description of unit or system and component parts. Identify function, normal operating characteristics and limiting conditions. Include performance

- curves, with engineering data and tests and complete nomenclature and commercial number of replaceable parts.
2. Panelboard circuit directories including electrical service characteristics, controls and communications and color coded wiring diagrams as installed.
 3. Operating procedures: include start-up, break-in and routine normal operating instructions and sequences; regulation, control, stopping, shut-down and emergency instructions; and summer, winter and any special operating instructions.
 4. Maintenance Requirements
 - a. Procedures and guides for trouble-shooting; disassembly, repair, and reassembly instructions.
 - b. Alignment, adjusting, balancing and checking instructions.
 - c. Servicing and lubrication schedule and list of recommended lubricants.
 - d. Manufacturer's printed operation and maintenance instructions.
 - e. Sequence of operation by instrumentation and controls manufacturer.
 - f. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
 5. Control diagrams by controls manufacturer as installed (As-Built)
 6. Contractor's coordination drawings, with color coded piping diagrams, as installed (As-Built)
 7. Charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams. Include equipment and instrument tag numbers on diagrams.
 8. List of original manufacturer's spare parts and recommended quantities to be maintained in storage.
 9. Test and balancing reports, as required.
 10. Additional Requirements as specified in individual product specification.
 11. Design data for systems engineered by the Contractor or its Suppliers.
- F. Manuals for Materials and Finishes - In addition to the requirements listed above, for each material or finish, provide the following:
1. Building Products, Applied Materials and Finishes: Include product data, with catalog number, size, composition and color and texture designations. Provide information for re-ordering custom manufactured products.
 2. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.
 3. Moisture Protection and Weather Exposed Products: Include product data listing, applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance and repair.

4. Additional Requirements: As specified in individual product specifications.

G. Electronic Transmission of O&M Manuals

1. All O&M manuals shall also be furnished in digital format. An electronic copy of the manual shall be provided with each hard copy submittal.
2. Unless otherwise approved by the Owner, O&M manuals may not be transmitted by electronic means other than by CD or DVD. Electronic O&M manuals shall meet the following conditions:
 - a. The above-specified transmittal form is included.
 - b. All other requirements specified above have been met, including, but not limited to, coordination by the Contractor, review and approval by the Contractor.
 - c. The submittal contains no pages or sheets large than 11 x 17 inches.
 - d. With the exception of the transmittal sheet, the entire submittal is included in a single file.
 - e. Files are Portable Document Format (PDF) – with the printing function enabled.
3. Transmit four hard-copy (paper) originals to the Engineer with an electronic copy on CD or DVD.
4. The electronic copy of the O&M manual must be identical in organization, format and content to the hard copies of the manual.

H. Quick Reference Sheets for Equipment

1. For each item of equipment furnished under Divisions 11, 13, 15, and 16 provide the following:
 - a. A minimum of one 8 ½ x 11-inch laminated quick reference sheet. Sheets shall be three-hole punched and may be double sided.
 - b. Each quick reference sheet shall include the following minimum information:
 - 1) Safety Procedures:
 - a) Brief descriptions of each piece of equipment and components
 - b) Starting and stopping procedures
 - c) Special operating instruction
 - d) Routine maintenance procedures
 - e) Calibration procedures
 - f) Pump curves
 - g) Trouble shooting procedures
 - h) Name, address, and telephone numbers of local service representative
 - c. Provide three copies of quick reference sheets for review by the Engineer.
 - d. After quick reference sheets have been approved, provide four copies of laminated quick reference sheets to the Owner in one commercial coiled three-ring binder with durable and cleanable plastic cover.

1.04 SERVICES OF MANUFACTURERS' REPRESENTATIVE

- A. All electrical, mechanical, and instrumentation & controls equipment furnished under various technical specifications Sections shall include the cost of a competent representative of the manufacturers of all equipment to supervise the installation, adjustment, and testing of the

equipment; and to instruct the Owner's operating personnel on operation and maintenance. This supervision may be divided into two or more time periods as required by the installation program or to suit the Contractor's schedule and/or the Owner's and Engineer's personnel availability.

- B. See the detailed specifications for additional requirements for furnishing the services of manufacturer's representatives.
- C. The manufacturer's representative shall certify that the installation of the equipment is satisfactory; that the unit has been satisfactorily tested; that the equipment is ready for operation; and, that the operating personnel have been suitably instructed in the operation, maintenance, care, and safe operation of the equipment. The *Equipment Manufacturer's Certificate of Installation, Testing, and Instruction* attached to this Section shall be used for this certification.
- D. For other materials furnished under other specification Sections, furnish the services of approved representative(s) of the manufacturer when, in the opinion of the Engineer, some evident product failure or malfunction makes such services necessary.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SUBMITTAL SCHEDULE

- A. Operation and maintenance manuals shall be delivered directly to the office of the Engineer, as follows:
 - 1. Four preliminary copies of manuals shall be submitted to the office of the Engineer, no later than 30 days following approval of the respective shop drawings.
 - 2. Provide six final copies of complete manuals and six copies of electronic manuals prior to testing and start-up.
- B. The Engineer will review Operation and Maintenance manuals submittals on operating equipment for conformance with the requirements of the applicable specification Section. The review will generally be based on the *O&M Manual Review Checklist* appended to this Section.
- C. If during test and start-up of equipment, any changes were made to the equipment, provide six copies of As-Built drawings or any other amendments for insertion in the final manuals. Submit the required number within 30 days of start-up and testing of the facility.

3.02 VENDOR TRAINING/INSTRUCTIONS (TO OWNER'S PERSONNEL)

- A. Before final initiation of operation, Contractor's vendors shall train/instruct Owner's designated personnel in the operation, adjustment, and maintenance of products, equipment and systems at times convenient to the Owner.
- B. Unless specified otherwise under the respective equipment specification section, vendor training/instruction shall consist of eight hours of training for each type of equipment. Such training/instruction shall be scheduled and held at times to accommodate the work schedules of

Owner's personnel, including splitting the required training/instruction time into separate sessions and/or presented at reasonable times other than the Contractor's "normal working hours" or the Owner's normal day shift.

- C. Use operation and maintenance manuals as basis for instruction. Train/instruct the Owner's personnel, in detail, based on the contents of manual explaining all aspects of operation and maintenance of the equipment. If the respective equipment is inter-related to the operation of other equipment, all interlock, constraints, and permissives shall be explained.
- D. At least two weeks prior to the schedule for vendor training, a detailed lesson plan, representative of the material to be covered during instruction, shall be submitted to the Engineer for approval. Lesson plans shall consist of in-depth outlines of the training material, including a table of contents, resume of the instructor, materials to be covered, start-up procedures, maintenance requirements, safety considerations, and shut-down procedures.
- E. Prepare and insert additional data in each Operation and Maintenance Manual when the need for such data becomes apparent during training/instruction.
- F. Vendor's training/instruction will be considered acceptable based on the completed *Owner's Acknowledgement of Manufacturer's Instruction* as indicated on the Equipment Manufacturer's Certification of Installation, Testing, and Instruction appended to this Section.

END OF SECTION

EQUIPMENT MANUFACTURER'S CERTIFICATE OF INSTALLATION, TESTING AND INSTRUCTION

Owner: _____

Project: _____

Contract No. _____

CDM Smith Project No. _____

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I _____, Authorized representative of
(Print Name)

_____ (Print Manufacturer's Name)

hereby CERTIFY that _____
(Print equipment name and model with serial No.)

installed for the subject project [has] [have] been installed in a satisfactory manner, [has] [have] been satisfactorily tested, [is] [are] ready for operation, and that Owner assigned operating personnel have been suitably instructed in the operation, lubrication, and care of the unit[s] on Date: _____ Time: _____

CERTIFIED BY: _____ DATE: _____
(Signature of Manufacturer's Representative)

OWNER'S ACKNOWLEDGMENT OF MANUFACTURER'S INSTRUCTION

[I] [We] the undersigned, authorized representatives of the _____ and/or Plant Operating Personnel have received classroom and hands on instruction on the operation, lubrication, and maintenance of the subject equipment and [am] [are] prepared to assume normal operational responsibility for the equipment:

_____ DATE: _____

_____ DATE: _____

_____ DATE: _____

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O&M Manual Review Checklist

Submittal No.: _____

Project No.: _____

Manufacturer: _____

Equipment Submitted: _____

Specification Section: _____

Date of Submittal: _____

General Data

- _____ 1. Are the area representative's name, address, e-mail address and telephone number included?
- _____ 2. Is the nameplate data for each component included?
- _____ 3. Are all associated components related to the specific equipment included?
- _____ 4. Is non-pertinent data crossed out or deleted?
- _____ 5. Are drawings neatly folded and/or inserted into packets?

Operations and Maintenance Data

- _____ 6. Is an overview description of the equipment and/or process included?
- _____ 7. Does the description include the practical theory of operation?
- _____ 8. Does each equipment component include specific details (design characteristics, operating parameters, control descriptions, and selector switch positions and functions)?
- _____ 9. Are alarm and shutdown conditions clearly identified? Does it describe possible causes and recommended remedies?
- _____ 10. Are step procedures for starting, stopping, and troubleshooting the equipment included?
- _____ 11. Is a list of operational parameters to monitor and record for specific equipment included?
- _____ 12. Is a proposed operating log sheet included?
- _____ 13. Is a spare parts inventory list included for each component?
- _____ 14. Is a lubrication schedule for each component included - or does it clearly state "No Lubrication Required"?
- _____ 15. Is a maintenance schedule for each component included?
- _____ 16. Is a copy of the warranty information included?

O&M Manual Review Checklist, continued

Page 2

Review Comments

Is the submittal fully approved (yes/no)?

If not, see the following are the points of rejection that must be addressed and require resubmittal by the Contractor:

Item No.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

Reviewed By: _____ Date: _____

Legend

- 1 = OK
- 2 = Not Adequate
- 3 = Not Included

Note: This submittal has been reviewed for compliance with the Contract Documents.

SECTION 01740
WARRANTIES AND BONDS

PART 1 GENERAL

1.01 CONTRACTOR'S RESPONSIBILITY SHALL BE TO:

- A. Compile warranties and bonds, as required in the Contract Documents and as specified herein.
- B. Co-execute submittals when requested by Owner or Owner's Representative.
- C. Review submittals to verify compliance with Contract Documents.
- D. Submit Warranties and Bonds to Engineer for review and transmittal to Owner.

1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Quantity: Two original signed copies are required.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product of work item.
 - 2. Product of work item.
 - 3. Firm, with name of principal, address and telephone number.
 - 4. Scope.
 - 5. Date of beginning of warranty, bond or service and maintenance contract.
 - 6. Duration of warranty, bond or service maintenance contract.
 - 7. Contractor, name of responsible principal, address and telephone number.
- D. Format submittals as follows:
 - 1. Prepare in duplicate packets:
 - 2. Paper: Size 8-1/2 inches x 11 inches, punch sheets for standard three-post binder.
 - a. Fold larger sheets to fit into binders.
 - 3. Cover: Identify each packet with typed or printed title WARRANTIES AND BONDS!
 - a. List:
 - 1) Title of Project.
 - 2) Name of Contractor.

4. Binders: Commercial quality, three-post binder, with durable and cleanable plastic covers and maximum post width of two inches.

1.03 WARRANTIES AND BONDS

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. The manufacturer's warranty period shall be concurrent with Contractor's for one (1) year, unless otherwise specified. Durations of systems' (i.e., moisture protection, conveyance, etc.) warranties shall be as specified elsewhere in the Contract Documents.
- B. Contractor shall be responsible for obtaining certificate for equipment warranty for all major equipment provided which has at least 1 hp motor or which lists for more than \$1,000. Engineer reserves the right to request warranties for equipment not classified as major. Contractor shall still warrant equipment not considered to be "major" in Contractor's one-year warranty period even though certificates of warranty may not be required.
- C. In the event that the equipment manufacturer or supplier is unwilling to provide a one-year warranty concurrent with the Contractor's for one (1) year, Contractor shall obtain from the manufacturer a two-year warranty commencing at the time of equipment delivery to the job site. This two-year warranty from the manufacturer shall not relieve Contractor of the one-year warranty.
- D. Contractor shall be responsible for all costs of repairs of work which becomes defective during construction and the following warranty period.
- E. Warranty shall cover all necessary labor, equipment and replacement parts resulting from faulty or inadequate design, improper assembly or erection, defective workmanship and materials, leakage, breakage or other failure of any or all equipment and components furnished by the manufacturer.

END OF SECTION

SECTION 02050
DEMOLITION AND MODIFICATIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and demolish, modify, remove and dispose of work shown on the Drawings and as specified herein.
- B. Included, but not limited to, are demolition, modifications and removal of existing materials, equipment or work necessary to install the new work as shown on the Drawings and as specified herein and to connect with existing work in approved manner.
- C. Demolition, modifications and removals which may be specified under other Sections shall conform to requirements of this Section.
- D. Demolition and modifications include:
 - 1. Removal of the existing pumps, control panels and associated piping and valves at each lift station. Refer to Specification Section 01010 and the Drawings for equipment to be salvaged.
 - 2. Demolition of the existing pump shed at each lift station.
 - 3. Demolition of existing electrical equipment and instrumentation.
 - 4. Demolition of the existing top slab of the wet wells at each lift station.
 - 5. Demolition of existing potable piping, valves and hose bib.

1.02 RELATED WORK

- A. Summary of Work is included in Section 01010.
- B. Submittals are included in Section 01300.
- C. Construction Schedule is included in Section 01310.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, six copies of proposed methods and operations of demolition of the structures and modifications prior to the start of work. Include in the schedule the coordination of shutoff, capping and continuation of utility service as required.
- B. Furnish a detailed sequence of demolition and removal work to ensure the uninterrupted progress of the Owner's operations. Sequence shall be compatible with sequence of construction and shutdown coordination requirements as specified in Section 01014.
- C. Before commencing demolition work, all modifications necessary to bypass the affected structure shall be completed. Actual work shall not begin until the Engineer has inspected and approved the modifications and authorized commencement of the demolition work in writing.

1.04 JOB CONDITIONS

A. Protection

1. Execute the demolition and removal work to prevent damage or injury to structures, occupants thereof and adjacent features which might result from falling debris or other causes, and so as not to interfere with the use, and free and safe passage to and from adjacent structures.
2. Closing or obstructing of roadways, sidewalks and passageways adjacent to the work by the placement or storage of materials will not be permitted and all operations shall be conducted with a minimum interference to traffic on these ways.
3. Erect and maintain barriers, lights, sidewalk sheds and other required protective devices.

B. Scheduling

1. Carry out operations so as to avoid interference with operations and work in the existing facilities.

C. Notification

1. At least 48 hours prior to commencement of a demolition or removal, notify the Engineer in writing of proposed schedule therefor. Owner shall inspect the existing equipment and to identify and mark those items which are to remain the property of the Owner. No removals shall be started without the permission of the Engineer.

D. Conditions of Structures

1. The Owner and the Engineer assume no responsibility for the actual condition of the structures to be demolished or modified.
2. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, variations within a structure may occur prior to the start of demolition work.

E. Repairs to Damage

1. Promptly repair damage caused to adjacent facilities by demolition operation when directed by Engineer and at no additional cost to the Owner. Repairs shall be made to a condition at least equal to that which existed prior to construction.

F. Traffic Access

1. Conduct demolition and modification operations and the removal of equipment and debris to ensure minimum interference with roads, streets, walks both onsite and offsite and to ensure minimum interference with occupied or used facilities.
2. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the Engineer. Furnish alternate routes around closed or obstructed traffic in access ways.

1.05 DISPOSAL OF MATERIAL

- A. Salvageable material and equipment shall become the property of the Owner. Dismantle all such items to a size that can be readily handled and turned over to the Owner.
- B. All other material and items of equipment shall become the Contractor's property and must be removed from the site.
- C. The storage or sale of removed items on the site will not be allowed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. All materials and equipment removed from existing work shall become the property of the Contractor, except for those which the Owner has identified and marked for his/her use. All materials and equipment marked by the Owner to remain shall be carefully removed, so as not to be damaged, cleaned and stored on or adjacent to the site in a protected place specified by the Engineer or loaded onto trucks provided by the Owner.
- B. Dispose of all demolition materials, equipment, debris and all other items not marked by the Owner to remain, off the site and in conformance with all existing applicable laws and regulations.
- C. Pollution Controls
 - 1. Use temporary enclosures and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.
 - a. Clean adjacent structures, facilities, and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to conditions existing prior to the start of the work.

3.02 STRUCTURAL REMOVALS

- A. Remove structures to the lines and grades shown unless otherwise directed by the Engineer. Where no limits are shown, the limits shall be 4-in outside the item to be installed. The removal of masonry beyond these limits shall be at the Contractor's expense and these excess removals shall be reconstructed to the satisfaction of the Engineer with no additional compensation to the Contractor.
- B. All concrete, brick, concrete block, reinforcement, structural or miscellaneous metals, plaster and other items contained in or upon the structure shall be removed and taken from the site, unless otherwise approved by the Engineer. Demolished items shall not be used in backfill adjacent to structures or in pipeline trenches.
- C. After removal of parts or all of slabs and like work which tie into new work or existing work, the point of junction shall be neatly repaired so as to leave only finished edges and surface exposed.

3.03 MECHANICAL REMOVALS

- A. Mechanical removals shall consist of dismantling and removing of existing septic systems, piping, pumps, motors, equipment and other appurtenances as specified, shown, or required for the completion of the work. It shall include cutting, capping, and plugging as required, except that the cutting of existing piping for the purpose of making connections thereto will be included under Division 15.
- B. Existing wastewater, water, and other piping not required for the new work shall be removed where shown or where it will interfere with new work. Piping not indicated to be removed or which does not interfere with new work shall be removed to the nearest solid support, capped and left in place.
- C. When underground piping is to be altered or removed, the remaining piping shall be properly capped. Abandoned underground piping may be left in place unless it interferes with new work or is shown or specified to be removed.
- D. Waste and vent piping shall be removed to points shown. Pipe shall be plugged with cleanouts and plugs. Where vent stacks pass through an existing roof that is to remain, they shall be removed and the hole in the roof properly patched and made watertight.

3.04 ELECTRICAL REMOVALS

- A. Electrical removals shall consist of the removal of existing distribution switchboards, control panels, motors, conduits and wires, panelboards, and miscellaneous electrical equipment all as shown on the Drawings, specified herein, or required to perform the work.
- B. All existing electrical equipment and fixtures to be removed shall be removed with such care as may be required to prevent unnecessary damage, to keep existing systems in operation and to maintain the integrity of the grounding systems.
- C. Conduits and wires shall be abandoned or removed where shown. All wires in abandoned conduits shall be removed, salvaged and stored. Exposed conduits and their supports shall be disassembled and removed from the site. Repair all areas of work to prevent rust spots on exposed surfaces.
- D. Where shown or otherwise required, wiring in the underground duct system shall be removed. All such wiring shall be salvaged and stored as specified. Verify the function of all wiring before disconnection and removing it.

3.05 CLEAN-UP

- A. Remove from the site all debris resulting from the demolition operations as it accumulates. Upon completion of the work, all materials, equipment, waste and debris of every sort shall be removed and premises shall be left, clean, neat and orderly.

END OF SECTION

SECTION 02100
SITE PREPARATION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment required and perform all site preparation, complete as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Environmental Protection is included in Section 01110.
- B. Demolition is included in Section 02050.
- C. Sodding is included in Section 02910.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, copies of all permits required prior to clearing, grubbing, and stripping work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CLEARING

- A. Cut and remove all timber, trees, stumps, brush, shrubs, roots, grass, weeds, rubbish and any other objectionable material resting on or protruding through the surface of the ground.
- B. Preserve and protect trees and other vegetation designated on the Drawings or directed by the Engineer to remain as specified below.

3.02 STRIPPING

- A. Strip topsoil from all areas to be occupied by buildings, structures, and roadways and all areas to be excavated or filled.
- B. Topsoil shall be free from brush, trash, large stones and other extraneous material. Avoid mixing topsoil with subsoil.
- C. Stockpile and protect topsoil until it is used in landscaping, loaming and seeding operations. Dispose of surplus topsoil after all work is completed.

3.03 PROTECTION

- A. Trees and other vegetation designated on the Drawings or directed by the Engineer to remain shall be protected from damage by all construction operations by erecting suitable barriers, guards and enclosures, or by other approved means. Conduct clearing operations in a manner to

- prevent falling trees from damaging trees and vegetation designated to remain and to the work being constructed and so as to provide for the safety of employees and others.
- B. Maintain protection until all work in the vicinity of the work being protected has been completed.
 - C. Do not operate heavy equipment or stockpile materials within the branch spread of existing trees.
 - D. Immediately repair any damage to existing tree crowns, trunks, or root systems. Roots exposed and/or damaged during the work shall immediately be cut off cleanly inside the exposed or damaged area.
 - E. When work is completed, remove all dead and downed trees. Live trees shall be trimmed of all dead and diseased limbs and branches. All cuts shall be cleanly made at their juncture with the trunk or preceding branch without injury to the trunk or remaining branches.
 - F. Restrict construction activities to those areas within the limits of construction designated on the Drawings, within public rights-of-way, and within easements provided by the Owner. Adjacent properties and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored to their original condition, to the full satisfaction of the property owner.

END OF SECTION

SECTION 02413
HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, equipment, and materials necessary to install 2-inch HDPE electrical conduit by horizontal directional drilling (HDD) at the locations shown on the Contract Documents.
- B. The Work of this section includes all labor, machinery, construction equipment and appliances required to perform in a good workmanlike manner all directional boring and utilities installation as shown on the Contract Documents.
- C. The directional boring scope shall include, but not be limited to, steerable directional boring equipment, operator's station, electronic guidance system, fluid mixing systems, vacuum excavators, downhole tools, entry and exit pits, and all other equipment, sheeting, location signs as required, and miscellaneous appurtenances to complete the entire Work as shown on the Contract Drawings. Directional boring operations shall be performed within the right-of-way and/or easements shown on the Contract Drawings
- D. Refer to Section 01014 for the Contractor work hours.
- E. See Contract Drawings for HDD rig limitations.

1.02 RELATED WORK

- A. Construction Sequence is included in Section 01014.
- B. Site Preparation in Section 02100.
- C. HDPE pipe and fittings are included in Section 02623.

1.03 DEFINITIONS

- A. Annular Space: The space between the excavated HDD final reamed bore diameter and the product pipe or cable.
- B. Bent Sub: A section of drill pipe behind the cutting tools that is inclined at an angle at one to three degrees from the axis of the bore in the desired direction of steering. The bent sub allows steering while rotating the cutting tools.
- C. Break-Away Connection: A connection to the product pipe that will fail at a pull force less than the rated stresses that are acceptable for the product pipe.
- D. Drilling Fluid/Mud: A mixture of water, bentonite, and/or polymers continuously pumped to the drilling tools to facilitate the removal of soil cuttings, and stabilization of the bore. These fluids also cool the cutting tools and lubricate the drill pipe and product pipe string.
- E. Drill String: The total length of the drill pipe in the borehole.

- F. **Drilling Tool/Bit:** Any tool or system of tools which excavates at the face of a bore.
- G. **Entry Pit:** The location where the pilot bore initially penetrates the ground surface and where the HDD rig is positioned.
- H. **Exit pit:** The location where the pilot bore exits the ground surface.
- I. **Horizontal Directional Drilling:** A surface-launched, guided, steerable drilling system used for the trenchless installation of pipes, conduits, and cables. A pilot bore path is excavated in a shallow arc from a surface-launched drill rig. Excavation takes place with fluid assisted cutting from a drilling tool on the drill string. The pilot bore is directed by the positioning of a bent sub. Tracking of the drill string is achieved by using a downhole wireline survey tool which shall be augmented by using an energized wire grid at the surface. The bore is filled with drilling fluid/mud for stabilization, to cool the cutting tools, and to mix the cuttings into a slurry, which is circulated to the entry point where solids are removed before the drilling fluids are returned to the bore. The bore path is enlarged with subsequent reaming passes until the desired diameter is achieved. The product pipe, conduit, or cable is then pulled into the fluid-stabilized bore hole.
- J. **HDD Work Plan:** Written descriptions, together with sketches, profile drawings, schedules, and other documents defining Contractor's plans and procedures for horizontal directional drilling. This HDD Work Plan also includes a detailed inadvertent return and subsidence analysis and any changes proposed to the boring lengths, depths, entry/exit pit locations or angles.
- K. **Inadvertent Return – Uncontrolled flow of drilling fluid/mud to the surface at a location other than the entry or exit pit.** In certain conditions, this may also be known as hydrofracture or frac-out.
- L. **Geotechnical Investigation (Data) Report:** A report which provides the geotechnical boring locations and logs, geotechnical and environmental laboratory data results, and testing procedures. The report is provided for information purposes only and is not part of the Contract Documents.
- M. **Obstruction:** Any hard object lying completely or partially within the design pathway of the bore and pipe that prevents further advancement of the drill pipe, pre-reamer, reamer, and/or pipe, after all reasonable Contractor attempts to advance past the object or re-drill around the object have failed.
- N. **Pilot Bore:** The action of creating the first guided pass of the HDD process which is then reamed in one or more passes to the size required to allow pullback of the pipe.
- O. **Pullback:** The part of a horizontal directional drilling process in which the drill pipe, swivel, and product pipe or cable is pulled back through the bore to the entry.
- P. **Pullback Loads:** The loads (forces) applied to a drill string and product pipe during the pullback process which also include tensile pullback loads, bending, buckling and combination loads.
- Q. **Reamer:** A cutting tool pushed or pulled through the borehole in order to enlarge the pilot bore hole to a diameter sufficient for the installation of the product pipe.
- R. **Tracer Wire:** Wire used to track the drill string, achieved by using a downhole wireline survey tool. An energized wire grid at the surface augments the tracer wire.

- S. Settlement Point: A point with elevation and spatial location established by survey prior to construction. The point is re-surveyed periodically to monitor ground movements. The point may be a nail, pin, subsurface settlement rod, borehole extensometer, or other device that can be readily located and surveyed.
- T. Work Plan: Written description, together with sketches, drawings, schedule and other documents defining Contractor's plans and procedures for HDD.

1.04 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. API Bulletin 13D, 1985. Bulletin on the Rheology of Oil-Well Drilling Fluids, Second Edition, Dallas, Texas, American Petroleum Institute.
- B. API Recommended Practice 13B-1, 1990. Standard Procedures for Field Testing Water-Based Drilling Fluids, First Edition, Dallas, Texas, American Petroleum Institute.
- C. API Specifications 13A, 1993. Specification for Drilling Fluid Materials, Fifteenth Edition, Dallas, Texas. American Petroleum Institute.
- D. ASTM F1962 – 11 or Latest Edition Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings.
- E. Horizontal Directional Drilling Good Practices Guidelines, Latest Edition, HDD Industry Consortium, 300pp.
- F. IADC Drilling Manual, 1992. Eleventh Edition, Houston, Texas, International Association of Drilling Contractors.
- G. Installation of Pipelines Beneath Levees Using Horizontal Directional Drilling, US Army Corps of Engineers, Waterways Experiment Station, Final Report, CPAR-GL-98-1, April 1998.
- H. Installation of Pipelines by Horizontal Directional Drilling, Pipeline Research Committee, American Gas Association, PR-227-9424, April 1995.
- I. Pipeline Design for Installation by Horizontal Directional Drilling, ASCE Manuals and reports on Engineering Practice No. 108, 2005.
- J. Tables for Hydraulic Design of Pipes and Sewers, American Society for Civil Engineers, 5th ed., 1990.

