Macon Water Authority

ADDENDUM No. 2

AWTP-Thickener and Washwater Tank Pumps Replacement– May 15, 2025

MACON, GEORGIA

DATE: August 14, 2025

To: All Bidders

This addendum forms a part of the Contract Documents and modifies the original Specifications and Contract Documents as noted below. Acknowledge receipt of this addendum in the space provided on the Bid Form. Failure to do so may result in disqualification of the bidder.

SUMMARY OF PRE-BID CONFERENCE CLARIFICATIONS, QUESTIONS AND RESPONSES

Attached to this Addendum is the Sign-In Sheet from the Mandatory Pre-Bid Conference held on Tuesday, August 12, 2025. Clarifications and responses to Questions from the conference are presented as follows:

1) **QUESTION**: The contract says we are replacing the pumps and motors, are we not also replacing the controls?
   RESPONSE: No, the existing controls will be used for the new pumps. Section 04100 was clarified and is attached.

2) **QUESTION**: Will there be no VFD for the project?
   RESPONSE: Correct, VFD's will not be required. Section 04100 was clarified and is attached.

3) **QUESTION**: The existing pumps only have pressure gauges for the discharge pressure. The Spec says we need gauges in both the discharge and suction piping. Do we need both gauges on each pump for this project?
   RESPONSE: No, we only need the pressure gauge on the discharge pipes.

4) **QUESTION**: Will you require any changes to the electrical systems/components other than potentially moving the existing panel if the motor requires it in order to fit?
   RESPONSE: No.

5) **QUESTION**: Are the lifts operational and can we use them?
   RESPONSE: Yes.

6) **QUESTION**: As a sales rep, we can handle some installations but do not have a contractor's license in Georgia. Would I need to partner with a contractor to bid? Are you requiring the contractor's license?

RESPONSE: Yes, the Contractors License is required.

SPECIFICATIONS & CONTRACT DOCUMENTS

SECTION 04100 – PROGRESSIVE CAVITY PUMPS: Delete this section in its entirety and replace with the revised Section 04100 bearing "Addendum Number 2" in the header.

Attachment(s):

Sign In Sheet from Mandatory Pre-Bid Conference

SECTION 04100 - Progressive Cavity Pumps

REQUIRED CONFIRMATION OF RECEIPT:

Acknowledge receipt of this addendum by return e-mail and as required on the Bid form *"Section 00300-4" of the contract documents.

END OF ADDENDUM NO. 2

MWA Pre-Bid Conference: 703 River Bend Road, Amerson Water Treatment Plant, Administration Building Lobby

Thickener and Washwater Tank Pumps Replacement

August 12, 2025 10:00 am EST

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ADDENDUM NUMBER 2

PROGRESSIVE CAVITY PUMPS

SECTION 04100

PART 1 – GENERAL

1.01 DESCRIPTION

A. SCOPE

The work described in this Section includes furnishing all materials, equipment, tools and incidentals required for a complete and operable installation of progressive cavity pumps, ~~variable speed drives as applicable,~~ and motors ~~and controls~~. All equipment shall be installed, adjusted, tested and placed in operation in accordance with these Specifications and the manufacturer's recommendations.

B. TYPE

The pumps shall be of the positive displacement, progressive cavity pump type, specifically designed for pumping sludge derived from the treatment of wastewater containing organic solids, small inorganic particles, and grit. The rotor shall be of a convoluted design to provide uniform pulse-free flow throughout the entire operating range. The design of the rotor and stator shall be such that they allow for either manual or automatic adjustment to overcome wear, and significantly extend the life of the pump between rebuilds.

C. EQUIPMENT LIST

Item	Equipment No.
	Tag
	Tag

D. PERFORMANCE AND DESIGN REQUIREMENTS

1. Each pump shall be designed and selected to operate satisfactorily with a minimum of noise, vibration and cavitation during continuous or intermittent operation for pumping concentrated solids derived from waste water treatment and to have a sufficiently long service life.
2. Pumps shall be designed for the operating conditions indicated as scheduled in the following table. The pump shall be non-overloading throughout this operating range.

