

**GS #323-024 ARPA INFR. – WASTE CENT. TREATMENT  
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION  
LEAKESVILLE, MISSISSIPPI**

**ADDENDUM NO. 2  
May 23, 2024**

The Contract Documents for GS #323-024 ARPA INFR. –WASTE CENT. TREATMENT South Mississippi Correctional Institution Leakesville, Mississippi, are amended as follows:

1. Sealed bids will now be received electronically via MAGIC or physically delivered to the office of the Bureau of Building, Grounds and Real Property Management, 501 North West Street, Suite 1401 B, Jackson, Mississippi, 39201, until 2:00:00 P.M. (14:00:00 Military Time) (Central Standard Time) on Tuesday, 06/25/2024.
2. The pre-bid meeting notes along with handouts are attached and made part of the Contract Documents.
3. The required 8-inch force main shown in the contract documents between the effluent pump station and the existing 10-inch force main shall be changed to a 10-inch force main.
4. The effluent pump station pumps shall be 60 horsepower with a T.D.H. of 107 feet.
5. Replace page iv of the index in toto with the enclosed page iv.
6. Add enclosed SECTION 33 3213 PUMP STATION to the contract documents.
7. Reference specification section 25 31 02 “SCADA System”, revise paragraph 2.02, A., 3., e. as follows:
  - e. Integrator shall provide and install Ethernet connection at CTU to provide connectivity to Owner’s LAN Network for remote access and alarms. Owner will provide LAN Network to control building.
8. Reference specification section 25 31 02: Revise to add paragraph 2.04, C. as follows:
  - C. Project Remote Terminal Unit (RTU) Spare Parts:
    1. One (1) PLC Controller.
    2. One (1) Fiber Optic Media Converter.
    3. One (1) Ethernet CAT 6 Eight Port Switch.
    4. One (1) Analog Input Module.
    5. One (1) Analog Output Module.
    6. One (1) Digital Input Module.

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ADDENDUM NO. 2  
May 23, 2024

- 7. One (1) Digital Output Module.
- 8. One (1) PLC Power Supply
- 9. One (1) UPS.



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Darrell T. Martinek, P.E., P.S.

**Bureau of Building, Grounds & Real Property Management (BOB)**  
**GS: 323-024 ARPA Infrastructure – Waste Cent. Treatment**  
**South Mississippi Correctional Facility**  
**Pre-Bid Meeting Minutes**

**May 21, 2024**

**Location:** South Mississippi Correctional Facility  
Administrative Building 10:00 A.M. CST  
22689 MS Hwy. 463 South  
Leakesville, Mississippi 39451

**Present:** Heith Newman, BOB  
Barney Poole, Mississippi Department of Corrections (MDOC)  
Prentiss Smith MDOC/South Mississippi Correctional Facility (SMCI)  
Britt Phelps, Hemphill Construction Company (Hemphill)  
Ben McDowell, Hemphill Construction Company (Hemphill)  
Tucker Creel, The Creel Co.  
Jessica Jones, Dexter Fortson Associates  
Ellis Sartain, ETEC  
Bryson Agnew, ETEC  
Darrell Martinek, W.L. Burle Engineers, P.A. (Burle)  
Jim Cannatella, W.L. Burle Engineers, P.A. (Burle)  
Andrew Thompson, W.L. Burle Engineers, P.A. (Burle)  
Joey Bowman, Atwell and Gent  
Sign in sheet attached

**Purpose:** Pre-Bid Meeting  
GS: 323-024 ARPA Infrastructure – Waste Cent. Treatment

**Funding:**  
a. All Funds must be obligated by December 31, 2024  
b. All Funds must be expended by December 31, 2026

**Items Discussed/ Agreed Upon**

- a. Mr. Heith Newman began with the introduction for the project and discussed bidding procedures, details, deadlines, and other relevant information outlined in the Pre-Bid Meeting Agenda attached and made part of this document.
- b. Sealed bids may be received either electronically via MAGIC or physically delivered in person to the Woolfolk Building, Suite 1401 B, North West Street, Jackson Mississippi 39201. The bid date is currently scheduled for 2:00 p.m. May 30, 2024. If the bid date is changed, this will be done by addendum.
- c. The bid opening will be held in the conference room on the 14<sup>th</sup> floor of the Woolfolk Building. The time clock at the receptions desk shall be the official time clock.
- d. Mr. Newman cautioned that there was a great deal of construction going on in the area and all bidders hand delivering bids should give themselves enough time to get there, get checked in, and deliver the bid package to the 14<sup>th</sup> floor before 2:00 P.M.

