ADDENDUM NO. 1

Wakulla County
Otter Creek Wastewater Treatment Facility Retrofit Project

July 1, 2019

BDI Project No. 111803.10

The following changes have been made to the plans & specifications for the above project:

A. CONTRACT DOCUMENTS/SPECIFICATIONS

1. Can you add a line item on the bid form for permit allowance? This will ensure all General Contractors are using the same number for the permit expense $2,500.00 would work fine. See attached bid form from another project.

   A “Permit Allowance” line item is included in the updated bid form to ensure all General Contractors are using the same number for the permit expense. Receipts shall be required to claim against this allowance. Should the permitting cost exceed $2,500.00 or there remains a balance at the end of the project, a corresponding change order shall reconcile the difference.

2. The General Contractor must remove some grit from the tanks. Can you make this a line item on the bid form? When we did the walk thru one of the owners personal said they believe is about 30yds to be removed. I think it’s more than that. If we can get this added to the bid form and have an estimate for this that would make it easier for the General Contractor and the owner. Say an estimate of 100yds. See attached bid form from another contract.

   A “Grit Removal” line item is included in the updated bid form. A quantity of 100 CY is used in the updated bid form. This is to establish a unit price for grit removal. The general contractor will be paid accordingly to the volume of grit that is removed from the existing concrete basins.

3. Appendix B: Bid proposal and basis for bid form in the front-end document says that substantial completion within 120 calendar days. With the generator taken 16-18 weeks to be delivered once approved and 4-6 weeks to receive the submittal and this is after the General Contractor receives the contract. We request that the substantial completion days be more in line with the deliveries for the project and substantial completion days be at least 240 days. This will give the General Contractor time for the submittal process and time for manufacturing the equipment. The other option would be to delay the N.T.P. until the equipment is about to show up on site, then the general contractor mobilizes and N.T.P. to give to the general contractor.

   Substantial completion has been revised from “Substantial Completion within 120 calendar days” to “Substantial Completion within 240 calendar days”.

4. Appendix B Bid Proposal – Bid Item 1 says five percent (3%). Which is correct?

   The lump sum price for general provisions will be limited to five percent (5%) of the contract amount.

5. Section 01 10 00 – Summary, paragraph 1.8 – Will the owner direct purchase any equipment for this project or should the contractor include all equipment material cost in the bid? Will the owner
furnish the diesel fuel for the generator and the sodium hypochlorite for the chemical feed system?

The contractor shall provide one full tank of diesel fuel, all fuel required for generator testing and startup, and fuel as required fill the tank once after the project is Substantially Complete. The existing sodium hypochlorite system will remain operational until the new system is started up and commissioned. All sodium hypochlorite will be procured by the Owner.

6. Section 01 10 00 – Summary, paragraph 1.4.A – This says the generator is 500 kW but the drawings call for 300 kW. Which is correct?

A 300 kW standby generator with a sub-base fuel storage tank shall be provided for this project.

7. Section 01 48 00 – Watertightness Test for Plant Tankage Structures – Can the owner furnish the cost of water for tank testing?

For this project, reclaimed water will be available for watertightness testing.

8. Section 01 40 00 – Quality Requirements – Which tests will the contractor be responsible for the cost and which tests will the owner pay for?

The Contractor, at his expense, shall perform all watertightness testing of existing tankage as called out on Drawing S-005 and Section 014800, all pressure testing of pipe as required by Section 400513.53, all concrete testing as required by Section 033002, and all testing by factory certified representatives as part of the start-up and commissioning requirements for process and control equipment. No costs for testing are to be borne by the Owner.

9. ITB 2019-10 Otter Creek Wastewater Treatment Plant Retrofit Appendix B: Bid Proposal and Basis For Bid has been amended in its entirety. See the attached document.

B. CONSTRUCTION PLANS

1. DWG C-100: While modifications and improvements are taking place in the individual tanks, will the owner be able to drain and isolate the tanks? Will the contractor be responsible for any temporary bypassing?

The basins have been drained by the Owner. The contractor will be responsible for any temporary/periodic pumping which includes: removing reclaimed water from the tank basins after watertightness testing and pumping of accumulated rainwater in the basins to accomplish the required work. Most basins do not have readily available drain lines/drain valves. The Contractor should anticipate the need for portable pumps and hose for removing accumulated rain water.

2. DWG G-002 Note 11: What will be the cost for the local building permit?

An allowance has being provided in the Bid Form/Basis of Payment for building permits. See the revised Bid Form/Basis of Payment.
C. QUESTIONS AND CLARIFICATIONS

1. If this is a Davis Bacon project can you include the rate sheets?

   *The current “heavy construction” rate sheet is attached.*

2. If the project requires certified payroll can you include the forms?

   *Certified Payroll Form WH 347 is attached. A fillable pdf form can be accessed at www.dol.gov/whd/forms*

3. What is the estimated budget for this project?

   *The estimated budget for this project is $1,513,313.00.*

4. There is an RTU for the BNR described on Drawings E-901. Is this to be provided and programmed by AeroMod?

   *The RTU described on E-901 is part of the AeroMod package. The Control System Integrator shall closely coordinate and confirm RTU details.*

5. There are 3 VFDs shown on drawings E-012. AeroMod furnished two VFDs on the Phase 1 project. Will they be expected to supply them on this project?

   *The three VFDs required for the 50 HP blowers shall be supplied by AeroMod and installed by the contractor.*

6. Drawing D-100 shows I/O points for 3 new VFDs going to VTScada but none of the other I/O for the BNR Basin. Are the VFDs the only I/O that needs to be added to the VTScada system?

   *No. The design intent is provide through VTSCADA all of the functionality of CP-300s local HMI. This includes monitoring and control. The Control System Integrator is responsible for integrating the functionality of CP-300 into the existing plant SCADA System including program modifications, software updates, network communications (including network switches), and additional CP-100 I/O cards as required.*

7. What is the scope of concrete repair and coatings/paintings on the existing tankage, pipes, etc.?

   *Structural Drawing S-001 contains a “STRUCTURAL CONCRETE & TANKAGE TREATMENT SCHEDULE” (upper right hand corner), and that Wall Additions at the Existing Treatment Plant have corresponding finishes, either GROUT CLEANED FINISH or GROUT RUBBED FINISH. All new walls have Xypex admixture per Section 07-14-60 and Xypex Waterproofing per Section 07 16 40.

   *No other Coatings are to be applied to the new concrete walls in the existing WWTP.*

   *New Pipe and Valves are to be coated as required by Section 099636, as is:*

   *• Exposed, existing WAS piping (to digesters) *
   *• Exposed, existing drop pipes from clarifiers*

8. Where are the conduits referenced on Sheet E-330? They appear to be missing from E-090 and E-091.
See the attached revisions on sheet E-091. Also refer to revisions on sheet E-330.

9. There are several new loads shown on Sheet E-041, Panel LC, Keynote 2 that are not in the drawings. Where are they located?

Refer to Sheets M-330, E-330 and new sheet M-600 for process analyzers (pH, CL2, and turbidity), refrigerated sampler, high speed mixer, and flow pumps.

Install dedicated 20A, 120V circuits for each flow pump (3 total) and mixer shown on M-600. Each circuit shall consist of 3#8 in 1’C.

10. There are several new analyzers shown on Sheet E-041. What are the signals used for?

4-20mA signals from the CL2 analyzers will pace the CL2 feed pumps. Run 2/C #16 TSP from each analyzer to the 4-20mA input of each CL2 feed pump. Configuration shall be the responsibility of the Control System Integrator. Configure the pumps to increase the CL2 feed rate when residual CL2 is low.

Additionally, analogue signals from the three Cl2 sensors, one pH sensor, and two turbidity sensors shall be integrated into CP-630 by the Control System Integrator and displayed on the plant SCADA HMI. Alarm on out of range readings. The general location of each device shall be in the area shown on the drawings but the final location shall be field determined after consulting the Owner and Engineer (no change order).

Other Attachments:

Attachment 1 – Davis Bacon Wage Rate Heavy Construction

Attachment 2 – Certified Payroll Form WH 347

Attachment 3 – E-012 (Revised)

Attachment 4 – E-091 (Revised)

Attachment 5 – E-092 (New)

Attachment 6 – E-330 (Revised)

Attachment 7 – M-330 (Revised)

Attachment 8 – M-600 (New)

Attachment 9 – M-100 (Revised)

Attachment 10 - Specification Section 432332 – Packaged Booster Pump Station (New)

Attachment 11 – New Appendix B: Bid Proposal and Basis of Payment Form (Revised)
The CONTRACTOR shall acknowledge the receipt of this ADDENDUM by signing below and including a copy with the BID and sign where indicated on Page 00030-1 of the BID Proposal Form.

