

ADDENDUM NUMBER 2

MODIFICATIONS TO RIVERSIDE WTP HIGH SERVICE PUMPS

FOR

CITY OF WEST COLUMBIA

GMC PROJECT NO. VGRE220006

1. <u>Revisions to Project Manual</u>

- 1.1 The following revisions are hereby added as Addendum No. 2 to the referenced Project Manual and Plans and shall be considered when preparing bids.
- 1.2 Replace Section C-410 Bid Form with the attached bid form (Attachment 1)
- 1.3 Revise Section 01 15 00 Measurement and Payment Add the following to Section 1.2
 - I. SCADA ALLOWANCE
 - 1. Payment under this item shall be an allowance for Owner furnished, Contractor paid SCADA integration per the Scope provided by the Owner's System Integrator
 - 2. The Lump Sum amount shall be equal to \$70,000.
 - 3. Payment shall be made only after approval by the Owner and any unused portion shall revert to the Owner.
- 1.4 Add Section 26 03 00 (Attachment 2) to the technical specifications.

2. <u>Revisions to Plan Sheets</u>

- 2.1 Drawing E-961
 - 2.1.1 The electrical contractor shall furnish and install a new CAT-6 Cable 1"Conduit between the new HSP #1 VFD and the new SCADA RTU as required to accommodate the I/O and control narrative listed in specification 26 03 00
 - 2.1.2 Replace the 5#14 ¾"C between the new SCADA RTU and each of the two VFD's shown on the drawing with the following:
 - 1. 9**#14 ¾"C**
 - 2. (2) Twisted Shielded Pair 1"C

3 <u>Contractor Questions</u>

3.1 Is the contractor responsible for coupling, alignment and (re)startup & checkout of the existing Fairbanks VT pump #1 P1010? Or will the owner be handling this work.

RESPONSE: Contractor will be responsible

3.2 The new SCADA panel in the e-house is called out to be by others. Can you confirm that the owner will be handling the integration & programming work along with supplying the new e-house SCADA panel and modifying the existing 2nd floor SCADA panel as necessary?



RESPONSE: SCADA Integration will be Owner selected; Contractor paid through the allowance added in Section 1.2. SCADA scope shall be as specified in the attached Section 26 03 00

3.3 Can electrical conduit be routed exposed over the top of the existing clearwell?

RESPONSE: Yes, this is acceptable. Provide appropriate conduit and supports per NEC. PVC conduit will not be acceptable in exposed applications.

4 Acknowledgement of Receipt

- 3.1 Receipt of Addendum shall be acknowledged in two ways:
 - 3.1.1 Note on (EJCDC C-410 Article 3) page 1 of <u>Bid Form</u> of the Project Manual Bidder acknowledges receipt of "Addendum No. 2 and date of February 9, 2024.

AND

3.1.2 EMAIL GMC immediately at <u>becca.pick@gmcnetwork.com</u> confirming the addendum has been received and is legible.

4. <u>Conclusion</u>

4.1 This is the end of Addendum Number 2, dated Friday, February 9, 2024.

5. <u>Attachments</u>

- 5.1 Attachment 1: C-410 Bid Form (8).
- 5.2 Attachment 2: Section 26 03 00 (8 PGS).

BID FORM (Addendum #2)

MODIFICATIONS TO RIVERSIDE WTP HIGH SERVICE PUMPS

WEST COLUMBIA

GMC Project No. VGRE220006

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Mr. Andy Zaengle, P.E. City of West Columbia 200 N. 12th Street West Columbia, SC 29169

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for <u>90</u> days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 2.02 Bidder acknowledges the provisions of the Instructions to Bidders as to the assignment of the specified contract for procurement of goods and special services for **[name of procurement]**.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:
 - A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	Addendum Date
Addendum #1	2/1/2024
Addendum #2	2/9/2024

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

- 4.01 Bidder certifies that:
 - A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
 - B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
 - C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
 - D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

BID PROPOSAL

PROJECT: Modifications to Riverside WTP High Service Pumps For: City of West Columbia GMC PROJECT NO. VGRE220006

BIDDER: _____

Bidder agrees to perform the work described in the plans and specifications for the following lump sum and unit prices:

Bid Form							
<u>ltem</u>	<u>Qty.</u>	<u>Unit</u>	DESCRIPTION	Unit Price		TOTAL PRICE	
1	1	LS	Mobilization (5% of Bid Items 2-7)	\$		\$	
2	1	LS	Demolition	\$		\$	
3	1	LS	350 Hp Motor Replacement	\$		\$	
4	1	LS	Yard Piping and Appurtenances	\$		\$	
5	1	LS	Electrical Installation	\$		\$	
6	1	LS	Site Restoration	\$		\$	
7	1	LS	Electrical Building Package (E-house)	\$		\$	
8	1	LS	Contingency (10% of Items 2 – 7)	\$		\$	
9	1	LS	SCADA ALLOWANCE	\$	70,000	\$	70,000
					Total Base Bid	\$	