1.05 SUBMITTALS

- A. Following is the summary of information to be included in shop drawing submittals required for the HDD Work. Submittals marked (*) must be signed and sealed by a licensed Professional Engineer registered in the State of Florida.
 - 1. Schedule
 - 2. Safety Plan
 - 3. Methods, Equipment, and Materials Description Plan

4. Surveying Equipment and Procedures
5. Protection of Adjacent Structures and Facilities Plan
6. Contingency Plan for Remediation of Potential Problems
7. Disposal of Spoils and Drilling Fluids Plan
8. Equipment Layout Plan
9. Inadvertent Return and Surface Spill Contingency Plan
10. Horizontal Directional Drilling Work Plan
11. Soil Separation Plan
12. *Maximum Allowable Drilling Fluid Pressure Calculations*
13. Pipe Filling Methods and Testing
14. *Pipe Stress Calculations*
15. *Pullback Calculations*
16. Radius of Curvature Confirmation
17. Rig Capacity Plan
18. Contact Grouting Plan
19. Daily logs and records
20. As-built pilot bore profile
21. Risk Mitigation Meetings

B. In addition to other requirements indicated throughout this Specification, the following sections describe the above required submittals in more detail. Submittals shall be in accordance with the requirements of the Specifications, providing sufficient detail to allow the Engineer to judge whether or not the proposed equipment, materials, and procedures will meet the Contract requirements. The Engineer's review of submittal details and data will be based on considerations for the completed Work, utilities, and the possibility of necessary delays in the execution of the Work to be constructed under this Contract. Review and acceptance of the Contractor's submittals by the Engineer shall not be construed in any way as relieving the Contractor of its responsibilities under this Contract.

1. The Contractor shall submit all Shop Drawings to the Engineer. Unless otherwise noted, all Shop Drawings shall have been reviewed and accepted by the Engineer prior to Contractor's mobilization. All Drawings shall be legible with dimensions accurately shown and clearly marked in English.

- C. **Qualifications:** The Contractor shall submit written documentation of HDD superintendent and key personnel experience in accordance with Paragraph 1.07A and 1.07B.
- D. **Schedule:** At least fifteen (15) working days prior to mobilization for HDD operations, the Contractor shall submit a detailed schedule for the HDD installation showing all major construction activities and durations, with beginning and completion dates shown. The schedule shall be updated at least every week or more frequently, as directed by the Engineer, and shall include:
1. "One call" utility locate requests and visual confirmation of all crossing utilities and all parallel utilities within the vicinity of the bore centerline.
 2. Risk Mitigation Meetings (see paragraph 1.05, W for additional requirements).
 3. Rig mobilization and setup.
 4. Pilot bore drilling.
 5. Pre-reaming and reaming.
 6. Layout and thermal butt-fusing of pipe.
 7. Pressure testing of pipe prior to pullback.
 8. Final reaming and pullback of pipe.
 9. Pressure testing of pipe after installation.
 10. Pig test.
 11. Cleanup, surface restoration, and demobilization.
- E. **Safety Plan:** The Contractor shall submit a Safety Plan, including the name of the Contractor's Site Safety Representative, emergency telephone numbers for medical facilities, and precautions for handling and disposal of any hazardous or flammable materials. The Safety Plan shall include a code of safe practices and an emergency plan in accordance with OSHA and Florida/OSHA requirements
- F. **Methods, Equipment, and Materials Description Plan:** The Contractor shall submit detailed description of methods, equipment, and materials to be used for the pipeline installation. Descriptions of drilling fluid additives shall be accompanied by Materials Safety Data Sheets (MSDS) and Manufacturers' descriptions and warranties. Descriptions of equipment shall include Manufacturers' specifications, calibrations, appropriate drawing, photographs, and descriptions of any modifications since manufacture. This plan shall also include the Contractor's means for complying with all local noise ordinances.
- G. **Surveying Equipment and Procedures:** The Contractor shall submit records of equipment calibrations and certifications for all equipment used for downhole surveys and tracking of the drill head. Procedures for operating the downhole survey tools shall be described, including measures to verify the accuracy of the equipment readings. Procedures for layout of wire grid

- system shall be described and layout of the wire grid system shall be provided on a drawing or sketch.
- H. Protection of Adjacent Structures and Facilities Plan: The Contractor shall submit a plan that provides details on measures to be taken to monitor and protect adjacent utilities, structures, roadways and sidewalks, and provide details on monitoring equipment and provisions, including the layout of all settlement points and other monitoring points. Provide two (2) copies of pre-construction video, pre-construction survey of adjacent structures and photographs with captions to document pre-construction conditions prior to beginning HDD construction.
- I. Contingency Plan for Remediation of Potential Problems: The Contractor shall submit a Contingency Plan for Remediation of Potential Problems that may be encountered during the drilling operations. The contingency plans shall address the observations that would lead to the discovery of the problem and the methods that would be used to mitigate the problem. Potential problems that shall be addressed in this Plan include, but are not limited to, the following:
1. Loss of returns/loss of circulation of drilling fluids.
 2. Inadvertent returns/hydrofracture or surface spills resulting in drilling fluids entering water or reaching the surface. Stand-by equipment shall be provided by the Contractor to recover fluids. Turbidity barriers or other appropriate methods of containing and clean-up shall be part of the stand-by equipment to minimize dispersion in the event that drilling fluids reach the surface.
 3. Encountering obstruction during pilot bore or reaming/pullback.
 4. Drill pipe or product pipe cannot be advanced.
 5. Deviations from design line and grade exceed allowable tolerances.
 6. Drill pipe or product pipe broken off in borehole.
 7. Product pipe collapse or excessive deformation.
 8. Utility strike.
 9. Deviation from planned bore path.
 10. Hydrolock occurs or is suspected.
 11. Excessive ground settlement or heave.
- J. Disposal of Spoils and Drilling Fluids Plan: The Contractor shall submit Plans for disposal of waste materials resulting from the pipeline construction, including drilling fluids, cuttings, waste oil, fuel, discharge water, etc. The Contractor shall identify the disposal site and submit a letter indicating willingness and legal authority to accept the described and anticipated waste products.
- K. Equipment Layout Plan: The Contractor shall submit a plan which provides sketches depicting the layout and locations of equipment within the rig side work area and pipe side work area, including any proposed drilling fluid containment and recirculation pits. The Contractor shall

confirm that all operations shall be completely contained within the right-of-way, permanent and temporary construction easements shown on the Contract Documents.

- L. Inadvertent Return and Surface Spill Contingency Plan: An Inadvertent Return and Surface Spill Contingency Plan shall be prepared for the installation of the pipeline using HDD and the Contractor shall be capable of implementing the plan immediately should an Inadvertent Return or Surface Spill occur during the HDD work. The Contractor shall submit letter signed by an authorized representative of Contractor confirming that the Plan will be followed. If required by permit conditions, Contractor shall revise the Plan as necessary to satisfy the associated regulatory agency.
- M. Horizontal Directional Drilling Work Plan: The Contractor shall submit a HDD Work Plan complete with drawings and written description identifying details of the proposed method of construction and the sequence of operations to be performed during construction including placement, entry and exit points.
1. The Plan shall include a detailed plan and profile of the bore, showing entry and exit locations, utilities and structures and plotted at a scale no smaller than one inch equals 40 feet horizontal and one inch equals four feet vertical. Any proposed deviations from the Contract Documents shall be shown.
 2. The HDD Work Plan shall provide details of the planned bore path and the method for monitoring and controlling the speed, line, grade and rate of fluids delivery. It shall include the sequence, size, and description of each reamer and capabilities of each through anticipated geologic formation. The drill plan shall also include details on the swabbing of the borehole prior to pullback of the pipe.
- N. Soil Separation Plan: The Contractor shall submit details on the pump and soil separation plan. Include dimensions, manufacturer's specifications, pump capacity, noise rating, and soundproofing details on the system.
1. Pump capacity shall be specified for water at sea level elevation, and adjusted for actual elevation and fluid viscosity.
 2. Provide details on the generator, including dimensions, noise ratings at twenty-five (25) feet, and soundproofing. Confirm that the generator and other on-site equipment can be operated without exceeding the maximum allowable noise tolerances specified in the Contract Documents.
- O. Maximum Allowable Drilling Fluid Pressure Calculations: The Contractor shall submit calculations identifying the critical downhole pressure that would cause hydrofracture or inadvertent return of drilling fluid. The calculations shall identify the critical points in the alignment and near the exit point where the soil cover above the bore is low. The calculations shall identify all parameters used and state all assumptions made in the calculations. The calculations shall be signed and sealed by a licensed Professional Engineer registered in the State of Florida.
- P. Pipe Filling Methods and Testing: The Contractor shall submit methods and procedures for filling the pipe with water during pull back and testing, See the requirements in paragraph 3.05
- I.

- Q. **Pipe Stress Calculations:** The Contractor shall submit calculations for pipe stresses expected to result from the pullback, bending, buckling loads, earth loads, groundwater loads, and any other installation and service loads expected to be exerted on the pipe. The calculations shall identify all parameters and state all assumptions made in the calculations. All assumptions used in the calculations, including the radius of curvature, assumed drilling fluid weights, whether pipe is assumed to be filled or empty during pullback, and temperature shall be provided. These calculations shall be signed and sealed by a licensed Professional Engineer registered in the State of Florida.
- R. **Pullback Calculations:** The Contractor shall submit calculations for pullback loads for the conditions and operating practices anticipated. In addition to the tensile pullback loads, bending, buckling and combination loads must be considered in design. The calculations shall identify all parameters and state all assumptions made in the calculations. These calculations shall be signed and sealed by a licensed Professional Engineer registered in the State of Florida.
- S. **Radius of Curvature Confirmation:** The Contractor shall confirm that the bore can be completed using the radius of curvature and geometry shown on the Contract Drawings along with the calculations showing that installation stresses do not exceed allowable pipe stresses.
- T. **Rig Capacity Plan:** The Contractor shall submit a plan which provides details on the capacity of the drill rig verifying that the pullback capacity is greater than the required pullback calculated and submitted by the Contractor under paragraph 1.05R.
- U. **Contact Grouting Plan:** The Contractor shall submit descriptions of methods, equipment, and materials to be used for contact grouting any areas where over-excavation, aborted bores, voids, or cavities are created or encountered during construction.
- V. The following shall be submitted as construction progresses and at the completion of construction.
1. **Daily Logs and Records:** The Contractor shall submit complete, legible, written daily logs and records as specified in Paragraph 1.07C and as directed by the Engineer, by noon of the following day to which the records correspond.
 2. **Drilling and Reaming Rates:** The Contractor shall submit maximum drilling speeds and reaming rates for pilot bore and each reaming pass and confirm that the pump capacity is adequate for these anticipated drilling rates for the mud and/or drilling fluid weights and viscosities anticipated. These shall be submitted to the Engineer on a daily basis.
 3. **Drilling Fluid Viscosity and Density (Mud Weight):** The Contractor shall submit measured mud and/or drilling fluid weights used during pilot boring and reaming of the bore measured at a minimum of three times per shift or at least once per 200 feet of drilled or reamed length, whichever is more frequent, with at least two (2) hours between readings.
 4. **Pilot Bore As-Built Profile:** The Contractor shall submit the updated pilot bore profile as drilling is underway on a daily basis and an as-built profile of the pilot bore within 24 hours of completion of the pilot bore.
 5. **Pulling Force Records:** The Contractor shall submit the actual recorded pulling forces during pull back.

6. **Pressure Test Records:** The Contractor shall submit all pressure test records for both the pre-installation and post-installation tests. These shall be submitted within 24 hours of completion of such tests.
 7. **Variations in Plan and Profile:** The Contractor shall document any variations between the actual Contract Drawings and profile of the bore path and the location shown on the Contract Drawings. The Contractor shall notify in writing and by telephone the Engineer immediately upon discovery of any deviations.
 8. If a plan with details on how the Contractor plans to monitor and protect adjacent and/or overlying structures, buildings, roadways, sidewalks and utilities was required during the pre-construction survey phase. Contractor shall provide a post-construction survey and video of the settlement points and monitoring locations as specified in in paragraph 3.05 M.
- W. **Risk Mitigation Meetings:** At least fifteen (15) working days prior to operations, the Contractor and HDD superintendent shall attend a risk mitigation meeting with representatives of the Engineer and Owner for the HDD installation to discuss major operations milestones.
1. The risk mitigation meeting shall be held and include a discussion of the following as a minimum:
 - a. **Drilling of pilot-hole:**
 - 1) Traffic Control
 - 2) Rig mobilization and setup
 - 3) Pilot bore drilling
 - b. **Reaming:**
 - 1) Pre-reaming and reaming.
 - 2) Layout and welding of pipe
 - c. **Pullback:**
 - 1) Pressure testing of pipe prior to pullback.
 - 2) Final reaming and pullback of pipe.
 - d. **Testing:**
 - 1) Pressure testing of pipe after installation
 - 2) Pig test
 - 3) Protection and monitoring of adjacent and/or overlying structures, roadways, sidewalks and utilities.

1.06 PERFORMANCE REQUIREMENTS

- A. The Contractor shall provide all equipment, materials, and personnel necessary for completing the installation as shown on the Contract Drawing and specified herein. The equipment and materials shall include but are not limited to:
 1. Directional drilling rig with all ancillary equipment, including drill pipe, drilling fluid, cutting tools, reaming bits, swivels, expanders, motors, pumps, hoses, mixing equipment, drilling fluid processing equipment (cuttings separation equipment), downhole survey equipment, energized surface grid tracking system, fluid pressure and flow rate monitoring equipment, spare parts, pipe handling equipment (cranes, backhoes, rollers, side boom tractors) and control equipment.
 2. Drilling fluids, water, fuel, lubricant, polymers, or other additives.

3. Any other expendable or reusable materials, supplies, and equipment needed for the installation.
- B. The drilling equipment shall be capable of advancing through the geologic conditions to be encountered at the site, as described by the geotechnical investigation report and as anticipated by the Contractor.
- C. The drilling fluid shall be designed for the geologic conditions to be encountered along the bore path, as described in the geotechnical investigation report and as anticipated by the Contractor.
- D. The drilling system shall include a fluid pump and separation plant that can achieve the rates of drilling fluid pumping, spoil separation, and slurry cleaning required by the Contractor to achieve planned production rates for the soils described in the geotechnical investigation report, and as anticipated by the Contractor. Shaker screens and hydrocyclones may be required for efficient separation of spoils. The Contractor is advised that the separation plant must fit within the allowable Work areas shown on the Contract Drawings, or in areas obtained by the Contractor with written approval from the affected property owner.
- E. All spoil and slurry must be contained in trucks, tanks, approved recirculation pits, or other containers at all times. Dumping of spoil or slurry on the ground, discharge into sewers, or discharge into the water bodies will not be permitted. All spoils will be transported and disposed of off-site at an approved disposal facility that meets all State of Florida and local requirements.
- F. Perform all Work within Work areas shown on the Contract Drawings or in areas obtained by the Contractor with written approval from the affected property owner.
- G. The pipeline shall be installed using the radii of curvatures and entry and exit angles as specified herein, unless shown otherwise on the Contract Drawings, unless deviations are approved in writing by the Engineer.
- H. Vertical separation from existing utilities shall be a minimum of 12-inches from the bottom of the utility to the top of the bore hole. Refer to contract plans for horizontal separation requirements.
- I. For sections of pipe that are fused/welded pipe rollers and lifters will be required to help the transition of the carrier pipe into the bore and to minimize the pull force. The number of pipe rollers and lifters shall be determined by the Contractor in accordance with the pipe supplier's recommendations. Location and spacing of the rollers and lifters will be done in accordance with the pipe manufacturer's recommendations based on bend radius and to protect pipe during pullback over hard or sharp surfaces. All pipe rollers and lifters will be in a condition so not to damage the pipe during construction activities.
- J. It shall be the Contractor's sole responsibility that all Work is done in conformance with all applicable federal, state, and local safety requirements. Required safety equipment and procedures shall be employed by the Contractor at all times. All materials and methods of construction shall meet the applicable requirements of the State of Florida Administrative Code.
- K. The pipe shall be certified by the Contractor as meeting all requirements of the Contract Documents. The fused/welded fabricated pipe will be pressure-tested by the Contractor prior to pullback using a low-pressure air test of 3.5 to 5 pounds per square inch of pressure to check for potential leaks in accordance with the manufacturer's instructions. All installed in place carrier

pipe will be hydrostatically pressure tested by the Contractor after installation is completed in accordance with Section 02623 as appropriate for the material installed.

- L. The Contractor shall allow access to the Owner and/or Engineer and shall furnish necessary assistance and cooperation to aid the Engineer in observations and data and sample collection, including, but not limited to the following:
 - 1. The Owner and/or Engineer shall have full access to the operator control container prior to, during, and following all HDD operations. This shall include, but not be limited to, providing visual access to real-time operator control screens, gauges, and indicators.
 - 2. The Owner and/or Engineer shall have full access to the slurry separation plant prior to, during, and following all HDD operations. This shall include, but not be limited to, full access to shaker screens, hydrocyclones, conveyor belts, and slurry and spoil holding tanks. The Engineer shall be allowed to collect soil samples from the shaker screens and/or spoil holding tanks on the slurry separation plant a minimum of once per installed pipe section, and whenever changes in conditions are observed or suspected. If requested, the Contractor shall assist in the collection of these samples as directed by the Engineer.
- M. Contractor shall comply with all local noise ordinances. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work stoppage for excessive noise shall not relieve the Contractor of the portions of this Specification including, but not limited to completion of all Work within specified Contract Time and Contract Price. The Contractor shall submit a Plan prior to construction identifying all noise reduction/abatement procedures. The Plan will be reviewed by the Engineer prior to construction.
 - 1. If mufflers cannot achieve the necessary noise reduction, noise abatement shall be accomplished by the Contractor's installation of baffles (or other acceptable means) positioned to break line-of-sight from the noise source to affected residences. Minimum noise abatement measures shall consist of equipping all engines with hospital grade mufflers or silencers.

1.07 QUALITY ASSURANCE

- A. Contractor Qualifications and Experience: Only Contractors that have been pre-qualified by the Owner may perform HDD construction services on the project. The Contractor shall meet the following minimum qualifications and provide information with the Bid Submittal:
 - 1. The Contractor will be required to employ skilled, experienced superintendent(s), equipment operator(s) and personnel throughout the project. The superintendent for this project shall have at least ten (10) years of successful experience using the HDD process, with at least one (1) project meeting the following criteria
 - a. The carrier pipe must be HDPE.
 - b. The carrier pipe nominal diameter of at least 6-inches.
 - c. Minimum length of 2,000 linear feet in a single pull through soil
 - d. Contractor shall provide the following for each project:
 - 1) Project Description
 - 2) Pipe Size, Length, Material, DR
 - 3) Bore Length
 - 4) Soil Types

- 5) Owners' contact information
 - 6) Engineers contact information
 - 7) Change Orders
 - 8) Scheduled Completion Date and Actual Completion Date
2. The HDD equipment operator for this project shall have at least five (5) years of successful experience using the HDD process, with at least one (1) project meeting the criteria identified in Paragraph 1.07A.1.
- B. The Contractor shall furnish resumes of the superintendent(s) and key personnel. Personnel experience records should include project names, locations, pullback lengths, ground conditions, pipe materials, project description, project Owner, Engineer, and references with names, addresses, and telephone numbers. The superintendent listed in the submittal shall be on site during all construction related activities required for the HDD installation for this project. The Contractor shall not be allowed to alter their personnel assigned to the project without prior written approval from the Engineer and Owner.
- C. Daily Logs and Records: Daily logs and records shall be maintained by the Contractor and shall include the following:
1. Drilling lengths.
 2. Location of drill head.
 3. Drilling fluid pressures and flow rates.
 4. Drilling fluid losses.
 5. Inadvertent returns.
 6. Drilling times required for each pipe joint.
 7. Any instances of retraction and re-drilling of the pilot bore or segments thereof
 8. Any other relevant observations, including any observed settlement, heave, frac-outs, or surface spills.
 9. The downhole annular drilling fluid pressures shall be measured and recorded throughout the pilot hole drilling. These records shall be maintained and provided daily to the Engineer. The position of the drill head shall be continuously tracked and recorded. A plot of actual locations of the bore path shall be maintained and updated daily, or more frequently, as directed by the Engineer. Pason or approved equal system shall be used for on/off site monitoring. These records shall be maintained and provided daily to the Engineer.
- D. Advance Notices and Inspections: The Contractor shall provide at least 72 hours advance written notice to the Engineer of the planned inspection of major drilling activities, including pilot bore launch, pre-reaming, reaming, and pipe pullback. The Contractor shall immediately notify the Engineer, in writing, when any significant problems are encountered or if ground conditions are considered by the Contractor to be materially and significantly different than those represented with the geotechnical investigation report. All Work by the Contractors shall

be performed in the presence of the Engineer, unless Engineer grants prior written approval to perform such Work in Engineer's absence.

- E. Surveying Equipment and Procedures: All surveying equipment used for downhole surveying and tracking of the bore path and drill head shall be inspected and calibrated by the equipment manufacturer prior to use. Proof of this inspection and calibration shall be provided to the Engineer prior to commencement of drilling operations as specified in Paragraph 1.05U.

PART 2 PRODUCTS

2.01 DRILLING FLUIDS

- A. The Contractor shall select drilling fluid mixture proportions to ensure continuous circulation, bore stability, reduce drag on the pipe, and completely fill the annular space between the bore and the pipe to control settlement. Management and disposal of drilling fluids shall be the Contractor's responsibility. Drilling fluids shall not be disposed of on-site or discharged to sanitary or storm sewers, or the waterways or adjacent wetlands.

2.02 DRILL PIPE

- A. The Contractor shall provide high quality drill pipes that have been inspected and determined to be adequate for the project requirements. Bent, racked, or fatigued drill pipes shall not be used. Threads must be in good condition. The length of each drill pipe shall be measured and recorded.

2.03 PIPE

- A. The Contractor shall provide carrier pipe in accordance with Section 02623.
- B. The pipe thickness must conform to the most conservative design with respect to design calculations for the critical combination of internal and external pressure, pullback and bending. The carrier pipe shall not be greater than the dimension ratio (DR) specified in Section 02623.

2.04 WATER

- A. Refer to Section 01014 for temporary water service for construction use. Hydrants shall only be operated under the supervision of the Owner's personnel.

2.05 CEMENT GROUT

- A. Cement grout shall consist of a mixture of 1 part cement to 6 parts sand. The amount of cement may be increased or decreased as necessary and as permitted by the Engineer to provide good flowing characteristics.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall provide adequate control of surface water and drilling fluids drainage and runoff, and provide silt fences, hay bales, and wattles to prevent surface water or drilling fluids from being transported off-site.

- B. The Contractor shall not initiate HDD until all submittals as specified in Paragraph 1.05 are received, reviewed, and approved by the Engineer.
- C. The Contractor shall not initiate HDD until all required permits are obtained. Copies of all permits shall be provided to the Engineer prior to construction.
- D. It is the Contractor's responsibility to provide barricades, fencing, or other safety measures to prevent public access into Work and staging areas.

3.02 PROTECTION OF UNDERGROUND UTILITIES

- A. The Contract Drawings show existing buried utilities that are believed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that other utilities are not present. It will be the Contractor's responsibility to field locate all nearby utilities or other potential subsurface obstructions that may interfere with the Work.
- B. The Contractor shall notify "One Call" system to request marking of utilities that subscribe to One Call, and shall individually notify all other known or suspected utilities to request marking of these utilities. The Contractor shall confirm that all requested locates are made prior to commencing drilling operations. Contractor shall make all diligent efforts to locate any unmarked or abandoned utilities using all available information, maps, and drawings. The Contractor shall visually confirm and stake all existing lines, cables, or other underground facilities including exposing all crossing utilities and utilities within twenty (20) feet laterally of the centerline of designed drilled path.
- C. The Contractor shall control drilling practices to prevent damage to existing utilities and pavement.
- D. The Contractor shall make diligent effort to locate surface evidence of any other potential subsurface obstructions, such as piers and piles.
- E. The Contractor shall be responsible for all losses and repairs occasioned by damage to underground utilities, structures and pavement resulting from drilling operations.

3.03 WORK STAGING AREA

- A. **Barricades, Warning Signs, and Lights:** The Contractor shall, in accordance with approved Traffic and Safety Plans, erect appropriate barriers, warning lights, and signs, painted with approved colors, warnings, and graphics to ensure adequate warnings to personnel and the public.
- B. **Combustible Materials:** Combustible materials (fuel, oil, lubricants, etc.) shall be stored off-site or in a well-ventilated storage facility removed from the immediate vicinity of the drilling area by at least twenty (20) feet.
- C. **Construction Impacts:** The Contractor shall maintain the Work area in a manner that shall minimize adverse impacts on other public use activities. The Contractor shall proceed with Work in a safe, orderly manner, while maintaining the Work site free of debris and unnecessary equipment and materials.

- D. **Control of Drilling Fluids:** The Contractor shall follow all requirements of the Inadvertent Return and Surface Spill Contingency Plan as submitted and accepted and shall control operational pressures, drilling mud weights, drilling speeds, and any other operational factors required to avoid hydrofracture fluid losses to formations, and control drilling fluid spillage. This includes any spillages or returns at entry and exit locations or at any intermediate point. All inadvertent returns or spills shall be promptly contained and cleaned up by the Contractor. The Contractor shall maintain on-site mobile spoil removal equipment during all drilling, pre-reaming, reaming, and pullback operations and shall be capable of quickly removing spoils. The Contractor shall immediately notify Engineer of any inadvertent returns or spills and immediately contain and clean up the return or spill.
- E. **Removal of Temporary Facilities:** At the completion of construction, the Contractor shall remove all temporary facilities installed by the Contractor. Unused soil, aggregate, and other materials shall be removed and disposed of at approved sites in accordance with Federal, State, and Local regulations. Any damage to pavement, streets, lawns, common areas, and sidewalks shall be restored to original or better conditions at no additional cost to the Owner. All grassed areas disturbed by construction shall be sodded.
- F. **Site Security:** The Contractor shall install an enclosure fence around the Work area. The enclosure fence shall be adequate to prevent entry of unauthorized persons. The Contractor is completely responsible for their own site security throughout the entire duration of construction.
- G. **Temporary Lighting:** The Contractor shall procure and maintain all temporary lighting needed for Contractor's operations, safety, testing, and inspection. Temporary lighting shall be removed immediately after approved working hours. See Section 01014 for additional requirements.
- H. **Work Staging:** The Contractor shall be responsible for obtaining staging areas and all necessary approvals and permits for storage of equipment and materials, parking, drilling and other Work. See Section 01014 for additional requirements.
- I. **Pipe Layout Staging Areas:**
 - 1. The Contractor shall limit the pipe staging area for pipe layout. The Contractor shall visit the proposed areas prior to submitting a bid for this work. Contractor shall not conduct any excavation or earthwork activities in the pipe staging area without prior acceptance by the Engineer. Contractor is responsible for securing all necessary permits and approvals for the use of the temporary staging area layout of the pipe. All costs associated with this shall be included in the Contractor's bid price. If non-spoiled pipe is utilized the Contractor shall clearly show the location of the pipe layout staging areas on the HDD Work Plan. In no instance shall the pipe layout staging area extend beyond the right-of-way. If temporary easements are required the Contractor shall be solely responsible for obtaining the easements at no additional cost to the Owner.

3.04 MOBILIZATION

- A. The Contractor shall mobilize all equipment, materials, and personnel necessary to construct the carrier pipeline using the HDD process.

3.05 HORIZONTAL DIRECTIONAL DRILLING

- A. **Drill Rig Capacity:** The capacity of the directional drilling system used by the Contractor shall be adequate to install the specified pipeline.
- B. **Pump Capacity:** The pumps used by the Contractor shall be adequate to supply the required flow rate and pressures at the anticipated drilling fluid viscosity at all times. Drilling speeds shall not exceed pump capacity. Drilling speeds shall be monitored continuously during HDD operations.
- C. **Bore Tracking and Monitoring:** At all times during the pilot bore the Contractor shall provide and maintain a bore tracking system that is capable of accurately locating the position of the drill head in the x, y, and z axes. The Contractor shall record these data every thirty (30) feet.
 - 1. **Tracking System:** Contractor shall monitor and record x, y, and z coordinates relative to an established surface survey benchmark. A downhole wire line tracking locator system shall be installed and shall be supplemented by a "TruTracker" or equivalent tracking system installed between the entry point and the exit point. The coordinates of the surface wire grid system shall be surveyed and recorded. The grids shall be surveyed to establish horizontal and vertical position to 0.1 feet accuracy.
 - 2. **Deviations between the recorded and design bore path shall be calculated and reported on the daily log. If the deviations exceed tolerances specified, such occurrences shall be reported immediately to the Engineer. The Contractor shall undertake all necessary measures to correct deviations and return to design line and grade.**
 - 3. **Drilling Fluid Pressures and Flow Rates:** Drilling fluid pressures and flow rates shall be continuously monitored and recorded by the Contractor. The pressure shall be monitored at the pump. These measurements shall be made during pilot bore drilling, reaming, and pullback operations.
 - 4. **Drilling Speeds:** Maximum allowable drilling speeds shall be calculated by the Contractor for pilot boring and each reaming pass and shall not be exceeded for pilot boring or reaming passes. Measurements shall be taken every twenty (20) feet or thirty (30) minutes, whichever is more frequent.
 - 5. **Drilling Fluid Viscosity and Density (Mud Weight):** The Contractor shall measure and record drilling fluid viscosity and density at least three (3) times per shift or at least once per 200 feet of drilled and reamed length, whichever is more frequent with at least two (2) hours between readings, using calibrated Marsh funnel and mud balance. These measurements shall be included in daily logs submitted to the Engineer. The Contractor shall document modifications to the drilling fluids, by noting the types and quantities of drilling fluid additives and the dates and times when introduced. The reason for the addition of drilling fluid additives or other modifications shall be documented and reported.
- D. **Location of Entry and Exit Points:** Entry and exit points will be shown on the HDD Work Plan, and constructed in those locations. The Contractor shall employ experienced licensed surveyors registered in the state of Florida to locate the entry and exit points, and to establish horizontal and vertical datum for the bore and the pipe layout and assembly areas.