CONTRACTOR ____________________________

BY _________________________________

DATE ________________________________
General Decision Number: FL20190138 01/04/2019

Superseded General Decision Number: FL20180181

State: Florida

Construction Type: Heavy

County: Wakulla County in Florida.

HEAVY CONSTRUCTION PROJECTS (Including Sewer and Water Lines)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.
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POWER EQUIPMENT OPERATOR:
- Crawler Crane, Hydro
- Crane, Locomotive Crane,
- Tower Crane, Truck Crane...$ 23.50    9.05
- Gantry Crane, Bridge Crane..$ 22.70    9.05
- Oiler.........................$ 19.52    9.05

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* IRON0597-004 04/01/2018

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IRONWORKER, STRUCTURAL AND REINFORCING.................$ 25.50    10.23

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LABO0517-002 05/01/2017

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LABORER: Grade Checker............$ 19.20    7.85

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PAIN0164-006 08/01/2018

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PAINTER: Brush, Roller and Spray............................$ 20.21    10.73

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SUFL2009-177 06/24/2009

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CARPENTER.........................$ 15.36    0.00

CEMENT MASON/CONCRETE FINISHER...$ 14.77    3.50

ELECTRICIAN.......................$ 17.25    3.02
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WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or
"UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in
the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

----------------------------------------------------------------

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

   Branch of Construction Wage Determinations
   Wage and Hour Division
   U.S. Department of Labor
   200 Constitution Avenue, N.W.
   Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request
review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

    Wage and Hour Administrator
    U.S. Department of Labor
    200 Constitution Avenue, N.W.
    Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

    Administrative Review Board
    U.S. Department of Labor
    200 Constitution Avenue, N.W.
    Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

================================================================
END OF GENERAL DECISION

"
## PAYROLL

(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

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### (1) NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER

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#### (7) GROSS AMOUNT EARNED

- [ ] FICA
- [ ] WITHHOLDING TAX
- [ ] OTHER
- [ ] TOTAL DEDUCTIONS
- [ ] NET WAGES PAID FOR WEEK

#### (9) NET WAGES PAID FOR WEEK

While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3143) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(i) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room 33502, 200 Constitution Avenue, N.W., Washington, D.C. 20210
I, __________________________ ________________ (Name of Signatory Party) ________________ (Title) do hereby state:

(1) That I pay or supervise the payment of the persons employed by __________________________ ________________ (Contractor or Subcontractor) on the __________________________ ________________ (Building or Work) that during the payroll period commencing on the ______ day of _______, _______, and ending the ______ day of _______, ______, all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said __________________________ ________________ (Contractor or Subcontractor) weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ — in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ — Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

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REMARKS:

NAME AND TITLE

SIGNATURE

THE WILFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 31 OF TITLE 31 OF THE UNITED STATES CODE.
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**KEY NOTES**

1. **HOLD FOR KEY NOTES.**

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**COMMIT 11-10-2023**

**11/10/2023**

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**WAVILLA COUNTY**

**OTTAWA CREEK**

**EXITING WEST RETURN**

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**E-091**
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**Sheet Notes**

1. Indicate conductor type, voltage and conductors per equipment manufacturer's specifications.
2. Conduit type and installation method are specified per project design.
3. Schedule conduit size and type per pipe manufacturer's specifications.
4. Schedule conduit size and type per pipe manufacturer's specifications.
5. Identify all conduits not shown on the drawing.
6. Schedule conduit size and type per pipe manufacturer's specifications.

**Key Notes**

1. Hold for key notes.
SECTION 43 23 32 - PACKAGED BOOSTER PUMP STATIONS

1.1 SCOPE

A. The contractor shall furnish and install one factory built automatic water booster pumping station. The station shall be complete with all equipment factory assembled on a fabricated steel baseplate and enclosed within two fiberglass covers. The station shall be manufactured by DAKOTA PUMP INCORPORATED, Mitchell, South Dakota. Dakota Pump is represented by Pump and Process, Mr. Jeb Smith, (850) 525-2560. The internal equipment shall include two pumps and motors, piping and valves, ventilation systems, heaters, control panel, two pressure gauges, and all internal wiring.

1.2 MANUFACTURER

A. The manufacturer of the specified equipment shall be regularly engaged in the manufacturing of packaged water boosters, packaged water control vaults, packaged water meter vaults and packaged sewage lift stations. The manufacturer shall have at least ten years of successful experience in manufacturing the above type of equipment. The entire equipment package specified shall be UL approved under the package pumping systems (QCZJ). The specified equipment shall have a UL label certifying the package system is in compliance with the (QCZJ) UL listing. Equipment manufactured without the QCZJ UL listing will not be accepted.

1.3 MATERIAL AND EQUIPMENT

A. In these specifications and on the accompanying drawings, there is specified and shown material and equipment deemed most suitable for the equipment and service anticipated. This is not done, however, to eliminate manufacturers equally as admirable and efficient. Contractors shall prepare their bid on basis of particular equipment and materials that is specified. Award of contract shall constitute contractual obligation to furnish specified equipment and materials unless the contractor desires to execute the following procedures.

1. Alternate equipment shall be considered if a full submittal package (6 copies) on the pump station is furnished to the engineer 14 days prior to the bid date and approved by the engineer in writing. The submittals shall include detailed information on the pump station components and scaled drawings specific of the station chamber, pumps, piping, and electrical. Alternate manufacturers not submitted and approved by the engineer 14 days prior to the bid date will not be considered.

2. After execution of contract, substitution of equipment of makes other than those named in the contract shall be considered for one reason only; the equipment proposed for substitution is superior in construction and/or efficiency to that named in the contract and that high quality, low maintenance and satisfactory service have been demonstrated by at least 15 years of service in prefabricated booster installations.
3. In the event the contractor obtains engineer’s approval on equipment other than that which was specified, contractor shall, at his own expense, make any changes in structures, buildings or piping necessary to accommodate equipment.

4. It will be assumed that cost to contractor of equipment proposed to be substituted is less than that of the equipment in the contract, and if a substitution is approved, the contract price shall be reduced by an amount equal to savings.

B. Booster Pump Station

1. This booster station has been designed using the Dakota Pump Inc. modular water booster product. Any requests for substitutions must be made in accordance with the requirements contained within the attached specifications. Any costs associated with the re-design costs, submittal review, or other substituted items associated with the evaluation of a substitute booster station will be prepaid to the engineer prior to consideration.

1.4 SUBMITTAL

A. Equipment submittals shall be bound in a minimum of six copies. The submittals shall contain a minimum of two full size (24”x36”) drawings. One drawing shall cover the station chamber with equipment and one drawing with the electrical control schematic. The station drawing shall be to scale and be specific to this project with a minimum of three different views and illustrate the National Electrical Code (NEC) clearances. The submittal booklets will be complete with data sheets covering all individual components that make up the package station and the UL file number under which the manufacture is listed and shall be complete with the manufactures standard warranty policy. Each submittal shall be complete with a full size copy of the manufactures UL / manufacture logo Package Pumping Systems label.

1.5 CONSTRUCTION

A. The station shall be a complete factory engineered and built unit. The baseplate shall be fabricated from 3/8” minimum thickness 304 stainless steel plate with 8”/3” 304 stainless steel structural channel reinforcement to resist deflections due to shipment and handling stresses.

B. The pump station shall be provided with two fiberglass enclosures. Each fiberglass enclosure shall be rectangular in shape and shall be designed to insure long life under typical weather conditions. The enclosure shall be insulated with 1” of polystyrene foam, sandwiched between the outer and inner fiberglass walls. The enclosure shall be hinged on one end and tilted for access to internal equipment. Two lifting handles shall be provided. A hold-open device and a wind safety chain shall also be provided. A padlock and hasp shall be provided to prevent unauthorized entry into the enclosure. Two keys on a keyring, complete with the manufacturer’s phone number and address, shall be provided.

C. Each enclosure shall include durable, long lasting, two stage, gas spring assist system. The assists shall be constructed with heavy gauge steel ends, Teflon back up rings for seal stability, heavy gauge steel body with heat cured paint, and chromium plated steel shaft with a minimum diameter of .393 inches. The handle lifting weight shall not exceed 50 pounds.

1.6 WELDING
A. All steel members shall be joined by electric arc welding, with welds of adequate section for the joint involved. Where possible, all joints shall be welded on both sides of the baseplate. All welds shall be continuous and watertight.