Total Base Bid Price in words:

^{5.01} Bidder will complete the Work in accordance with the Contract Documents for the following price:

ARTICLE 6 - BASIS OF BID

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. List of Project References;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - F. Contractor's License No.: **[or]** Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - G. Required Bidder Qualification Statement with supporting data; and
 - H. Illegal Immigration Form

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: [Indicate correct name of bidding entity]

By: [Signature]	
[Printed name] (If Bidder is a corpo evidence of authori	
Attest: [Signature]	
[Printed name]	
Title:	
Submittal Date:	
	FICDC® C-410. Bid Form for Construction Contracts.

Address for giving notices:

Telephone Number:			
Fax Number:			
Contact Name and e-mail ad	dress:		
Bidder's License No.:			
(ห	here applicable)		

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SECTION 26 03 00 - CONTROLS AND SYSTEM INTEGRATION

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes the requirements for the control equipment and system integrations for the Riverside WTP project as shown on the drawings and specified herein.

1.2 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.3 SUBMITTALS

- A. Hardware Submittals: Before any components are fabricated, and/or integrated into assemblies or shipped to the job site, furnish to the ENGINEER, for their review, submittal documents in accordance with Section 01 33 00. Submittals shall include full details, shop drawings, catalog cuts and such other descriptive matter and documentation as may be required to fully describe the equipment and to demonstrate its conformity to these specifications. Specifically, the CONTRACTOR shall submit the following materials:
 - 1. Block diagram and operational description of the system showing all major components and their interconnections and interrelationships. Label each diagram and specify all external power and communications interfaces. All diagrams shall be in an 11 by 17 format.
 - 2. Drawings of equipment to be supplied shall include, as a minimum: overall dimension details for each panel, console, etc., including internal and external arrangements and door mounted operator devices with name plate designations. Wiring diagrams of equipment including field device connections shall be included and specific installation/wiring requirements identified.
 - 3. Operational Description shall include the principal functions/capabilities of the PLC's as configured /programmed. Included shall be a description of system communications.
 - 4. Provide a detailed Bill of Materials along with descriptive literature identifying component name, manufacturer, model number, and quantity supplied.
 - 5. Training Material
 - 6. Control Narrative
- B. Test Outlines and Procedures Submittals: Test descriptions shall be in sufficient detail to fully describe the specific tests to be conducted to demonstrate conformance with this specification.
- C. Operations and Maintenance Data: At a minimum, include the following information.
 - 1. Operating and Calibration instructions.
 - 2. PLC commented code.
 - 3. Troubleshooting Information.

GOODWYN MILLS CAWOOD, LLC. GMC PROJECT NO. VGRE220006

4. Wiring Diagrams with wire numbers and termination point.

1.4 COORDINATION

1. All programming and wire termination shall be performed by an approved systems integrator.

1.5 QUALITY ASSURANCE

- A. The CONTRACTOR'S attention is directed to the fact that all specified instruments and controls must form a completely integrated system and, as such, the system integrator shall become familiar with requirements necessary to provide equipment specified for the system regardless of manufacture, and shall be responsible to the CONTRACTOR for the complete and satisfactory operation of the entire instrumentation and control system.
- B. These specifications cover the intended function of the equipment, but do not necessarily cover all details necessary for a complete, operable and functional system. The manufacturer shall supply all devices and appurtenances necessary to provide a complete, operable and satisfactory system as indicated or specified.
- C. CONTRACTOR shall use the Systems Integrator listed, as selected by the Owner. The System Integrator shall be responsible for all final terminations from the new equipment and instruments to the I/O termination points. Electrical Contractor shall pull all wires to this point, label each wire, and provide this list to the System Integrator.
- D. Individual Responsibilities
 - 1. System Integrator
 - a. The system integrator shall have the authority to organize the data layout within each individual device used in the user interface system. This said data layout will be based on the device provider's listing of available data points for monitor and control. The system integrator will dictate the data used and the layout needed to facilitate the most efficient system possible. This efficient system methodology will be to minimize the number of queries needed to retrieve the necessary information. The system integrator may also require the separation of status and control registers to more easily facilitate expansion and/or changes to the data structure.
 - b. The system integrator does not have the authority to change the program algorithm for the subsystem device. The actual functionality of the system is under direct control of the ENGINEER and the pertinent specifications. The system integrator is responsible for contacting each device provider and attaining the listing of data available and then communicating with the provider the proper organization of data in the system.
 - 2. Device Providers
 - a. Device providers must generate a listing of all pertinent data available for monitor and control within the user interface system. It is the device provider's responsibility to be in contact with the system integrator to ensure proper operation within the

integrators scope of work. The device provider has direct control over the program algorithm for the portion of the system the said device is specified.