- E. Entry and Exit Angles: Drill entrance angles shall be as shown on the HDD Work Plan.
- F. Pilot Bore: The pilot bore shall follow the design path of the bore shown on the HDD Work Plan.
 - 1. Horizontal and Vertical Tolerances: Horizontal and vertical deviations shall be less than plus or minus five (5) feet from the design path centerline. The Contractor shall continuously monitor horizontal and vertical position and record the position at least once per drill pipe length, or at thirty (30) feet, whichever is less.
 - 2. Radius of Curvature: The radius of curvature shall not be less than that shown on the HDD Work Plan. The radius of curvature shall be calculated over the distance of three (3) drill pipe sections.
 - 3. Entry and Exit Tolerances: The location of the entry and exit points shall be in accordance with the approved HDD Work Plan. The Contractor shall be solely responsible for all Work necessary to correct excessive deviations from line and grade, including re-drilling, redesigning connections, and acquiring additional easement, at no additional cost to the Owner and without schedule extension.
- G. Pre-reaming and Reaming: The pilot bore shall be pre-reamed and reamed using equipment and methods submitted by the Contractor. The Contractor shall completely pre-ream the bore to the final diameter prior to pullback. Multiple reams may be required to achieve the desired borehole diameter.
- H. Hydrostatic Pretest: For welded/fused pipe, the Contractor shall perform a low hydrostatic water pressure test in accordance with paragraph 1.06 K prior to pipe pullback.
- I. Pipe Pullback:
 - 1. A final swabbing of the bore path prior to pullback of the carrier pipe is required. The pipe shall be installed by pulling it into the reamed bore path in a continuous operation, behind a final reaming tool selected by the Contractor.
 - 2. The pipe shall be isolated from excessive torsional and axial stresses by a swivel device.
 - 3. All measurements shall be made, recorded, and submitted on the daily logs during final reaming and pipe pullback.
 - 4. Pulling Loads: The maximum pull (axial tension force) exerted on the carrier pipeline shall be measured continuously and limited to the maximum allowed by the pipe Manufacturer so that the pipe or joints are not overstressed. A factor of safety over the maximum allowable is not required.
 - 5. Pipeline Support: Pipe not supplied on a spool shall be adequately supported during installation so as to prevent overstressing or buckling. The Contractor shall provide adequate support/rollers along the stringing area to support the required length of the carrier pipe for each bore. Such support/rollers shall be spaced according to the pipe supplier, and the rollers be comprised of a non-abrasive cushioned material arranged in a manner to provide support to the bottom and bottom quarter points of the pipeline allowing for free movement of the pipeline during pullback. The pipe layout area shall be cleared of

- all large stones, construction debris, or other foreign objects that could damage the piping during pullback.
6. The leading end of the pipe shall be closed during the pullback operation, in accordance with the pipe supplier's recommendations. A pulling head shall be used that is rated at the allowable pull force capability of the pipe section being installed, in accordance with the pipe supplier's recommendations.
 7. Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately before joining.
 8. Tracer wire will be attached to the leading end of the pipe pulling head and shall extend the full length of the installed pipe.
 9. The Contractor shall at all times handle the carrier pipe in a manner that does not overstress or otherwise damage the pipe. Vertical and horizontal curves shall be limited to manufacturer's recommended bend radius so that wall stresses do not exceed the allowable bending radius as recommended by the pipe supplier. If the pipe is buckled or otherwise damaged due to Contractor's acts or omissions, the damaged section shall be removed and replaced by the Contractor at his expense. The Contractor shall take appropriate steps during pullback to ensure that the carrier pipe and tracer wires will be installed without damage.
 10. The Contractor shall monitor and inspect pipe rollers and method for suspending pipe at entry during the pullback operation to avoid damage to the pipe.
 11. The Contractor shall cease operations if the pipe is damaged and shall remove the pipe from the bore and repair the pipe using the Manufacturer's recommended procedure or replace the damaged pipe before resuming installation.
 12. Damage to the pipe resulting from installation or contact grouting is the responsibility of the Contractor, including costs for replacement and labor and materials at no cost to the Owner. Upon completion of pullback and grouting, the Contractor shall perform the following cleaning on the completed pipeline.
 - a. Contractor shall thoroughly clean the pipeline by pigging to remove all dirt stones, pieces of wood, or other material which may have entered during the construction period in accordance with Section 02623. If after cleaning, any obstructions remain, they shall be removed at no additional cost to the Owner.
 13. After the carrier pipe is completely pulled through the bore, a sufficient period as recommended by the pipe Manufacturer shall be provided before the final pipe tie-in.
- J. Final Hydrostatic Test: The Contractor shall conduct a final hydrostatic test of the installed pipeline. Final test shall be in accordance with Section 02623. The Contractor shall repair any defects discovered during the test, and repeat until the pipe passes the test.
- K. Obstructions: The Contractor shall notify the Engineer immediately in the event that an obstruction, such as a boulder or rock, is encountered that prevents further advancement of the drill pipe, or pullback of the pre-reamer, reamer, and/or pipe. The Contractor shall make all diligent and reasonable efforts to advance past the object by drilling slowly through the object, pulling back, and drilling along a new bore path that avoids the object, or excavating and

exposing and removing the object, and all other reasonable attempts to continue the bore. The Contractor shall notify the Engineer of proposed measures to attempt to advance past the object, prior to initiating the attempt. If the Contractor attempts to pullback and re-drill, the Contractor shall adhere to line and grade tolerances established in this Specification section, unless the Engineer approves variance, in writing, prior to the Contractor's attempt to re-drill. The Contractor and Engineer shall investigate the cause and together determine an appropriate response. Appropriate response may include revisions to equipment or methods, retraction and re-drilling of a portion of the bore, or abandonment of the hole. If abandonment is deemed necessary, the Contractor shall recover, to the extent practicable, any drill pipe, product pipe, and tools in the bore, and properly abandon the bore by contact grouting unless otherwise directed in writing by the Engineer. If the bore is abandoned, the Contractor shall be allowed to begin a second attempt to install the pipeline at an alternate location subject to approval, in writing, by the Engineer. The Contractor shall take all reasonable actions to complete the installation with minimal delays. The extra costs and payments associated with encountering a confirmed obstruction shall be negotiated in accordance with General Conditions.

- L. **Site Restoration and Demobilization:** The Contractor shall remove all equipment, materials, drilling fluids, muck, waste, and debris from the site and restore the site to its original condition, or better, upon completion of the installation. Restoration and demobilization shall be completed by the Contractor within seven (7) calendar days of the completion of the pipeline installation.
- M. **Settlement Monitoring:** The Contractor shall visually monitor for settlement or heave before and during drilling and grouting operation at the locations determined during the pre-construction survey. The settlement monitoring locations shall be surveyed to the nearest 0.01 foot and recorded prior to drilling operations and each day drilling operations are ongoing. A final record of spot elevations shall be recorded two weeks after pipe installation is complete and presented with the record drawings. Areas found to have significantly settled or heaved will require restoration. The Engineer will determine what constitutes significant settlement or heave. The Contractor will restore these areas at no cost to the Owner.

END OF SECTION

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SECTION 02605
PRECAST CONCRETE AND COATINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install precast concrete structures, access hatches, wet well coating and appurtenances all as shown on the Drawings and as specified herein. As part of this project the interior of each wet well shall be coated as described in this section.

1.02 RELATED WORK

- A. Submersible pumps are included in Section 11306.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings showing details of construction, reinforcing, joints, pipe penetrations, and access hatches.
- B. Concrete design mix data and concrete test cylinder reports from an approved concrete testing laboratory certifying that the concrete used in the precast structures conforms with the strength requirements specified herein.

1.04 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM A48 - Standard Specification for Gray Iron Castings
 - 2. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM C150 - Standard Specification for Portland Cement.
 - 4. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
 - 5. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
 - 6. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
 - 7. ASTM D4101 - Standard Specification for Propylene Plastic Injection and Extrusion Materials.
- B. American Concrete Institute (ACI)
 - 1. ACI 318 - Building Code Requirement for Structural Concrete.
- C. American Association of State Highway and Transportation Officials (AASHTO)

- D. Occupational Safety and Health Administration (OSHA)
- E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. The quality of all materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representative of the Owner. Such inspection may be made at the place of manufacture, or on the work after delivery, or at both places and the materials shall be subject to rejection at any time on account of failure to meet any of the requirements specified herein; even though samples may have been accepted as satisfactory at the place of manufacture. Material rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. All materials which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, entirely at the Contractor's expense.
- B. At the time of inspection, the materials will be carefully examined for compliance with the ASTM standard specified below and this Section and with the approved manufacturer's drawings. All manhole sections shall be inspected for general appearance, dimension, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.
- C. Imperfections in manhole sections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at 7 days and 5,000 psi at 28 days, when tested in 3-in by 6-in cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

PART 2 PRODUCTS

2.01 PRECAST CONCRETE (TOP OF WET WELLS)

- A. Precast concrete top sections, shall conform to ASTM C478 and meet the following requirements:
 - 1. All precast concrete shall be cured by an approved method and shall not be shipped nor subjected to loading until the concrete compressive strength has attained 3,000 psi and not before 5 days after fabrication and/or repair, whichever is longer.
 - 2. Precast concrete top slabs and precast concrete transition sections shall be designed for a minimum of H-20 loading.
 - 3. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on the inside of each precast section.
 - 4. Coordinate the opening for the hatch with the submersible pump supplier.

2.02 JOINTING PRECAST SECTIONS

- A. Tongue and groove joints of precast sections shall be sealed with either a round rubber O-ring gasket or a preformed flexible joint sealant. The O-ring shall conform to ASTM C443. The preformed flexible joint sealant shall be Kent Seal No. 2 by Hamilton-Kent; Ram-Nek by K.T. Snyder Company or equal.
- B. Jointing shall be provided at the interface of the existing wet well and new top slab.
- C. Joints shall be designed and manufactured so that the completed joint will withstand an internal water pressure of 15 psi without leakage or displacement of the gasket or sealant.

2.03 ACCESS HATCH(ES)

- A. Access hatches shall be provided by the submersible pump supplier and coordinated with the precast concrete top slab provider.

2.04 PRECAST CONCRETE PENETRATIONS

- A. Refer to the Contract Drawings.

2.05 INTERIOR COATINGS

- A. Concrete surfaces shall have oil, currying compounds, dust dirt, and other interfering material removed by brush or sand blasting and shall be fully cured prior to the application of any coatings.
- B. The interior of all existing wet wells and the bottom of each new top slab shall be coated by SpectraShield, Raven Lining Systems, or Green Monster. Coatings applications shall be applied in strict accordance with the coating manufacturer's recommendations.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Precast Concrete Installation
 - 1. Precast concrete shall be constructed to the dimensions shown on the Drawings and as specified herein. All work shall be protected against flooding and flotation.
 - 2. Precast concrete top slabs shall be set plumb and with sections in true alignment with a 1/4-in maximum tolerance to be allowed. The joints of precast sections shall be sealed with either a rubber O-ring set in a recess or the preformed flexible joint sealant used in sufficient quantity to fill 75 percent of the joint cavity. The outside and inside joint shall be filled with non-shrink mortar and finished flush with the adjoining surfaces. Allow joints to set for 24-hours before backfilling. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides. If any leaks appear in the wet well, the inside joints shall be caulked with lead wool to the satisfaction of the Engineer. Install the precast sections in a manner that will result in a watertight joint.

3. Holes in the precast top slab required for handling or other purposes shall be plugged with a non-shrinking grout or non-shrinking grout in combination with concrete plugs and finished flush on the inside.
4. Where holes must be cut in the precast sections to accommodate pipes, cutting shall be done prior to setting the top slab in place to prevent any subsequent jarring which may loosen the mortar joints.

B. Manhole Rung Installation

C. Access Hatch(es)

1. Access hatches shall be installed as required by the access hatch manufacturer.

3.02 INTERIOR COATINGS

- A. Coatings applications shall be applied in strict accordance with the coating manufacturer's recommendations.

3.03 CLEANING

- A. The top slabs shall be thoroughly cleaned of all silt, debris and foreign matter of any kind, prior to final inspection.

END OF SECTION

SECTION 02616
DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required, install, disinfect and test ductile iron pipe and fittings for piping as shown on the Drawings and as specified herein.
- B. Piping shall be located substantially as shown on the Drawings. The Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the Contractor's convenience and does not relieve him/her from installing and jointing different or additional items where required to achieve a complete piping system.
- C. Where the word "pipe" is used it shall refer to pipe, fittings, or appurtenances unless otherwise noted.

1.02 RELATED WORK

- A. Delivery, Storage and Handling is included in Section 01600.
- B. Piping Specialties are included in Section 15120.
- C. Filling, testing, and flushing shall be per SJCUD Manual of Water, Wastewater, and Reuse Design Standards and Specifications, latest edition, 3.9.

1.03 SUBMITTALS

- A. Submit shop drawings and product data, including piping layouts, design calculations, warranty information, test reports, in accordance with Section 01300 and the referenced standards.
- B. Submit design calculations in accordance with Paragraph 2.02 below signed by a Professional Engineer, as noted in Section 01300.
- C. Submit the name of the pipe and fitting suppliers and a list of materials to be furnished.
- D. Prior to shipment of pipe, certified copies of mill tests confirming the type of materials used in the pipe, and shop testing of pipe to show compliance with the requirements of the applicable standards, along with a sworn affidavit of compliance that the pipe complies with the referenced standards, shall be submitted.
- E. Submit copies of all shop tests, including hydrostatic tests.
- F. Submit information on all warranties per Section 01740.
- G. Submit anticipated production and delivery schedule.
- H. Prior to shipment of pipe, submit a certified affidavit of compliance from the manufacturer stating that the pipe, fittings, gaskets, linings and exterior coatings for this project have been

manufactured and tested in accordance with AWWA and ASTM standards and requirements specified herein.

- I. Submit handling procedures for all phases from finished fabrication through delivery including storage, transportation, loading, and unloading. This will include storage at the project site and required protection following installation prior to startup.

1.04 REFERENCE STANDARDS

A. ASTM International

1. ASTM A242 - Standard Specification for High-Strength Low-Allow Structural Steel
2. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
3. ASTM A674 - Standard Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids.
4. ASTM C150 - Standard Specification for Portland Cement.

B. American Water Works Association (AWWA)

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3-in through 48-in (75mm Through 1219mm) for Water.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C150 - Thickness Design of Ductile-Iron Pipe.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water.
7. AWWA C115 - Flanged Ductile Iron Pipe With Ductile Iron or Grey Iron Threaded Flanges.
8. AWWA C606 - Grooved and Shouldered Joints.

- C. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. It is a requirement of these Contract Documents to have all of the ductile iron pipe under this section designed and supplied by a single manufacturer rather than have selection and supply of these items by a number of different manufacturers. Similarly, it is a requirement of these Contract Documents to have all of the ductile iron fittings under this section designed and supplied by a single manufacturer rather than have selection and supply of these items by a

number of different manufacturers. All connections between the pipe and fittings shall be compatible, as detailed in Paragraph 1.06.

- B. All ductile-iron pipe and fittings to be installed under this project shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. Furnish in duplicate to the Engineer sworn certificates of such tests and their results at least 5 days prior to the shipment of the goods.
- C. Inspection of the pipe and fittings will also be made by the Engineer or representative of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements even though pipe may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery (including defects from manufacturing or delivery/transport) shall be marked for identification and shall immediately be removed from the job at the Contractors expense.
- D. All pipe and fittings shall be marked in accordance with all applicable AWWA standards. Legibly and permanently mark all pipe, fittings, specials and appurtenances to be consistent with the laying schedule and marking drawings (if required) with the following information:
 - 1. Manufacturer, date.
 - 2. Size, type, class, or wall thickness.
 - 3. AWWA Standard(s) produced to.

1.06 DESCRIPTION OF SYSTEMS

- A. All ductile iron pipe shall be supplied by a single manufacturer and all ductile iron fittings shall be supplied by a single manufacturer. The fittings supplier shall certify in writing that their fittings are compatible with the supplied brand of pipe.
- B. Pipe is to be installed in those locations shown on the Drawings, and only where specifically indicated.
- C. Contractor is responsible for compatibility between joints of all items they supply.
- D. In the case of conflict between information on the pipe schedule, Drawings, and or this section especially concerning pressures, coatings, linings minimum thickness etc. the information given in the pipe schedule shall govern.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe, pipe linings and pipe coatings. See AWWA C600 and the referenced AWWA Standards for Shipping, handling and storage procedures. All pipe and fittings shall be examined as noted in Division 1. Damage to linings or coatings discovered during the examination shall be repaired to the satisfaction of the Engineer at the cost of the Contractor, before proceeding with the work.
- B. Pipe shall be transported to the job site on padded bunks or oak timbers and secured with steel banding or nylon tie down straps to adequately protect the pipe and coating. Slings, hooks, or

pipe tongs or other devices acceptable to the Engineer shall be used in pipe handling. No uncushioned ropes, chairs, wedges, cables or levers shall be used in handling finished pipe, fittings or couplings. Under no circumstances shall the pipe or fittings be dropped or skidded against each other. Care shall be taken to prevent marring the pipe coating. Padded wooden pipe cradles, or chocks suitable for the protection of coatings shall be used between finished pipes and beneath them when pipes are placed upon rough surfaces. Pipe shall not be stored on bare ground unless soft sand berms are used to support the pipe and is approved by the Engineer.

- C. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt, excessive corrosion or foreign matter at all times.
- D. Pipe shall not be stacked higher than the limits recommended by its manufacturer. The bottom tier shall be kept off the ground on timbers, rails, or concrete. Stacking shall conform to manufacturer's recommendations and/or AWWA C600.
- E. Gaskets for mechanical and push-on joints to be stored shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.

1.08 WARRANTIES

- A. Provide warranties as required in Section 01740.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Ductile iron pipe shall conform to AWWA C151. Pipe shall be supplied in standard lengths as much as possible.
- B. Thickness design shall be per AWWA C150, except provide minimum Class 350 for piping 12-in and smaller. The pipe supplier shall perform thickness analysis as referenced in Paragraph 2.02. All ductile iron pipe supplied shall meet the minimum wall thickness and pressure class indicated on the drawings.

2.02 DUCTILE IRON PIPE DESIGN

- A. Ductile iron pipe shall have a minimum tensile strength of 60,000 psi with minimum yield strength of 42,000 psi (per AWWA M-41). Design shall be done for external and internal pressures separately using the larger of the two for the net design thickness. Additional allowances shall be made for service allowance and casting tolerance per AWWA C150. The pipe classes determined for various sizes and conditions shall provide the total calculated thickness at a minimum or conform to minimum pipe class specified in Paragraph 2.01A2 above, or as shown on the Drawings, whichever is greater.
- B. Design for the net thickness for external loading shall be taken as the greater of the following conditions:
 - 1. 2-1/2-ft of cover with AASHTO H-20 wheel loads, with an impact factor of 1.5.

2. Depth from existing ground level of future proposed grade (whichever is greater) to top of pipe as shown on the Drawings, with truck load.
 3. Soil Density: 125 lbs./cu ft.
 4. Laying Conditions; AWWA C150, Type 2.
- C. Pipe shall have a minimum pressure rating of 150 psi.
- D. Copies of design calculations showing that the pipe meets all of the requirements specified herein shall be furnished to the Engineer for approval during shop drawing review in accordance with Section 01300. A yield strength of 42,000 psi shall be used during design calculations.

2.03 END TREATMENTS/JOINTS

- A. Ductile iron pipe/fitting joints shall be push-on rubber gasket type per AWWA C111 in unrestrained areas. In restrained areas, both pipe and fitting joints shall be push on rubber gasket, locking ring type restrained joints per the manufacturer' standard described in Paragraph C. All gasket materials shall comply with Table 5-1 of AWWA M-41.
- B. Unless otherwise noted, all ductile iron pipe/fitting joints shall be push-on rubber gasket type per AWWA C111 in unrestrained areas.
1. The minimum number of restrained joints required for resisting forces at fittings and changes in direction of the pipe shall be determined from the length of restrained pipe on each side of the fittings and changes in direction necessary to develop adequate resisting friction with the soil. The required lengths of restrained joints shall be as shown on the Drawings.
 2. Restrained pipe joints that achieve restraint by incorporating cut out sections in the wall of the pipe shall have a minimum wall thickness at the point of the cut out that corresponds with the minimum specified wall thickness for the rest of the pipe.
 3. The following may be used as an alternative restraint system
 - a. The optional mechanical joint restraint shall be incorporated in the design of a follower grand. The gland shall be manufactured of ductile iron conforming to ASTM A536. Dimensions of the gland shall be such that it can be used with the standard mechanical joint bell and tee-headed bolts, as specified with the pipe.
 - b. The restraint mechanism shall consist of numerous individually activated gripping surfaces to maximize restraint capability. The gripping surfaces shall be wedges designed to spread the bearing surfaces on the pipe. Actuation of the gripping wedges shall be by torque limiting twist-off nuts. When the nut is sheared off, standard hex nut shall remain.
 - c. The restraint device for ductile iron pipe shall have a working pressure of at least 150 psi and a safety factor of 2:1.
 - d. Pipe manufacturer proprietary mechanical joint restraint systems that utilize a wedge style gripping systems or a gland/ring positive restraint system will be considered acceptable on a case by case basis as determined by the Engineer.
 - e. The restraint device shall be EBAA Iron Megalug Series 1100, or approved equal.

C. Threaded ductile iron flanges for ductile iron pipe shall be fabricated per AWWA C115 and sealed during installation with a special high pressure, full face gasket per AWWA C111. At the pipe manufacturer's option, the use of 250 lb. pattern flanges, which are faced and drilled in accordance with ANSI B16.1 may be substituted in order to match valves or other equipment and/or to meet the required working pressure requirements. All flanges shall be rated for the same pressure as the adjacent pipe in all cases. Compatibility of the flanges with the 250 lb. class and higher special class AWWA valves will be the responsibility of the Contractor.

1. Flanges shall be pre-drilled and then faced after being screwed onto the pipe, with flanges true to 90 degrees of the pipe axis and shall be flush with the end of the pipe.
2. Gaskets shall be full face rubber, 1/8" thick SBR material. Such as American Torseal Gasket, or approved equal.
3. Flanged joints shall be supplied with bolts and nuts on one end, bolt studs with a nut at each end, or studs with nuts on one end where the flange is tapped. The number and size of bolts shall comply with the same standard as the flange. Bolts and nuts shall, except as otherwise specified or noted in the Specifications or on the Drawings, comply with ASTM A193, grade B7.
4. Blind flanges shall mate with regular flanges.

D. Couplings and Adapters

1. Sleeve type couplings shall be Dresser Style 38, 138 or equal by Ford Meter Box Co., Smith Blair or Romac industries.

2.04 FITTINGS

- A. Pipe fittings shall be ductile iron with pressure rating of 150 psi for 24-in and smaller piping. Fittings shall meet the requirements of AWWA C110 or AWWA C153 as applicable. Fittings shall have the same pressure rating, as a minimum, of the connecting pipe.
- B. Closures shall be made with mechanical joint ductile iron solid sleeves unless alternate approved coupling systems as described in paragraph 2.03E are used and shall be located in straight runs of pipe at minimum cover outside the limits of restrained joint sections. Location of closures shall be subject to approval of the Engineer.

2.05 INTERIOR LINING

- A. Ductile iron pipe and fittings shall have the same type of lining as specified herein.
- B. Ductile iron pipe and fittings shall be lined with a ceramic-filled amine-cured epoxy, Protecto 401 by Induron. The lining thickness shall be 40 mils minimum. Application shall be performed by an applicator approved by the coating manufacturer, in accordance with manufacturer's instructions and under controlled conditions at the applicator's shop or the pipe manufacturer's plant. Applicator shall submit a certified affidavit of compliance with manufacturer's instructions and requirements specified herein.

2.06 EXTERIOR COATING

- A. Buried pipe shall be installed with a bituminous coating in accordance with AWWA C151 and C110 respectively.

PART 3 EXECUTION

3.01 GENERAL

- A. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe, lining or coatings. Pipe and fittings shall not be dropped or skidded against each other. Slings, hooks or pipe tongs shall be used for pipe handling. All pipe and fittings shall be examined before laying and no piece shall be installed which is found to be defective. Any damage to the pipe, lining or coatings shall be repaired per manufacturer's recommendations. Handling and laying of pipe and fittings shall be in accordance with manufacturer's instruction and as specified herein.
- B. If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work and when installed or laid, shall conform to the lines and grades required.
- C. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt, excessive corrosion or foreign matter at all times.
- D. Pipe shall not be stacked higher than the limits recommended by its manufacturer. The bottom tier shall be kept off the ground on timbers, rails, or concrete. Stacking shall conform to manufacturer's recommendations and/or AWWA C600.
- E. Gaskets for mechanical and push-on joints to be stored shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.

3.02 INSTALLING DUCTILE IRON PIPE AND FITTINGS

- A. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA C600, except as otherwise specified herein. A firm, even bearing throughout the length of the pipe shall be provided by digging bell holes at each joint and by tamping backfill materials at the side of the pipe to the springline per details shown on the Drawings. Blocking will not be permitted. If any defective pipe or fitting is discovered after it has been laid, it shall be removed and replaced with a sound pipe or fitting in a satisfactory manner by the Contractor, at his/her own expense.
 - 1. All pipe and fittings shall be kept clean until they are used in the work and shall be sound and thoroughly cleaned before laying. When laid, the pipe and fittings shall perform to the lines and grades required. When laying is not in progress, including lunch breaks, open ends of the pipe shall be closed by a watertight plug or other approved means. Sufficient backfill shall be placed to prevent flotation. The deflection at joints shall not exceed that recommended by the manufacturer.

2. All ductile iron pipe laid underground shall have a minimum of 3 of feet of cover unless otherwise shown on the Drawings or as specified herein. Pipe shall be laid such that the invert elevations shown on the Drawings are not exceeded.
3. Fittings, in addition to those shown on the Drawings shall be provided, where required, in crossing utilities which may be encountered upon opening the trench. Solid sleeve closures shall be installed at locations approved by the Engineer.
4. The pipe interior shall be maintained dry and broom clean throughout the construction period.
5. When field cutting the pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. The end of the cut pipe shall be beveled to conform to the manufacturer's recommendations for the spigot end. Any coating removed from the cut end shall be repaired according to manufacturer's recommendation and/or Section 2.05 (whichever method is more stringent in the opinion of the Engineer). Protecto lining shall be undamaged. Cutting of restrained joint pipe will not be allowed, unless approved at specific joints in conjunction with the use of restrainer glands by EBAA Iron or field adaptable restrained joints. Where field cuts are permitted, the pipe to be cut shall be supplied by the factory as "gauged full length". Should full length gauged pipe be unavailable, the pipe to be cut shall be field gauged at the location of the new spigot using a measuring tape, or other means approved by the manufacturer, to verify that the diameter is within the tolerances permitted in Table 1 of AWWA C151.