- e. Any discrepancies, omissions and/or issues found inside and/or with the contract documents shall be reported to Mr. Darrell Martinek with W.L. Burle Engineers, P.A. If applicable, additional information or written interpretation shall be submitted to all bid holders through addendum.
- f. Mr. Newman discussed and went over highlighted topics for the Instructions to Bidders.
- g. Non-residence bidders will need to submit a copy of their state's non-residence bidder preference law included with their Proposal Form. Note, if the state has no such law, then a statement indicating the State of (Name of State) has no resident Contractor preference law shall be submitted with the Proposal Form.
- h. Bidders shall acknowledge the receipt of each addendum by writing in the number of the addendum and the date received on the bid form.
- i. The Bidder shall make all proposals on forms provided and shall fill all applicable blank spaces without interlineations or alteration and must not contain recapitulation of the work to be done (In other word fill out everything and do not scratch through and rewrite anything). The Bidders Check List is attached and made part of these meeting and minutes.
- j. No questions or addendum shall be answered and/or issued after business hours of the last business day before bids are due at 5 P.M.
- k. The contractor's name and address appearing on the Proposal Form should be the complete spelling of bidder's name - exact as recorded at the Secretary of State which should be the same as you applied for at the Mississippi State Board of Contractors. The Certificate of Responsibility Number(s) appearing on the Proposal Form should be the same number appearing in the current Mississippi State Board of Contractors Roster. The Mississippi State Board, Certificate of Responsibility Number, must also be included on the outside of the envelope and the Proposal Form. Sub-Contractor's information and Certificate of Responsibility Number must also be submitted with the Proposal Form.
- l. Any protest, claims of error, or claims of release from bid must be submitted in writing to the Bureau of Building within twenty-four (24) hours of the bid opening.
- m. Bidder should become familiar with the Instruction to Bidders and Bidders Checklist to help guide them through the bidding process.
- n. Mr. Newman discussed additional requirement for submitting bids of an ARPA project. The Miscellaneous Requirements – ARPA (Pre-Bid) sheet attached covers the topics discussed in the Pre-Bid meeting and is made part of these Pre-Bid Meeting and Minutes.
- o. All bidders must be registered with SAM.gov. Bidders who had previously registered should check and make sure that registration has not lapsed.
- p. Davis Bacon and wage requirements are required under this project.
- q. Mr. Darrell Martinek, W.L. Burle Engineers, P.A. then went over additional instructions to bidders, contract time, a brief project overview, and other noted sections. Mr. Darrell Martinek's Pre-Bid Meeting (Professional) Agenda is attached and made part of this document.

### **Questions for the Professional**

- a. Mr. Darrell Martinek with W.L. Burle Engineers P.A, answered questions regarding the plans and answered questions from Mr. Ben McDowell, Hemphill and Mr. Tucker Creel, The Creel Co.
- b. Mr. Darrell Martinek specified that add alternates must be awarded in order.