- 3. Approved System Integrator/Supplier(s):
 - a. MR Systems
- 4. All components shall be from the same manufacturer and supplied by a single source, the system integrator.

PART 2 - PRODUCTS

2.1 PLC-BASED I/O SUBSYSTEM ENCLOSURES

- A. General:
 - 1. The System Integrator shall make use of readily available products with a proven history of reliable service when used in municipal water and wastewater applications. All equipment shall be new and of the latest design unless specified or indicated otherwise.
 - 2. The SCADA PLC controller is an intelligent, modular unit, capable of both data acquisition and local data processing. It shall monitor and control local equipment in a stand-alone mode as well as being an intelligent node in a distributed system.
 - 3. The RTU operates over an ambient temperature range of -40°C to +75°C (-40°F to 201°F) with relative humidity 5 to 95% (non-condensing).
 - 4. All materials, equipment, and devices shall meet the requirements of UL where UL standards are established for those items and the requirements of NFPA-70.
 - 5. All electrical components of the system shall operate on 120 VAC, 60 Hz, single phase power source expect as otherwise noted. Any other devices necessary to obtain proper operation of the instrumentation and control system from these energy sources shall be furnished with the system.
 - 6. Instrumentation equipment and enclosures shall be suitable for the environmental conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines and electrical equipment.
 - 7. All work and materials shall comply with the National Electrical Code (N.E.C) and applicable local regulations and ordinances. Where required by applicable codes, panel assemblies, materials and equipment shall be approved, identified, labeled or listed by Underwriters' Laboratories or other testing organization acceptable to the governing authority.
 - 8. The SCADA PLC controller shall use a truly "open architecture" design using "off-the-shelf" components and a non-proprietary communications protocol.
 - 9. The SCADA PLC controller shall be configured and programmed with standard programming languages such as Relay Ladder Logic (RLL), IEC 61131-3 programming standard and/or ANSI C. Programs shall be developed and downloaded either directly to the PLC controller using a standard RS-232/RJ-45 interface cable, or remotely through the cellular communication network or media such as phone lines, fiber optic cables, copper wire dedicated lines, or wireless radios.
- 2.2 Remote Telemetry Unit and Hardware (LCP1000)

- A. Location
 - 1. Located in new electrical building for HSPS as indicated on the drawings.
- B. Enclosure
 - 1. 30" H x 24" W x 12" D, NEMA 12 Painted Carbon Steel Enclosure
 - 2. 3-point door latch, padlockable
- C. General
 - 1. AC Surge Protection on incoming 120Vac feed to RTU
 - 2. Indicating Interposing Relays for Digital I/O Surge Protection
 - 3. MR Kamikaze II Analog Surge Protectors for Analog I/O
 - 4. GFI Receptacle, protected by circuit breaker or fuses
 - 5. RTU Door Limit Switch
 - 6. Battery Backup

D. PLC

- 1. Allen-Bradley Compact Logix 5069 series
- 2. Available I/O:
 - a. 32 Digital Inputs
 - b. 16 Digital Outputs
 - c. 8 Analog Inputs
 - d. 4 Analog Outputs
 - e. Include all additional I/O modules as required to meet the design intent.
- E. Communications
 - 1. Communication to existing WTP SCADA system shall be accomplished through Fiber Optic Ethernet via new Hirschmann BRS20 Fiber Optic Switch in new RTU.
 - 2. The systems integrator shall provide new 12-strand OM3 Multimode Fiber Optic cabling between new HSPS RTU and existing control room PLC/Fiber Switch.
 - a. The Fiber optic cabling and conduit shall be installed by the electrical contractor, however, terminations and testing shall be the responsibility of the systems integrator.
- 2.3 Required I/O for Each PLC Location:
 - A. As shown on the plan sheets, including the P&ID drawings, and per this specification.
 - B. Additional I/O
 - 1. General SCADA PLC
 - a. TVSS Health
 - b. Power Supply Status
 - c. Enclosure Door Status