B. Jointing Ductile-Iron Pipe

1. Push-on joints shall be made in strict accordance with manufacturer's instructions, AWWA C600 and Appendix B of AWWA C111. If there is conflict, the manufacturer's instructions shall take precedence. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe. The joint surfaces shall be cleaned and lubricated and the plain end of the pipe shall be aligned with the bell of the pipe to which it is to be joined and pushed home. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is properly seated.
2. Mechanical joints shall be assembled in strict accordance with the manufacturer's instructions, AWWA C600 and Appendix A of AWWA C111. If there is conflict, the manufacturer's instructions shall take precedence. Pipe shall be laid with bell ends looking ahead. To assemble the joints in the field, thoroughly clean and lubricate the joint surfaces and rubber gasket. Bolts shall be tightened to the specified torques. Under no condition shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage. After installation, bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217, and install polyethylene encasement as specified.
3. Bolts in mechanical or restrained joints shall be tightened alternately and evenly. Restraint for mechanical joint pipe shall use retainer glands for restraining joint. All restrained mechanical joints shall be suitable for the specified test pressure.
4. Restrained joints shall be installed according to pipe manufacturer's instructions.
5. Flanged joints shall be assembled in strict accordance with the manufacturer's instructions and Appendix C of AWWA C111. If there is conflict, the manufacturer's instructions shall

take precedence. Extreme care shall be taken to ensure that there is no restraint on opposite ends of pipe or fitting, which would prevent uniform gasket compression, cause unnecessary stress, bending or torsional strains, or distortion of flanges or flanged fittings. Adjoining push on joints shall not be assembled until flanged joints have been tightened. Flange bolts shall be tightened uniformly to compress the gasket uniformly and obtain a seal. Flange bolts shall be left with approximately 1/2-inch projection beyond the face of the nut after tightening. After installation bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217.

6. Sleeve couplings shall only be installed for closure or as shown on the Drawings. Couplings shall not be assembled until adjoining joints have been assembled. After installation, bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217, and install protective wrap recommended by the manufacturer or as required herein. Care shall be exercised to ensure that the insulating properties of insulating and dielectric couplings are maintained.
- C. All blowoffs, outlets, valves, fittings and other appurtenances required shall be set and jointed as indicated on the Drawings in accordance with manufacturer's instructions.

3.03 FILLING, TESTING, AND FLUSHING

- A. Filling, testing, and flushing shall be per SJCUD Manual of Water, Wastewater, and Reuse Design Standards and Specifications, latest edition, 3.9.

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SECTION 02622
POLYVINYL CHLORIDE (PVC) PRESSURE PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install and test polyvinyl chloride (PVC) force main sewer pipe and fittings, complete as shown on the Drawings and as specified herein.
- B. Pipe or piping refers to all pipe, fittings, material and appurtenances required to construct PVC force main sewer pipe complete, in place.

1.02 RELATED WORK

- A. Testing, cleaning of sewer pipe is included in SJCUD Manual of Water, Wastewater, and Reuse Design Standards and Specifications, latest edition, 3.9.
- B. Precast concrete is included in Section 02605.
- C. Valves, hydrants, couplings and appurtenances are included in Section 15100.
- D. Sodding is included in Section 02910.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, and within 30 days of the Effective Date of the Agreement, the name of the pipe and fitting manufacturers and a list of materials to be furnished by each manufacturer. Also, include information on local representative for each manufacturer, if product is sold through a distributor.
- B. Shop Drawings including piping layouts and schedules shall include dimensioning, fittings, types and locations of valves and appurtenances, joint details, methods and location of supports, anchorage, gasket material, grade of material and all other pertinent technical information for all items to be furnished.
- C. Prior to each shipment of pipe, certified test reports that the pipe for this Contract was manufactured and tested in accordance with the ASTM and AWWA Standards specified herein shall be submitted.

1.04 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - 2. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).

3. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 4. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- B. American Water Works Association (AWWA)
1. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3-in Through 48-in (75mm Through 1219mm) for Water.
 2. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 3. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
 4. AWWA C-605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.
 5. AWWA C651 - Disinfecting Water Mains.
 6. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4-in through 12-in for Water Distribution.
 7. AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings 14-in through 48-in for Water Transmission and Distribution.
 8. AWWA M-23 - Manual of Water Supply Practices PVC Pipe, Design and Installation.
- C. National Sanitation Foundation (NSF)
1. Standard No. 14 - Plastic Piping Components and Related Materials.
 2. Standard No. 61 - Drinking Water System Components - Health Effects.
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. All PVC water and sewer pipe shall be from a single manufacturer. The supplier shall be responsible for the provisions of all test requirements specified in ASTM D3034 as applicable. In addition, all PVC pipe to be installed under this Contract may be inspected at the plant for compliance with this Section by an independent testing laboratory provided by the Owner. The Contractor shall require the manufacturer's cooperation in these inspections. The cost of plant inspection of all pipe approved for this Contract, plus the cost of inspection of a reasonable amount of disapproved pipe, will be borne by the Owner.
- B. Inspections of the pipe may also be made by the Engineer or other representatives of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the requirements specified herein, even though sample pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job at once.

1.06 SYSTEM DESCRIPTION

- A. The equipment and materials specified herein are intended to be of standard types for use in transporting sewage.
- B. Contractor is responsible for compatibility between pipe materials, fittings and appurtenances.
- C. Unless otherwise noted, PVC pipe systems shall be designed for the following condition(s).
 - 1. Class: DR-18
 - 2. System: Sewer Force Main
 - 3. Pressure:
 - a. Operating: 50 psig
 - 4. Temperature Range: 55-85°F

1.07 DELIVERY, STORAGE AND HANDLING

- A. All items shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Any pipe damaged in shipment shall be replaced as directed by the Engineer.
- B. PVC items deteriorate in sunlight and are slightly brittle, especially at lower temperatures, so care shall be taken in loading, transporting and unloading items to prevent injury to the items. All items shall be examined before installation and no piece shall be installed which is found to be defective. Handling and installation of pipe and fittings shall be in accordance with the manufacturer's instructions, referenced standards and as specified herein.
- C. Any pipe or fitting showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.
- D. Any gouges or scratches that extend 10 percent or more into the pipe wall shall be cause for rejection of that pipe. The undamaged portion may cut off and used. Rejected materials shall be clearly marked as rejected, segregated and removed from the site.
- E. While stored, pipe shall be adequately supported from below at not more than 3-ft intervals to prevent deformation. The pipe shall be stored in stacks no higher than that given in the following table:

Pipe Diameter (inches)	Max. No. of Rows Stacked
8 or less	5
12 to 21	4
24 to 30	3
33 to 48	2

- F. Pipe and fittings shall be stored in a manner which will keep them at ambient outdoor temperatures and out of the sunlight or delivered to the site so that no pipe is exposed to

sunlight for more than 60 days. Temporary shading as required to meet this requirement shall be provided. Simple covering of the pipe and fittings which allows temperature buildup or direct or indirect sunlight will not be permitted.

- G. If any defective item is discovered after it has been installed, it shall be removed and replaced with an exact replacement item in a satisfactory manner by the Contractor, at the Contractor's own expense. All pipe and fittings shall be thoroughly cleaned before installation and the interior shall be kept clean until testing.
- H. In handling the items, use special devices and methods as required to achieve the results specified herein. No uncushioned devices shall be used in handling the item.

PART 2 PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

- A. PVC pressure pipe sized 4 through 12-in shall conform to the requirements of AWWA C900. All piping shall be Class 150 with a Dimension Ratio of 18. The pipe shall be PVC 1120 made from PVC compounds Class 12454-A or 12454-B as defined in ASTM D1784. Each pipe length shall be marked with the manufacturer's name or trademark, size, material code, pressure class, AWWA designation number and seal of test agency that verified pipe material for potable-water service.
- B. PVC pipe and fittings shall have bell and spigot push-on joints. The bell shall consist of an integral wall section with a solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly. Installation of elastomeric gasketed joints and performance of the joint shall conform to ASTM F477, ASTM D3139. Joint lubricants shall be as recommended by the manufacturer.
- C. All fittings and accessories for sewers shall have bell and/or spigot configurations compatible with the pipe.
- D. PVC fittings shall meet the requirements of AWWA C900 and be of the same (or higher) pressure rating as the pipeline.
- E. Force mains shall be green in color. Coordinate exact piping color with Owner
- F. All joints shall be restrained for this project. Restraining glands for PVC pipe shall conform to AWWA C111 and be Megalug Series 2 PV by EBAA Iron Sales Inc., or equal.

PART 3 EXECUTION

3.01 INSTALLATION OF PVC PIPE AND FITTINGS

- A. No single piece of pipe shall be laid unless it is straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement, check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.

- B. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner at no additional cost to the Owner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required. PVC pipe and fittings shall be installed in accordance with requirements of the manufacturer, ASTM D2321 and AWWA C605 or as otherwise provided herein.
- C. As soon as the excavation is complete to normal grade of the bottom of the trench, bedding shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Drawings. Blocking under the pipe will not be permitted. Bedding shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the bedding under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Bedding shall then be placed to 12-in above the top of the pipe. The initial 3-ft of backfill above the bedding shall be placed in 1-ft layers and carefully compacted. Generally the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the pipe until sufficient backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. Equipment used in compacting the initial 3-ft of backfill shall be approved by the pipe manufacturer's representative prior to use.
- D. All piping shall be sound and clean before installation. When installation is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. Good alignment shall be preserved during installation. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing utilities that may be encountered upon opening the trench.
- E. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a bell shall be beveled to conform to the manufactured spigot end and a reference mark made at the same distance from the pipe end as measured from a factory marked end from the same manufacturer.
- F. The Engineer may examine each bell and spigot end to determine whether any preformed joint has been damaged prior to installation. All pipe having defective joint surfaces shall be rejected, marked as such and immediately removed from the job site.
- G. Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has been placed to hold the pipe in place. Joints shall not be "pulled" or "cramped".
- H. Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.
- I. Precautions shall be taken to prevent flotation of the pipe in the trench.
- J. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be taken in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. If trench boxes, moveable sheeting, shoring or plates have been installed below the top

of pipe, they shall be moved slowly taking care not to disturb pipe, bedding or backfill. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall be recompacted to provide uniform side support for the pipe.

- K. Restrained joints shall be installed at all joints and fittings.

3.02 JOINTING PVC PIPE (PUSH-ON TYPE)

- A. Joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe and the joint surfaces cleaned and an approved lubricant applied in accordance with the manufacturer's recommendations. The plain end of the pipe to be installed shall then be inserted into the bell of the pipe to which it is to be joined and when in alignment pushed home with a come-along or by other means. Check that the reference mark on the spigot end is flush with the end of the bell.

3.03 JOINTING MECHANICAL JOINT FITTINGS

- A. Mechanical joints at valves, fittings and where designated shall be in accordance with the AWWA C111 and the instructions of the manufacturer. PVC sewer pipe and fittings shall be jointed in accordance with the recommendations of the latest ASTM Standards and detailed instructions of the manufacturer. Suitable PVC to cast iron adaptors shall be installed prior to installing fittings. PVC beveled spigot shall be cut flush prior to insertion in mechanical joint pipe. To assemble the joints in the field, thoroughly clean the joint surfaces and rubber gasket with soapy water before tightening the bolts. Bolts shall be tight to the specified torques. Under no condition shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage.

3.04 FILLING, TESTING AND FLUSHING

- A. All PVC pipe and fittings shall be filled, tested and flushed per SJCUD Manual of Water, Wastewater, and Reuse Design Standards and Specifications, latest edition, 3.9.

END OF SECTION

SECTION 02623
HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS (PRESSURE PIPE)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install high density polyethylene (HDPE) pipe and fittings complete as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Testing and flushing of pipe are included in SJUD Manual of Water, Wastewater, and Reuse Design Standards and Specifications, latest edition, 3.9.
- B. Valves and appurtenances are included in Section 15100.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, completely detailed working drawings and schedules of all high density polyethylene (HDPE) pipe and fittings required.
- B. Submit the name and address of pipe manufacturer.
- C. Submit complete description of method of pipe installation.
- D. Submit description of the method of testing the pipe and fittings including a complete drawing of mandrel with dimensions for each pipe size.
- E. Submit the manufacturer's recommendations for handling, storing and installing the pipe and fittings.
- F. Submit certification that the stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacturing of the pipe for this contract in accordance with ASTM D2837.
- G. Prior to each shipment, submit certified test reports that the pipe and fittings for this contract were manufactured and tested in accordance with the ASTM and AWWA Standards specified herein.
- H. Submit the name and qualifications of the technician proposed to perform the heat fusion of the pipe joints.

1.04 REFERENCE STANDARDS

- A. ASTM International
 - 1. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewer and Other Gravity-Flow Applications.

2. ASTM D2774 - Standard Practice for Underground Installation of Thermoplastic Pressure Piping.
 3. ASTM D2657 - Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings.
 4. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
 5. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
 6. ASTM F714 - Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
- B. American Water Works Association (AWWA)
1. AWWA C217 - Microcrystalline Wax and Petrolatum Tape Coating Systems for Steel Water Pipe and Fittings
 2. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.
 3. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4-in Through 63-in, for Water Distribution and Transmission.
- C. American National Standards Institute (ANSI)
1. ANSI B16.1 - Cast Iron Flanges and Flanged Fittings.
 2. ANSI B16.21 - Nonmetallic Flat Gaskets for Pipe Flanges.
 3. ANSI/NSF 61- Drinking Water System Components-Health Effects
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 DELIVERY, STORAGE AND HANDLING

- A. The delivery, storage and handling of the pipe and fittings shall be done in accordance with the manufacturer's recommendations.
- B. Pipe shall be stored on clean, level ground to prevent any scratching or gouging of the pipe. The handling of the pipe shall be done in a manner to avoid dragging the pipe over any hard or sharp objects to avoid cutting of the pipe's exterior. Any cut or gouge deeper than 5 percent of the pipe's wall thickness shall be removed from the site.
- C. Handling of the pipe shall be done in a manner to avoid all undue stress in the pipe caused by bending of the pipe.
- D. The interior of the pipe shall be free of cuts, gouges and scratches.

1.06 QUALITY ASSURANCE

- A. All HDPE pipe and fittings shall be manufactured in strict accordance with ASTM F714, AWWA C906 and shall be from a single manufacturer who is fully experienced, reputable and qualified in the manufacture of the polyethylene pipe and fittings to be furnished. All HDPE pipe and fittings shall be supplied by a single distributor who is fully experienced, reputable, and qualified with the distribution of the pipe and fittings to be furnished. The pipe shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these specifications. All pipe and fittings shall be NSF 61 approved.
- B. All pipes under this contract shall be manufactured from a polyethylene resin that has been specifically stress regression tested to provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1600 psi, as determined in accordance with ASTM D2837.
- C. All HDPE pipe to be installed under this Contract may be inspected at the factory for compliance with this Section by an independent testing laboratory provided by the Owner. The manufacturer's cooperation shall be required in these inspections. The cost of these plant inspections of all pipe approved for this Contract will be borne by the Owner.
- D. Inspection of the pipe may also be made by the Engineer or other representatives of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the specified requirements, even though pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall immediately be removed from the job.

1.07 WARRANTY

- A. The pipe manufacturer shall provide a warranty against manufacturing defects of material and workmanship for a period of ten years after the final acceptance of the project by the Owner. The manufacturer shall replace, at no additional cost to the Owner, any defective pipe material within the warranty period.

PART 2 PRODUCTS

2.01 MATERIALS

A. General

- 1. HDPE pipe is a flexible conduit and shall be designed to transfer imposed loads to the surrounding embedment medium. The pipe and fittings shall be free from all defects including indentations, delaminations, cracks, bubbles and pinholes, which due to their nature, degree, or extent, detrimentally affect the strength and serviceability of the pipe. Any pipe or fittings with such defects which, in the judgement of the Engineer, will affect the strength and serviceability shall be repaired or rejected.
- 2. HDPE pipe resins shall be high molecular weight, high density polyethylene with a cell classification number of 345464C (or E) or higher cell classification in accordance with ASTM D3350.

B. Pipe and Fittings

NOTE:

1. The pipes shall have the nominal dimensions shown on the Drawings, and shall conform to the dimension requirements of the IPS Sizing System (ANSI B36.10). Pipe shall meet the requirements of Dimension Ratio (DR) 11.
2. All polyethylene pipes shall meet the requirements of ASTM F714 and AWWA C906. Pipe and fittings shall be NSF 61 approved.
3. Pipe shall be furnished in standard laying lengths not exceeding 50-ft.
4. Joining system: The pipe shall be joined with butt, heat fusion joints. All joints shall be made in strict compliance with the manufacturer's recommendations and ASTM 2657. Where required, flange connections, mechanical joint connections and butt connections using bolted mechanical couplers shall be provided from a pipe stub with a polyethylene and steel stiffener. Flanged connections shall be provided from a pipe stub and a steel back-up flanged. Back-up flanges shall be primed and painted in a corrosion protected paint recommended and supplied by the manufacturer. All bolts, nuts and hardware shall be Type 316 stainless steel.
5. HDPE fittings shall be fully pressure rated to match the pipe DR pressure rating. All fittings shall be molded or fabricated by the same manufacturer as the pipe. HDPE fittings shall be joined using butt, heat fusion and/or electrofusion. Adhesives and solvent cements shall not be permitted.

2.02 PIPE IDENTIFICATION

- A. At 5-ft intervals along the pipe, the pipe shall be marked with the name of the manufacturer, size and class (pressure and DR), and manufacturing reference to ASTM F714 and AWWA C906
- B. A color coded strip(s) shall be marked along the entire length of the pipe.

PART 3 EXECUTION

3.01 INSTALLATION

- A. All pipe and fittings shall be installed in accordance with the manufacturer's instructions.
- B. The contractor performing the joining shall be a distributor of the pipe material supplied. All fusion joints shall be done by a factory qualified technician as designated by the manufacturer with a minimum of five years experience with the fusion equipment to be used.
- C. Joining of the pipe by heat fusion shall be done in accordance with ASTM D2657. Prior to the start of pipe installation, one test joint shall be made and tested. Test shall be done in accordance with CPChem Co. Bulletin No. 106. No joints shall be made until a successful test joint has been made.
- D. When cutting pipe is required, the cutting shall be done by machine specifically designed for the cutting of HDPE pipe. The cut shall leave a smooth cut at right angles to the axis of the pipe.

- E. Fittings shall be connected to HDPE pipe in accordance with manufacturer's recommendations.
- F. Flanged and mechanical connections shall consist of the following:
 - 1. A high density polyethylene flange adapter, made by the manufacturer from the same resin as the pipe, and fully pressure rated to match the pipe DR pressure rating, thermally butt-fused to the stub end of the pipe.
 - 2. A ductile iron or steel back-up ring conforming to ANSI B16.1 fitted to the polyethylene flange adapter and shaped as necessary to suit the outside dimension of the pipe.
 - 3. A full face neoprene gasket, conforming to ANSI B16.21.
 - 4. Corrosion resistant bolts and nuts of Type 316 stainless steel as specified in ASTM A276 and ASTM A307. Bolts shall be tightened alternatively and evenly to the manufacturer's specified torques. After installation bolts and nuts shall be encapsulated using wax sealing tape per AWWA Standard C217.

3.02 CLEANING, TESTING AND DISINFECTION

- A. Cleaning, testing and disinfection of the pipe shall be in accordance with SJCUD Manual of Water, Wastewater and Reuse Design Standards and Specifications, latest edition, 3.9.

END OF SECTION

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SECTION 02910
SODDING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and prepare lawn bed and install sodding as specified herein.
- B. Area to receive sodded grass lawns shall be the following:
 - 1. For restoration purposes where existing grass is removed or disturbed by work.

1.02 SUBMITTALS

- A. Provide technical data as provided in Section 01300 for shop drawings on all materials or installation procedures required under this Section.
- B. Submit certifications for all sodding supplied.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver sod on pallets.
- B. Protect roots from exposure to wind or sun.
- C. Protect sod against dehydration, contamination and heating during transportation and delivery.
- D. Do not deliver more sod than can be installed within 24 hours.
- E. Keep stored sod moist and under shade or covered with moistened burlap.
- F. Do not stack sod more than 2' deep.
- G. Do not tear, stretch, or drop sod.

1.04 GUARANTEE

- A. Guarantee sod for period of ninety (90) days after date of final acceptance by OWNER's representative.
- B. Replacement sod under this guarantee shall be guaranteed for ninety (90) days after original sod was replaced by replacement sod.
- C. Repair damage to other plants during sod replacement at no cost to the OWNER.

PART 2 PRODUCTS

2.01 SOD

- A. Sod shall be Bahia, except for restoration, where type of sodding shall match existing sodding. Sod shall be of firm texture having a compacted growth and good root development as approved.
- B. Sod shall be certified to meet Florida State Plant Board specifications, absolutely true to varietal type, and free from weeds or other objectionable vegetation, fungus, insects and disease of any kind.
- C. Before being cut and lifted the sod shall have been mowed three times with the final mowing not more than a week before cutting into uniform dimensions.

2.02 WATER

- A. CONTRACTOR shall provide water free of substances harmful to plant growth; free from chemicals or minerals that stain or discolor.

2.03 SOIL CONDITIONERS

- A. Fertilizer
 - 1. Fertilizer shall be a complete fertilizer, the elements of which are derived from organic sources. Fertilizer shall be a standard product complying with State and Federal fertilizer laws.
 - 2. Fertilizer shall be delivered to the site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of manufacturer. Containers shall bear the manufacturer's guaranteed statement of analysis, or a manufacturer's certificate of compliance covering analysis shall be furnished to the ENGINEER. Store fertilizer in a weatherproof place and in such a manner that it will be kept dry and its effectiveness will not be impaired.
- B. Superphosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes containing not less than 20 percent available phosphoric acid.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify topsoil placement and fine grading operations are complete. Verify all other preceding work required is complete and accepted by the OWNER's representative.

3.02 LAWN BED PREPARATION

- A. Areas to be sodded shall be cleared of all rough grass, weeds, and debris, and the ground brought to an even grade as approved.
- B. The soil shall then be thoroughly tilled to a minimum 8-in depth.

- C. Superphosphate at a rate for bidding purposes of 5 pounds per 1000 square foot and complete fertilizer at a rate for bidding purposes of 16 pounds per 1000 square foot shall be evenly distributed over entire area and cross-disked in to a depth of 4 to 6-in.
- D. The areas shall then be brought to proper grade, free of sticks, stones, or other foreign matter over 1-in in diameter or dimension. The surface shall conform to finish grade, less the thickness of sod, free of water-retaining depressions, the soil friable and of uniformly firm texture.

3.03 SOD HANDLING AND INSTALLATION

- A. During delivery, prior to planting, and during the planting of the lawn areas, the sod panels shall at all times be protected from excessive drying and unnecessary exposure of the roots to the sun or wind. Deliver sod on pallets. Do not deliver more sod than can be installed within 24 hours of delivery.
- B. After delivery but prior to planting, keep stored sod moist and under shade or covered with moistened burlap. Do not stack sod more than 2' deep, and do not tear, stretch, or drop sod. All sod shall be stacked during construction and planting so as not to be damaged by sweating or excessive heat and moisture.
- C. After completion of soil conditioning as specified above, sod panels shall be laid tightly together so as to make a solid sodded lawn area. On mounds and other slopes, the long dimension of the sod shall be laid perpendicular to the slope. Immediately following sod laying the lawn areas shall be rolled with a lawn roller customarily used for such purposes, and then thoroughly watered.
- D. Bring the sod edge in a neat, clean manner to the edge of all paving and shrub areas. Top dressing with approved, clean, weed free, sand may be required at no additional cost to the OWNER if deemed necessary by the ENGINEER.

3.04 LAWN ESTABLISHMENT

- A. The CONTRACTOR shall produce a dense, well established lawn. The CONTRACTOR shall be responsible for the repair and resodding of all eroded or bare spots until project acceptance. Repair sodding shall be accomplished as in the original work except that fertilizing may be omitted.
- B. Watering:
 - 1. Keep sod uniformly moist for the first two weeks after planting.
 - 2. After two weeks, supplement rainfall to produce total of approximately 1-1/2" of water per week or until sod has fully acclimated.
 - 3. Monitor all newly sodded areas to insure that the manual watering operations are providing sufficient water to sod until acceptance by the OWNER's representative.
- C. Mowing:
 - 1. Sod shall not be mowed for a period of three (3) weeks after installation.

2. The initial mowing should remove approximately 2-inches of leaf but no more than 40% of leaf shall be removed in any single mowing.
 3. The SUBCONTRACTOR shall maintain all newly sodded areas until final acceptance by the OWNER's representative. Sod shall be mowed based on the following:
 - a. Argentine bahia: every 14 days, mow to 4-inches.
- D. Re-sod areas larger than 1-square foot not having uniform stand of grass.
- E. Weed Eradication: CONTRACTOR shall be responsible to insure that all newly sodded areas are maintained in a seed-free condition until acceptance by the OWNER's representative. Apply herbicides only upon approval by the OWNER's representative.
- F. The CONTRACTOR's maintenance period shall begin immediately after sod is installed and extend until acceptance by the OWNER's representative.

3.05 FERTILIZING

- A. Apply specified fertilizer three (3) weeks after sod installation. Broadcast at rate of 1-1/2 pounds of nitrogen per 1,000 sq. ft. of sod. Water to saturate all fertilized areas immediately after installation.

3.06 CLEANING

- A. Immediately clean spills from paved and finished surface areas.
- B. Remove debris and excess materials from project site.
- C. Dispose of protective barricades and warning signs at termination of sod establishment.

3.07 FINAL INSPECTIONS AND ACCEPTANCE

- A. Request final inspection for acceptance when all specified work is completed.
- B. Replace rejected sod areas as directed by the OWNER's representative.

END OF SECTION

SECTION 11258
PASSIVE ODOR CONTROL SYSTEM

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The work specified shall include furnishing a passive odor neutralization device that shall be mounted to a 4-inch lift station vent using a rubber flexible coupling or flange mount. The passive odor neutralization device shall use no water or electric and be capable of neutralizing lift station odors during the fill/pump cycles of the station. The odor control system shall be installed at each pump station.

1.02 SUBMITTALS

- A. Submit to Engineer, in accordance with Section 01300, materials required to establish compliance with this Section.
- B. Manufacturer's Installation and Application Data.
- C. Operating and Maintenance Data.
 - 1. Operating and maintenance instructions shall be furnished to Engineer as provided in Section 01730. Instructions shall be prepared specifically for this installation and shall include required cuts, drawings, equipment lists, descriptions and other information required to instruct operating and maintenance personnel unfamiliar with such equipment.

1.03 WARRANTY

- A. All equipment shall be warranted in both material and workmanship for a period of three (3) years after installation.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. The passive odor neutralization equipment shall use no water or electric. The passive odor neutralization device shall utilize the pumping cycles (pumps on) of the lift station to draw the odor neutralizer into the station, and then neutralize the discharge air during the station fill cycle (pumps off). The odor neutralization system shall be fabricated from corrosion resistant aluminum plate and schedule 40 316 stainless steel pipe and be designed to give the air a tortuous path for maximum contact/interface time with odor neutralizer with no headloss. The air shall enter and exit through integral vents on all four sides of the device. There shall be a stainless steel drain valve along with a condensation relief line located on the bottom of the device. Both the drain line and condensation relief line shall discharge back into the station through a common connection on the vertical air pipe. The system shall only use a blend of safe, natural, plant based concentrated odor neutralizer. Systems using chemicals or non-plant based products shall not be allowed. Due to the excessive headloss created allowing odorous, untreated air to escape, systems utilizing carbon shall not be allowed.

2.02 MANUFACTURER

- A. The odor neutralization equipment supplier shall be experienced in the design, construction, and successful operation of odor neutralization systems for the neutralization of odorous compounds and shall be capable of supplying an installation list upon request. The passive odor neutralization device shall be a "HIVENT" as supplied by Heyward Florida Incorporated, or approved equal. The odor neutralizer used in the passive odor control device shall be "HISCENT," an environmentally safe blend of all natural plant extracts with no harsh chemicals as supplied by Heyward Florida Incorporated, or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The odor neutralization equipment shall be installed per the Manufacturer's recommendations.

END OF SECTION

SECTION 11306
SUBMERSIBLE SOLIDS HANDLING PUMPS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. **The pump station equipment will be pre-purchased by the Owner and will include pumps, motors, access hatches, guide rails, control panels and control systems, and appurtenances. The Contractor shall furnish all labor, material, equipment and incidentals required to install, place in operation and field test a total of six submersible wastewater pumps as shown on the Drawings and specified herein.**
- B. These Specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishing, factory testing, delivery and complete installation and field testing of all materials, equipment and appurtenances for the complete pumping units as herein specified, whether specifically mentioned in these Specifications or not.