Primary Flow Rate	275 gpm
Differential Pressure	60 psi
Suction Conditions	5 feet flooded
Medium	Sludge
Solids Content	1 %

Viscosity	1 cp
Density	62.43 lb/ft³
pH level	6-8
Maximum Power at Duty Condition	20 HP
Suction and Discharge Flange Size	6 inch ANSI
$NPSH_r$ shall not exceed	12 feet
Maximum speed shall be	290 rpm

3. Where specified, pumps shall operate at variable speed. Variable Speed Drives if required, should be of constant torque. Pumps shall be suitable for exposure to mixed liquor and waste secondary sludge containing grit, small particles of wood, metal, industrial solvents, greases, detergents, petroleum products, dissolved ammonia and hydrogen sulfide, and organic particles.
4. The pumps shall be of the compact, close-coupled design. The gear reducer shall be sized for a minimum service factor of 1.5 and designed with a thrust load capability of 150 percent of the actual thrust load.
5. The pumps, along with associated drive appurtenances, shall be mounted on a common fabricated steel. The base plate shall be hot-dip galvanized after fabrication.

These Specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment application. It is, however, intended to cover the furnishing, the shop testing, the storage and delivery of all materials, equipment and all appurtenances for the complete pumping units as herein specified, whether specifically mentioned in these Specifications or not.

1.02 QUALITY ASSURANCE

A. REFERENCES

Design, manufacturing, and assembly of elements of the equipment herein specified shall be in accordance with the standards of the below listed organizations. Where reference is made to a standard of one of the following or other organizations, the version of the standard in effect at the time of the bid opening shall apply.

1. American Gear Manufacturing Association (AGMA)
2. American Institute of Steel Construction (AISC)
3. American Iron and Steel Institute (AISI)
4. American Society of Mechanical Engineers (ASME)
5. American National Standards Institute (ANSI)
6. American Society for Testing Materials (ASTM)
7. American Water Works Association (AWWA)
8. American Welding Society (AWS)
9. Anti-Friction Bearing MANUFACTURERS Association (AFBMA)
10. Hydraulic Institute Standards
11. Institute of Electrical and Electronics Engineers (IEEE)
12. National Electrical Code (NEC)

13. National Electrical MANUFACTURERS Association (NEMA)
14. Occupational Safety and Health Administration (OSHA)
15. Steel Structures Painting Council (SSPC)
16. Underwriters Laboratories, Inc. (UL)

A. QUALIFICATIONS

To assure unity of responsibility, the pumps and motors, shall be furnished and coordinated by the pump manufacturer (MANUFACTURER). The CONTRACTOR shall assume full responsibility for the satisfactory operation of the entire pumping systems including pumps and motors, ~~and controls~~ as specified.

The equipment covered by these Specifications shall be standard units of proven ability as manufactured by competent organizations having long experience in the production of such equipment. The pumps shall be the standard cataloged product of the MANUFACTURER. The pumps furnished shall be designed, constructed and installed in accordance with the best practice and methods, and shall operate satisfactorily when installed. Pumps shall be manufactured in accordance with the Hydraulic Institute Standards, except as otherwise specified herein.

All Equipment furnished under this Specification shall be new and unused and shall be the standard product of MANUFACTURERS showing a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of twenty (20) years, and be ISO 9001:2008 compliant, and shall be either fully assembled or manufactured in the United States of America.

The MANUFACTURER shall be fully responsible for the design, arrangement, and operation of all connected rotating components of the assembled pumping unit to ensure that neither harmful nor damaging vibrations occur within the specified operating range. Design shall include a fabricated steel baseplate for mounting the units.