- 2. High Service Pump #1 VFD
 - a. Hardwired I/O
 - 1) Running
 - 2) Failed
 - 3) Overload
 - 4) Call to Run
 - 5) Speed Control
 - 6) Speed Reference
 - b. Ethernet I/P
 - 1) Data Age
 - 2) Comms Health
 - 3) Voltage Input/Output per phase and line to line
 - 4) Amperage (per phase)
 - 5) Power, instantaneous and 24 hour total
 - 6) Elapsed Time
- 3. High Service Pump #2 VFD (existing, relocated, VFD to be re-integrated into existing system)
 - a. Hardwired I/O
 - 1) Running
 - 2) Failed
 - 3) Overload
 - 4) Call to Run
 - 5) Speed Control
 - 6) Speed Reference
 - b. Ethernet I/P
 - 1) Data Age
 - 2) Comms Health
 - 3) Voltage Input/Output per phase and line to line
 - 4) Amperage (per phase)
 - 5) Power, instantaneous and 24 hour total
 - 6) Elapsed Time
- 4. Rosemount Pressure Transmitter 'PE/PIT1050' (Existing, hardwired, to monitor system pressure)
 - a. Instantaneous Pressure
- 5. Motor Control Valve 'V1012'(Existing, hardwired)
 - a. Open
 - b. Close
 - c. Failed

- d. Position Control
- e. Position Feedback
- 2.4 Control Narrative
 - A. P1010
 - 1. Local Manual:
 - 2. Control is from Hand/Off/Remote Selector Switch on the Local Control Panel
 - a. In hand, the pump starts and ramps up to the speed set at the local interface module located on the VFD.
 - b. In off, the pumps cannot be started from any location.
 - 3. Remote Manual
 - a. Control is derived from the WTP Control Room SCADA screen
 - b. The operator will start and stop the pump from the SCADA screen
 - c. The pump will initially come online at an operator adjustable INITIAL SET Point
 - d. The operator enters the desired pump speed
 - e. The pump up/down rate for a change in setpoint will be an operator adjustable time limit.
 - B. P1020
 - 1. Local Manual:
 - a. Control is from Hand/Off/Remote Selector Switch on the Local Control Panel
 - 1) In hand, the pump starts and ramps up to the speed set at the local interface module located on the VFD.
 - 2) In off, the pumps cannot be started from any location.
 - 2. Remote Manual
 - a. Control is derived from the WTP Control Room SCADA screen
 - b. The operator will start and stop the pump from the SCADA screen
 - c. The pump will initially come online at an operator adjustable INITIAL SET Point
 - d. The operator enters the desired pump speed
 - e. The pump up/down rate for a change in setpoint will be an operator adjustable time limit.
 - C. Existing Rotork Valve (V1012)
 - 1. Local Manual
 - a. Control is from Hand/Off/Remote selector switch on the valve controller
 - 1) In hand, the valve opens at the speed set at the local interface module located on the valve.
 - 2) In off, the volve cannot be opened from any location.

- 2. Remote Manual
 - a. Control is derived from the WTP Control Room SCADA screen
 - b. The operator will open and close the valve from the SCADA screen
 - c. The valve will initially open/close at an operator adjustable time limit
- D. Existing Pressure Transmitter (PIT1050)
 - 1. As shown on P&IDs
- E. See Process & Instrumentation Drawings for more information.
- 2.5 Programming Software
 - A. The Software shall be as required by the PLC equipment manufacturer and shall be programmed as required by the system integrator.
- 2.6 Communication Interfaces
 - A. Remote I/O Network
 - B. Provide modules mounted in the processor chassis required to interface with the devices on the Remote I/O network.
 - C. Provide modules in each remote chassis to interface to the Remote I/O network.

2.7 Manufacturers

- A. PLC
 - 1. As manufactured by Allen Bradley.
- B. Input/Output Modules
 - 1. As manufactured by Allen Bradley.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- 3.2 INSTALLATION

- A. Install the work of this Section in strict accordance with the original design and the manufacturer's recommended installation procedures as approved by the ENGINEER, anchoring all components firmly into position for long life under hard use.
- B. Unload, unpack and transport equipment to prevent damage or loss.
- C. Replace damaged components as directed by ENGINEER.
- D. Protect from dust and other harmful materials.
- E. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.3 INTERFACE WITH OTHER PRODUCTS

- A. Provide all required cables, cords, and connective devices for interface with other control system components.
- B. Coordinate size and configuration of enclosure to meet project requirements.

3.4 STARUP SERVICE

A. Upon final completion of all components determine date of start-up jointly with ENGINEER, OWNER and CONTRACTOR.

3.5 WARRANTY

A. Provide (1) year comprehensive warranty from date of startup and commissioning acceptance, as approved by the engineer.

3.6 CLEANING

A. Clean units as recommended by manufacturer.

END OF SECTION 26 03 00