1.02 RELATED WORK

- A. Submittals are included in Section 01300.
- B. Operation and maintenance is included in Section 01730.
- C. Warranties are included in Section 01740.
- D. Instrumentation work is included in Division 13.
- E. Valves, mechanical piping and appurtenances and pipe hangers and supports are included in Division 15.

1.03 REFERENCE STANDARDS

- A. Design, manufacturing and assembly of elements of the equipment herein specified shall be in accordance with, but not limited to, published standards of the following, where applicable:
 - 1. American Gear Manufacturers Association (AGMA)
 - 2. American Institute of Steel Construction (AISC)
 - 3. American Iron and Steel Institute (AISI)
 - 4. American Petroleum Institute (API)
 - 5. American Society of Mechanical Engineers (ASME)
 - 6. American National Standards Institute (ANSI)
 - 7. American Society for Testing Materials (ASTM)

8. American Welding Society (AWS)
 9. American Bearing Manufacturers Association (ABMA)
 10. Hydraulic Institute Standards
 11. Institute of Electrical and Electronics Engineers (IEEE)
 12. National Electric Code (NEC)
 13. National Electrical Manufacturers Association (NEMA)
 14. Occupational Safety and Health Administration (OSHA)
 15. Steel Structures Painting Council (SSPC)
 16. Underwriters Laboratories, Inc. (UL)
 17. Factory Mutual (FM)
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.04 SYSTEM DESCRIPTION

- A. The system will pump raw wastewater. The equipment to be installed under this Section shall include two submersible wastewater pumps, motors, guide rails, hatches and accessories, all as specified herein and as shown on the Drawings at each of the following lift stations for a total of six submersible wastewater pumps:
1. Cranes Lake (PS-199)
 2. Remington (PS-201)
 3. Merganzer (PS-209)

1.05 QUALIFICATIONS

- A. The pump manufacturer (Xylem - Flygt) shall assume responsibility for the satisfactory operation of the entire pumping system including pumps, motors, and accessories.
- B. The Manufacturer or its representative shall have an authorized warranty center within a 300-mile radius of the job site, fully staffed with factory trained mechanics, and equipped with a stock of strategic spare parts for each model of pump furnished under this Contract. The service facility and strategic spare parts shall be established prior to delivery of equipment for this project.
- C. All equipment furnished under this Specification shall be new and unused, shall be the standard product of manufacturers having a successful record of manufacturing and servicing similar equipment and systems to that specified herein for a minimum of five years.

D. The pumping equipment shall be furnished complete with accessories required and shall meet the detailed requirements of the Specifications.

1. The pumps shall operate throughout the entire operating range with the maximum vibration velocity in inches per second RMS, measured in the field, shall conform to the requirements of ANSI/HI 11.6.

1.06 SUBMITTALS

A. Copies of all materials required to establish compliance with the Specifications shall be submitted in accordance with the provisions of the General Conditions and Section 01300. In the event that the equipment offered does not conform with all of the detailed requirements of the Specifications, describe completely all nonconforming aspects. Failure to describe any and all deviations from the specifications will be cause for rejection. Submittals shall include at least the following:

1. Submit description of proposed field test plan including test procedures and equipment.
2. Submit for approval results of field testing.

1.07 MANUFACTURER SERVICES INCLUDING OPERATING INSTRUCTIONS

A. Operating and Maintenance Manual:

1. Operating and maintenance manual shall be furnished by the Manufacturer to the Engineer as provided for in Section 01730. The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, description, etc. that are required to instruct operating and maintenance personnel unfamiliar with such equipment. The maintenance instructions shall include trouble shooting data, full preventative maintenance schedules, and complete spare parts lists with ordering information.

B. Installation Inspection and Startup:

1. The Contractor shall include in his bid price the services of a Manufacturer's factory representative who has complete knowledge of proper operation and maintenance shall be provided to instruct representatives of the Owner and the Engineer on proper operation and maintenance. This work may be conducted in conjunction with the inspection of the installation and start-up. If there are difficulties in operation of the equipment because of the Manufacturer's design or fabrication, additional service shall be provided at no additional cost to the Owner. The listed service requirements are exclusive of travel time, and shall not limit or relieve the Contractor of the obligation to provide sufficient service necessary to place the equipment in satisfactory and functioning condition. Also refer to requirements in PART 3 of this Section.
2. Installation inspection: Complete review of installation in accordance with Section 01465. Provide written certification that the installation is complete and operable in all respects, and that no conditions exist which may affect the warranty. The Manufacturer shall supply the installation inspection services of an experienced Manufacturer's factory representative to verify the proper pump installation. The Manufacturer's factory representative shall specifically approve the installation and alignment of the pump with

the motor, the grouting, and the alignment of the connecting piping and the installation of the field installed packing or mechanical seal. If there are difficulties in the start-up or operation of the equipment due to the Manufacturer's design or fabrication, additional service shall be provided at no additional cost to the Owner. Services of the Manufacturer's factory representative and training shall be provided when the first pump is started, with follow-up visits upon start-up of each subsequent pump.

a. Minimum time on-site shall be one 4-hour day per lift station.

3. Start-Up: Provide written report, summarizing test procedures, tested and measured variables (flow rates, total heads, shaft-speed, vibration measurements, etc.):

a. Minimum time on-site shall be one 4-hour day per lift station.

C. Training:

1. Field and classroom instruction on operation and maintenance of the equipment, including start-up, shut-down troubleshooting, lubrication, maintenance and safety.

2. The Manufacturer shall provide detailed manuals to supplement the training courses. The manuals shall include specific details of equipment supplied and operations specific to the project.

D. The Contractor alone shall be responsible for requesting these services, and shall coordinate these requests with all other relevant trades, to ensure the effectiveness of the Manufacturers' service. In the event that the lack of coordination by the Contractor results in the need to recall the Manufacturer's factory representative, the lost time shall not be counted against the above days.

1.08 TOOLS AND SPARE PARTS

A. The Manufacturer shall furnish a complete list of recommended spare parts, gaskets, lubricants and sealants necessary for the first five years operation of each pumping system.

1.09 PRODUCT HANDLING

A. All equipment and parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of fabrication, including storage in accordance with Manufacturer's requirements until final delivery to the job site.

B. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Engineer.

C. Finished surfaces of all exposed pump openings shall be protected by wooden blanks, strongly built and securely bolted thereto or by other approved means.

D. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.

E. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.

- F. Each box or package shall be properly marked to show its net weight in addition to its contents.

PART 2 PRODUCTS (PRE-PURCHASED BY THE OWNER)

PART 3 EXECUTION

3.01 INSTALLATION

- A. Installation shall be in strict accordance with the Manufacturer's instructions and recommendations in the locations shown on the Drawings. The Contractor shall furnish all required oil and grease for initial operation, if required, in accordance with the Manufacturer's recommendations. Anchor bolts shall be set in accordance with the Manufacturer's recommendations.
- B. Upon completion of each pump application, the Manufacturer shall inspect the installation and submit a certificate stating that the installation of the equipment meeting Manufacturer's installation, operation and maintenance manuals is satisfactory, that the equipment is ready for operation, and that the operating personnel have been suitably instructed in the operation, lubrication and care of each unit.

3.02 INSPECTION AND TESTING

A. General

1. The Engineer shall have the right to inspect any equipment to be furnished under this Section prior to their shipment from place of manufacture.
2. The Engineer shall be notified in writing no fewer than ten working days prior to the factory performance test.
3. Field tests shall not be conducted until such time that the pumping system, including controls, is complete and ready for testing.

B. Factory Pump Test:

1. Each pump shall be factory-tested as described in ANSI/HI 11.6, American National Standard for Rotodynamic Submersible Pumps for Hydraulic Performance Acceptance Tests, as specified herein.
2. The Manufacturer shall perform hydrostatic test on the pressure-containing parts in accordance with ANSI/HI 11.6. Test shall be conducted on each pump prior to shipment.
3. Cast surfaces of all components shall be examined by visual inspection per MSS SP-55.
4. Factory pump tests shall be the basis of acceptance of the hydraulic performance of the pumps. The Manufacturer shall factory test all pumps prior to shipment in accordance with the Hydraulic Institute standards. Flow rate, total head, efficiency, and input KW shall be tested and recorded for at least five points on the pump performance curve. Test shall be performed to demonstrate that the pumps meet ANSI/HI 11.6, acceptance grade 2B for all specified points. The five points shall include the points specified in Article

2.02. If any pump tested fails to meet any specification requirement it will be modified until it meets all specification requirements. If any pump tested fails to meet the flow rate, head or efficiency requirements for any of the conditions listed in Article 2.02 of this specification and all reasonable attempts to correct the inefficiency are unsuccessful, the pump(s) shall be replaced with a unit(s) that meets the specified requirements.

5. Certified pump performance curves shall be submitted, including total head, flow rate, bowl efficiency and total brake horsepower for each pump supplied. Test data shall be submitted for approval by the Engineer prior to shipment.
6. If the Manufacturer does not have historical test records for NPSH3 at the specified design pump speed, one pump shall be tested to demonstrate NPSH3 versus flow rate.
7. All meters, gauges, and other test instruments shall be calibrated within the manufacturer's established time period prior to the scheduled test and certified calibration data shall be provided. If the Manufacturer has no ISO standard calibration period, Hydraulic Institute Standards shall govern.
8. The pumps shall be tested at 100 percent of the design speed.
9. Each pump shall be tested through the specified range of flow, and head/flow rate/efficiency curves plotted at maximum output speed. During each test, the pump shall be run at each head condition for sufficient time to accurately determine flow rate, head, power input, and efficiency. In addition, during the tests, the overall efficiency shall be determined at each test point. The pump under test shall be modified until the specified conditions are met or replaced with a pump that will meet the specified conditions.
10. All pumps shall receive a non-witness factory test.
11. The Manufacturer shall perform the following test on each pump prior to shipment from factory:
 - a. Megger motor and pump for insulation breaks or moisture.
 - b. Prior to submergence, the pump shall be run dry and checked for correct rotation.
 - c. Pump shall be run for a minimum of 30 minutes in a submerged condition.
 - d. The pump shall be removed from test tank, meggered immediately for moisture and upper and lower seal unit shall be checked for water intrusion.
 - e. A written certification test report regarding the above tests shall be submitted for approval prior to shipment.

C. Field Pump Test:

1. As specified in Paragraph 1.07 B., the Manufacturer shall furnish the services of a representative who shall have complete knowledge of proper operation and maintenance to inspect the final installation and supervise the test run of the equipment. The Manufacturer shall include in his price, a minimum of eight hours of a representative's time per lift station for the above tests.
2. Written test procedures shall be submitted to the Engineer for approval 30 days prior to testing.

3. The Contractor shall furnish all water, power, facilities, labor, materials, supplies and test instruments required to conduct the field testing.
4. The Final Acceptance Test shall demonstrate that all items of these Specifications have been met by the equipment as installed and shall include, but not be limited to, the following tests:
 - a. That all units have been properly installed and are in correct alignment.
 - b. The Contractor shall check for correct lubrication in accordance with manufacturer's instructions. The Contractor shall check direction of rotation of all motors and reverse connections, if necessary.
 - c. That the units operate without overheating or overloading any parts and without objectionable vibration.
 - d. That there are no mechanical defects in any of the parts.
 - e. That the pumps can deliver the specified total head and flow rate to demonstrate that the pumps generally meet the requirements specified (factory performance test is the basis of pump acceptance).
 - f. That the pump sensors and controls perform satisfactorily as to sequence control, correct start and stop elevations, and proper level alarm functions.
5. If the pump performance does not meet the specifications, corrective measures shall be taken or pumps shall be removed and replaced with pumps which satisfy the conditions specified.
6. A five-day continuous operating period of the pumps will be required before acceptance. If pumping system fails during the test period, the test shall be restarted (including reset of time to zero) after repair (or replacement) has been completed.

D. Field Vibration Testing:

1. After installation and as soon as conditions permit full speed operation, and in the presence of the Engineer, have the vibration tests performed in accordance with ANSI/HI 11.6 on each unit by a minimum level III qualified vibration technician as defined by Vibration Institute or equivalent to (a) prove compliance with specified limitations, and (b) prove that there are no field installed resonant conditions due to misalignment, the foundation, or the connecting piping and its supports, when operating at any speed within the specified operating range.
2. If required, take corrective action and have the units retested to ensure full compliance with the specified requirements. All costs associated with the field tests or any required corrective action shall be borne by the Contractor.

END OF SECTION

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SECTION 15064
PLASTIC PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install 1/8-in to 6-in non-buried plastic piping and appurtenances for water services (hose bibbs) as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Valves and appurtenances are included in Section 15100.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, shop drawings and product data required to establish compliance with this Section. Submittals shall include the following:
 - 1. Shop drawings including piping layouts and schedules shall be submitted to the Engineer and shall include dimensioning, fittings, locations of valves and appurtenances, joint details, methods and locations of supports and all other pertinent technical specifications for all piping to be furnished.
 - 2. Shop drawing submittals for piping under this Section shall include all data and information required for the complete piping systems. All dimensions shall be based on the actual equipment to be furnished. Types and locations of pipe hangers and/or supports shall be shown on the piping layout for each piping submittal.

1.04 REFERENCE STANDARDS

- A. ASTM International.
 - 1. ASTM D1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - 2. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120.
 - 3. ASTM D2464 - Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - 4. ASTM D2466 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
 - 5. ASTM D2467 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - 6. ASTM D2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.

7. ASTM D2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings.
8. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
9. ASTM D3311 - Standard Specification for Drain, Waste and Vent (DWV) Plastic Fittings Patterns.
10. ASTM D5260 - Standard Classification for Chemical Resistance of Poly(Vinyl Chloride) (PVC) Homopolymer and Copolymer Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
11. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws and Studs.
12. ASTM F594 - Standard Specification for Stainless Steel Nuts.

B. Plastic Pipe Institute (PPI)

1. PPI Handbook of Polyethylene Pipe

C. Handbook of PVC Pipe Design and Construction, Uni-Bell PVC Pipe Association

D. American National Standard Institute (ANSI)

1. ANSI B16.5 Pipe Flanges and Flanged Fittings..

E. National Sanitation Foundation (NSF)

- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. All plastic pipe and fittings of each type shall be furnished by a single manufacturer who is experienced in the manufacture of the items to be furnished; however, it shall not be a requirement that the pipe and fittings be manufactured by the same manufacturer, provided that the pipe and fittings are compatible in both compounding and size. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall be suitable for the intended service.

1.06 SYSTEM DESCRIPTION

- A. Piping shall be installed in those locations as shown on the Drawings.
- B. The equipment and materials specified herein are intended to be standard types of plastic pipe and fittings for use in transporting wastewater.
- C. Plastic piping systems shall be designed for the following conditions:
1. System: Water

- | | |
|-------------------|-----------------------|
| 2. Material: | Schedule 80 PVC |
| 3. Flow Velocity: | Up to 10 fps |
| 4. Temperature: | 35 to 100 degrees F |
| 5. Fluid: | Water |
| 6. Pressure: | Atmosphere to 65 psig |
| 7. Temperature: | Ambient |

PART 2 PRODUCTS

2.01 MATERIALS

A. Poly (Vinyl Chloride) Pipe and Fittings - PVC

1. Pipe shall be manufactured from PVC compounds meeting ASTM D1784, Class 12454 in accordance with ASTM D1785, PVC 1120. The pipe shall have a minimum hydrostatic design stress of 2,000 psi at 73 degrees F and shall be suitable for field cutting and solvent welding. Pipe shall be of the sizes as shown on the Drawings and shall be Schedule 80 unless otherwise shown.
2. Fittings shall be the socket type for solvent welded joints conforming to ASTM D2467 or ASTM D2466 where Schedule 40 pipe is shown on the Drawings. Fittings shall be manufactured from PVC compound meeting ASTM D1784, Class 12454. Solvent cement shall be as specified in ASTM D2564.
3. Flange bolt spacing, number and dimensions shall conform to the requirements of ANSI B16.5. CPVC and PVC flanges shall be suitable for solvent cementing to the pipe and shall be suitable for a minimum pressure of 150 psi.
4. Bolts, nuts and washers for flanged joints shall be for corrosive service conditions and shall be Type 316 stainless steel. Anti-seize compound for stainless steel bolts and nuts shall be of a molybdenum disulfide base such as Molycoat-G or equal.

B. Fittings, specials, unions and flanges shall be of the same schedule number and manufactured of the same materials as the pipe. Whenever unions are called out on the Drawings, flanged connections may be substituted, provided that dimensional controls do not preclude use of flanges.

C. Sleeves for plastic pipe shall be as specified in Section 01180.

D. Expansion joints for PVC sizes 1/2-in to 6-in shall be telescoping type as manufactured by Plastinetics, Inc.; ASAHI/America or equal. Expansion in pipes smaller than 1/2-in shall be accommodated with expansion loops.

PART 3 EXECUTION

3.01 INSTALLATION

- A. The installation of plastic pipe shall be strictly in accordance with the manufacturer's technical data and printed instructions.
- B. Joints for PVC pipe shall be solvent cemented unless flanged or threaded are otherwise shown on the Drawings or are specified as other types herein. In making solvent cemented connections, clean dirt and moisture from pipe and fittings, bevel pipe ends slightly with emery cloth to remove any shoulder or burrs created by cutting of the pipe. Solvent cement joints shall be made in accordance with ASTM D2855. Primer shall be used whenever recommended by the pipe, fitting, or cement manufacturer and in all cases for joints on pipe systems 4-in in diameter or larger. Making solvent cement joints shall not be performed and the work shall stop when the temperature, measured in the shade, is 40 degrees F and falling.
- C. Joints between PVC drain, waste and vent pipe and cast-iron soil pipe shall be made with approved mechanical compression joints designed for such use.
- D. Installation of valves and fittings shall be in accordance with manufacturer's instructions. Particular care shall be taken not to overstress threaded connections. In making solvent cement connections, the solvent cement or primer shall not be spilled on valves. Cement allowed to run from joints shall be cleaned from the pipe and fittings immediately.
- E. All piping shall have a sufficient number of unions to allow convenient removal of piping and shall be as approved by the Engineer. PVC pipe shall be installed with at least one expansion joint or loop near the center of each straight run of pipe which is 50-ft or longer with the maximum spacing between expansion joints or loops being 150-ft.
- F. Where plastic pipe passes through wall sleeves, the space between the pipe and sleeve shall be sealed with a mechanical sealing element as specified in Section 01180.
- G. All plastic pipe to metal pipe connections shall be made using flanged connections. Metal piping shall not be threaded into plastic fittings, valves, or couplings nor shall plastic piping be threaded into metal valves, fittings or couplings. Only socket to thread adaptors shall be used for threaded plastic pipe connections to other threaded devices.

3.02 FIELD TESTING AND FLUSHING

- A. Testing and flushing shall be performed per SJCUD Manual of Water, Wastewater, and Reuse Design Specifications, latest edition, 3.9.

END OF SECTION

SECTION 15066
STAINLESS STEEL PIPE AND FITTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install, test, complete and ready for operation all stainless steel pipe as shown on the Drawings and as specified herein.
- B. Where the word "pipe" is used it shall refer to pipe, fittings, hangers, supports and appurtenances unless otherwise noted.
- C. The work includes, but is not necessarily limited to:
 - 1. Furnishing and installing above grade, stainless steel pipe, fittings and specials with flanged ends.

1.02 RELATED WORK

- A. Valves and appurtenances are included in Section 15100.
- B. Piping specialties are included in Section 15120.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, the following:
 - 1. Within 30 calendar days following effective date of the Agreement submit the name of the pipe, fitting and appurtenances manufacturers and a list of the material to be furnished by each manufacturer.
 - 2. Shop drawings including piping layouts and schedules, including dimensioning, fittings, expansion joints, locations of valves and appurtenances, joint details, wall penetration details, methods and locations of supports and all other pertinent technical specifications for all piping to be furnished. Shop drawings shall include all data and information required for the complete piping systems. All dimensions shall be based on the actual equipment to be furnished. Types and locations of pipe hangers and/or supports shall be shown on the piping layouts for each pipe submittal. Not all dimensions will be checked by the Engineer, nor will detailed review be performed. Contractor shall be responsible for accurate dimensioning of piping systems.
 - 3. Proposed cleaning method, including pre-cleaning, descaling, chemicals to be used, or mechanical descaling method and final cleaning/passivation
 - 4. Certifications that welders are qualified, in accordance with ANSI B31.1, Paragraph 127.5 for shop and project site welding of pipe work.

1.04 REFERENCE STANDARDS

- A. ASTM International (ASTM):

1. ASTM A312 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipes.
 2. ASTM A778 - Standard Specification for Welded, Unannealed Austenitic Stainless Steel Tubular Products.
- B. American National Standards Institute (ANSI):
1. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings Classes 25, 125 and 250.
 2. ANSI B16.9 - Factory-Made Wrought Steel Buttwelding Fittings.
 3. ANSI B36.19 - Stainless Steel Pipe.
- C. American Water Works Association (AWWA):
1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
- D. American Society of Mechanical Engineers (ASME):
1. ASME B31.1 - Power Piping.
- E. American Welding Society (AWS):
- F. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. Stainless steel pipe and fittings shall be furnished by a single manufacturer who is fully experienced, reputable, qualified and regularly engaged for the last 5 years in the manufacture of the materials to be furnished. The pipe and fittings shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with this Section.

1.06 SYSTEM DESCRIPTION

- A. Piping shall be installed in those locations as shown on the Drawings.
- B. The equipment and materials specified herein are intended to be standard types of stainless steel pipe and fittings for use in transporting wastewater.
- C. Stainless steel piping for the system listed below shall be designed for the following conditions:
1. System: Wastewater.
 - a. Material: Schedule 40 Type 316L
 - b. Operating Pressure: Atmosphere to 65 psig.
 - c. Flow Velocity: Up to 10 fps
 - d. Schedule: 40
 - e. Temperature: 35° to 100° F.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe and fittings. Pipe and fittings shall not be dropped. Pipe and fittings shall be examined before installation and no piece shall be installed which is found to be defective.
- B. In handling the pipe, wide cushioned slings or other devices and methods acceptable to the Engineer shall be used. No uncushioned ropes, chairs, wedges or levers shall be used in handling the pipe, fittings and couplings.
- C. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe by the Contractor, at the Contractor's own expense. All pipe and fittings shall be thoroughly cleaned before installation and shall be kept clean until they are put into service.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Stainless steel pipe and fittings 6-in and less shall be fabricated from schedule 40 stainless steel sheet and conform to ASTM A778 Type 316L. Carbon content of Type 316L material shall be 0.03 percent maximum. Finish shall be No. 1 or No. 2B.
- B. Pipe shall be die-formed or rolled true to dimension and round. Tolerances for length, inside and outside diameter and straightness shall conform to ASTM A530. The two edges of sheet shall be brought to line so as not to leave a shoulder on the inside of the pipe. Ends of pipe and fittings shall be perpendicular to the longitudinal axis. Longitudinal seams on pipe and fittings shall be welded by either the tungsten gas or the metallic-gas method. The interior welds shall be smooth, even and shall not have an internal bead higher than 1/16-in. All pieces shall be marked with gauge and type of stainless steel and with the initials of the inspector marked on the inside of each piece, at each end.
- C. Fittings shall be smooth curve type up to 18-in diameter. Fittings shall conform to ANSI B16.9.
- D. Flanges for pipe 4-in and smaller shall be of the type of stainless steel as the pipeline, and shall be welded directly to the pipe end, and shall be drilled to the 125 lb ANSI B16.1 standard. Where the pipe stub is to pass through a sleeve during installation, a split-type back up flange shall be used. Bolts, washers, nuts and other hardware for flange bolting shall be Type 316 stainless steel. **All pump station piping shall be flanged.**
- E. Gaskets for flanged connections shall be a minimum of 1/16-in thick and shall be rubber, hypalon, teflon, BUNA-N, SBR, NBR or viton.
- F. Shop fabricated multiple output headers may be used in lieu of individual flanged fittings.
- G. Wall pipes shall have integral shop welded wall stops.
- H. All stainless steel pipe and fittings shall be pickled at the point of manufacture, scrubbed and washed until all discoloration is removed in accordance with ASTM A380.
- I. Shop welding of fabrications shall be done according to the procedures and by welders certified per ASME Section IX. Welds shall be by an inert gas shielding process using only extra low

carbon filler metals. Welds shall have a bead height of no more than 1/16-in. Butt welds shall have 100 percent penetration to the interior or backside of the weld joint. Cross-sectional thickness of welds shall be equal or greater than that of the parent metal.

- J. Where shown on the Drawings or where approved by the Engineer, plain end pipe shall be joined by all stainless steel flexible couplings. Sleeve type couplings shall be of the Type 316L stainless steel and shall be Style 38 as manufactured by Dresser Manufacturing Division of Dresser Industries; coupling 411 as manufactured by Smith Blair, Inc. or equivalent couplings manufactured by Depend-O-Lok Co.
- K. Where shown on the Drawings or where approved by the Engineer, flanged coupling adaptors shall be used to connect plain end pipe to equipment, fittings and valves. Flanged coupling adaptors shall be of the Type 316L stainless steel and shall comply with AWWA C207. Flanged coupling adapters shall be manufactured by Dresser Manufacturing Division of Dresser Industries; Smith Blair, Inc. or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Pipe and fittings shall be installed true to grade and alignment and pipe anchorage and/or restraint shall be provided where required. Manufacturer's instructions shall be strictly followed.
- B. Pipe and fittings shall be protected from dirt, dust, oil, grease and other foreign matter during installation to prevent damage to pipe and to assure no foreign matter is left in the piping.
- C. To assemble the joints in the field, thoroughly clean all joint surfaces and gaskets, if any, with soapy water before assembly. Bolts shall be tightened alternately, evenly to the manufacturer's specified torques. Under no condition shall extension wrenches or pipe-over-handle ratchet wrenches be used to secure greater leverage. All electrical bonding or insulation shall be installed as joints are made up.
- D. Fittings, in addition to those shown on the Drawings, shall be provided if required. Due consideration shall be given to thermal expansion/contraction over a temperature range of 200 degrees F.
- E. When cutting of pipe is required, the cutting shall be done by machine neatly, without damage to the pipe. Cut ends shall be smooth and at right angles to the axis of the pipe.
- F. After installation, stainless steel pipe lines shall be washed clean with steam or hot water to remove any foreign material picked up during transport.

3.02 JOINING MECHANICAL AND RESTRAINED JOINTS

- A. Mechanical joints shall be in accordance with the "Notes on Methods of Installation" under AWWA C111 and the instructions of the manufacturer.
- B. Restrained joint pipe and fittings shall be installed in the locations shown on the Drawings and as acceptable to the Engineer.

3.03 JOINING FLANGED JOINTS

- A. Flanged joints shall be made with gasket, bolts and nut bolts stud with a nut on each end, or studs with nuts where the pipe is tapped. The number and size of bolts shall conform to the same standard requirements as the flange.

3.04 FIELD WELDING

- A. Welding in the field shall be done only if approved by the Engineer. Field welds shall be made by welders certified under ASME Section IX and be equal in all respects to shop welds. After field welding has been done, all joints shall be thoroughly cleaned and buffed using deburring and finishing wheels.

3.05 DISINFECTION AND CLEANUP

- A. After installation, completed lines shall be cleaned with Oakite deoxidizer or similar deoxidizer as recommended by the manufacturer to remove all foreign matter, construction stains or shop markings. Cleaned lines shall be rinsed clear with steam or hot water.

3.06 FIELD TESTING AND FLUSHING

- A. Field Testing and flushing of stainless steel pipe shall be per SJCUD Manual of Water, Wastewater, and Reuse Design Standards & Specifications, latest edition, 3.9.

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SECTION 15100
VALVES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install complete and ready for operation and test all non-buried valves as shown on the Drawings and as specified herein.
- B. The equipment shall include, but not be limited to, the following; however not all items specified herein may be included in this project.
 - 1. General Requirements.
 - 2. Gate Valves
 - 3. Plug Valves.
 - 4. Check Valves.
 - 5. Ball Valves.