- c. Burle will consider proposed changes of the outlined order of work from the successful contractor once the project has been awarded.
- d. Mr. Martinek stated there is not a particular order that all new instillation must be installed. Mr. Martinek stated treated effluent from the existing wastewater treatment plant (WWTP) shall be used to test the newly installed equipment. Operator training for all equipment shall be complete before the new treatment plant is placed online.
- e. Biosolids shall be pumped from the existing oxidation ditch and secondary clarifier to the coarse screen to seed the new plant.
- f. MH-8, as shown on sheet C-102 is going to be replaced with a new manhole.
- g. Primary access for workers entering the jobs site on a day-to-day basis must enter through the front gate, and any equipment and deliveries shall come through the back gate off Old Hwy 24. Contractor shall coordinate with Mr. Prentiss Smith MDOC/SMCI to come through the back gate.
- h. Excess soil from the project can be stored in the area shown on the plans.
- i. Contractor will be allowed to store soil in mowed areas south and east of the existing WWTP along the gravel road from the existing WWTP to Old Hwy 24.
- j. The contractor is required to prepare a SWPPP plan.
- k. The bridge crane and anti-fall beam are only required for the filter and UV buildings. The anti-fall beam and bridge crane are not required to be structurally independent of the building frame. Pictures are attached this document which show what is required from a previous project Burle designed.
- l. It is up to the CONTRACTOR to coordinate their electrical needs with the power company (Singing River) per Mr. Joey Bowman, Atwell and Gent.
- m. The basis of the electrical components is designed using Davis Fordson for the SCADA System. If the contractor chooses to use another type of system, all submitted works for the electrical design will need to be verified by Mr. Joey Bowman to verify they are comparable.
- n. Hemphill would like to dig a test hole south of the existing oxidation ditch and secondary clarifier near SB-7. Mr. Ben McDowell stated that they intend to start this job on Friday May 24, 2024. There is an existing abandoned 5'' force main located in the digging area that does not need to be repaired if damaged per Mr. Prentiss Smith.
- o. The Required Gravel areas as shown on sheet C-201 are the only areas that the contractor will be compensated for the gravel.
- p. W.L. Burle Engineers P.A. will take under advisement the asphalt quantities if the road east of the East Aeration Lagoon is disturbed during construction.
- q. Deliveries of materials, equipment, concrete pours, etc. which will come through the gate off Old Hwy 24 require a minimum 48-hour notice to Mr. Prentiss Smith MDOC/SMCI. The deliveries will require an escort and supervision of a guard upon entering the premise.
- r. Daily workers are required to have a background check and must enter the site through the front gate. Delivery drivers are not required to have a background check, however, anybody that comes onto South Mississippi Correctional Facility Grounds is required to provide a state issued photo ID.
- s. The use of a hay waddles or silt fence for erosion control is up to the contractor. It was noted that waddles are the preferred erosion control method of Mr. Darrell Martinek, W.

L. Engineers, P.A. It was also noted that if the contractor chooses to use silt fence, the use of check dams may be required to allow for water to flow away from the site.

- t. The flexmats for the storm sewer outfall as shown on sheet C-907 need to extend a minimum of 10' from the end of the pipe.
- u. Any of the associated costs of relocating existing roads are left entirely to the contractor.
- v. The Contractor is required to survey any and all existing and new installation of piping and underground utilities after completion of the project using survey grade equipment.
- w. W.L. Burle Engineers P.A. will take into advisement and consider repositioning the effluent pump station and the UV disinfection system, so long as the relocation does not affect the hydraulics. W.L. Burle Engineers P.A. will also take under advisement the digging depth of the UV disinfection system.
- x. The width of the East Lagoon should be 70' as shown on sheet C-403.
- y. It was discussed that the bid date could potentially be move back to late June of 2024, and this will be considered by the Owner, Using Agency and the Professional.

**Attachments:**

- a. Anti-fall System and Bridge Crane Pictures;**
- b. BOB Pre-Bid Meeting Agenda;**
- c. Miscellaneous Requirements – ARPA (PRE-BID);**
- d. Burle Pre-Bid Meeting (Professional) Agenda; and**
- e. Sign in sheet**





Anti-fall  
System

Bridge Crane  
Rails



Bridge Crane



Anti-fall  
System

Bridge Crane



Bridge Crane



*Note: Parking is limited, bidders will be required to pass through security, the official time clock is behind the receptionist's desk in the Woolfolk Bldg on the 1<sup>st</sup> floor, Room 117, and no bids will be accepted after 2 pm.*