1.7 CORROSION PROTECTION

A. After all welding has been completed, all inside and outside surfaces of the structure shall be factory blasted to remove all rust, mill scales and weld slag. All weld spatter and surface roughness shall be removed by grinding. Surface preparation will comply with SSPC-SP10 specifications. The blast profile on the steel should be 1.5 to 2.5 mils in depth and be of a sharp, jagged nature. Surfaces must be free of grit dust.

B. Following the cleaning, all weld areas shall be coated by hand brushing using Devoe High Performance Coatings Bar-Rust 235 multi-purpose epoxy coating. Following the hand coating, the balance of the structure shall be coated per the attached specification.

C. The structure and other exposed metal shall receive a 4-8 mils dry or 5.9 to 11.7 mils wet coating of Devoe High Performance Coatings Bar-Rust 235 multi-purpose epoxy coating. The high solids coating shall be an advance technology epoxy and have exceptional corrosion protection. The coating shall be suitable for salt and fresh water immersion. Solids by volume shall be 68% +/- 2%.

D. A touch-up kit containing epoxy coatings, as specified above, shall be provided for the coating of all field welds and for repair of any scratches or abrasions that have occurred during shipment or installation.

1.8 PUMPS

A. Two Grundfos CR15-6 or Goulds eSV vertical multi-stage centrifugal water pumps shall be installed in the booster station. Each pump shall be capable of delivering 100 gallons per minute of water against a total dynamic head of 231 feet. The pumps shall have a maximum allowable speed of 3550 R.P.M., and the minimum rated horsepower of each motor shall be 15. Minimum pump efficiency shall be 70%, and the maximum net positive suction head required (NPSHR) shall be 11 feet.

B. The vertical multi stage pump shall include the following requirements. The head-capacity curve shall have a steady rise in head from maximum to minimum flow within the preferred operating region. The shut-off head shall be a minimum of 20% higher than the head at the best efficiency point. All pump bearings shall be lubricated by the pumped liquid. Small Vertical In-Line Multi-Stage Pumps (Nominal flow from 3 to 125 gallons per minute) shall have the following features as a standard. Each pump shall be designed for in-line installation requiring no more than 1.5 square feet of floor space (including motor). The pump impellers shall be secured directly to the pump shaft by means of a splined shaft arrangement. The suction/discharge base shall have ANSI (Class 250) or internal thread (NPT) connections as indicated on the plans or pump schedule. ANSI flanged bases shall be a slip ring (rotating flange) design. Pump construction shall include the following requirements:
   1. Suction/discharge base, pump head: Ductile Iron
   2. Motor stool, base plate: Cast iron (ASTM Class 30)
   3. Flange Rings: Ductile Iron (ASTM 65-45-12)
4. Shaft: 316 or 329 Stainless Steel
5. Impellers, diffuser chambers, outer sleeve: 316 Stainless Steel
6. Impeller wear rings: 316 Stainless Steel
7. Shaft journals and chamber bearings: Silicon Carbide
8. O-rings: EPDM

C. Shaft couplings for motor flange sizes 184TC and smaller shall be made of cast iron (ASTM Class 30) or sintered steel. Shaft couplings for motor flange sizes larger than 184TC shall be made of ductile iron (ASTM 60-40-18). Optional materials for the base plate and flange rings shall be cast stainless steel (ASTM CF-8M). Stainless Steel flange rings have a Class 300 pressure rating. The shaft seal shall be a balanced o-ring cartridge type with the following features:

1. Collar, Drivers, Spring: 316 Stainless Steel
2. Shaft Sleeve, Gland Plate: 316 Stainless Steel
3. Stationary Ring: Silicon Carbide
4. Rotating Ring: Silicon Carbide
5. O-rings: EPDM

D. The Silicon Carbide shall be imbedded with graphite. Shaft seal replacement shall be possible without removal of any pump components other than the coupling guard, shaft coupling and motor. Pumps with motors equal to or larger than 15 hp (fifteen horsepower) shall have adequate space in the motor stool so that shaft seal replacement is possible without motor removal. The maximum working temperature shall be 250 degrees F. The maximum working pressures are as follows:

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<th>Connection Type</th>
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<td>Grooved Pipe (Victaulic Type)</td>
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E. Shaft seal replacement shall be possible without removal of any pump components other than the seal cover, motor, motor couplings and coupling guard. Pumps with motors equal to or larger than 15 hp (fifteen horsepower) shall have adequate space in the motor stool so that shaft seal replacement is possible without motor removal. The maximum working temperature shall be 250 degrees F. The maximum working pressure shall be 232 psig or 365 psig as determined by the installation requirements.

F. Each pump shall be direct coupled to a 15 HP, 3550 RPM, 3 phase, 60 hertz, 230/460 volt, ODP, standard vertical NEMA C face electric motor, with a service factor of 1.15. Motor shall be of such size that it will operate continuously without exceeding its horsepower rating, exclusive of its service factor, over the entire performance curve. Motors shall be designed for continuous duty operation, NEMA design B with a 1.15 S.F. Motors are to be furnished with class "F" insulation. Motor nameplate shall be mounted on enclosure with stainless steel fastening pins. Nameplate shall have, as a minimum, all information as described in NEMA Standard MG 1-10.40.1. Motors over 50 lbs shall having lifting provisions. Motors shall have a NEMA C-Flange for vertical mounting. Drive end bearings shall be adequately sized so that the minimum L10 bearing life is 17,500 hours at the lowest allowable continuous flow rate for the pump. The motors shall be premium efficient for use with variable speed drives.

1.9 CONTROL SYSTEM
A. The power distribution center and electrical controls shall be mounted in a common NEMA Type 4C gasketed fabricated 304 stainless steel enclosure. The enclosure shall have a full opening door, mounted on heavy piano hinges. Suitable type latching devices shall be provided on the door. Starters, breakers, relays, timers and wiring raceway shall be neatly arranged on a removable steel back plate. All circuit breaker operators, selector switches, indicating lights, and single phase items shall be mounted on or through die cut openings in the enclosure door. A duplex grounding type convenience outlet shall be mounted in die cut openings on the side of the enclosure, for operation of 115-volt devices. It shall not be necessary to open this enclosure, except for adjustment of controls. Additional enclosures may be used as necessary to meet power and control requirements.

B. The control panel shall conform to the National Electrical Code specifications and shall be UL listed and labeled in accordance with UL standards No. 508 for Industrial Control Panels. In accordance with U.L. procedures, a U.L. label shall be affixed to the control panel.

C. The Programmable Logic Controller shall be a MicroLogix 1400 as manufactured by Allen Bradley. I/O shall be supplied to accommodate all control processes in the system while providing for a 10% spare density for future use. The booster station manufacturer shall be responsible for the programming and satisfactory operation of the PLC System.

D. A 5.7” Color touch screen HMI shall be supplied. The unit shall be equal to a Square D Magellan. The HMI shall display include but not limited to:
1. Pressures Flows
2. Alarms Pump Status
3. Run Times Setpoints

E. All communication between the PLC’s, HMI’s, and Modems shall be via Ethernet. An unmanaged Ethernet switch shall be provided at each location where these devices are present. The switch shall have a minimum of 5 ports and be equal to a Phoenix Contact SFN5TX

F. The programming shall be supplied to the owner on transferrable media and shall be fully commented and documented. OEM Coding, Locking, or making proprietary any portion of the control system programming will not be accepted.

G. The control panel shall be provided with a web based Cloud 9 Monitoring System integrated into the control panel hardware / software equipment. This functionality shall utilize the pump station PLC and shall not require any additional RTU devices. The Cloud 9 monitoring system will include a cellular modem and applicable software that will enable the PLC system to monitor pump status, monitor discharge pressure signals, and monitor tank level signals to the customers web accessible computer, tablet, or smart phone. The Owner is responsible for internet access, including expenses, for their monitoring devices. In addition to the monitoring, the Cloud 9 system shall allow the factory automation engineers / technicians the ability to modify PLC programming remotely, if needed, during start-up services. Any changes to the PLC / HMI programming after start-up service date will be billed at standard billing rates. The Cloud 9 monitoring system will include a 90 day basic trial subscription to commence the day of start-up (not to exceed 180 days from station delivery date). If the Owner chooses to continue the Cloud 9 services beyond the 90 day trial date, a Cloud 9 system service contract must be signed by the Owner prior to the trial expiration date to avoid any gap in service. All customer interaction with the Cloud 9 System during the trial period shall be “read only” and will not include any remote control or set point features. Upon commencement of a paid subscription agreement
and acceptance of the terms and conditions, additional features desired by the owner may be added.