1.02 RELATED WORK

- A. Certain items similar to those specified in this Section may be specified to be furnished and installed with individual equipment or systems. In case of a conflict, those individual equipment or system requirements shall govern.
- B. Electric valve operators of all types, rate of flow controllers (including modulating valves and operators) and other types of valves which are part of the automated instrumentation (such as some solenoid valves) if not included herein are included in Division 13. Valve operators shall, however, be mounted at factory on valves as specified herein, as part of the work of this Section.
- C. Pipeline appurtenances are included in Section 15120 and include the following:
 - 1. Insulating Flange Gasket Kits (For Stainless Steel to Ductile Iron Connections)
 - 2. Plugs and Caps.
 - 3. Miscellaneous Adaptors.
 - 4. Couplings.
 - 5. Harnessing and Restraints.
 - 6. Pressure Gauges.
 - 7. Diaphragm Seals for Gauges.
 - 8. Appurtenances and Miscellaneous Items.

9. Color Coding and Labeling.

1.03 SUBMITTALS

- A. Submit to Engineer, in accordance with Section 01300, materials required to establish compliance with this Section. First submittal shall be valve schedule described in Paragraph 1.09. Approval of valve schedule submittal is required prior to Contractor submitting any of equipment in this specification. Subsequent Equipment Submittals shall include at least the following:
1. Valve tag number.
 2. Manufacturer and supplier.
 3. Address at which equipment will be fabricated or assembled.
 4. Drawings showing assembly details, materials of construction and dimensions.
 5. Descriptive literature, bulletins and/or catalogs of the equipment.
 6. Total weight of each item.
 7. A complete bill of materials.
 8. Additional submittal data, where noted with individual pieces of equipment.
- B. Certificates:
1. For each valve specified to be manufactured, tested and/or installed in accordance with AWWA and other standards, submit an affidavit of compliance with appropriate standards, including certified results of required tests and certification of proper installation.
- C. Manufacturer's Installation and Application Data.
- D. Operating and Maintenance Data.
1. Operating and maintenance instructions shall be furnished to Engineer as provided in Section 01730. Instructions shall be prepared specifically for this installation and shall include required cuts, drawings, equipment lists, descriptions and other information required to instruct operating and maintenance personnel unfamiliar with such equipment.

1.04 REFERENCE STANDARDS

- A. ASTM International:
1. ASTM A48 - Standard Specification for Gray Iron Castings.
 2. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
 3. ASTM A240 - Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels.

4. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
5. ASTM A436 - Standard Specification for Austenitic Gray Iron Castings.
6. ASTM A536 - Standard Specification for Ductile Iron Castings.
7. ASTM B30 - Standard Specification for Copper-Base Alloys in Ingot Form.
8. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.

B. American Water Works Association (AWWA):

1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
2. AWWA C500 - Metal-Seated Gate Valves Supply Service.
3. AWWA C508 - Swing-Check Valves for Waterworks Service, 2-in (50mm through 24-in (600mm) NPS.
4. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
5. AWWA C511 - Reduced-Pressure Principle Backflow-Prevention Assembly.
6. AWWA C540 - Power-Actuating Devices for Valves and Sluice Gates.
7. AWWA C541 - Hydraulic and Pneumatic Cylinder and Vane Type Actuators for Valves and Slide Gates.
8. AWWA C550 - Protective Epoxy Interior Coatings for Valves and Hydrants.
9. AWWA C800 - Underground Service Line Valves and Fittings.

C. American National Standards Institute (ANSI):

1. ANSI B1.20.1 - Specifications, Dimensions, Gauging for Taper and Straight Pipe Threads (except dry seals).
2. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
3. ANSI B16.10 - Face-to-Face and End-to-End Dimensions of Valves.

D. American Iron and Steel Institute (AISI).

E. Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS):

1. MSS-SP-61 - Pressure Testing of Steel Valves.
2. MSS-SP-70 - Cast Iron Gate Valves, Flanged and Threaded Ends.
3. MSS-SP-71 - Cast Iron Swing Check Valves, Flanges and Threaded Ends.
4. MSS-SP-72 - Ball Valves with Flanged or Butt-Welding Ends for General Services.

5. MSS-SP-78 - Cast Iron Plug Valves, Flanged and Threaded Ends.
 6. MSS-SP-80 - Bronze Gate, Globe, Angle and Check Valves.
 7. MSS-SP-82 - Valve Pressure Testing Methods.
 8. MSS-SP-98 - Protective Coatings for the Interior of Valves, Hydrants and Fittings.
- F. National Electrical Manufacturers Association (NEMA).
- G. Underwriters Laboratories (UL).
- H. Factory Mutual (FM).
- I. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Valves and appurtenances shall be products of well-established firms who are fully experienced, minimum ten years, reputable and qualified in manufacture of particular equipment to be furnished.
 2. Equipment shall be designed, constructed and installed in accordance with best practices and methods and shall comply with this Section as applicable.
 3. Units of the same type shall be the product of one manufacturer.
- B. Inspection of units may also be made by Engineer or other representative of Owner after delivery. Equipment shall be subject to rejection at any time due to failure to meet any of specified requirements, even though submittal data may have been accepted previously. Equipment rejected after delivery shall be marked for identification and shall be removed from job site at once.

1.06 SYSTEM DESCRIPTION

- A. Equipment and materials specified herein are intended to be standard for use in controlling flow of water and wastewater as noted on Drawings.
- B. Valves, appurtenances and miscellaneous items shall be installed as shown on Drawings and as specified, so as to form complete workable systems.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Reference is made to Section 01600 for additional information.
- B. Packing and Shipping:
1. Care shall be taken in loading, transporting and unloading to prevent injury to the valves, appurtenances, or coatings. Equipment shall not be dropped. Valves and appurtenances

shall be examined before installation and no piece shall be installed which is found to be defective. Damage to the coatings shall be repaired as acceptable to Engineer.

2. Prior to shipping, ends of valves shall be acceptably covered to prevent entry of foreign material. Covers shall remain in place until after installation and connecting piping is completed.
 - a. Valves 3-in and larger shall be shipped and stored on site until time of use with wood or plywood covers on each valve end.
 - b. Valves smaller than 3-in shall be shipped and stored as above except that heavy cardboard covers may be used on the openings.
 - c. Rising stems and exposed stem valves shall be coated with a protective oil film which shall be maintained until the valve is installed and put into use.
 - d. Corrosion in evidence at the time of acceptance by the Owner shall be removed, or the valve shall be removed and replaced.

C. Storage and Protection:

1. Special care shall be taken to prevent plastic and similar brittle items from being directly exposed to the sun, or exposed to extremes in temperature, to prevent deformation. See the individual piping sections and manufacturer's information for further requirements.

1.08 MAINTENANCE

- A. Special tools and the manufacturer's standard spare parts, if required for normal operation and maintenance, shall be supplied with the equipment in accordance with Section 01730 and where noted, as specified herein. Tools shall be packaged in a steel case, clearly and indelibly marked on the exterior to indicate equipment for which tools are intended.
- B. Provide one operations and maintenance manual for each type of valve and operator supplied under this specification in accordance with Section 01730.
- C. Included within operations and maintenance manuals, provide a list of all spare and replacement parts with individual prices and location where they are available.

1.09 VALVE DESIGNATIONS AND SCHEDULE

- A. Valves shall be identified by a unique valve tag as identified in valve schedule prepared by Contractor. Specific type of valve to be used will be identified by symbol and/or call out on Drawings. Contractor shall identify each valve by its assigned tag number on shop drawings and equipment submittals.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT - GENERAL

- A. Reference is made to Division 1 for additional requirements, including nameplates, provisions for temporary pressure gauges, protection against electrolysis and anchor bolts.
- B. Use of a manufacturer's name and/or model or catalog number is for purpose of establishing standard of quality and general configuration desired.

- C. Valves and appurtenances shall be of size shown on the Drawings or as noted and as far as possible equipment of same type shall be identical and from one manufacturer.
- D. Valves and appurtenances shall have name of maker, nominal size, flow directional arrows, working pressure for which they are designed and standard referenced, cast in raised letters or via riveted stainless steel nameplate upon some appropriate part of the body.
- E. Unless otherwise noted, items shall have a minimum working pressure of 150 psi or be of same working pressure as pipe they connect to, whichever is higher and suitable for pressures noted where they are installed.
- F. Joints, size and material - unless otherwise noted or required by Engineer:
 - 1. Except where noted, joints referred to herein shall be of same type, nominal diameter, material and with a minimum rating equal to pipe or fittings they are connected to.
 - 2. Valves and appurtenances shall be of same nominal diameter as pipe or fittings they are connected to.
 - 3. Valves exposed to view, or in vaults:
 - a. 3-in and smaller - threaded ends- unless noted otherwise herein or on Drawings.
 - b. 4-in and larger - flanged ends.
- G. Provide special adaptors as required to ensure compatibility between valves, appurtenances, and adjacent pipe.
- H. No alternative materials will be considered for approval unless complete documentation is provided regarding their satisfactory long-term use in similar conditions; in addition, the consideration of any substitution will be considered only if superiority of proposed materials is the intent of substitution, and only if sufficient evidence is provided to document that superiority.

2.02 VALVE ACTUATORS - GENERAL/ MANUAL

- A. Geared actuators shall be suitable for all weather service, with mechanical shaft seals, shall be permanently greased, or shall have provisions for greasing. Actuators for submerged duty shall be so rated, with certification by manufacturer for submerged service.
- B. Valve manufacturer shall supply, mount, and test all actuators on valves at factory. Valves and their individual actuators shall be shipped as a unit.
- C. Unless otherwise noted on Drawings, valves shall be manually actuated; non-buried valves shall have an operating wheel, handle or lever mounted on operator; those with operating nuts shall have a non-rising stem with an AWWA 2-in nut; At least two tee handles shall be provided for operating nuts. Unless otherwise noted, operation for valves shall be CCW open.
- D. Actuators shall be capable of moving valve from full open to full close position and in reverse and holding valve at any position part way between full open or closed.
- E. Each operating device shall have cast on it the word "OPEN" and an arrow indicating direction of operation.

- F. Floor boxes for operating nuts recessed in concrete shall be standard cast iron type, cast-in-place, with fastening top, and Type 316 stainless steel hardware.
- G. Stem guides shall be of the adjustable wall bracket type, bronze bushed, with maximum spacing of 10-ft as manufactured by Clow; Rodney Hunt or equal. Extended operating nuts and/or stems shall have universal joints and pin couplings, if longer than 10-ft and a rating of at least five times the maximum operating torque. Stem adaptors shall be provided.
- H. Where required by installation, or as specified, provide the following: extended stem; floor stand and handwheel; position indicator and etched or cast arrow to show direction of rotation to open the valve; resilient, moisture-resistant seal around stem penetration of slab.
- I. Gear Actuators:
 - 1. Unless otherwise noted, gear actuators shall be provided for the following: plug and ball valves larger than 3-in diameter; where specified and/or indicated on Drawings; where manual operator effort is greater than 40 lbs rim pull.
 - 2. Actuators shall be capable of being removed from valve without dismantling the valve or removing valve from the line.
 - 3. Gear actuators for quarter turn valves shall be of worm or helical worm gear type with output shaft perpendicular to valve shaft, having a removable hand wheel mounted on output shaft. Where shown on Drawings, a two-inch cast iron operating nut shall be provided. Actuators shall conform to AWWA C504 except where more stringent requirements are provided hereinafter. Gearing shall be machine cut steel designed for smooth operation. Bearings shall be permanently lubricated, with bronze bearing bushings provided to take thrusts and mechanical shaft seals to contain lubricants. Housings shall be sealed to exclude moisture and dirt, allow reduction mechanisms to operate in lubricant and be constructed of cast iron, ASTM A 126, Grade B, or of ductile iron, ASTM A 536. Gear housing bodies for thermoplastic valves may be cast aluminum or fabricated steel to reduce weight. Gear actuators shall indicate valve position and have adjustable stops.
 - 4. Manual Input torque to produce required valve operating torque for worm and travelling nut gear operators shall not exceed 80 ft-lbs. In addition, hand wheel rim pull shall not exceed 20 lbs for valve sizes up to 12 inches, 40 lbs for valve size between 14 and 20 inches, 60 lbs for valve size 24 and greater. Minimum hand wheel size shall be 8 inches for up to 12-inch valve size, 12 inches for up to 16-inch valve size, 18 inches for up to 20-inch size.
 - 5. Gear actuators for multi turn valves shall be of bevel or spiral bevel type with output shaft perpendicular to valve shaft, having a removable hand wheel mounted on output shaft. Gearing shall be machine cut steel designed for smooth operation. Bearings shall be permanently grease lubricated, with dual anti-friction ball bearings on output shaft and mechanical shaft seals to contain lubricants. Output flange of primary gear reducer shall be designed to meet an appropriate MSS or ISO standard to allow mounting to secondary gear reducer. Ring gear shall ride on ball bearings. Stem nut shall be bronze alloy, shouldered, and ride on needle bearings. Housing components shall be O-ring sealed to exclude moisture and dirt, constructed of cast iron, ASTM A 126, Grade B, or of ductile iron, ASTM A 536. Gear housing bodies for thermoplastic valves may be cast aluminum or fabricated steel to reduce weight. Manual operator input effort to the hand wheel shall be a

maximum of 30 lbs for operating the valve from full open to full close, under any conditions. Maximum hand wheel size shall be 24-in diameter.

- J. Additional valve actuator requirements are included with the individual valve types and as noted in Paragraph 1.02 above.
- K. Position indication and direction of opening arrows shall be embossed, stamped, engraved, etched, or raised castings. Decals or painted indications shall not be allowed.
- L. Unless otherwise noted, valves larger than 3-in nominal diameter shall be provided with position indicators at the point of operation.

2.03 GATE VALVES

- A. Gate valves shall be Model 2360 by Mueller and per St. Johns County Utility Department's Manual of Water, Wastewater, and Reuse Design Standards & Specifications, latest edition.

2.04 TAPPING VALVES

- A. Tapping valves shall be Model 4751 by M&H and per St. Johns County Utility Department's Manual of Water, Wastewater, and Reuse Design Standards & Specifications, latest edition.

2.05 PLUG VALVES

- A. Plug valves specified herein shall be PEF 100% Port Eccentric Plug Valves as manufactured by DeZurik; or approved equal. Manufacturers named or otherwise, shall comply completely with this Section.
- B. Valves shall be rated at minimum 175 psi WOG (Water, Oil and Gas) working pressure for sizes 4-in to 12-in inclusive and shall be capable of providing drop tight shut-off to full valve rating with pressure on either side of plug.
 - 1. Plug valves under this Paragraph shall be performance, leakage and hydrostatically tested in accordance with AWWA C517, except as modified herein.
 - 2. At above rated minimum working pressures, valves shall be certified by manufacturer as permitting zero leakage for a five-minute duration with full pressure applied in either direction.
 - 3. At direction of Engineer, valve manufacturer may be requested to perform a valve seat leakage test, witnessed by Engineer to prove compliance with this Section.
- C. Valve bodies shall be of cast iron, 30,000 psi tensile strength, ASTM A 126, Grade B, or of ductile iron, ASTM A 536 and of top entry, bolted bonnet design, cast with integral flanges conforming to connecting piping. Exposed bolts, nuts, and washers shall be zinc or cadmium-plated, except for submerged valves, which shall have Type 316 stainless steel hardware.
 - 1. Valve bodies shall be glass lined for plug valves installed in glass lined ductile iron pipelines. Glass lining shall be as specified in piping specification.
- D. Valve Plug:

1. Shall be Buna N coated, cast iron ASTM A 126, Grade B, or ductile iron, ASTM A 536, Grade 65-45-12.
 2. Shall be removable without removing valve from the line.
 3. Shall have an integral upper and lower shaft which shall have seals on upper and lower journals to prevent entrance of solids into journals.
 4. Shall be one piece for all valves.
- E. Shaft bearings shall be permanently lubricated stainless steel or bronze at both upper and lower stem journals. Operator shaft shall have easily replaceable seals, which shall be externally adjustable and repackable without removing bonnet from valve, or shall have self-adjusting packing.
- F. Valve seating surface shall provide full 360 degree seating by contact of a resilient seating material on plug mating with welded-in high nickel content overlay seating surface in body.
1. Seating design shall be resilient and of continuous interface type having consistent opening and closing torques and shall be non-jamming in closed position. Screw-in seats shall not be acceptable.
 2. Plugs shall have a full resilient facing of neoprene or Buna-N.
- G. Unless otherwise required due to location or mechanized operation, each valve 4-in and smaller shall be provided with its own securely attached lever. Provide adjustable limit stops for both opening and closing and a clearly marked position indicator.
- H. Plug valves shall be installed so that direction of flow through valve and shaft orientation is in accordance with manufacturer's recommendations. Unless otherwise noted, shaft shall be horizontal, with plug opening up.

2.06 CHECK VALVES

- A. Check valves shall be 259-02 Lever & Spring type, iron body and bronze mounted by M&H or equal by Mueller and per St. Johns County Utility Department's Manual of Water, Wastewater, and Reuse Design Standards & Specifications, latest edition.

2.07 BALL VALVES

- A. Ball valves shall be stainless steel, quarter turn by FIP, Hayward or approved equal and per St. Johns County Utility Department's Manual of Water, Wastewater, and Reuse Design Standards & Specifications, latest edition.

2.08 VALVE BOXES

- A. Valve boxes shall be F2452 by Clow and per St. Johns County Utility Department's Manual of Water, Wastewater, and Reuse Design Standards & Specifications, latest edition.

2.09 SURFACE PREPARATION AND SHOP COATINGS

- A. If manufacturer's requirement is not to require finished coating on interior surfaces, then manufacturer shall so state and no interior finish coating will be required, if acceptable to Engineer.
- B. Exterior surface of various parts of valves, operators, floor-stands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter one shop coat of an approved rust-inhibitive primer such as Inertol Primer No. 621 shall be applied in accordance with instructions of paint manufacturer or other primer compatible with finish coat provided.
- C. Unless otherwise noted, interior ferrous surfaces of valves shall be given a shop finish of an asphalt varnish conforming to AWWA C509, (except mounting faces/surfaces) or epoxy conforming to AWWA C550 with a minimum thickness of 6 mils.
- D. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating. Mounting surfaces shall be especially coated with a rust preventative.
- E. Special care shall be taken to protect uncoated items and plastic items, especially from environmental damage.

2.10 FACTORY INSPECTION AND TESTING

- A. Factory inspection, testing and correction of deficiencies shall be done in accordance with the referenced standards and as noted herein.
- B. See Division 1 for additional requirements. Also refer to PART 1, especially for required submission of test data to Engineer.
- C. In addition to tests required by referenced standards, the following shall also be factory tested:
 - 1. Pressure regulating valves shall be factory tested at specified pressures and flows.
 - 2. All types of air and vacuum valves.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Valves and appurtenances shall be installed per manufacturer's instructions in locations shown, true to alignment and rigidly supported. Damage to above items shall be repaired to satisfaction of Engineer before they are installed.
- B. Install brackets, extension rods, guides, various types of operators and appurtenances as shown on Drawings, or otherwise required. Before setting these items, check Drawings and figures which have a direct bearing on their location. Contractor shall be responsible for proper location of valves and appurtenances during construction of the work.
- C. Materials shall be carefully inspected for defects in construction and materials. Debris and foreign material shall be cleaned out of openings, etc. Valve flange covers shall remain in place

until connected piping is in place. Operating mechanisms shall be operated to check their proper functioning and nuts and bolts checked for tightness. Valves and other equipment which do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to Owner.

- D. Where installation is covered by a referenced standard, installation shall be in accordance with that standard, except as herein modified, and Contractor shall certify such. Also note additional requirements in other parts of this Section.
- E. Unless otherwise noted, joints for valves and appurtenances shall be made up utilizing same procedures as specified under applicable type connecting pipe joint and valves and other items shall be installed in proper position as recommended by manufacturer. Contractor shall be responsible for verifying manufacturers' torquing requirements for all valves.

3.02 INSTALLATION OF MANUAL OPERATIONAL DEVICES

- A. Unless otherwise noted, operational devices shall be installed with units of factory, as shown on Drawings or as acceptable to Engineer to allow accessibility to operate and maintain item and to prevent interference with other piping, valves, and appurtenances.
- B. For manually operated valves 3-in in diameter and smaller, valve operators and indicators shall be rotated to display toward normal operation locations.
- C. Floor boxes, valve boxes, extension stems and low floor stands shall be installed vertically centered over operating nut, with couplings as required and elevation of box top shall be adjusted to conform to elevation of finished floor surface or grade at completion of Contract. Boxes and stem guides shall be adequately supported during concrete placement to maintain vertical alignment.

3.03 INSPECTION, TESTING AND CORRECTION OF DEFICIENCIES

- A. See also Division 1. Take care not to over pressure valves or appurtenances during pipe testing. If unit proves to be defective, it shall be replaced or repaired to satisfaction of Engineer.
- B. Functional Test: Prior to plant startup, items shall be inspected for proper alignment, quiet operation, proper connection and satisfactory performance. After installation, manual valves shall be opened and closed in presence of Engineer to show valve operates smoothly from full open to full close and without leakage. Valves equipped with electric, pneumatic or hydraulic actuators shall be cycled five times from full open to full closed in presence of Engineer without vibration, jamming, leakage, or overheating. Pressure control and pressure relief valves shall be operated in presence of Engineer to show they perform their specified function at some time prior to placing piping system in operation and as agreed during construction coordination meetings
- C. Various pipe lines in which valves and appurtenances are to be installed are specified to be field tested. During these tests, any defective valve or appurtenance shall be adjusted, removed, and replaced, or otherwise made acceptable to Engineer.
- D. Various regulating valves, strainers, or other appurtenances shall be tested to demonstrate their conformance with specified operational capabilities and deficiencies shall be corrected or device replaced or otherwise made acceptable to Engineer.

3.04 CLEANING

- A. Items including valve interiors shall be inspected before line closure, for presence of debris. At option of Engineer, internal inspection of valve and appurtenances may be required any time that likelihood of debris is a possibility. Pipes and valves shall be cleaned prior to installation, testing disinfection and final acceptance.

END OF SECTION

SECTION 15120
PIPING SPECIALTIES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install complete test, and make ready for operation all piping specialties required by the work of this Contract. Specific piping materials, systems and related installation and testing requirements shall be coordinated with the related sections in Divisions 2, 11 and 15. The items shall include the following:

1. Insulating Flange Gasket Kits (For Stainless Steel to Ductile Iron Connections)
2. Plugs and Caps.
3. Miscellaneous Adaptors.
4. Service Clamps.
5. Couplings.
6. Harnessing and Restraints.
7. Pressure Gauges.
8. Diaphragm Seals for Gauges.
9. Appurtenances and Miscellaneous Items.
10. Color Coding and Labeling.

1.02 RELATED WORK

- A. Piping materials and systems are included in other Sections of Division 15.
- B. Specialties and apparatus furnished with equipment and systems are included in individual Sections in Divisions 11.
- C. Valves are included in Section 15100.

1.03 SUBMITTALS

- A. Submit, in accordance with Section 01300, general submittals for piping, piping systems and pipeline appurtenances are listed below. It is not intended that all submittals listed below be provided for all piping materials and systems. Refer to individual System or Piping Sections for specific submittals.
- B. Shop Drawings and Product Data:
1. Piping layouts with specialties.

2. Location of pipe supports.
 3. Large scale details of wall penetrations and fabricated fittings.
 4. Catalog cuts of specialties, joints, couplings, harnesses, expansion joints, gaskets, fasteners and other accessories.
 5. Catalog cuts of all pipeline appurtenances specified herein.
 6. Brochures and technical data on coatings and linings and proposed method for application and repair.
- C. Design Data.
- D. Certificates:
1. Copies of certification for all welders performing work in accordance with ANSI B31.1.
- E. Manufacturers Installation (or application) instructions.
- F. Statement of Qualifications.
- G. Manufacturers Field Report.
- H. Project Record Document.
- I. Operation and Maintenance Data in accordance with Section 01730.
- J. Warranties.
- 1.04 REFERENCE STANDARDS
- A. ASTM International (ASTM):
1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 2. ASTM A126 - Standard Specification for Gray Iron Casting for Valves, Flanges and Pipe Fittings.
 3. ASTM A183 - Standard Specification for Carbon Steel Track Bolts and Nuts.
 4. ASTM A278 - Standard Specification for Gray Iron Castings for Pressure-Containing Parts for Temperatures up to 650 Degrees F.
 5. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 6. ASTM A325 - Standard Specification for Strength Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 7. ASTM A536 - Standard Specification for Ductile Iron Castings.

8. ASTM A575 - Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades.
 9. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings.
- B. American National Standards Institute (ANSI)
1. ANSI A13.1 - Scheme for the Identification of Piping Systems.
 2. ANSI B1.1 - Unified Inch Screw Threads (UN and UNR Thread Form).
 3. ANSI B18.2 - Square and Hex Bolts and Screws Inch Series Including Hex Cap Screws and Lag Screws.
 4. ANSI B31 - Code for Pressure Piping.
 5. ANSI B31.1 - Power Piping.
- C. American Society of Mechanical Engineers (ASME):
1. ASME B2.1 - Specifications, Dimensions, Gauging for Taper and Straight Pipe Threads (except dry seals).
 2. ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
 3. ASME B16.5 - Pipe Flanges and Flange Fittings.
- D. American Welding Society (AWS):
1. AWS B3.0 - Welding Procedure and Performance Qualifications.
- E. American Water Works Association (AWWA):
1. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3-in Through 48-in (75mm Through 1200mm), for Water and Other Liquids.
 2. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 3. AWWA C219 - Bolted Sleeve-Type Couplings for Plain-End Pipe.
 4. AWWA C606 - Grooved and Shouldered Joints.
 5. AWWA Manual M11 - Steel Pipe - A Guide for Design and Installation.
- F. Plumbing and Drainage Institute (PDI):
1. WH 201 - Water Hammer Arrestors.
- G. Underwriters Laboratories (UL).
- H. Factory Mutual (FM).

- I. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. All materials shall be new and unused.
- B. Install piping to meet requirements of local codes.
- C. Provide manufacturer's certification that materials meet or exceed minimum requirements as specified.
- D. Coordinate dimensions and drilling of flanges with flanges for valves, pumps and other equipment to be installed in piping systems. Bolt holes in flanges to straddle vertical centerline.
- E. Reject materials contaminated with gasoline, lubricating oil, liquid or gaseous fuel, aromatic compounds, paint solvent, paint thinner and acid solder.
- F. Unless otherwise specified, pressures referred to in all Piping Sections are expressed in pounds per square inch, gauge above atmospheric pressure, psig and all temperature are expressed in degrees Fahrenheit (F).

1.06 DELIVERY, STORAGE AND HANDLING

- A. During loading, transportation and unloading, take care to prevent damage to pipes and coating. Carefully load and unload each pipe under control at all times. Place skids or blocks under each pipe in the shop and securely wedge pipe during transportation to ensure no injury to pipe and lining. Cover or cap all pipe ends while pipe is in storage, until it is made a part of the work.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Specific piping materials and appurtenances are specified in the respective Piping or System Sections. The use of a manufacturer's name and/or model number is for the purpose of establishing the standard of quality and general configuration desired.
- B. Equipment shall be of the size shown on the Drawings or as noted and as far as possible equipment of the same type shall be identical and from one manufacturer.
- C. Equipment shall have the name of the maker, nominal size, flow directional arrows (if applicable), working pressure for which they are designed and standard referenced specifications cast in raised letters or indelibly marked upon some appropriate part of the body.
- D. Unless otherwise noted, items shall have a minimum working pressure of 150 psi or be of the same working pressure as the pipe they connect to, whichever is higher and suitable for the pressures noted where they are installed.
- E. All the piping system components shall be suitable to withstand the rated system pressure. The rated pressure shall be not less than the operating pressure and the test pressure of the piping system in which it is installed.

2.02 FLANGE INSULATING GASKET KITS (FOR STAINLESS STEEL TO DUCTILE IRON CONNECTIONS)

- A. Flange insulating kits shall be as manufactured by PSI or approved equal.
- B. Insulated sleeve couplings and flange adaptors shall be as shown on the Drawings.

2.03 PLUGS AND CAPS

- A. Provide standard plug or cap as required for testing; plugs, caps suitable for permanent service.
- B. Plug or cap or otherwise cover all piping work in progress.

2.04 MISCELLANEOUS ADAPTORS

- A. Between different types of pipe and/or fittings special adapters may be required to provide proper connection. Some of these may be indicated on the Drawings or specified with individual types of pipe or equipment. However, it is the Contractor's responsibility to ensure proper connection between various types of pipe, to structures and between pipe and valves, gates, fittings and other appurtenances. Provide all adapters as required, whether specifically noted or not.
- B. As required, these adapters shall be suitable for direct bury, with proper dielectric insulation and as a minimum, if metallic (not stainless steel or galvanized), with two coats of Coal Tar Epoxy.