1.03 SUBMITTALS

Copies of all materials required establishing compliance with the specifications shall be submitted in accordance with the provisions of Section 0. The submittal format shall be in the form of a booklet, suitably tabbed and divided, to cover at least the areas noted below for each major equipment item. The submittal booklet shall include adequate detail and sufficient information for the ENGINEER to determine that all of the equipment proposed meets the detailed requirements of the Specifications. Incomplete or partial submittals will not be reviewed. Submittals shall include at least the following:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (√) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Certified shop and erection drawings showing all, important details of construction, dimensions, and anchor bolt locations.
3. Descriptive literature, bulletins and/or catalogs of the equipment.
4. Data on the characteristics and performance of each pump. Data shall include guaranteed performance curves, based on actual shop tests of similar units, which show that they meet the specified requirements for head, capacity and horsepower. Curves shall be submitted on 8 ½" by 11" sheets, at as large a scale as is practical. Catalog sheets showing a family of curves will not be acceptable.
5. Operation and Maintenance manuals specified under paragraph 1.05.
6. Complete motor ~~and control~~ systems data.
7. Warranty as described in paragraph 1.08.

Submit the MANUFACTURER'S Certificate of Installation, Testing, and Instruction.

In the event that it is impossible to conform to certain details of the specifications due to different manufacturing techniques, describe completely all non-conforming aspects.

1.04 FACTORY TESTING

A. Each pump shall be factory tested prior to shipment.

B. All tests shall be performed in North America according to Hydraulic Institute Standards, Section 3.6.

C. If the results of the factory tests fail to demonstrate compliance with the requirements of this Section, the Contractor shall modify and/or replace the deficient pumps as necessary at no additional cost to the Owner and shall re-submit certified factory test reports on the modified or replacement pump.

1.05 OPERATING INSTRUCTIONS

Complete operating and maintenance instructions shall be furnished for all equipment included under these specifications.

A. Operating and maintenance manuals shall be furnished. The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc., that are required to instruct operation and maintenance personnel who are unfamiliar with such equipment.

B. The maintenance instructions shall include troubleshooting data and full preventative maintenance schedules and complete spare parts lists with ordering information.

C. A trained instructor, with complete knowledge of proper operation and maintenance for all major components, shall be provided for two days to instruct representatives of the OWNER and the ENGINEER on proper operation and maintenance.

D. Three (3) hard copies and one (1) digital copy of the Operating and Maintenance Manual/Instructions shall be provided.

1.06 TOOLS AND SPARE PARTS (TBD)

One set of special tools shall be provided for servicing all pumps. In addition, the following spare parts shall be provided for each size and type of pump:

1. Rotor-Stator-Cartridge
2. Cardan Joint
3. Cartridge Mechanical Seal

Spare parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long term storage.

1.07 PRODUCT HANDLING

A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.

B. All equipment and parts must be properly protected against any damage during a prolonged period at the site.

C. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the ENGINEER.

D. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage, and handling.

E. Each pump shall be secured to a wooden skid to facilitate handling and storage.

F. Each box or package shall be properly marked to show its net weight in addition to its contents.

1.08 WARRANTY

A. The equipment shall be warranted to be free from defects in workmanship, design, and materials for a period of two (2) years. Typical wear parts such as the rotor, stator, mechanical seal and cardon shaft are considered typical wear parts, and are covered by the materials and workmanship warranty only. If any part of the equipment should fail during the warranty period, it shall be replaced in the machine(s), and the unit(s) restored to service at no expense to the OWNER.

B. The MANUFACTURER'S warranty period shall run concurrently with the CONTRACTOR'S warranty period. No exception to this provision shall be allowed.

PART 2 – PRODUCTS

2.01 ACCEPTABLE PRODUCTS

2.02 PUMP

A. ROTOR AND STATOR

Each pump shall be employing a convoluted rotor operating in a similarly convoluted stator. The convolutions shall be configured to form a cavity between the rotor and stator, which shall progress from the pump's inlet to discharge port with the operation of the rotor. The fit between the rotor and stator at the point of contact shall compress the stator material sufficiently to form a seal and to prevent leakage from the discharge back to the inlet end of the pumping chamber. The stator shall be molded with a seal integral to the stator elastomer preventing the metal stator tube and the bonding agent from the elastomer from contacting the pumped liquid. Gaskets or O-rings may not be used to form this seal. Stators for sludge pumps shall have NBR elastomer. The sludge pump rotors shall be constructed of AISI D6 Tool Steel. The pump rotors shall be vacuum-hardened and have a hardness of 56-62 HRC. Chromium nitride coatings, hard chrome plating or ceramic coatings are not acceptable due to the ease at which this coating will crack and the lack of diffusion into the rotor base metal.