H. Properly sized, heavy duty, molded case thermal-magnetic air circuit breakers shall be provided for branch circuit disconnect service and for over-current protection of all control, motor and auxiliary circuits.

I. To protect the motors from single phasing, low voltage, voltage unbalance and reverse phasing, a phase monitor shall be supplied with the pump station controls. The phase monitors voltage and phase sensing circuit shall constantly monitor the three phase line voltages and detect harmful power line conditions. When any of the conditions occur, and output relay shall be deacti- vated until power line conditions return to an acceptable level. Trip and reset delays shall be provided to prevent nuisance tripping due to rapid power fluxuations.

J. To protect the electrical system and equipment from damage due to excessive line surges caused by lightning or other circuit disturbances, a secondary surge arrester shall be supplied with the pump station controls. The arrester shall comply with ANSI standard C62.11-1987. The ar- rester shall be available in a one-pole, two-pole or three-pole version, and be suitable for both indoor and outdoor use. The arrester shall be permanently sealed in a LEXAN housing. The arrester shall have a maximum continuous operating voltage rating of 650 volts rms. The permissible line-to-line voltage of the system to which the arrester is applied depends on the circuit configuration, grounding, and voltage regulation. The secondary surge arrester shall be a Sq D SDSA3650 for three phase and SDSA1175 for single phase applications.

K. The package shall be provided with a water on the floor indication sensor. The sensor shall work by forming a conductive bridge between two electrical contacts. The sensor shall not alarm due to high humidity or condensation. The sensor shall work on 12V or 24V AC or DC. The sensor output shall be 1 Amp @ 24Vac. The sensor shall be provided with a 12VDC power supply.

L. The package station shall be supplied with a low voltage temperature thermostat. The thermo- stat voltage rating shall be 120/240 VAC. The contact current rating resistive @ 120VAC 22 Amps, the contact current rating resistive @ 240 VAC 22 Amps, the Inductive rating @ 120 VAC 13.8 Amps, and the inductive rating @ 240 VAC 10 Amps. The sensor type shall be bi-metal. The switch type shall be SPDT. The control range shall be -10 to 100 degrees F. The temperature differential shall be 3 ½ degrees F. The switch action shall be open/close on rise.

M. Six digit, non-resettable elapsed time meters shall be provided to record the running time of each pump motor. These devices shall be mounted in die cut openings in the enclosure door.

N. Hand-Off-Automatic switches shall be oil tight, 2 or 3 position, and grouped conveniently with oil tight, full voltage indicating lights, on the panel door. Indicating lights shall identify the following functions:
   1. Red - Low suction pressure.
   2. Red - High discharge pressure.
   3. Green - Pump #1 running.
   4. Green - Pump #2 running.

1.10 WIRING
A. Wiring of the water booster station shall be in accordance with the National Electrical Code (NEC). The pumping station interior shall be completely wired at the factory, except for power entrance wiring and external connections. All internal wiring shall be run in conduit. The pumping station shall be wired for three phase, 60 hertz, 460 volt power.

B. A 3 KVA dry type single-phase power transformer shall be provided to supply power to the station single-phase loads. The transformer shall have a dust tight enclosure and shall be suitable for wall mounting. The transformer shall have Class H insulation and shall be UL approved for indoor applications.

C. The heater, ventilation blower, and all 115-volt devices, shall be supplied with suitable lengths of 660 volt, 14-3 rubber covered power cord. These items shall plug directly into outlets, which are identified by engraved plastic nameplates.

D. All wiring in the control panel shall be color-coded. Power wiring from the control panel to the pump motors shall be enclosed in polyvinyl covered flexible steel conduit, with compatible grounding fittings. All conduit and wires shall be sized for the maximum anticipated load. All conduits shall be neatly arranged and secured to the baseplate as required.

1.11 VFD

A. Furnish complete VFD’s as specified herein or in the equipment schedule for loads designated to be variable speed. VFD’s shall be user-selectable for either constant or variable torque loads. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of three-phase AC induction motors. The VFD shall be a six-pulse input design, and the input voltage rectifier shall employ a full wave diode bridge; VFD’s utilizing controlled SCR rectifiers shall not be acceptable. The output waveform shall closely approximate a sine wave. The VFD shall be of a PWM output design utilizing current IGBT inverter technology and voltage vector control of the output PWM waveform.

B. The VFD shall include a full-wave diode bridge rectifier and maintain a displacement power factor of near unity regardless of speed and load, shall produce an output waveform capable of handling maximum motor cable distances of up to 1,000 ft. (unshielded) without tripping or derating, and shall utilize VVCPLUS, an output voltage-vector switching algorithm, or equivalent, in both variable and constant torque modes. VVCPLUS provides rated RMS fundamental voltage from the VFD. This allows the motor to operate at a lower temperature rise, extending its thermal life. VFD’s that cannot produce rated RMS fundamental output voltage or require the input voltage to be increased above motor nameplate value to achieve rated RMS fundamental output voltage are not acceptable. VFD’s that utilize Sine-Coded PWM or Look-up tables shall not be acceptable.

C. The VFD selected must be able to source the motor’s full load nameplate amperage (fundamental RMS) on a continuous basis, and be capable of running the motor at its nameplate RPM, voltage, current, and slip without having to utilize the service factor of the motor. The VFD shall offer a programmable motor parameter that allows the total number of poles of a motor to be programmed to optimize motor performance. VFD shall automatically boost power factor at lower speeds. The VFD will be capable of running either variable or constant torque loads. In variable torque applications, the VFD shall provide a CT-start feature and be able to provide full torque at any speed up to the base speed of the motor. In either CT or VT mode, the VFD shall
be able to provide its full rated output current continuously and 110% of rated current for 60 seconds.

D. An Automatic Energy Optimization (AEO) selection feature shall be provided in the VFD to minimize energy consumption in variable torque applications. This feature shall optimize motor magnetization voltage and shall dynamically adjust output voltage in response to load, independent of speed. Output voltage adjustment based on frequency alone is not acceptable for single motor VT configurations.

E. For multi-motor variable torque configurations, user-selectable load profile curves including VT-High, VT-Medium, and VT-Low shall be provided to ensure easy commissioning and improved energy efficiency. VFD’s requiring the operator to assign load torque data-points to create a V/HHz profile, are not acceptable. An initial ramp function shall be available to provide a user-selectable ramp, up to 60 seconds, for applications requiring a faster or slower ramp than the normal ramp. A Dual Ramp Down feature shall include a Check Valve Ramp Down and a final Ramp feature. The Check Valve Ramp Down shall be programmable to gently seat a check valve and reduce the potential of damage from excess pressure while shutting-down the system. Both time and end speed shall be programmable. On the Final Ramp, the VFD shall be programmable to quickly stop the motor after seating of a check valve or for a more rapid stopping than the normal ramp down setting.

F. VFD shall offer up to 4 separate PID controllers. One controller shall operate the drive in closed loop, while the other 3 provide control signals to other equipment. VFD’s with PI controllers only are not acceptable.

G. An Auto tuning PI controller output feature shall provide automated PI controller settings. Once the user accepts the settings, the VFD will save the settings to memory.

H. An empty pipe fill mode shall be available to fill an empty pipe in a short period of time, and then revert to the PID controller for stable operation. Pipe fill mode shall have a programmable time to reduce water hammer in the system or fill the pipe at a unit per time rate. VFD shall offer a motor spinning test that will run the motor at 5 Hz until the OK button is pressed. This feature will allow the user to determine if the motor is running in the correct direction. An embedded cascade pump controller shall be included to provide lead pump alternation and provide control for up to 3 total pumps. The VFD Pump and 2 other pumps can be controlled either by a starter or soft starter.

I. Switching of the input power to the VFD shall be possible without interlocks or damage to the VFD at a minimum interval of 2 minutes. Switching of power on the output side between the VFD and the motor shall be possible with no limitation or damage to the VFD and shall require no additional interlocks.

J. An Automatic Motor Adaptation (AMA) function shall measure motor stator resistance and reactance to optimize performance and efficiency. It shall not be necessary to spin the motor shaft or de-couple the motor from the load to accomplish this optimization. Additionally, the parameters for motor resistance and motor reactance shall be user-programmable.

K. The VFD shall have temperature controlled cooling fans for quiet operation, minimized internal losses, and greatly increased fan life.
L. VFD shall provide full torque to the motor, given input voltage fluctuations of up to +10% to -10% of the rated input voltage (525 to 690VAC, 380 to 480VAC, or 200 to 240VAC). Line frequency variation of ±2% shall be acceptable.