GS# 323-024

Project Name: ARPA Infr. – Waste Cent. Treatment

Bid Date: Thursday, May 30<sup>th</sup>, 2024

## **PRE-BID AGENDA INSTRUCTIONS TO BIDDERS**

### **SECTION 00100**

#### **PART 1 - GENERAL**

- 1.01 QUESTIONS:** Questions should be directed to the Professional. Should a Bidder find discrepancies in or omissions from, the Drawings or Project Manual, or be in doubt as to their meaning, the Bidder should immediately notify the Professional. The Professional will send written instruction(s) or interpretation(s) to all known holders of the documents. Neither the Owner, nor the Professional, will be responsible for any oral instruction or interpretation.
- 1.03 NON-RESIDENT BIDDER:** When a non-resident Bidder (a Contractor whose principal place of business is outside the State of Mississippi) submits a bid for a Mississippi public works project, one of the following is required and shall be submitted with the Proposal Form:
- A. Copy of Law: If the non-resident Bidder's state has a resident Bidder preference law, a copy of that law shall be submitted with the Proposal Form.
  - B. Statement: If the state has no such law then a statement indicating *the State of (Name of State) has non-resident Contractor preference law* shall be submitted with the Proposal Form.
- 1.08 OBLIGATION OF BIDDER:** At the bid opening, each Bidder will be presumed to have inspected the site, read and become thoroughly familiar with the Drawings and the Project Manual, including all addenda.

#### **PART 2- PROPOSAL FORM**

- 2.02 PROPOSAL FORMS:** The Bidder shall make all proposals on forms provided and shall fill all applicable blank spaces without interlineations or alteration and must not contain recapitulation of the work to be done. No oral or telegraphic proposals will be considered.
- *Make sure your name at Secretary of State and Contractor's Board match.*
- 2.06 ADDENDA:** Any addenda to the Drawings or Project Manual issued before or during the time of bidding shall be included in the proposal and become a part of the Contract. The Proposal Form will have ample space to indicate the receipt of addenda. When completing the Proposal Form, the Bidder shall list the Addendum number and the date received in spaces provided.
- *Note that all addenda will be issued NO LATER THAN (48) forty-eight hrs before bid time. (Monday, May 27, at 5 pm)*
  - *Ask Professional if any addenda's are planned.*

#### **PART 4 - BID OPENING AND AWARD OF CONTRACT**

- 4.03 PROTEST:** Any protest must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening.
- *Do not send any protest or errors to the project professional, both must be sent to Owner.*
- 4.04 ERRORS:** Any claim of error and request for release from bid must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening. The Bidder shall provide sufficient documentation with the written request clearly proving an error was made.

## PART 5 - BIDDER'S CHECKLIST

The following checklist is for the Bidder's assistance only. It is not inclusive and is **not a part of the bid documents**; therefore, this checklist should not be included with the Proposal Form when submitting a bid proposal.

**5.01 PROPOSAL FORM:** (only one original proposal form to be submitted) (also see 3.01 and 600.42 of Manual)  
**Base Bid**

- ☐ Write in the amount of the base bid in words and numbers. The written word shall govern.

**Alternates**

- ☐ Write in each alternates amount in words and numbers. The written word shall govern.

**Addenda**

- ☐ Acknowledge the receipt of each addendum by writing in the number of the addendum and the date received.

**Acceptance**

- ☐ Proposal is signed by authorized person  
☐ Name of Business - complete spelling of bidder's name and address - exact as recorded at the Secretary of State  
[<http://www.sos.state.ms.us/busserv/corp/soskb/csearch.asp>] which should be the same as you applied for at the Mississippi  
State Board of Contractors [<http://www.msdoc.us/Search2.CFM>] (see 2.07, 3.01, 5.01, proposal form)  
☐ Legal address of the business listed above (at SOS and Contractor's Board)  
☐ Correct Certificate of Responsibility Number(s) as it appears in the current Mississippi State Board of Contractors  
Roster