The rotor and stator shall be of conical shape to allow wear compensation by axial adjustment of the rotor. The inner diameter of the stator and the outer diameter of the rotor shall decrease from the pump's inlet to discharge port. The pump cavities shall have the same size over the entire length of the rotor and stator. The use of rotor and stator designs that cannot be adjusted to provide additional life between replacement of wear parts, either mechanically or automatically, will not be considered.

B. DRIVE TRAIN

Each pump rotor shall be driven through a positively sealed cardan joint. The joint shall be covered with a NBR elastomer sleeve and positively sealed with hose clamps constructed of 316 stainless steel. The shall be of adequate design to transmit the required thrust and torque while allowing the rotor to move in its eccentric path. The joint seal shall be designed to prevent any liquid from contaminating the cardan joint.

C. HOUSING

1. A 150-pound (ANSI B16.5) flanged connection shall be provided at both the inlet and discharge ports. The suction and discharge housings shall each be provided with a 2” threaded and capped tap to permit installation of pressure instruments.
2. The suction housing shall allow to be rotated in 90° increments to allow a versatile connection to a suction line above and to both sides of the pump.
3. The discharge housing shall be quick service type, angled to allow the replacement of the rotor and stator to without dismantling the piping at the pump's inlet and discharge port. Designs that require the pump to be removed from line to exchange the rotor and stator are not allowed, as they result in significant increases in both labor and special tools.

D. BEARINGS

Each pump shall be provided with oil lubricated thrust and radial bearings, located in the drive unit, designed for all loads imposed by the specified service. Apart from the bearings in the drive unit, gearbox or geared motor, no additional bearings are accepted as part of the pump. All bearings will be sized as such to provide a B10 life of a minimum of 100,000 hours. Designs that do not provide this B10 life will not be considered.

E. SHAFT SEALING

Shaft shall be sealed by using a single acting internal mechanical seal as a cartridge unit. Mechanical seals shall be provided of Blockring with CrO/Duronit seal faces for each positive displacement pump. The cartridge mechanical seal shall include the mechanical seal faces, the seal holder and carrier, all applicable O-rings, the mechanical seal faces, and stainless steel shaft sleeve. The use of manual pre-load mechanical seals, packings, will not be accepted.

A blocking chamber located behind the mechanical seal, and in front of the gear reducer lip seal shall be fitted into the cartridge seal of the pump to prevent contamination of the bearings on the event of a seal failure. This chamber shall be suitable for fill, from the top of the pump, and have an external pressurized oil bottle to review the status of the mechanical seals operation, mounted on the top of the pump, located in easy view of the operator. Pumps with open to air cavities located behind the mechanical seal housing, those that require water flush or quench, or those without oil bottles, will not be accepted, due to their potential for product spill failure on the surrounding areas of the pump, and the added maintenance and cost associated with mechanical seal water flushing systems. Additionally, pumps using packing in place of a mechanical seal will not be considered.

2.03 DRIVE

A. The gearbox shall be a parallel shaft gearbox manufactured by Nord Gear. The gear reduction units shall be designed with a service factor of 2.0. Gears shall run in an oil bath and the reducer housing shall be equipped with oil fill and drain located in a convenient position. Gearbox housings shall be single piece iron castings with internal reinforcements.

B. Due to space constraints only parallel shaft geared motors or gearboxes and motors with NEMA C-face connection are permitted.

C. The drive shaft of the pump shall be directly coupled with the gear reducer without use of a coupling.

D. Motors shall be TEFC with a minimum service factor of 1.15.

E. Maximum motor speed shall not exceed 1800 rpm, and should provide a minimum of 10% reserve hp as evidenced by specific requirements at maximum design.