M. The VFD shall provide internal DC link reactors to minimize power line harmonics and to provide near unity power factor. DC Link reactor shall be installed so that power fluctuations to the DC Capacitors shall be reduced to increase Capacitor life. VFD’s without a DC link reactor shall provide a 5% impedance line side reactor and provide spare capacitors.

N. VFD protective features: VFD shall have input surge protection utilizing MOV’s, spark gaps, and Zener diodes to withstand surges of 2.3 times line voltage for 1.3 msec. VFD shall include circuitry to detect phase imbalance and phase loss on the input side of the VFD. VFD shall auto-derate the output voltage and frequency to the motor if an input phase is lost. This result will maintain operation without decreasing the life expectancy of the VFD. The use of this feature shall be user selectable and export a warning during the event. Printed Circuit boards shall be conformal coated to reduce the corrosion effect from environmental gases and other conditions. The conformal coating must meet IEC 61721-3-3, Class 3C2 as standard and the VFD shall have an optional 61721-3-3, Class 3C3 coating available. Automatic “No-Flow Detection” shall be available to detect a no-flow situation in pump systems where all valves can be closed. This shall be functional in closed loop control or when controlled by an external signal. Dry-pump detection shall be available to detect if the pump has run dry. If this condition occurs, the drive will be safely stopped. A timer shall be included to prevent nuisance tripping. End-of-Pump curve detection shall stop motor when the pump is operating outside of its programmed pump curve. VFD shall provide a flow compensation program to reduce energy by adjusting the Setpoint to match changes in flow (friction loss). Flow compensation shall also operate in Cascade control mode. VFD shall include current sensors on all three-output phases to detect and report phase loss to the motor. The VFD will identify which of the output phases is low or lost.

O. VFD shall auto-derate the output voltage and frequency to the motor in the presence of sustained ambient temperatures higher than the normal operating range, so as not to trip on an inverter temperature fault. The use of this feature shall be user-selectable and a warning will be exported during the event. Function shall reduce switching frequency before reducing motor speed.

P. VFD shall auto-derate the output frequency by limiting the output current before allowing the VFD to trip on overload. The speed of the load can be reduced, but not stopped.

Q. The VFD shall have the option of an integral RFI filter. VFD enclosures shall be made of metal to minimize RFI and provide immunity.

R. The VFD shall have a motor preheat function with the ability to be programmed to induce a small amount of current to the motor whenever it is at rest. This will prevent condensation inside the motor and help to extend its life without the need for space heaters or other external equipment.

S. Interface Features:
1. VFD shall provide an alphanumeric backlit display keypad (LCP) which may be remotely mounted using a standard 9-pin cable. VFD may be operated with keypad disconnected or removed entirely. Keypad may be disconnected during normal operation without the need to stop the motor or disconnect power to the VFD.
2. VFD Keypad shall feature an INFO key that, when pressed, shall display the contents of the programming manual for the parameter that is currently viewed on the display. The description shall explain the feature and how the settings can be made by the operator.

3. VFD shall display all faults in plain text; VFD’s which can display only fault codes are not acceptable. The keypad shall feature a 6-line graphical display and be capable of digitally displaying up to five separate operational parameters or status values simultaneously (including process values with the appropriate engineering unit) in addition to Hand/Off/Auto, Local/Remote, and operating status. Two lines of the display shall allow “free text programming” so that a site description or the actual name of the equipment being controlled by the VFD can be entered into the display.

4. Keypad shall provide an integral H-O-A (Hand-Off-Auto) and Local-Remote selection capability, and manual control of speed locally without the need for adding selector switches, potentiometers, or other devices.

5. All VFD’s shall be of the same series, and shall utilize a common control card and LCP (keypad/display unit) throughout the entire range of drives used on the project.

6. VFD keypad shall be capable of storing drive parameter values in non-volatile RAM uploaded to it from the VFD, and shall be capable of downloading stored values to the VFD to facilitate programming of multiple drives in similar applications, or as a means of backing up the programmed parameters.

7. VFD Display shall have the ability to display 5 different parameters pertaining to the VFD or the load including: current, speed, DC bus voltage, output voltage, input signal in mA, or other values from a list of 92 different user-selectable parameters.

8. VFD display shall indicate which digital inputs are active and the status of each relay.

9. It shall be possible to toggle between three status read-out screens by pressing the [Status] key. Various operating variables, even with different formatting, can be shown in each status screen.

10. VFD display shall indicate the value of any voltage or current signal, including the engineering units of measurement, connected to the analog input terminals.

11. VFD display shall indicate the value of the current at the analog output terminals, including the engineering units of measurement.

12. A red FAULT light, a yellow WARNING light and a green POWER-ON light shall be provided. These indications shall be visible both on the keypad and on the VFD when the keypad is removed.

13. Two-level password protection shall be provided to prevent unauthorized changes to the programming of the VFD. The parameters can be locked via a digital input and/or the unit can be programmed not to allow an unauthorized user to change the parameter settings.

14. A quick setup menu with factory preset typical parameters shall be provided on the VFD to facilitate commissioning. Use of macros shall not be required.

15. A digital elapsed time meter and kilowatt hour meter shall be provided in the display.

16. VFD shall offer as standard an internal clock. The internal clock can be used for: Timed Actions, Energy Meter, Trend Analysis, date/time stamps on alarms, Logged data, Preventive maintenance, or other uses. It shall be possible to program the clock for Daylight Saving Time / summertime, weekly working days or non-working days including 20 exceptions (holidays, etc.). It shall be possible to program a Warning in case the clock has not been reset after a power loss.

17. A battery back-up option shall be provided to maintain internal clock operation during power interruptions. Battery life shall be no less than 10 years of normal operation.
18. VFD shall provide full galvanic isolation with suitable potential separation from the power sources (control, signal, and power circuitry within the drive) to ensure compliance with PELV requirements and to protect PLC’s and other connected equipment from power surges and spikes.

19. All inputs and outputs shall be optically isolated. Isolation boards between the VFD and external control devices shall not be required.

20. There shall be six fully programmable digital inputs for interfacing with the systems external control and safety interlock circuitry. Two of these inputs shall be programmable as inputs or outputs.

21. The VFD shall have two analog signal inputs. Inputs shall be programmable for either 0 - 10V or 0/4-20 mA.
   a. One programmable analog output shall be provided for indication of the drive status. This output shall be programmable for output speed, voltage, frequency, motor current and output power.
   b. The analog output signal shall be 0/4-20 mA.

22. The VFD shall provide two user programmable relays with 75 selectable functions. Two form ‘C’ 230VAC/2A rated dry contact relay outputs shall be provided.

23. Floating point control interface shall be provided to increase/decrease frequency in response to external switch closures.

24. The VFD shall accept a N.C. motor temperature over-temperature switch input, as well as possess the capability to accept a motor thermistor input.

25. The VFD shall store in memory the last 10 faults with time stamp and recorded data.

26. Run permissive circuit shall be provided to accept a “system ready” signal to ensure that the VFD does not start until isolation valves, seal water pumps or other types of auxiliary equipment are in the proper state for VFD operation. The run permissive circuit shall also be capable of sending an output signal as a start command to actuate external equipment before allowing the VFD to start.

27. The VFD shall be equipped with a standard RS-485 serial communications port and front-of-drive accessible USB port. Danfoss FC or ModBus RTU communications shall be integrally mounted. A Windows® compatible software program to display all monitoring, fault, alarm, and status signals shall be available. This software program shall allow parameter changes, storage of all VFD operating and setup parameters, and remote operation of the VFD.

28. VFD shall catch a rotating motor operating either in forward or reverse at up to full speed.

1.12 VENTILATION BLOWERS

A. Each fiberglass enclosure shall include a ventilation system. Each ventilation blower shall draw fresh air from outside the enclosure, through a louvered and screened opening. The ventilator shall be a direct drive, shaded pole, high efficiency type blower, with a minimum capacity of 265 cubic feet per minute at 0.0” static pressure for operation on 120-volt power. A pre-set automatic air conditioning type thermostat shall control the blower. Air shall be exhausted on the opposite end of the enclosure, also through a louvered and screened opening. A fiberglass rain hood shall be supplied for both the air intake and exhaust.

1.13 HEATER
A. A 1500-watt electric space heater with a minimum capacity of 5120 BtuH and controlled by an adjustable thermostat shall be provided to regulate the temperature in each fiberglass enclosure. Each heater shall have a fan to provide even heat distribution throughout the enclosure.

1.14 LIGHTING

A. A industrial incandescent hand lamp with 25’ cord shall be supplied with the pump station. The cord shall include 14/3 AWG cord type with SFTW. The manual on/off control shall be with a push through switch. The lamp shall include a side electrical receptacle. The hand lamp shall conform to UL E110409.