**Certificate of Responsibility Number(s) on envelope (see below for on proposal form)**

- ☐ Base Bid is under \$50,000 and no number is required  
☐ Base Bid is under \$50,000 and the statement "bid does not exceed \$50,000" is on the outside of the sealed envelope  
☐ Base Bid is over \$50,000 and number is required  
☐ Joint Venture and *joint venture* number is required

**OR** ☐ Joint Venture participants' numbers are required

**5.02 BID SECURITY:**

- ☐ Included Bid Bond

**OR** ☐ Included Certified Check

**5.03 POWER OF ATTORNEY:**

- ☐ Included Power of Attorney

**5.04 NON-RESIDENT BIDDER:**

- ☐ Attached a Copy of Non-Resident Bidder's Preference Law

**OR** ☐ Attached a Statement

**5.05 SUB-CONTRACTORS NAME Refer to 1.04 for responsiveness**

- ☐ List your Mechanical and Electrical Contractors regardless of cost  
\* List name even for under \$50,000  
\* Fire Protection Sprinkler Contractors do not have to be listed  
\* If there is a separate HVAC/Plumbing Contractor, so notate as mentioned herein  
\* If Mechanical, Plumbing, and/or Electrical Contractor is performed by the General, be sure the General  
has a COR for said discipline and list General's name on the line and COR number mentioned herein  
**OR** \* If there is no Mechanical, Plumbing, and/or Electrical Contractor, so notate "none" on the line

**5.06 SUB-CONTRACTORS' COR NUMBER Refer to 1.04 for responsiveness**

- ☐ \* List Certificate of Responsibility Number for over \$50,000.00 (also allowed, but not required, for under \$50,000)  
\* If under \$50,000 – so notate on the COR line "under \$50,000" (or can still show COR#)  
**OR** \* If there is no Mechanical, Plumbing, and/or Electrical in Divisions 15 or 16, so notate "none" on the name line and  
the COR# line as mentioned herein

### Division 0



## Senate Bill 3062, Laws of 2022

### DFA – Bureau of Building, Grounds and Real Property Management

## Miscellaneous Requirements – ARPA (PRE-BID)

1. **Suspension/Debarment:** Prior to any award, the Owner will verify that the potential vendor is not suspended or debarred according to SAM.gov (<https://sam.gov/search>)
2. **Affirmative Steps:** All necessary steps must be taken to assure that minority business enterprises, women's business enterprises, and labor surplus area firms are used when possible. The invitation to bid has been posted on the State Procurement Portal, advertised in the newspaper and e-mailed to list of MBE/WBE entities provided by MDA. The following are the affirmative steps identified by the Federal Government:
  - a. Including qualified women's business enterprises and small and minority businesses on solicitation lists;
  - b. Assuring that women's enterprises and small and minority businesses are solicited whenever they are potential sources;
  - c. When economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum participation by small and minority business, and women's business enterprises;
  - d. When the requirement permits, establishing delivery schedules which will encourage participation by women's businesses enterprises and small and minority business;
  - e. Using the services and assistance of the Small Business Administration, and the U.S. Office of Minority Business Development Agency of the Department of Commerce; and
  - f. If any subcontracts are to be let, requiring the prime Contractor to take the affirmative steps in a through e above.
3. **Domestic Preference:** This is not the Buy American Act. ARPA construction contracts include Section 00 7300 ARPA Supplementary Conditions referencing 2 CFR Section 200.322 which addresses the use of domestic products as appropriate and to the extent consistent with law, to the greatest extent practicable, and binds the Contractor to these requirements. Section 01 6000 Substitutions and Product Options includes language addressing procedures regarding use of non-domestic products.
4. **Recovered Materials:** ARPA construction contracts include Section 00 7300 ARPA Supplementary Conditions referencing 2 CFR Section 200.323 which addresses compliance with the Solid Waste Disposal Act that requires use of products containing the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, and binds the Contractor to these requirements. Section 01 6000 Substitutions and Product Options includes language addressing procedures regarding use of products with less recovered content.
5. **UEI:** All entities that will receive ARPA funds must have a current Unique Entity Identifier (UEI). This is not required at time of receipt of bids but will be necessary prior to making bid award, so bidders are encouraged to obtain a UEI number at SAM.gov if they do not already have one.