2.05 SERVICE CLAMPS

- A. Service clamps for outlet sizes 4-in through 12-in where the outlet size is not greater than half the size of the main pipe shall have ductile iron bodies and a neoprene circular cross section O-ring gasket confined within the body. Outlet shall be AWWA C110 flange or AWWA C111 mechanical joint as required for the application. Straps shall be alloy steel, minimum 1/4-in by 1-1/2-in in cross section and fabricated with 3/4-in threaded ends. Service clamps shall be Fig. A-10920 or A-30920 by American Cast Iron Pipe Company or equal.

2.06 QUICK CONNECT COUPLINGS

- A. Couplings shall be of the cam and groove type consisting of a male adapter conforming to MIL-C-27487. Male adapters shall be designed to receive a female coupler without requiring threading, bolting, or tools. Connections shall remain tight and leakproof under pressures up to 100 psig. Each adapter shall be furnished with a dust cap complete with a 18-in long security chain of corrosion resistant material. Couplings shall be by Civacon, a Division of Dover Corporation; Ever-tite or equal. Units shall be "drip proof", providing totally dry connections and dis-connections.
- B. Coordinate quick connect coupling type with the Owner to verify it is appropriate for the Owner's equipment.
- C. Adapters shall be furnished in accordance with the Drawings, or as required by the installation.

2.07 HARNESSING AND RESTRAINT

- A. Where harnessed couplings or adapters are noted, they shall conform to AWWA Manual M11 except as modified by the Drawings or this Section.
- B. Unless otherwise noted, size and material for tie rods, clamps, plates and hex nuts shall be as shown on the Drawings, or, if not shown on the Drawings, shall be as required in AWWA Manual M11. Manufactured restraining clamp assemblies shall be as manufactured by Stellar Corporation, Columbus, OH, or equal.
- C. Restrained joints (such as welded, locking mechanical joints) shall be of the type specified with the individual type of pipe. If not specified, restrained (locking) mechanical joint pipe shall be of the manufacturer's standard design utilizing a locking device (ring or ears) integrally cast with the pipe.
- D. For up through 18-in diameter ductile iron pipe only, the following may be used as an alternative to other restraint system:
 - 1. The optional mechanical joint restraints shall be incorporated in the design of a follower gland. The gland shall be manufactured of ductile iron conforming to ASTM A536. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts as specified with the pipe.
 - 2. The restraint mechanism shall consist of numerous individually activated gripping surfaces to maximize restraint capability. The gripping surfaces shall be wedges designed to spread the bearing surfaces on the pipe. Twist-off nuts, sized same as tee-head bolts, shall be used to ensure proper actuating of restraining devices. When the nut is sheared off, standard hex nut shall remain.
 - 3. The mechanical joint restraint device for ductile iron pipe shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.
 - 4. The mechanical joint restraint devices shall be of the type listed below or equal.
 - 5. For Ductile Iron Pipe: EBAA Iron, Inc. Megalug 1100 series for up to 12-in only.
- E. Contractor shall be responsible for anchorage including restraint as noted elsewhere in Division 15.

2.08 PRESSURE GAUGES

- A. Bosses, connections, or nipples for gauges shall be provided as acceptable to the Engineer and as shown on the Drawings. Unbossed tapings shall not be acceptable. Where gauge tapings are not available in the suction or discharge nozzle, the necessary tapping in the adjacent piping shall be made.
- B. Gauges shall be furnished as part of a complete factory assembly, including gauge, snubber, liquid fill, diaphragm seal, bar stock ball valve isolation valve and threaded red brass connecting piping.

- C. Unless otherwise noted, gauge rating shall be from 0 to at least 2.5 percent higher than the rating of the pipe it is connected to.
- D. For Liquid Service:
 - 1. Pressure gauges shall have a 300 series stainless steel/ABS or FRP/Aluminum case and shall be 4-1/2-in nominal diameter with a full-sized Type 316 stainless steel Bourdon tube and a 300 series stainless steel movement. The gauges shall be liquid filled with glycerin and shall be provided with a filler/breather cap. The socket shall be 1/4-in NPT Type 316 stainless steel with a bottom connection and the dial shall be a white background with black markings. Gauges shall be ANSI Grade A plus or minus one percent of scale and shall have a blow-out back design.
 - 2. Gauges for the above services shall be liquid filled as manufactured by U.S. Gauge; Ashcroft; Trerice or equal.

2.09 DIAPHRAGM SEALS FOR GAUGES

- A. Diaphragm seals shall be installed for all pressure gauges to protect pressure gauges from contact with the fluid in the pipeline. Gauges shall be furnished as part of a complete factory assembly, including gauge, snubber, diaphragm seal, liquid fill, bar stock isolation valve and threaded red brass interconnecting piping. Furnish also a 1/4-in backflushing connection and ball valve.
- B. Diaphragm seals shall be minimum 2-1/2-in diameter, or as required for the connected pressure gauges. The diaphragm shall be "thread attached" to both piping and pressure switches or gauges. Furnish mineral oil fill between the diaphragm seal and the gauge.
 - 1. Diaphragm seals shall have an upper housing of cadmium plated carbon steel, with the lower housing of Type 316 stainless steel with Type 304 stainless steel bolts. Diaphragms shall be Teflon.
 - 2. Each diaphragm seal shall be connected to its respective piping or equipment with threaded red brass pipe and fittings. Pipe size and diaphragm tap size shall match the size of the gauge tap on the equipment, but shall not be less than 3/4-in, except for connections to plant water piping which shall be minimum 1/2-in. Furnish a ball valve shut-off valve between the pipeline or equipment and the diaphragm seal.
 - 3. Each diaphragm seal shall have a minimum 1/4-in NPT flush connection with ball valve and gauge tap to match the size of the gauge.
 - 4. Furnish pulsation dampeners adequate to prevent pulsation and/or vibration of the gauge indicator under all system operating conditions.
 - 5. Pump gauges shall connect to the diaphragm seal by a flexible Type 304 stainless steel capillary tube. Gauges shall be mounted on a support stand independent of the pump and piping, to minimize vibration of the gauges caused by vibration of the equipment or piping. Mount both the suction and discharge gauges at the same elevation. Furnish supports as specified in Section 15140, or attach gauges to the seal water assembly support (where applicable).

6. Diaphragm seals shall be Type SG by Mansfield and Green; Ashcroft or equal.

2.10 APPURTENANCES AND MISCELLANEOUS ITEMS

- A. All gaskets, glands, bolts, nuts and other required hardware shall be provided for connection of piping and appurtenances. Bolts and nuts shall be high strength, Type 316 stainless steel if submerged, buried, or subject to splashing and cadmium plated otherwise, with tee-head and hexagon nut. All other hardware shall be of the size, type and number as required and recommended by the piping or appurtenance manufacturer and as specified herein.
- B. All gaskets for flanges shall be full face and suitable for 200 degrees F operating temperature, and the fluids carried. See also Division 1.
- C. Plugs, caps and similar accessories shall be of the same material as the pipe and of the locking type, unless otherwise noted.
- D. Unions shall be of the same material as the pipe, except for dielectric connections.
- E. Special protective tape shall be fabric reinforced petroleum tape by Denso Inc., Houston, TX or equal.

2.11 COLOR CODING AND LABELING

A. General:

1. Provide a complete color coding system consisting of preprinted labels and banding by Brady; Seton or equal.
2. Piping system identification shall comply with the requirements of ANSI A13.1.
3. Colors listed are general. Actual colors will be selected based on a comparison to the existing plant color codes, except as otherwise indicated; samples shall be furnished for all pipe paint colors; with chips from existing piping where new service lines are connecting.
4. Banding:
 - a. Unless special spacing is listed in schedule, apply banding to pipe at connections to equipment, valves, branch fittings, at wall, floor, or ceiling boundaries and at intervals not greater than 36-ft.
5. Labels and Directional Arrows:
 - a. Apply labels with directional arrows at connections to equipment, valves, branch fittings, at least one wall, floor, or ceiling boundary within a room and at intervals not greater than 36-ft.
 - b. At each label, arrows indicating direction of flow shall point away from label. If flow may be in both directions, use double headed arrows.
 - c. Lettering shall bear the full pipe system name as scheduled.
 - d. Lettering height shall be as follows:

Outside Pipe Diameter	Minimum Letter Height
3/4-in to 1-1/4-in	1/2-in
1-1/2-in to 2-in	3/4-in
2-1/2-in to 6-in	1-1/4-in

- e. Two labels minimum each room, crawl space or compartment, unless otherwise approved.

PART 3 EXECUTION

3.01 GENERAL

- A. All dirt, scale, weld splatter, water and other foreign matter shall be removed from the inside and outside of all pipe and sub-assemblies prior to installing.
- B. All pipe joints and connections to equipment shall be made in such a manner as to produce a minimum of strain at the joint.
- C. Test Connections:
 - 1. Provide 1/2-in female NPT test connection equipped with 1/2-in brass plug on all pump suction and discharge lines. Where indicated on the Drawings, test connections should be equipped with bar stock valve and gauge. Provide test connections at all steam traps. The connection shall be located on the discharge side of the trap between the trap and the first valve. It shall consist of a 1/2-in branch connection terminated with a gate valve.
- D. Installation of Sleeve Couplings:
 - 1. Unless otherwise required by the manufacturer's instructions, prior to installation of sleeve couplings, the pipe ends shall be cleaned thoroughly for a distance of at least 12-in. Soapy water may be used as a gasket lubricant. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6-in from the end, the middle ring shall be placed on the already installed pipe and shall be inserted into the middle ring flair and brought to proper position in relation to the pipe already installed. The gaskets and followers shall then be pressed evenly and firmly into the middle ring flares.
 - 2. After the bolts have been inserted and all nuts have been made up fingertight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint, preferably by use of a torque wrench of the appropriate size and torque for the bolts.
 - 3. The correct torque as indicated by a torque wrench shall not exceed 75 ft-lb for 5/8-in bolts and 90 ft-lb for 3/4-in bolts.
 - 4. If a wrench other than a torque wrench is used, it should be no longer than 12-in so that when used by the average person the above torque values shall not be exceeded.
 - 5. To prevent sleeve couplings from pulling apart under pressure, a suitable harnessing or flange clamp assembly shall be provided and installed where shown on the Drawings, directed by the Engineer or required elsewhere under Division 15 concerning anchorage.
 - 6. Note the additional locations required for sleeve couplings in Part 2. Also note Contractor's responsibility for locating, providing and installing restraints.
- E. Installation of Pipeline Appurtenances:

1. All pipeline appurtenances shall be installed as required and in accordance with the manufacturer's recommendations, as acceptable to the Engineer.
2. Gauges, meters and similar in-line items shall be isolated from testing pressures in excess of the rated pressure of the assembly.
3. Use Teflon tape on all screwed fittings.

F. Welding:

1. Welding shall be in accordance with ANSI B31 and AWS B3.0.
2. Install welding fittings on all welded lines. Make changes in direction and intersection of lines with welding fittings. Do not miter pipes to form elbows or notch straight runs to form tees, or any similar construction. Do not employ welder who has not been fully qualified in above specified procedure and so certified by approved welding bureau or similar locally recognized testing authority.

G. Installation of Flanged Joints:

1. Make flanged joints with bolts; bolt studs with nut on each end; or studs with nuts where one flange is tapped. Use number and size of bolts conforming to same ANSI Standard as flanges. Before flanges pieces are assembled, remove rust resistant coating from machined surfaces, clean gaskets and smooth all burrs and other defects. Make up flanged joints tight, care being taken to prevent undue strain upon valves or other pieces of equipment.

3.02 TESTING

- A. Test all pipelines for water tightness as specified in Section 01445. Furnish all labor, testing plugs or caps, pressure pumps, pipe connections, gauges and all other equipment required. Testing shall be performed in accordance with one or more of the testing procedures appended to this Section as specified in each Piping or System Section. All testing shall be performed in the presence of the Engineer.
- B. Repair faulty joints or remove defective pipe and fittings and replace as approved by the Engineer. Retest.

END OF SECTION



**Board of County Commissioners
St. Johns County Florida**

BID NO: 18-36

**CRANES LAKE, REMINGTON AND
MERGANZER LIFT STATION UPGRADES**

**BID DOCUMENTS
PROJECT SPECIFICATIONS**

**St. Johns County Purchasing Department
500 San Sebastian View
St. Augustine FL 32084
904.209.0150**

FINAL: 12/19/17

Bid No: 18-36; Cranes Lake, Remington and Merganzer Lift Station Upgrades

TABLE OF CONTENTS

FRONT END BID DOCUMENTS

Notice to Bidders

Instruction to Bidders

Official County Unit Price Bid Form

Attachments:

“A” – St Johns County Board of County Commissioners Affidavit

“B” – Certificate as to Corporate Principal

“C” – License/Certification List

“D” – List of Proposed Sub-Contractors/Suppliers

“E” – Conflict of Interest Disclosure Form

“F” – Certificate of Compliance with Florida Trench Safety Act

“G” – Proof of Insurance

“H” – Experience of Bidder Form

Bid Bond

PROJECT SPECIFICATIONS/DRAWINGS/TECHNICAL DOCUMENTS

SEALED BID MAILING LABEL

END OF TABLE OF CONTENTS

BID NO: 18-36**NOTICE TO BIDDERS**

Notice is hereby given that sealed bids will be received until 2:00 P.M. on Wednesday, January 31, 2018 by the St. Johns County Purchasing Department, located at 500 San Sebastian View, St. Augustine, Florida 32084 for **Bid No: 18-36; Cranes Lake, Remington and Merganzer Lift Station Upgrades**. Bids will be opened promptly after the 2:00 P.M. deadline. **Note:** Bids delivered or received in the Purchasing Department after the 2:00 P.M. deadline shall not be given consideration and shall be returned to the sender unopened.

Scope of Work:

The project includes the provision of all labor, materials, tools, equipment and incidentals required for the upgrading of three sewer lift stations in the Ponte Vedra system converting them from above ground centrifugal pumps to submersible pumps below ground for the lift stations at the sites listed below, per technical specifications and drawings.

The work for this bid is located at three separate lift stations site:

1. Cranes Lake LS # 199; located at 299 Cranes Lake Dr., Ponte Vedra, FL 32082
2. Remington LS # 201; located at 3 Ponte Vedra Lakes Blvd, Ponte Vedra, FL 32082
3. Merganzer LS # 209; located at 8010 Merganzer Dr., Ponte Vedra, FL 32082

Work to include but not limited to mobilization/demobilization, site work, force main piping, bypass pumping, upgrades of each lift station, all instrumentation and electrical, testing and all permits.

Minimum Qualifications

Prime bidder must be fully licensed to do business in the State of Florida and be currently licensed as a Certified Underground Utility Contractor or Certified General Contractor in the State of Florida, and provide proof of licensure with the submitted Bid Proposal. Bidders must have successfully completed, as a Prime or Sub-contractor, at least three (3) projects, in the past five (5) years, of similar type, size and dollar value of the project described herein.

Pre-Bid Conference

There will be a **Non-Mandatory** Pre-Bid Conference on Thursday, January 11, 2018 at 1:30 PM at the St. Johns County Utility Department, 1205 State Road 16, St. Augustine, FL 32084. Attendance is not required at the Pre-Bid Conference in order to be eligible to submit a bid for this project. **Please do not park in designated customer service parking spots.**

Bid Documents, Project Specifications and Drawings

Documents related to this bid may be obtained from Onvia DemandStar, Inc., at the following web address: www.demandstar.com by requesting St. Johns County Bid Document #18-36. For technical assistance with this Website please contact Onvia Supplier Services at 1-800-711-1712. A link to the Onvia DemandStar website is available through the St. Johns County Purchasing Website by clicking on the following link: www.sjcfl.us/BCC/Purchasing/Open_Bids.aspx. Check the County's site for download availability and any applicable fees. Bid Documents may also be requested, *in writing*, from the St. Johns County Purchasing Department Point of Contact, Leigh Daniels, CPPB, via email: ldaniels@sjcfl.us or fax:(904) 209-0155.

Point of Contact

Any and all questions related to this project shall be directed, *in writing*, to Leigh Daniels, CPPB, Procurement Supervisor, SJC Purchasing Department, via email to ldaniels@sjcfl.us or fax to (904) 209-0155. **Questions must be submitted, in writing, no later than four o'clock (4:00PM) on Wednesday, January 17, 2018,** so that any necessary addenda may be issued in a timely manner. Any questions received after the deadline will not be answered unless previously approved by the SJC Purchasing Manager or other designated County

Representative.

Any bidder, proposer or person substantially and adversely affected by an intended decision or by an term, condition, procedure or specification with respect to any bid, invitation, solicitation of proposals or requests for qualifications, shall file with the Purchasing Department for St. Johns County, a written notice of intent to protest no later than 72 hours (excluding Saturdays, Sundays and legal holidays for employees of St. Johns County) after the posting either electronically or by other means of the notice of intended action, notice of intended award, bid tabulation, publication by posting electronically or by other means of a procedure, specification, term or condition which the person intends to protest, or the right to protest such matter shall be waived. The protest procedures may be obtained from the Purchasing Department and are included in the County's Purchasing Manual. All of the terms and conditions of the County Purchasing Manual are incorporated by reference and are fully binding.

Vendors shall not contact, lobby, or otherwise communicate with any SJC employee, including any member of the Board of County Commissioners, other than the above referenced individual from the point of advertisement of the Bid until contract(s) are executed by all parties, per SJC Purchasing Code 304.6.5 "Procedures Concerning Lobbying". According to SJC policy, any such communication shall disqualify the vendor, contractor, or consultant from responding to the subject invitation to bid, request for quote, request for proposal, invitation to negotiate, or request for qualifications. St. Johns County reserves the right to accept or reject any or all bids/proposals, waive minor formalities, and to award the bid/proposal that best serves the interests of St. Johns County. St. Johns County also reserves the right to award the base bid and any alternate bids in any combination that best suits the needs of the County.

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BOARD OF COUNTY COMMISSIONERS
OF ST. JOHNS COUNTY, FLORIDA
HUNTER S. CONRAD, CLERK

BY: _____

Deputy Clerk

FRONT END BID DOCUMENTS

INSTRUCTION TO BIDDERS

OWNER: The Board of County Commissioners of St. Johns County, Florida ("County") OR ("Owner")

PROJECT: BID NO.: 18-36; Cranes Lake, Remington, and Merganzer Lift Station Upgrades

DEFINITIONS

All definitions set forth in the General Conditions of the Contract or in other Contract Documents are applicable to the Bidding Documents.

Addenda are written or graphic instruments issued by the Purchasing Department prior to the time and date for receiving Bids that modify or interpret the Bidding Documents by addition, deletion, clarification, or corrections.

Base Bid is complete and properly signed proposal to do the work, or designated portion thereof, for the sums stipulated therein supported by data called for by the Bidding Documents.

Bid An offer, as a price, whether for payment or acceptance. A quotation, specifically given to a prospective purchaser upon its request, usually in competition with other vendors

Bid (Formal or Sealed) A request for firm prices by Advertised Legal Notice. Prices are submitted in sealed envelopes and in conformance with a prescribed format, all of which are opened in public on an appointed hour and date as advertised.

Bid Bond A good faith monetary commitment which a bidder or surety forfeits to the County of the bidder refuses, or is unable to enter into a contract after submitting a bid, or the bidder cannot furnish the required bonds, usually five percent (5%) of the bid proposal price.

Bidder is a firm or individual who submits a Bid to the Owner for the work described in the proposed Contract Documents.

Bidding Documents include the Advertisement/Notice to Bidders, Front End Bid Documents, Contract Agreement, Specifications and Plans including any Addenda issued prior to receipt of Bids.

Contract A delivered agreement between two or more parties, legally binding and enforceable, to perform a specific act or acts or exchange goods for consideration. A purchase order becomes a contract when accepted by a vendor. A unilateral contract is one in which only one party promises performance. A bilateral contract is one in which both parties promise performance.

Contractor An individual or firm having a contract to provide goods, service or construction for a specified price

County St. Johns County, a political subdivision of the State of Florida (F.S. 217.73)

Responsible Bidder A bidder capable of performing in all respects to fulfill the contract requirements. This includes having the ability to perform, the experience, reliability, capacity, credit, facilities and equipment to meet the contractual obligation.

Responsive Bid, Responsive Proposal, or Responsive Reply A bid, proposal, or reply submitted by a responsive and responsible vendor conforming in all material respects to the solicitation.

Specifications A clear, complete and accurate statement of the physical, functional or technical requirements descriptive of an item and if applicable, the procedure to be followed to determine if the requirements are met.

Subcontractor A party who contracts with a prime contractor to perform all or any part of the prime contractor's obligations.

Unit Price is an amount stated in the Bid as a price per unit of measurement for materials or services as described in the contract documents which shall include all labor, materials, equipment and any other item/s essential to accomplish the scope of work of the Unit Price.

BIDDER'S REPRESENTATION

Each Bidder, by marking his Bid, represents that he has read and understands the Bidding and Contract Documents and his Bid is made in accordance herewith: he has visited the Site and has familiarized himself with the local conditions under which the Work is to be performed; and his Bid is based upon the materials, systems and equipment described in the Bidding Documents without exceptions.

BIDDING DOCUMENTS

Bidding documents may be obtained from www.demandstar.com or SJC Purchasing, in the number and for the purchase sum, if any, as stated in the Advertisement or Invitation - Notice to Bidders. Complete sets of Bidding Documents shall be used in preparing the Bid Proposal. St. Johns County shall not assume any responsibility for errors or misinterpretations resulting from the use of complete or incomplete sets of Bidding Documents. The Owner, in making copies of the Bidding Documents available on the above terms, do so only for the purpose of obtaining bids on the Work and do not confer a license or grant for any other use.

INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

Bidders shall promptly notify the Owner of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or of the site and local conditions. Bidders requiring clarification of interpretation of the Bidding Documents shall make a written request to the Owner, to reach him at least **fourteen (14) days** prior to the date for receipt of Bids.

An interpretation, correction, or change of the bidding Documents will be made by Addendum. Interpretation, corrections, or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretation, corrections, and change. No change will be made to the Bidding Documents by the Owner or its Representative **seven (7) days** prior to Bid receiving date, however, the Owner reserves the authority to decrease this time depending on the necessity of such change.

SUBSTITUTIONS

The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered unless written request for approval has been submitted by the Bidder and has been received by the Owner at least **fourteen (14) days** prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute, including drawings, cuts, performance and test data any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The project director's approval or disapproval of a proposed substitution shall be final. See Section 01012 for additional requirements.

If County Staff approves any proposed substitution, such approval will be set forth in an Addendum. Bidders shall **not** rely upon approval made in any other manner.

PRE-BID CONFERENCE

There will be a **Non-Mandatory** Pre-Bid Conference on Thursday, January 11, 2018 at 1:30 PM at the St. Johns County Utility Department, 1205 State Road 16, St. Augustine FL 32084. Attendance is not required at the Pre-Bid Conference in order to be eligible to submit a bid for this project. **Please do not park in designated customer service parking spots.**

DESIGNATED POINT OF CONTACT

The County's Designated Point of Contact for this Bid is Leigh Daniels, CPPB, Procurement Supervisor, St. Johns County Purchasing Department. Any and all questions and/or inquiries shall be directed to Ms. Daniels, *in writing*, via email at ldaniels@sjcfl.us or fax to (904) 209-0155. Bidders shall not contact, lobby, or otherwise communicate with any other County Staff, including members of the Board of County Commissioners, other than the designated representative shown above. Failure to comply with this requirement shall disqualify a bidder from consideration for award, as provided in St. Johns County Purchasing Code 304.6.5 as provided below:

Vendors shall not contact, lobby, or otherwise communicate with any SJC employee, including any member of the Board of County Commissioners, other than the above referenced individual from the point of advertisement of the Bid until contract(s) are executed by all parties, per SJC Purchasing Code 304.6.5 "Procedures Concerning Lobbying". According to SJC policy, any such communication shall disqualify the vendor, contractor, or consultant from responding to the subject invitation to bid, request for quote, request for proposal, invitation to negotiate, or request for qualifications. St. Johns County reserves the right to accept or reject any or all bids/proposals, waive minor formalities, and to award the bid/proposal that best serves the interests of St. Johns County. St. Johns County also reserves the right to award the base bid and any alternate bids in any combination that best suits the needs of the County.

QUESTIONS

Any and all questions related to this project shall be directed, *in writing*, to Leigh Daniels, CPPB, Procurement Supervisor, SJC Purchasing Department, via email to ldaniels@sjcfl.us or fax to (904) 209-0155. Questions must be submitted, in writing, no later than four o'clock (4:00PM) on Wednesday, January 17, 2018, so that any necessary addenda may be issued in a timely manner. Any questions received after the deadline will not be answered unless previously approved by the SJC Purchasing Manager or other designated County Representative.

ADDENDA

Addenda will be distributed to all who are known by the entity responsible for distribution of the complete set of Bidding Documents. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

Each Bidder shall ascertain prior to submitting a bid, that all issued addenda have been received, and each Bidder shall acknowledge receipt, of all issued addenda in the space provided in the Official County Bid Form, and a fully acknowledged copy of each issued addendum must be included in the submitted bid proposal. Failure to provide fully acknowledged copies of each addendum may result in a bid proposal being deemed non-responsive.

BID SUBMITTAL REQUIREMENTS

Bids shall be submitted in TRIPLICATE (one (1) original and two (2) copies) on the required forms provided herein. All blanks on the Bid Form shall be filled in by typewriter or manually in blue or black ink. Bidders are not required to submit a copy of this Bid Document with their bid proposals. The bidders are required to submit, at a minimum, the Bid Proposal Attachments listed in this Document.

Bid proposals must be placed in an envelope, sealed and placed in a second envelope or container, plainly marked on the outside addressed to St. Johns County Purchasing Department, with the bidder's return address in top left hand corner and recite: "BID NO: 18-36; Cranes Lake, Remington, and Merganzer Lift Station Upgrades"

See Example Below:

ABC Company, Inc. 123 Aviles Street St. Augustine, FL 32084	St. Johns County Purchasing Department 500 San Sebastian View St. Augustine, FL 32084 BID NO.: XX-XX – SEALED BID FOR SAMPLE PROJECT
---	--

At the end of this document, a sealed Bid mailing label is provided for convenience. Bidders shall affix the provided label to the outside of the sealed envelope/container to submit their Bid.

Bidder shall assume full responsibility for timely delivery at location designated for receipts of Bids. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Advertisement/Notice to Bidders, or any time extension thereof made by Addendum. Bids received after the time and date for receipt of Bids will be returned to the sender unopened.

Oral, telephonic, telegraphic or electronic Bids are invalid and will not receive consideration.

Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and in the case of discrepancy between the two, the amount expressed in words shall govern.

Any interlineations, alteration or erasure must be initialed by the signer of the Bid; failure to do so may cause the Bidder's proposal to be considered non-responsive.

Bidder shall make no stipulation on the Bid Form nor qualify his Bid in any manner, to do so will classify the Bid as being non-responsive, and may result in the Bidder being removed from consideration for award.

Each submitted copy of the Bid Proposal shall include the full legal company name, address, telephone number and legal name of an authorized representative for the Bidder and a statement as to whether the Bidder is a sole proprietor, partnership, corporation, or any other legal entity. Each copy of the submitted Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporation seal affixed.

A Bid submitted by an agent shall have a current Power of Attorney attached certifying agent's authority to bind the Bidder.

BID SECURITY

Each submitted Bid shall be accompanied by a Bid Security, submitted on the Bid Bond Form provided herein, or in the form of a certified or cashier's check, in the amount of five percent (5%) of the Total Lump Sum Bid amount submitted on the Official County Bid Form, pledging that the Bidder will enter into a contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds as described hereunder covering the faithful performance of the Contract and the payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds to the Owner, if required, the amount of the Bid Security shall be forfeited, not as penalty, but as liquidated damages.

A Bid Security in the form of a certified or cashier's check must be made payable to the Board of County Commissioners of St. Johns County. Bidders submitting a certified or cashier's check as the bid security are not required to submit Attachment "B" – Certificate as to Corporate Principal, or the Bid Bond forms provided herein.