1.15 PIPING SPECIFICATION ADDITIONS

A. Piping shall be 304 stainless steel. The piping shall be schedule 40. Bolts, washers and nuts shall be 304 stainless steel minimum.

B. The piping in the station shall be supported by rectangular, 3/8” (minimum) flat, or round tubing that shall be fully welded to the steel floor and bolted to flanged joints in the piping system. The size of the welded pipe supports shall be determined by the station manufacture. The welded / flanged joint connection shall allow for lateral and transverse pipe support while allowing for necessary restraint and ease of removal. Kick bracing shall be provided as necessary.

C. After the station piping and valves have been manufactured, the station piping system, including pumps, piping, fittings and all valves that make up the entire station piping shall be first tested with high-pressure air to test for leaks. High-pressure air shall be pumped into the piping system and a soap solution shall then be sprayed on any welded joints for leak indication. After air testing, the pumps, piping and valves making the entire system shall be hydrostatically tested to test for leaks at all joints, connections and weld seams. Any deficiencies found during the air test or the hydrostatic test shall be repaired and the system shall be retested.

D. Suction and discharge header piping shall be fabricated utilizing weld tees and/or weld reducing tees to maintain smooth water flows and minimize hydraulic losses in the transition from the pump branch piping to the header piping. Under no circumstances shall any pump branch or bypass piping connections be made by cutting a hole in the pipe and welding a branch take off.

E. Isolation valves used inside the station shall be lug style butterfly valves with cast iron ASTM A-126 Class B bodies and aluminum bronze discs. Valve stems shall be 416 stainless steel. Molded-in resilient seats shall provided bubble-tight shutoff to 250 psi. Round, polished disc and hub edges shall provide 360 degree concentric seating, minimum flow restriction, lower torques and longer seat life. The molded-in liner shall be EPDM. The upper busings shall be polyester. The Upper and lower inboard bearings shall be bronze. Each valve shall be factory tested to 110 percent of specified pressure rating. Valves 6” and smaller shall be provided with 10 position lever lock handles with throttle plates incorporating an infinite position stop, a memory stop, and a padlocking device for either fully open or fully closed position. Valves 8” and larger shall be provided with gear operators, complete with crank handles and position indicators.
F. 1 ½” and smaller ball valves shall be lead-free brass ball valves. The valves shall meet the federal safe water drinking act, lead free requirement. The valve shall be of the full port design, lead free forged brass body, blow-out proof stem, and be NSF 61 approved. The nut and handle shall be forged steel with zinc plating. The packaging nut shall be brass. The stem packing and ball seat shall be PTFE. The stem, body and body end cap shall be brass. The ball shall be chrome plated brass (1/4” – 1”).

G. The check valves shall be of the silent operating type that begins to close as the forward flow diminishes and fully closes at zero velocity preventing flow reversal and resultant water hammer. The valve shall be certified to NSF/ANSI 61 and be certified to be lead-free in accordance with NSF/ANSI 372. Wafer style check valves shall provide in sizes 2” through 10” for installation between Class 125 or Class 250 flanges. The valve design shall incorporate a center guided, spring loaded disc while having a short linear stroke that generates a flow area equal to the nominal valve size. The valve shall be capable of operating in the horizontal or vertical positions. The valve shall be provided with a replicable guide bushing held in position by the spring. The spring shall be designed to withstand 100,000 cycles without failure and provide a cracking pressure of .05 psi. The disc shall be concaved to the flow directing providing for disc stabilization, maximum strength and a minimum flow velocity to open the valve. The valve disc and seat shall have a seating surface of 16 micro-inch or better. Valve seats shall be fully retailed with full size threads and sealed with an O-ring. The valve body shall be constructed of ASTM A126 Class B cast iron. Valve seat and disc shall be ASTM B584 Alloy C83600 cast bronze or ASTM B148 Alloy C95200 aluminum bronze. The compression spring shall be ASTM A313 Type 316 stainless steel with ground ends. The valve interior and exterior shall be coated with a NSF/ANSI 61 fusion bonded epoxy coating. The valve shall be Valmatic 1400-BN or Pratt 720.

H. The pressure relief valve shall be hydraulically operated, single diaphragm-actuated, globe or angle pattern. The valve shall consist of three major components: the body with seat installed, the cover with bearings installed, and the diaphragm assembly. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the main valve or pilot controls. No separate chambers shall be allowed between the main valve cover and body. Valve body and cover shall be of cast material, Ductile Iron is standard and other materials shall be available. No fabrication or welding shall be used in the manufacturing process. Total shipping weight, in all respects, shall be equal to or greater than the Hytrol 100-01/100-20 body. The valve shall contain a resilient, synthetic rubber disc with a rectangular cross section contained on three and one-half sides by a disc retainer and forming a tight seal against a single removable seat insert. No O-ring type discs shall be permitted as the seating surface. The disc guide shall be of the sturdy one-piece design capable of withstanding opening and closing shocks. It must have straight edges sides and a radius at the top edge to prevent excessive diaphragm wear as the diaphragm flexes across this surface. No hourglass-shaped disc retainers shall be permitted and no V-type disc guides shall be used. The diaphragm assembly containing a non-magnetic 303 stainless steel stem of sufficient diameter to withstand high hydraulic pressures shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. The seat shall be a solid, one-piece design and shall have a minimum of a five-degree taper on the seating surface or a positive, drip tight shut off. No center guides shall be permitted. The stem shall be drilled and tapped in the cover end to receive and affix such accessories as may be deemed necessary. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve separating operating pressure from line pressure. The flexible, non-wicking FDA approved diaphragm shall consist of nylon fabric bonded
with synthetic rubber compatible with the operating fluid. The vulcanized process or a rubber grommet sealing the center stem hole from the operating pressure must seal the center hole for the main valve stem. The diaphragm must withstand a Mullins burst Test of a minimum of 600 psi per layer of nylon fabric and shall be cycle tested 100,000 times to insure longevity. The diaphragm shall not be used as the seating surface. The diaphragm shall be fully supported in the valve body and cover by machined surfaces that support no less than one-half of the total surface area of the diaphragm in either the fully open or fully closed position. The main valve seat, the power unit body and the stem bearing in the valve cover shall be removable. The cover bearing and seat in 6” and smaller size valves shall be threaded into the cover and body. The valve seat in 8” and larger sizes shall be retained by flat head machine screws for ease of maintenance. The lower bearing of the valve stem shall be contained concentrically within the seat and shall be exposed to the flow on all sides to avoid deposits. To insure proper alignment of the valve stem, the valve body and cover shall be machined with a locating lip. No "pinned" covers to the valve body shall be permitted. Cover bearing, disc retainer, and seat shall be made of the same material. All necessary repairs and/or modifications other than replacement of the main valve body shall be possible without removing the valve from the pipeline. Packing glands and/or stuffing boxes shall not be permitted and components, including cast material shall be of North American Manufacture. The pressure relief pilot shall be direct-acting, adjustable, spring loaded, diaphragm valve designed to permit flow when controlling pressure exceeds the adjustable spring setting. The pilot control is normally held closed by the force of the compression on the spring above the diaphragm and it opens when the pressure acting on the underside of the diaphragm exceeds the spring setting. Pilot control sensing shall be upstream of the pilot system strainer so accurate control may be maintained if the strainer is partially blocked. The valve shall be a Cla-Val Model 50-01BYKC Pressure Relief Valve.

I. Couplings shall be designed with heavy housings and grips to provide a strong component for joining plain end steel pipe. The housing shall be ductile iron conforming to ASTM A-536. The housing coating shall be hot dipped galvanized. The jaws shall be carbon steel, case hardened, electroplated. 1” shall utilize stainless steel type 416 hardened. Gaskets shall be EPDM as recommended for cold or hot water service within the specified temperature range. The EPDM shall be UL classified in accordance with ANSI/NSF61 for potable water. Bolts/Nuts/Washers shall be heat treated plated carbon steel, trackheads meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183. 6” and larger sizes shall be supplied with hardened steel washers meeting ASTM F-436 Type 1 hot dipped galvanized steel.

J. Compression type couplings shall be used required, to enable easy dismantling of station pumps and piping for maintenance and service. Couplings shall consist of two steel follower rings, two resilient gaskets, one steel middle ring, and a set of steel follower trackhead bolts.