F. Motors shall be built in accordance with latest NEMA, IEEE, ANSI and AFBMA standards where applicable.

G. Motors shall conform to all requirements stipulated in the motor section of this specification.

H. Motors shall be specifically designed for inverter duty to allow for the potential of future variable frequency drives.

2.04 ACCESSORIES

A. PRESSURE SENSORS

The CONTRACTOR shall furnish and install for each pump in tapped holes in the discharge ~~and suction~~ piping to accommodate the gauges which shall be supplied by the CONTRACTOR as shown on the Drawings.

B. RUN DRY PROTECTION

The pump stator shall be fitted with a sensor sleeve and PT100 type Resistance Temperature Detector (RTD). A controller shall also be provided and shall be installed by the CONTRACTOR in the motor control center. The controller shall monitor the stator temperature and activate a shutdown and alarm sequence if the stator temperature reaches the adjustable limit on the controller.

~~C. VARIABLE FREQUENCY DRIVES~~

~~The CONTRACTOR shall furnish and install a variable frequency drive (VFD) for each pump. The unit shall be in a NEMA 12 painted steel enclosure. No modular style enclosure will be accepted. Also, no through-door disconnects will be accepted. The enclosure shall be equipped with start and stop push button, potentiometer for speed control, hoa switch, speed reference 4-20mA, speed feedback 4-20mA. RTD's shall produce 4-20mA.~~

PART 3 – EXECUTION

3.01 INSTALLATION

A. Installation in strict accordance with the MANUFACTURER'S instructions and recommendations in the locations shown on the Drawings. Installation shall include furnishing the required oil and grease for initial operation. The grades of oil and grease shall be in accordance with the MANUFACTURER'S recommendations. Anchor bolts shall be set in accordance with the MANUFACTURER'S recommendations.

B. Upon completion of the installation, the CONTRACTOR shall submit a certificate from the MANUFACTURER stating that the installation of the equipment is satisfactory, that the equipment is ready for operation, and that the operating personnel have been suitably instructed in the operation of lubrication and are of each unit.

3.02 SHOP PAINTING

A. Before exposure to weather and prior to shop painting all surfaces shall be thoroughly cleaned, dry and free from all mill-scale, rust, grease, dirt and other foreign matter.

B. All exposed portions of the pumps and motors shall be shops primed, with primer compatible with field painting as specified.

C. All nameplates shall be properly protected during painting.

D. All pumps shall be painted in the USA and a certificate confirming conformance to this requirement shall be submitted during the submittal phase of this specification.

E. Pumps shall have a minimum US content inclusive of materials of construction, labor, and motors and gear boxes equal to or greater than 60% of the proposed purchase price, thus qualifying for current BABA United States Regulations.

3.03 FIELD PAINTING

A. Field painting is specified under Painting Section of this specification. he primer and paint used in the shop shall be products of the same MANUFACTURER as the field paint to assure compatibility.

B. All nameplates shall be properly protected during painting.

3.04 INSPECTION AND TESTING

A. GENERAL

1. The ENGINEER shall have the right to inspect, test or witness tests of all materials or equipment to be furnished under these specifications, prior to their shipment from the point of the manufacture.
2. The ENGINEER shall be notified in writing prior to initial shipment, in ample time so that arrangements can be made for inspection by the ENGINEER.
3. Field tests shall not be conducted until such time that the entire installation is complete and ready for testing.

B. FIELD INSPECTION AND OWNER INSTRUCTION

1. The CONTRACTOR shall furnish the services of the MANUFACTURER'S field service technician, who has complete knowledge of proper operation and maintenance of the equipment, for a period of no less than two (2) days to inspect the installed equipment, supervise the initial test run, and to provide instruction to the plant personnel. The first visit shall be checking and inspecting the equipment after it is installed. The second visit will be to operate and supervise the initial field test.
2. At least one (1) of the two (2) days shall be allocated solely to instruction of plant personnel in operation and maintenance of the equipment. The instruction period shall be scheduled at least 14 days in advance with the OWNER and shall take place prior to start up and acceptance by OWNER. The final copies of operation and maintenance manuals specified must be delivered to the ENGINEER prior to scheduling the instruction period with the OWNER with the permission of the ENGINEER, these services may be combined with those specified by Paragraph 1.05.