A Bid Security in the form of a Bid Bond shall be written on the form provided herein, with an acceptable surety, and the Attorney-in-Fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of his Power of Attorney. Acceptable surety companies are defined herein under "Surety Bond". The Surety Company shall be licensed to do business in the State of Florida and shall be listed by the U.S. Treasury Department. Any Bidder submitting a Bid Security in the form of a Bid Bond must also submit Attachment "B" – Certificate as to Corporate Principal.

The Owner shall have the right to retain the Bid Security of Bidders until either: (a) the Contract is executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

BID BOND INSTRUCTIONS

If a Bidder chooses to submit a Bid Bond on the form provided herein, he must submit the bond as follows:

1. Prepare and submit one (1) original and two (2) copies of the required Bid Bond Forms as shown above
2. Type or print Bidder's and Surety's names in the same language as in the Advertisement, or Invitation to Bid.
3. Affix the Corporate Seal, and type or print the name of the Surety on the line provided and affix its corporate seal.
4. Attach a copy of Surety agent's Power of Attorney, unless the Power of Attorney has been recorded in St. Johns County. If it has been recorded, give the record book and page. If not-recorded, the copy of the Power of Attorney must have an original signature of the Secretary or Assistant Secretary of Surety certifying the copy. The Surety's corporate seal must be affixed.

BID POSTPONEMENT/CANCELLATION

The County may, at its sole and absolute discretion, reject any bids that are not submitted in accordance with the terms in this Bid Solicitation. The County may re-advertise this Bid; postpone or cancel, at any time, this Bid process; or waive any irregularities in this Bid or in the proposals received as a result of this Bid.

MODIFICATION OR WITHDRAWAL OF BID

A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and Bidder so agrees in submitting his Bid.

Prior to time and date designated for receipt of Bids, a Bid submitted early may be modified or withdrawn only by notice to the party receiving Bids at the place and prior to the time designated for receipt of Bids.

Such notice shall be in writing over the signature of the Bidder. If by telephone, written confirmation over the signature of Bidder must be mailed and postmarked on or before the date and time set for receipt of Bids; it shall be so worded as not to reveal the amount of the original Bid.

Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

Bid Security shall be in the amount of five percent (5%) of the Bid as modified or resubmitted.

COSTS INCURRED BY BIDDERS

All expenses involved with the preparation and submission of bids to the County, or any work performed in connection therewith, shall be borne by the Bidder(s). No rights of ownership will be conferred until title of the property is transferred to the successful bidder. All fees for copying and reproduction services for items listed herein are nonrefundable.

CONSIDERATION OF BIDS

Opening of Bids: Unless stated otherwise in an Addenda to the Advertisement/Notice to Bidders, the properly identified Bids received on time will be opened publicly as specified in the Advertisement and a tabulation of the bid amounts of the Base Bids and major Alternates, if any, will be made available to Bidders. The Bid Tabulation will be posted on the Purchasing Department bulletin board for seventy two (72) hours.

Any bidder, proposer or person substantially and adversely affected by an intended decision or by an term, condition, procedure or specification with respect to any bid, invitation, solicitation of proposals or requests for qualifications, shall file with the Purchasing Department for St. Johns County, a written notice of intent to protest no later than seventy two (72) hours (excluding Saturdays, Sundays and legal holidays for employees of St. Johns County) after the posting either electronically or by other means of the notice of intended action, not of intended award, bid tabulation, publication by posting electronically or by other means of a procedure, specification, term or condition which the person intends to protest, or the right to protest such matter shall be waived. The protest procedures may be obtained from the Purchasing Department and are included in the Owner's Purchasing Manual. All of the terms and conditions of the Owner Purchasing Manual are incorporated by reference and are fully binding.

Rejection of Bids: The Owner reserves the right to reject any or all Bids and in particular to reject a Bid not accompanied by any required Bid Security or data required by the Bidding Documents or a Bid in any way incomplete or irregular.

Acceptance of Bid (Award): The Owner shall have the right to reject any or all Bids or waive any minor formality or irregularity in any Bid received.

The Owner shall have the right to accept alternates in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid and/or the Alternates accepted if alternate bids are requested in the Official County Bid Form.

It is the intent of the Owner to award a contract to the lowest responsible Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents, if judged to reasonable, and does not exceed the funds budgeted for the Project.

If the Contract is awarded, it will be awarded within a minimum of ninety (90) days from the date of the Bid opening, or as designated in the Bid Documents.

MINIMUM QUALIFICATION OF CONTRACTORS

Prime bidder must be fully licensed to do business in the State of Florida and be currently licensed as a Certified

Underground Utility Contractor or Certified General Contractor in the State of Florida, and provide proof of licensure with the submitted Bid Proposal. Bidders must have successfully completed, as a Prime or Sub-contractor, at least three (3) projects, in the past five (5) years, of similar type, size and dollar value of the project described herein. Each Bidder must submit Attachment "H" Experience of Bidder Form.

Proof of qualifications shall be provided by completing and submitting Attachment "C" – License/Certification List along with a copy of each license and certificate listed. All licenses, certifications and pre-qualifications must be valid and current on the date bids are submitted.

Bidders to whom award of a contract is under consideration shall submit to the County, upon his request, a properly executed

Contractor's Qualification Statement of A1A Document A305, unless such a statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

SUB-CONTRACTORS

Each Bidder shall submit to the County, a list of Subcontractors and major materials suppliers to be used if awarded the contract. A copy of the form, Attachment "D", is provided in the Bidding Documents. If no Subcontractors or major material suppliers are required, so state there on.

Upon request by the County, the successful Bidder shall within seven (7) days thereafter, submit all data required to establish to the satisfaction of the County, the reliability and responsibility of the proposed Subcontractors to furnish and perform the work described in the Sections of the Specifications pertaining to such proposed Subcontractor's respective trades.

Prior to the award of the Contract, the County will notify the Bidder in writing if either the County, after due investigation, has reasonable and substantial objection to any person or organization proposed as a Subcontractor. The Bidder then may, at his option, withdraw his Bid without forfeiture of Bid Security or submit an acceptable substitute at no increase in Bid price. If the Bidder fails to submit an acceptable substitute within seven (7) days of the original notification, the County then may, at his option, disqualify the Bidder, at no cost to the County.

The County reserves the right to disqualify any Contractor, Subcontractor, Vendor, or material supplier due to previously documented project problems, either with performance or quality.

Subcontractors and other persons and organizations proposed by the Bidder and accepted by the County, must be used on the work for which they were proposed and accepted and shall not be changed except with the written approval of the County.

PUBLIC CONSTRUCTION BOND

The Contractor shall be required to obtain and submit a recorded Public Construction Bond covering the faithful performance of the Contract and the payment of all obligations arising thereunder in full amount of the Contract, with such acceptable sureties, secured through the Bidder's usual sources as may be agreeable to the parties. The Contractor shall furnish the required bond, after full execution of the awarded Contract. The Bond shall be released upon satisfactory completion of the project.

SURETY BOND

Acceptable Surety Companies: To be responsible to the Owner as Surety on Bonds, Surety shall comply with the following provisions:

1. Surety must be licensed to do business in the State of Florida;
2. Surety must have been in business and have a record of successful continuous operations for at least three (3) years;
3. Surety shall not have exposed itself to any loss on any one risk in an amount exceeding twenty percent (20%) of its surplus to policyholders;
4. Surety must have fulfilled all of its obligations on all other bonds given to the Owner;
5. Surety must have good underwriting, economic management, adequate reserves for undisclosed liabilities, and net resources for unusual stock and sound investment.

Time of Delivery and Form of Bonds

The Public Construction Bond form will be forwarded to the successful Bidder with his copy of the fully executed contract. **The Public Construction Bond must be recorded after the contract is signed by all parties.** The bidder will have 3 days from receipt of fully executed contract to have the Public Construction Bond recorded. The bidder shall have the Public Construction Bond recorded at the St. Johns County Clerk of Courts office, in St. Augustine, Florida. After the book and page number have been assigned to the bond by the recording person, the Bidder is to obtain from the recording person a certified copy of the recorded bond, and deliver the certified copy to the Owner's Contract Administrator. No work can commence until the required bond and Insurance Certificates have been delivered to the Owner. Upon receipt of the certified copy of the recorded bond, the Owner may issue a Notice to Proceed.

Unless otherwise specified in the Bid Documents, the bonds shall be written on the form provided herein. The Bidder shall require the Attorney-in-Fact who executes the required bonds on behalf of the Surety to affix thereto a certified and current copy of his Power of Attorney authorizing his firm to act as agent for the Surety in issuing the bonds.

INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, its officials, and employees, from and against liability, claims, damages, losses and expenses including attorney's fees arising out of or resulting from performance of the work, provided that such liability, claims, damages, 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) including loss of use resulting therefrom, but only to the extent caused in whole or in part, by 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 or not such liability, claim, damage, loss or expense is caused in part by a party indemnified hereunder.

In claims against any person or entity indemnified under this paragraph 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 this 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 benefits acts or other employee benefits acts.

TERMINATION

Failure on the part of the Contractor to comply with any portion of the duties and obligations under the Contract Agreement shall be cause for termination. If the Contractor fails to perform any aspect of the responsibilities described herein St. Johns County shall provide written notification of any and all items of non-compliance. The Contractor shall then have five (5) consecutive calendar days to correct any and all items of non-compliance. If the items of non-compliance are not corrected, or acceptable corrective action has not been taken within the five (5) consecutive calendar days, the Contract Agreement may be terminated by St. Johns County for cause, upon giving fourteen (14) consecutive calendar days written notice to the Contractor.

The County may terminate the Contract Agreement at any time, without cause, upon thirty (30) days written notice to the Contractor of intention to do so.

If, at any time, the Contract Agreement with the awarded vendor is terminated by the County, whether for cause or for convenience, the County may, at its sole discretion, negotiate with the second lowest, responsible, responsive bidder for the required services in order to enter into a contract with that vendor to prevent a gap in services for the County, if it serves the best interest of the County to do so.

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Form to be used: Unless otherwise provided in the Bidding Documents, the Agreement for Work will be written on the St. Johns County Standard Agreement between Owner and Contractor where the basis of payment is a Stipulated Sum. In the event of a conflict in specifications or contract requirements the more stringent shall apply.

CONTRACT TIME – LIQUIDATED DAMAGES

The Contractor shall have ten (10) days to return Contract originals from the time the Contractor receives a "Notice of Award". St. Johns County will return a "fully executed" Contract to the Contractor no later than seven (7) days after the return of the executed Contract originals (but no later than seventeen (17) days from the Notice of Award).

The Contractor will furnish a recorded original of the Public Construction Bond three (3) business days after receipt of the fully executed Contract (the Public Construction Bond must be recorded after the Contract is fully executed by all parties including the County Clerk). Upon receipt of the recorded Public Construction Bond, the County will issue a Notice to Proceed. If the Contractor fails to meet any of the dates and timeframes set forth in this section, or fails to execute the Contract, or to provide a Public Construction Bond, the County may elect at its option to consider the Contractor non-responsive and Contract with the next best Bidder.

The work to be performed under this Agreement shall be commenced within **ten (10)** days of the date of the Notice to Proceed, in writing. Construction of the project shall be substantially complete within **Two Hundred Seventy (270)** consecutive calendar days from the date stipulated on the Notice to Proceed. Final completion shall be attained **Thirty (30)** consecutive calendar days from the date of substantial completion.

Conditions under which Liquidated Damages are Imposed:

Should the Contractor or, in case of his default, the Surety fail to complete the work within the time stipulated in the contract, or within such extra time as may have been granted by the Owner, the Contractor or, in case of his default, the Surety shall pay to the Owner, not as a penalty but as liquidated damages, the amount so due as determined by the following schedule:

<u>Original Contract Amount</u>	<u>Daily Charge Per Calendar Day</u>
\$50,000 and under.....	\$763 Over
\$50,000 but less than \$250,000.....	\$958
\$250,000 but less than \$500,000.....	\$1,099
\$500,000 but less than \$2,500,000.....	\$1,584
\$2,500,000 but less than \$5,000,000.....	\$2,811
\$5,000,000 but less than \$10,000,000.....	\$3,645
\$10,000,000 but less than \$15,000,000.....	\$4,217
\$15,000,000 but less than \$20,000,000.....	\$4,698
\$20,000,000 and over.....	\$6,323 plus 0.00005 of any amount over \$20 million

(Round to nearest whole dollar)

INSURANCE

The CONTRACTOR shall not commence work under this Contract until he/she has obtained all insurance required under this section and such insurance has been approved by the COUNTY. All insurance policies shall be issued by companies authorized to do business under the laws of the State of Florida. The CONTRACTOR shall furnish proof of Insurance to the COUNTY prior to the commencement of operations. The Certificate(s) shall clearly indicate the CONTRACTOR has obtained insurance of the type, amount, and classification as required by contract and that no material change or cancellation of the insurance shall be effective without thirty (30) days prior written notice to the COUNTY. Certificates shall specifically include the COUNTY as Additional Insured for all lines of coverage except Workers' Compensation and Professional Liability. A copy of the endorsement must accompany the certificate. Compliance with the foregoing requirements shall not relieve the CONTRACTOR of its liability and obligations under this Contract.

Certificate Holder Address: St. Johns County, a political subdivision of the State of Florida
500 San Sebastian View
St. Augustine, FL 32084

The CONTRACTOR shall maintain during the life of this Contract, Comprehensive General Liability Insurance with minimum limits of \$1,000,000 per occurrence, \$2,000,000 aggregate to protect the CONTRACTOR from claims for damages for bodily injury, including wrongful death, as well as from claims of property damages which may arise from any operations under this Contract, whether such operations be by the CONTRACTOR or by anyone directly employed by or contracting with the CONTRACTOR.

The CONTRACTOR shall maintain during the life of the contract, Professional Liability or Errors and Omissions Insurance with minimum limits of \$1,000,000, if applicable.

The CONTRACTOR shall maintain during the life of this Contract, Comprehensive Automobile Liability Insurance with minimum limits of \$2,000,000 combined single limit for bodily injury and property damage liability to protect the

CONTRACTOR from claims for damages for bodily injury, including the ownership, use, or maintenance of owned and non-owned automobiles, including rented/hired automobiles whether such operations be by the CONTRACTOR or by anyone directly or indirectly employed by a CONTRACTOR.

The CONTRACTOR shall maintain Umbrella or Excess Liability Insurance covering workers compensation, commercial general liability and business auto liability with minimum limits of liability of \$1,000,000.

The CONTRACTOR shall maintain during the life of this Contract, adequate Workers' Compensation Insurance in at least such amounts as are required by the law for all of its per Florida Statute 440.02.

In the event of unusual circumstances, the County Administrator, or his designee, may adjust these insurance requirements.

GOVERNING LAWS & REGULATIONS

The Contractor shall be responsible for being familiar and complying with any and all federal, state, and local laws, ordinances, rules and regulations that, in any manner, affect the work required under this contract. The agreement shall be governed by the laws of the State of Florida and St. Johns County both as to interpretation and performance.

TAXES

Project is subject to Federal Excise and Florida Sales Taxes, which must be included in Bidder's proposal.

FLORIDA TRENCH SAFETY ACT

Bidders shall complete Certificate of Compliance with Florida Trench Safety Act, in accordance with the requirements of Chapter 553, Florida Statutes. If trenching is not required for this project, state so thereon. Contractor shall be responsible for compliance with all trenching shoring safety requirements.

END OF SECTION

**OFFICIAL COUNTY BID FORM
WITH ATTACHMENTS**

BID NO: 18-36

**OFFICIAL COUNTY BID FORM
ST. JOHNS COUNTY, FLORIDA**

PROJECT: CRANES LAKE, REMINGTON, AND MERGANZER LIFT STATION UPGRADES

TO: THE BOARD OF COUNTY COMMISSIONERS OF ST. JOHNS COUNTY, FLORIDA

DATE SUBMITTED: _____

BID PROPOSAL OF

Full Legal Company Name

Mailing Address

Telephone Number

Fax Number

Bidders: Having become familiar with requirements of the project, and having carefully examined the Bidding Documents and Specifications entitled for Bid No: 18-36, CRANES LAKE, REMINGTON AND MERGANZER LIFT STATION UPGRADES in St. Johns County, Florida, the undersigned proposes to furnish all materials, labor and equipment, supervision and all other requirements necessary to comply with the Contract Documents to submit the following Bid Proposal summarized as follows:

TOTAL LUMP SUM BID PRICE: (As per plans and specifications)

\$ _____
Total Lump Sum Bid Price (Numerical)

Total Lump Sum Bid Price (Amount written or typed in words) /100 Dollars

Bidder shall insert the Total Lump Sum Bid Price in numerals and in words. Any discrepancy between the two submitted amounts shall be determined by the amount written in words.

During the preparation of the Bid, the following addenda, if any, were received:

No.: _____ Date Received:

No.: _____ Date Received:

No.: _____ Date Received:

We, the undersigned, hereby declare that no person or persons, firm or corporation, other than the undersigned are interested, in this proposal, as principals, and that this proposal is made without collusion with any person, firm or corporation, and we have carefully and to our satisfaction examined the Bid Documents and Project Specifications.

We have made a full examination of the location of the proposed work and the sources of supply of materials, and we hereby agree to furnish all necessary labor, equipment and materials, fully understanding that any quantities shown therewith are approximate only, and that we will fully complete all requirements therein as prepared by the Owner, within the same time limit specified in the Bid Documents as indicated above.

If the Undersigned is notified of the acceptance of this Bid Proposal by the Board within ninety (90) calendar days for the time set for the opening of Bids, the Undersigned further agrees, to execute a contract for the above work within ten (10) days after notice that his Bid has been accepted for the above stated compensation in the form of a Contract presented by the Owner.

The Undersigned further agrees that security in the form of a Bid Bond, certified or cashier's check in the amount of not less than five percent (5%) of Total Lump Sum Bid Price, payable to the Owner, accompanies this Bid; that the amount is not to be construed as a penalty, but as liquidated damages which said Owner will sustain by failure of the Undersigned to execute and deliver the Contract and Bond within ten (10) days of the written notification of the Award of the Contract to him; thereupon, the security shall become the property of the Owner, but if this Bid is not accepted within ninety (90) days of the time set for the submission of Bids, or if the Undersigned delivers the executed Contract upon receipt, the Security shall be returned to the Bidder within seven (7) working days.

CORPORATE/COMPANY

Full Legal Company Name: _____ (Seal)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

By: _____
Signature of Authorized Representative (Name & Title typed or printed)

Address: _____
Telephone No.: () _____ Fax No.: () _____

Email Address for Authorized Company Representative: _____
Federal I.D. Tax Number: _____ DUNS #: _____
(If applicable)

INDIVIDUAL

Name: _____
(Signature) (Name typed or printed) (Title)

Address: _____
Telephone No.: () _____ Fax No.: _____
Email Address: _____
Federal I.D. Tax Number: _____

- Submittal Requirements:
- Official County Unit Price Bid Form
 - Attachment "A" – St Johns County Board of County Commissioners Affidavit
 - Attachment "B" – Certificate as to Corporate Principal
 - Attachment "C" – License / Certification List
 - Attachment "D" – List of Proposed Sub-Contractors/Suppliers
 - Attachment "E" – Conflict of Interest Disclosure Form
 - Attachment "F" - Certificate of Compliance with Florida Trench Safety Act
 - Attachment "G" – Proof of Insurance
 - Attachment "H" – Experience of Bidder Form
 - Bid Bond Form
 - Fully Acknowledged Addenda Applicable to this bid

Official County Bid Form, Attachments "A", "B", "C", "D", "E", "F", "G", "H" and Bid Bond must be completed, along with a fully acknowledged copy of each Addendum applicable to this Bid and submitted with each copy of the Bid Proposal. One (1) original and two (2) copies of all required forms must be submitted.

ATTACHMENT "A"

ST. JOHNS COUNTY, BOARD OF COUNTY COMMISSIONERS AFFIDAVIT

TO: ST. JOHNS COUNTY, BOARD OF COUNTY COMMISSIONERS,
ST. JOHNS COUNTY, ST. AUGUSTINE, FLORIDA.

At the time the proposal is submitted, the Bidder shall attach to his Bid a sworn statement.

This sworn statement shall be an affidavit in the following form, executed by an officer of the firm, association, or corporation submitting the proposal, and shall be sworn to before a person who is authorized by law to administer oaths.

STATE OF FLORIDA, COUNTY OF ST. JOHNS

Before me, the Undersigned authority, personally appeared _____ who being duly sworn, deposes and says he is _____ (Title) of the firm of _____ Bidder submitting the attached proposal for the services covered by the bid documents for Bid No: 18-36; Cranes Lake, Remington, and Merganzer Lift Station Upgrades. in St. Johns County, Florida.

The affiant further states that no more that one proposal for the above-referenced project will be submitted from the individual, his firm or corporation under the same or different name, and that such Bidder has no financial interest in the firm of another bidder for the same work. That neither he, his firm, association nor corporation has either directly or indirectly entered into any agreement, participated in any collusion, nor otherwise taken any action in restraint of free competitive bidding in connection with this firm's Bid on the above-described project. Furthermore, neither the firm nor any of its officers are barred from participating in public contract lettings in the State of Florida or any other state.

(Bidder)

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

By: _____

Notary Public:

(Title)

Signature

Printed

My commission Expires: _____

BIDDER ON ALL COUNTY PROJECTS MUST EXECUTE AND ATTACH THIS AFFADAVIT TO EACH BID.

BID NO.: 18-36

ATTACHMENT "B"
CERTIFICATES AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the Corporation named as Principal in the attached bond; that _____ who signed the said bond on behalf of the Principal, was then of said Corporation; that I know his signature, and his signature hereto is genuine; and that said bond was duly signed, sealed, and attested for and in behalf of said Corporation by authority of it's governing body.

Secretary

Corporate Seal

(STATE OF FLORIDA
COUNTY OF ST. JOHNS)

Before me, a Notary Public duly commissioned, qualified and acting, personally appeared to me well known, who being by me first duly sworn upon oath, says that he is the Attorney-In-Fact, for the and that he has been authorized by _____ to execute the foregoing bond on behalf of the surety named therein in favor of St. Johns County, Florida.

Subscribed and sworn to me this _____ day of _____, 20____, A.D.

NOTARY PUBLIC
State of Florida-at-large

My Commission Expires:

(Attach Power of Attorney to original Bid Bond and Financial Statement of Surety Company)

ATTACHMENT "E"

**St. Johns County Board of County Commissioners
Conflict of Interest Disclosure Form**

Project (RFQ, RFP, BID) Number/Description: Bid No 18-36: Cranes Lake, Remington and Merganzer Lift Station Upgrades

The term "conflict of interest" refers to situations in which financial or other considerations may adversely affect, or have the appearance of adversely affecting a consultant's/contractor's professional judgment in completing work for the benefit of St. Johns County ("County"). The bias such conflicts could conceivably impart may inappropriately affect the goals, processes, methods of analysis or outcomes desired by the County.

Consultants/Contractors are expected to safeguard their ability to make objective, fair, and impartial decisions when performing work for the benefit of the County. Consultants/Contractors, therefore must there avoid situations in which financial or other considerations may adversely affect, or have the appearance of adversely affecting the consultant's/contractor's professional judgement when completing work for the benefit of the County.

The mere appearance of a conflict may be as serious and potentially damaging as an actual distortion of goals, processes, methods of analysis or outcomes. Reports of conflicts based upon appearances can undermine public trust in ways that may not be adequately restored even when the mitigating facts of a situation are brought to light. Apparent conflicts, therefore, should be disclosed and evaluated with the same vigor as actual conflicts.

It is expressly understood that failure to disclose conflicts of interest as described herein may result in immediate disqualification from evaluation or immediate termination from work for the County.

Please check the appropriate statement:

- I hereby attest that the undersigned Respondent has no actual or potential conflict of interest due to any other clients, contracts, or property interests for completing work on the above referenced project.
- The undersigned Respondent, by attachment to this form, submits information which may be a potential conflict of interest due to other clients, contracts or property interests for completing work on the above referenced project.

Legal Name of Respondent: _____

Authorized Representative(s) :	_____	_____
	Signature	Print Name/Title
	_____	_____
	Signature	Print Name/Title

BID NO.: 18-36

ATTACHMENT "F"

CERTIFICATE OF COMPLIANCE WITH FLORIDA TRENCH SAFETY ACT

Bidder acknowledges that he is solely responsible for complying with the Florida Trench Safety Act (ACT) and Occupational Safety and Health Administrations excavation safety standard 29 CFR 1926.650 (Subpart P as amended) and the St. Johns County Trenching and Excavation Safety Program. If there is a conflict between the ACT and the St. Johns County Trenching and Excavation Safety Program, the more stringent requirement would apply. Bidder further acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990 and the Occupational Safety and Health Administrations excavation safety standard.

By: _____

Bidder

Date

Authorized Signature

BID NO.: 18-36

ATTACHMENT "G"

CERTIFICATE OF INSURANCE

INSERT CERTIFICATE OF INSURANCE HERE

BID NO.: 18-36

ATTACHMENT "H"

EXPERIENCE OF BIDDER

Bidder acknowledges that he is fully licensed to perform work in the STATE OF FLORIDA.

The Bidder shall provide the following information regarding experience within the **past five (5) years** of this solicitation. Bidder must demonstrate the successful completion of **three (3) projects** of similar complexity, nature, size, and dollar amount of project.

Any material misrepresentation, as determined by the County, shall result in disqualification.

By: _____
Bidder Date

Authorized Signature

DATE OF CONTRACT	CLIENT'S NAME, ADDRESS, PHONE AND EMAIL	CONTRACT AMOUNT	PROJECT AND LOCATION

Do you have any similar work in progress at this time? _____ Yes _____ No

Length of time in business: _____ Years

Is your company currently involved in any active litigation? _____ If Yes, explain: _____

Has your company ever been sued? _____ If Yes, explain and/or submit court decision or judgment, as applicable: _____

BID NO.: 18-36

BID BOND

STATE OF FLORIDA
COUNTY OF ST. JOHNS

KNOW ALL MEN BY THESE PRESENTS, that _____ as Principal, and as Surety, are held and firmly bound unto St. Johns County, Florida, in the penal sum of Dollars (\$ _____) lawful money of the United States, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATIONS IS SUCH that whereas the Principal has submitted the accompanying Bid, dated _____, 20__.

For

CRANES LAKE, REMINGTON AND MERGANZER LIFT STATION UPGRADES

St. Johns County, Florida

NOW THEREFORE,

- (a) If the Principal shall not withdraw said Bid within ninety (90) days after Bid Award date, and shall within ten (10) days after prescribed forms are presented to him for signature, enter into a written Contract with the County in accordance with the Bid as accepted, and give Bond with good and sufficient Surety or Sureties, as may be required, for the faithful performance and proper fulfillment of such Contract, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.
- (b) In the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such Bond within the time specified, if the Principal shall pay the County the difference between the amount specified, in said Bid and the amount for which the County may procure the required Work and supplies, if the latter amount be in excess of the former, then the above obligations shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their several seals, this day of _____ A.D., 20__, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

BID NO.: 18-36

WITNESSES:

(If Sole Ownership or Partnership two (2) Witnesses required).
(If Corporation, Secretary only will attest and affix seal).

WITNESSES:

PRINCIPAL:

NAME OF FIRM:

**SIGNATURE OF AUTHORIZED
OFFICER (AFFIX SEAL)**

TITLE

BUSINESS ADDRESS

CITY STATE

WITNESS:

SURETY:

CORPORATE SURETY

ATTORNEY-IN-FACT (AFFIX SEAL)

BUSINESS ADDRESS

CITY STATE


NAME OF LOCAL INSURANCE AGENCY

SEALED BID MAILING LABEL

**BID NO: 18-36
CRANES LAKE, REMINGTON, AND MERGANZER LIFT STATION UPGRADES**

**Cut along the outer border and affix this label
to your sealed bid envelope to identify it as a
"Sealed BID"**

SEALED BID • DO NOT OPEN	
SEALED BID NO.:	BID NO: 18-36
BID TITLE:	Cranes Lake, Remington and Merganzer Lift Station Upgrades
DUE DATE/TIME:	By 2:00PM –January 31, 2018
SUBMITTED BY:	Company Name
	Company Address
	Company Address
DELIVER TO:	St. Johns County Purchasing Dept. ATTN: Leigh Daniels 500 San Sebastian View St. Augustine FL 32084



END OF DOCUMENT