1.16 FUSION BONDED EPOXY POWER COATING

A. The internal surface off the steel piping shall be coated with “Nap Gard” fusion bonded epoxy coating. The coating shall be certified to meet the requirements of NSF 61 for potable water services. The interior piping service shall be cleaned and be free of mill scale, oil dust and rust. A liquid cleaner/phosphate in a pressure applied system to remove all oil and contaminants. It shall then be oven dried. After the oven drying, it shall be blast cleaned to a minimum of SSPC-SP6 commercial blast cleaning. After final cleaning, the pipe must be pre-heated to 450 degrees. The fusion bonded coating shall be electrostatically applied allowing for an even uniform coat. The coated pipes shall then be placed back in the cure oven for final bake. The recommended mill thickness for “Nap Gard” fusion bonded epoxy coating is 10 mils.
1.17 PRESSURE GAUGES

A. Gauges will be 4 ½” in diameter per ASME B40.1 and shall be graduated in psi. Rated accuracy will be ±0.5% of full scale and the operating temperature shall be -40°F to +150°F. Gauges shall be liquid filled. Additional error when temperature changes from referenced temperature of 60°F ±0.4% for every 18°F rising or falling (percentage of span). Standard features shall include a black fiberglass-reinforced thermoplastic case, black aluminum pointer, white aluminum with black lettering, dampened movement option, stainless steel bourdon tube, copper alloy (0.6 mm) restrictor, copper alloy with ½” NPT lower mount pressure connection with M4 internal tap and be weather resistant (NEMA 3 / IP54).

B. The ¼” high pressure ball isolation valve standard features shall include a one piece brass body (UNI 5705-65), PTFE self-lubricating seats with flexible-lip design, double seal system to all the valve to be operated in both directions, chrome plated brass ball, blowout-proof brass stem with Viton O-ring, nylon black wedge handle that clearly shows ball position, and NPT taper ANSI B.1.20.1 connections.

C. All gauges shall be panel mounted off the pipeline and be connected with copper tubing to their respective sensing point. The gauge trim tubing shall be complete with both isolating and vent valves and the tubing shall be so arranged as to easily vent air and facilitate gauge removal. Gauges mounted directly to the pipeline or at the sensing point will not be accepted.

1.18 FACTORY TESTS

A. Upon completion of manufacturing and prior to shipment, the package pump station equipment shall be tested within the manufacturer’s facility. Equipment shall be plumbed to a minimum 10,000 gallon reservoir and operated in a loop cycle.

B. The flow operation test shall be simulated to project specific pumping conditions, or as near as allowed by the test facility. Flow shall be recorded from a Magnetic Flow Meter at the entrance to the reservoir. Suction and discharge pressures shall be accurately recorded from the suction and discharge manifolds within the equipment. The test facility shall provide suction head pressure greater than zero feet.

C. The test shall allow for all components to be operational and checked prior to shipment of the pumping equipment. The engineer, at his/her choice, shall be invited to witness the factory testing. All travel expenses associated for this testing would be by the engineer and/or owner.

D. A test report shall be included within the Owners Operation and Maintenance manual along with the manufacturer’s archived files. At a minimum this test report shall include recording suction and discharge pressures at pump dead head, suction and discharge pressure at specified pumping conditions, volts and amp readings at specified pumping conditions, and operation of environmental equipment.

1.19 INSTALLATION AND SERVICE INSTRUCTIONS

A. Installation of the water booster station shall be in accordance with the written instructions furnished by the manufacturer, and as recommend by the Engineer. In addition to the installation instructions, the manufacturer shall furnish six complete and detailed Operating Instructions,
Service and Repair Sheets in a bound manual. This manual shall cover the initial start-up, operating procedures, maintenance and servicing procedures on the major component parts provided in the pump station. One manual shall be shipped in the station, the rest shall be sent direct to the contractor.

1.20  START-UP

A. The manufacturer shall provide the services of a factory-trained representative for a maximum period of one day, to assist the contractor with the initial start-up of the pump station. It shall be the responsibility of the contractor to inform all parties of this initial start-up, and to insure their attendance. The manufacturer’s representative shall instruct all personnel attending the start-up in the correct and required operation, maintenance and service procedures for the water booster station.

1.21  GUARANTEE

A. The manufacturer shall guarantee the booster station to be free from defects in materials and workmanship for a period of one year from the date of start-up or for a period of fifteen months from the date of shipment. All consumable parts such as pump seals, filters, light bulbs, oil, grease, etc., shall be considered part of routine maintenance and shall not be covered under the terms of the manufacturer’s warranty.

1.22  GENERAL

A. The contractor is hereby notified that responsibility for the complete and satisfactory operation or function of all equipment and material is definitely a part of this contract, regardless of the manufacturer’s guarantee on any item furnished. It is the contractor’s responsibility to place all equipment in operation, furnish all lubrication, check all fittings for tightness, and see that proper operating and maintenance instructions are prepared and followed.

END OF SECTION 43 23 32
BID PROPOSAL
WAKULLA COUNTY

Full Company Name of Bidder:____________________________________________________

Main Business Address:___________________________________________________________
(including city, state and zip)

Place of Business:_______________________________________________________________
(including city, state and zip)

Business Telephone and Fax Numbers:______________________________________________

Contact Name:______________________________________________________________

State Contractor's License#:____________________________________________________
BID TO:

BID FROM: (Name of Firm)  
          (Address)

PROJECT:

PROJECT #: ITB 2019-10

I have received the Instructions to Bidders, Bidding Documents and Specifications of the Project.  
I have received Addenda Numbers _____________ and have included their provisions in my Bid.  
I have examined both the Bidding Documents and the site and submit the following Bid.

In submitting this Bid, I agree:

1. To hold my Bid in full force and effect for a period of thirty (30) calendar days after the date of the opening of this Bid.
2. To abide by the provisions of the Instructions to Bidders regarding disposition of the Bid Security.
3. To enter into and execute a Contract within ten (10) calendar days after the Contract is delivered to me, if awarded, and to furnish Performance Bonds and Public Payments Bonds in accordance with the General Conditions.
4. To accomplish the work in accordance with the Contract Documents and to commence such work on or before the date specified by the Architect in the written “Notice to Proceed” and to substantially complete the Project within 240 consecutive calendar days and to completion within 30 consecutive calendar days thereafter.
5. To pay as liquidated damages, the sum of $2,000.00 for each consecutive calendar day after the date for substantial completion as specified in the Contract.
6. To allow to be withheld three (3) times the installed market value of any item on punch list, as determined by the Engineer, that has not been completed at the time of final completion.

I will construct this Project for the lump sum price as listed below:
BID PROPOSAL

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<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>QUANT.</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
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<td>General Provisions</td>
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<td>Demolition</td>
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<td>Submersible Mixers</td>
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<td>Blower and Blower Piping</td>
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<td>Closeout Documentation</td>
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TOTAL

BASIS FOR BID

1. Bid Item 1 – General Provisions: The LUMP SUM PAYMENT for all work included under this bid item will be made for mobilization and demobilization of all labor, equipment, materials and appurtenances necessary for construction of the project. Mobilization shall include all those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the initial project site, safety equipment and first aid supplies, and sanitary and other facilities. Also included as part of this bid item is the cost for project performance and payment bonds, insurance, indemnifications, photographs, shop drawings, working drawings, schedules, documents, coordination, and phasing and other miscellaneous items associated with the work. Measurement for this bid item will be lump sum. The lump sum price for general provisions will be limited to five percent (3%) of the contract amount. Seventy percent (70%) of the lump sum price will be payable with the first month’s partial payment. The remaining thirty (30%) will be payable with the final partial payment.

2. Bid Item 2 – Permit Allowance: This allowance is to cover the cost of permitting associated with the project. To receive payment as reimbursement for permits, CONTRACTOR must submit paid receipts from permitting authority along with the
monthly pay request. Allowance account balance will be reconciled at the end of the project via Change Order.

3. **Bid Item 3 – Stormwater Pollution Prevention Plan:** The LUMP SUM AMOUNT BID will be to cover the CONTRACTOR’s cost to comply with the requirements to prepare and submit a Stormwater Pollution Prevention Plan prior to commencement of construction. The CONTRACTOR may apply for payment of the first partial payment request contingent upon approval by the ENGINEER.

4. **Bid Items 4 – Demolition:** The LUMP SUM AMOUNT BID will be full compensation for removal and disposal of all surface aerators, pumps, controls, duct/splitter box, partitions, baffles, telescoping valves, drain valves, air piping and RAS/WAS piping not being repurposed in the retrofit project. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

5. **Bid Item 5 – Debris Removal:** The UNIT PRICE AMOUNT BID times the volume of solids removed (as verified by CONTRACTOR-provided haul tickets), will be full compensation for debris removed from existing structures including but not limited to digesters, clarifiers, aeration basins, and anoxic basins. The Amount Bid shall be based upon a quantity of 100 Cubic Yards.