**Bureau of Building, Grounds & Real Property Management (BOB)  
GS# 323-024 ARPA INFR. – WASTE CENT. TREATMENT  
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION  
LEAKESVILLE, MISSISSIPPI**

**PRE-BID MEETING (PROFESSIONAL) AGENDA  
MAY 21, 2024, 10:00 AM CDT**

**Meeting Attendance**

- Introduction
- Sign-In Sheet Distribution

**Project, Bid Date, Bid Location**

- Project: GS# 323-024 APRA INFR. – WASTE CENT. TREATMENT  
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION  
LEAKESVILLE, MISSISSIPPI  
Department of Corrections  
RFx# 3160006572
- Bid Date: Thursday, May 30, 2024, at 2:00 PM (14:00:00 Military Time) CST
- Bid Location: Sealed bids shall be received electronically via MAGIC, or physically delivered to the office of the Bureau of Building, Grounds and Real Property Management, 501 North West Street, Suite 1401 B, Jackson, Mississippi 39201

**Instruction to Bidders**

- INSTRUCTION TO BIDDERS AND OTHER BID RELATED TOPICS
  - BOB Agenda – Heith Newman, Bureau of Building, Grounds and Real Property Management

**Additional Instruction to Bidders**

- COPIES OF BIDDING DOCUMENTS
  - Complete sets of the Bidding Documents may be obtained from [www.wlburleplanroom.com](http://www.wlburleplanroom.com). Each qualified bidder will receive a set of the Bid Documents for use in preparing his bid.
  - A complete set of Bidding Documents shall be used in preparing Bids; neither Owner nor Professional assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
  - Owner and Professional in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.
- SPECIFIED EQUIPMENT AND MATERIALS
  - Substitutions will be considered as specified in the Bid Documents.
- BID SECURITY
  - Each Bid must be accompanied by bid security, payable to Owner in the amount of 5% of the total base bid price.



**Bureau of Building, Grounds & Real Property Management (BOB)  
GS# 323-024 ARPA INFR. – WASTE CENT. TREATMENT  
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION  
LEAKESVILLE, MISSISSIPPI**

**Contract Time**

- 500 calendar days

**Brief Project Overview**

- BASE BID, ADD ALTERNATE NO. 1, AND ADD ALTERNATE NO. 2
  - Base Bid – Construction of new headworks including coarse screen, influent tri-plex pump station, fine screen, pH adjustment feed system, and electrical work. Work also includes installation of biological treatment system which includes but is not limited to removal and replacement of east lagoon liner, air piping, blowers, gravity piping, clarifiers, and electrical work. Work also includes installation of tertiary filter system, UV disinfection system, pre-engineered metal buildings (including bridge cranes), Parshall flume, tri-plex, effluent pump station, SCADA system, backup generator, and electrical work. Providing spare parts, training and bio-barge are also required as part of the contract.
  - Add Alternate No. 1 – Replacement of lagoon liner in the west lagoon
  - Add Alternate No. 2 – Disposal of biosolids in both the east and west lagoon.

**Other**

- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE PROJECT WORK WITH THAT OF THE SEPARATE CONTRACTORS' AND SUBCONTRACTORS' WORK.
- SECTION 01 8000 ITEM 1.01 – WORK SEQUENCE
  1. See drawing C101.

**Questions/Comments**

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**STATE OF MISSISSIPPI**  
GOVERNOR PHIL BRYANT

**DEPARTMENT OF FINANCE AND ADMINISTRATION**

Liz Welch  
EXECUTIVE DIRECTOR

**M E M O R A N D U M**

**TO:** Contractors, through the AGC, ABC, and MBOC

**FROM:** Bureau of Building, Grounds and Real Property Management

**DATE:** May 30, 2023 (links modified)

**SUBJECT:** Electronic Construction Bidding per Law effective 1/1/2018

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Beginning January of 2018, the Mississippi Department of Finance and Administration / Bureau of Building Grounds and Real Property Management started receiving construction bids electronically as required by House Bill 1106, Laws of 2017. Electronic bids are at the discretion of the Bidder/Supplier. Paper bids WILL STILL BE received as stipulated in the Advertisement / Request for Bids. The instrument being used to carry out this is a program called MAGIC which is available to all State of Mississippi departments, agencies, and Bidders/Suppliers. (MAGIC is the State's Accounting System.)