C. FIELD PUMP TESTING

1. In the presence of the ENGINEER such tests as necessary to indicate that the pumps and motors conform to the operating conditions specified shall be performed. A 30-day operating period of the pumps will be required before acceptance. If a pump performance does not meet the specified requirements, corrective measures shall be taken. All test procedures shall be in accordance with factory test procedures specified above and certified results of tests shall be submitted. Provide, calibrate, and install all temporary gauges and meters, make necessary tapped holes in the pipes, and install all temporary piping and wiring required for the field acceptance tests. Written test procedures shall be submitted to the ENGINEER for approval 30 days prior to testing. after it is installed. The second visit will be to operate and supervise the initial field test.
2. Noise and vibration tests shall be conducted in conformance with the Hydraulics Institute Test Codes and OSHA Standards of Occupational Noise Exposure. Maximum allowable noise level, corrected for background sound, shall not exceed 85 dBA when measured at a horizontal distance of 3 meters from the equipment being tested, at a height of 3 meters above floor level. The actual natural frequency of the installed pumping units will be verified using industry accepted procedures.
3. All pumps operating settings, alarms, ~~controls,~~ and shutdown devices shall be calibrated and tested ruing the field tests.
4. The CONTRACTOR shall furnish all power, water, facilities, labor, materials, supplies and test instruments required to conduct field test.
5. Please note that access to at least 2 operational units (one per location) at a time will be required throughout installation. One pump in the Washwater Building and one pump in the

Thickener Building must remain accessible and operational throughout the life of the project. In each building, the removal of the second pump (after the initial pump replacement) will be contingent on the new pump being tested and operating satisfactorily for a minimum of 48 hours.

D. FIELD ELECTRONIC CONTROL SYSTEM TESTING

1. ~~The electric control system shall be test operated for proper functioning prior to the pump mechanical test. The control system shall be checked out using simulated operating signals as per pump MANUFACTURER'S recommendations.~~
2. The CONTRACTOR shall check all drives for correct clearances, alignment, and lubrication in accordance with MANUFACTURER'S instructions. The CONTRACTOR shall check direction of rotation of all motors and reverse connections if necessary.
3. The CONTRACTOR shall meet all the testing requirements of Division.
4. The CONTRACTOR shall furnish all power, water, facilities, labor, materials, supplies and test instruments required to conduct field test.

E. FIELD ALARM SYSTEM TESTING

1. Check each alarm and detection device for proper operation.

PART 4 – CERTIFICATION

4.01 DESCRIPTION

A. Consideration will be given only to products of manufacturers who can demonstrate that their equipment fully complies with all requirements of the specifications and contract documents. The equipment shall be supplied by a firm which has been regularly engaged in the design, fabrication, assembly, testing, start-up, and service of positive displacement pumps, operating in the U.S., with similar materials, for a period of not less than ten (10) years prior to the bid date of this contract. To insure that the highest standards are met, the manufacturer shall be ISO 9001:2008 compliant, as evidenced with a current ISO certificate at the time of bid. The pumps in the specification shall be manufactured or fully assembled in the United States of America. Manufacturers that are ISO compliant, but not certified to ISO 9001:2008, or do not fully assemble or manufacture their pumps in the USA, will not be considered.

B. If a bidding progressive cavity pump manufacturer does not have a formal quality system in place, or documentation to prove so, a performance/maintenance bond in the amount of 100% of the installed price (including equipment, labor, piping, and wiring associated with the equipment covered under this specification) shall be included in the bid proposal. The bond should be made out to the owner for 100% of the amount bid, and shall be in force for a minimum of five (5) years from the date of first beneficial use of the equipment. The five (5) year minimum is to cover all warranties listed under this specification.

END OF SECTION