6. **Bid Item 6 – Structural Modifications:** The LUMP SUM AMOUNT BID will be full compensation for all modifications to the existing concrete basins including structural footings, partition walls and walkways, cored holes, wall notches, plugged holes, flowable fill and concrete capping. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

7. **Bid Item 7 – Water Tightness Testing:** The LUMP SUM AMOUNT BID will be full compensation for all hydraulic testing as depicted in the Tankage Water Testing Sketch on S-005, and as specified in 014800.

8. **Bid Item 8 – Miscellaneous Metals:** The LUMP SUM AMOUNT BID will be full compensation for all aluminum grating, hand rails and kick plates associated with the basins, aluminum crossover bridge and access stairs. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

9. **Bid Item 9 – Supernatant Return and WAS Pumps:** The LUMP SUM AMOUNT BID will be full compensation for repurposing the 4 existing Mixed Liquor pumps. Two pumps will be relocated to the supernatant return basin, and the other two will remain in Aeration Tank C-3 and repurposed for WAS. All four pumps require new base elbows and guide rail systems, and each pair require a push-button control panel for operator-initiated sludge transfer. Bid item to include discharge piping inclusive of link seals, check valves and plug valves, electrical power & controls. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer. Also included in this bid item is the extended 8” WAS DIP, Tee and Plug Valves, and painting of the existing 8” WAS and clarifier effluent drop pipes.

10. **Bid Item 10 – Submersible Mixers:** The LUMP SUM AMOUNT BID will be full
compensation for furnishing and installing two submersible mixers in the Bio-P Selector tank, complete with mounting accessories, guide rails, and control panel. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

11. **Bid Item 11 – Aeration:** The LUMP SUM AMOUNT BID will be full compensation for furnishing and installing all PVC piping and diffusers associated with both aeration and sludge digestion, and all air valves and fittings associated with airlift pumps. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

12. **Bid Item 12 – Blower and Blower Piping:** The LUMP SUM AMOUNT BID will be full compensation for the new 50 HP blower and all stainless steel delivery pipe, up to and including the expansion joints for transitioning to PVC, manual and automated butterfly valves, associated electrical conduit and wiring, and associated pneumatic piping required by the equipment manufacturer, and a blower mounting pad. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

13. **Bid Item 13 - Telescoping Valves:** The LUMP SUM AMOUNT BID will be full compensation for furnishing and installing two telescoping valves, for returning digester supernatant to the supernatant staging well. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

14. **Bid Item 14 – Digested Sludge Piping:** The LUMP SUM AMOUNT BID will be full compensation to furnish & install 4-inch digested sludge lines with link seals, shut-off valves, pipe supports and concrete support slab. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

15. **Bid Item 15 – Clarifier Modifications:** The LUMP SUM AMOUNT BID will be full compensation to raise the weirs and skimmers in the existing clarifiers by 2.5 inches, to match the elevations of those in the new (BNR Plant) clarifiers. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer. Work involves installation of piping from the weir to the down pipe outside of the clarifier basin.

16. **Bid Item 16 - Electrical Demolition:** The LUMP SUM AMOUNT BID will be full compensation for removal and disposal of the existing control panel and associated motor loads. Care to be taken when removing the existing recirculation (mixed liquor) pumps and power cables, for later repurposing. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

17. **Bid Item 17 – Electrical Building Modifications:** The LUMP SUM AMOUNT BID will be full compensation for all labor, equipment, and materials required for removal of 2 soft starters serving existing 50 HP blowers and associated field E-Stops, furnish and install three new VFDs serving 50 HP blowers, through-wall penetrations and repairs, sleeves, seals, floor penetrations and repair, exterior concrete repair, fence and gate removal, replacement and relocation, and light pole relocation and re-circuiting.
The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

18. Bid Item 18 - Controls System Integration: The LUMP SUM AMOUNT will be full compensation for all labor, equipment, programming, software, licensing and materials required for a fully operational control system, including but not limited to modifying the existing plant SCADA control panel and BNR control panel installed in the 2018 expansion, modifying the existing HMI screens, coordinating and directing the work of process control panel vendors, and modifying the existing network and communication system as required.

19. Bid Item 19 – Emergency Power System: The LUMP SUM AMOUNT BID will be full compensation for all labor, equipment, and materials required for furnishing and installing an emergency generator power system as described in the contract documents, including but not limited to the generator, fuel tank, fuel, auto transfer switch and generator controls. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

20. Bid Item 20 – Misc. Electrical: The LUMP SUM AMOUNT BID will be full compensation for all labor, equipment, and materials required for all electrical as required for the Retrofit Project including but not limited to conduit and conductors, boxes, disconnects, switches, racks, mounting hardware, panels, overcurrent protective devices, electrical studies, testing and other items and services as required for a fully operational electrical system. The LUMP SUM AMOUNT BID will be paid based on the percentages of work completed as approved by the Engineer.

21. Bid Item 21 – Performance Demonstration: The LUMP SUM AMOUNTS BID will be to provide all work necessary to demonstrate proper operations of the system, including start-up of the equipment. **The lump sum price for performance demonstration will be a minimum of one half percent (0.5%) of the contract amount.** The CONTRACTOR may apply for payment upon satisfactory submittal of the start-up reports.

22. Bid Item 22 – Closeout Documentation: The LUMP SUM AMOUNT BID will be to provide all documentation necessary to close out the project. **The lump sum price for closeout documentation will be a minimum of one half percent (0.5%) of the contract amount.** The CONTRACTOR may apply for payment upon satisfactory submittal and approval of record drawings as required by Section 4000 of the ECUA Engineering Manual, consent of surety, assurance satisfactory to OWNER that unsettled claims will be settled, proof to OWNER that taxes, fees, and similar obligations of CONTRACTOR have been paid, waiver of lien from every entity (including the CONTRACTOR) that provided services on the project, submittal of final pay request, and a warranty letter stating CONTRACTOR’s obligation for defects and repairs for the duration of the warranty period. The CONTRACTOR may apply for payment on the final pay request.

Respectfully Submitted
State of _____________

County of _____________

______________________________________, being first duly sworn on oath deposes and says that the Bidder on the above Proposal is organized as indicated below and that all statements herein made are made on behalf of such Bidder and that this deponent is authorized to make them.

______________________________________, also deposes and says that he has examined and carefully prepared his Bid Proposal from the Contract Drawings and Specifications and has checked the same in detail before submitting this Bid; that the statements contained herein are true and correct.

(a) Corporation

The Bidder is a corporation organized and existing under the laws of the State of ________________, which operates under the legal name of ________________, and the full names of its officers are as follows:

President____________________________

Secretary____________________________

Treasurer____________________________

Manager____________________________

and it (does) or (does not) have a corporate seal. The (name) __________________________ is authorized to sign construction proposals and contracts for the company by action of its Board of Directors taken __________________, a certified copy of which is hereto attached (strike out this last sentence if not applicable).

(b) Partnership

The Bidder is a co-partnership consisting of individual partners whose full names are as follows:

___________________________________  _________________________

___________________________________  _________________________

___________________________________  _________________________

___________________________________  _________________________

The co-partnership does business under the legal name of:

__________________________________________
(c) Individual

The Bidder is an individual whose full name is ____________________________, and if operating under a trade name, said trade name is: ____________________________

Dated______________________

______________________________

legal entity

By___________________________

Witness Name of Bidder

Witness ______________________

Signature/Title

[Corporate Seal]

STATE OF _____________

COUNTY OF _____________

The foregoing instrument was acknowledged before me this ______ day of ____________, ______, by ______________________, as __________________ of ____________________________, a ___________ corporation, on behalf of the corporation. He/she is personally known to me or has produced ______________________________ as identification and did (did not) take an oath.

My Commission Expires: ____________________________

(Signature of Notary)

Name: ____________________________

(Legibly Printed)

(AFFIX OFFICIAL SEAL) Notary Public, State of_______________

Commission No.: ____________________________

MATERIAL MANUFACTURERS
The Bidder is required to state below, material manufacturers he proposes to utilize on this project. No change will be allowed after submittal of Bid. If substitute material proposed and listed below is not approved by Engineer, Bidder shall furnish the manufacturer named in the specification. Acceptance of this Bid does not constitute acceptance of material proposed on this list. THIS LIST MUST BE COMPLETED, OR BID MAY BE DEEMED NON-RESPONSIVE.

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Dated ___________  Bidder _____________________________

By _____________________________