**TO BID USING MAGIC:** Potential Bidder/Supplier must first register (see below). When the Bidder/Supplier registers themselves, they will automatically receive their Magic sign-in information. (The Bureau of Building, et al, can assist with this, and, if so, will notify the Bidder/Supplier by email of doing so, so they can contact Magic to get their sign-in information for bidding electronically) Construction Bidders/Suppliers who have received awards in recent years through the Bureau of Building, et al, should already have their company information properly entered. Those companies should still verify that their system "Product Code" is set to "90922" [for construction] in order to receive "system generated Bid Notices" for construction projects. (Bid Opportunities will continue to be in the newspaper, on the Magic Portal, and on the Bureau of Building, et al, web.) When registering, a company should enter their company information EXACTLY as shown per the Mississippi Secretary of State's listing and per their W9. Contact Magic at: [mash@dfa.ms.gov](mailto:mash@dfa.ms.gov) or 601-359-1343. A tutorial is available at: <http://uperform.magic.ms.gov/gm/folder-1.11.7512?originalContext=1.11.8507> (when registering, the MS SoS, MBOC, and W9 should all agree.)

**HOW BIDDER/SUPPLIER REGISTERES THEMSELVES:**

[www.dfa.ms.gov](http://www.dfa.ms.gov)

vendor registration (middle of the page)

down the page to State of Mississippi Supplier Registration

Complete that form

And “send” (top left or bottom of form on left)

This is the current link for the info above: [https://sus.magic.ms.gov/sap/bc/webdynpro/sapsrm/wda\\_e\\_suco\\_sreg?sap-client=100#](https://sus.magic.ms.gov/sap/bc/webdynpro/sapsrm/wda_e_suco_sreg?sap-client=100#)

**TO ADD THE PRODUCT CODE 90922** once in your MAGIC Address Table click the steps below:

1. Click on Suppliers Self Service Tab.
2. Click Company Data.
3. Click the Process Button.
4. Click Add Categories in the Product Categories section
5. Add the product Categories from here (90922 for construction)

**TO VIEW ADVERTISED PROJECT INFORMATION** on line

1. DFA Web site
2. Supplier/Vendor
3. Mississippi Procurement Portal
4. (RFx) Procurement Opportunities and Public Notifications
5. Advanced Search Options
6. Major Procurement Category: Select Construction
7. Dept/Agency: Select MS DEPT FINANCE AND ADMINISTRATION 6. SEARCH

Another option from the DFA/BoB web site is to:

1. Select DFA Offices
2. Select Bureau of Building Grounds and Real Property Management.
3. Bid and RFP Notice
4. Construction Solicitations and Bid Tabs
5. Locate the GS# at left of the list and the RFx number at the right.

On both lists, the RFx number for each project is listed which is required in MAGIC when preparing bids.

For additional information regarding registration in MAGIC, contact MMRS at (601) 359-1343 or by email at [mash@dfa.ms.gov](mailto:mash@dfa.ms.gov).

/pgw





## SIGN IN SHEET

### Bureau of Building, Grounds and Real Property Management

DATE: 05/21/2024	
MEETING FOR:	GS: 323-024 PROJECT NAME: ARPA Infr. - Waste Cent. Treatment
REQUESTED BY:	<input checked="" type="checkbox"/> BoB <input type="checkbox"/> Professional <input type="checkbox"/> Using Agency
PURPOSE OF MEETING:	Pre-Bid

NAME (Please Print)	COMPANY OR ORGANIZATION	WORK NO.	CELL NO.	EMAIL ADDRESS
Heith Newman <i>HN</i>	BoB	601-359-3887	601-622-7245	heith.newman@dfa.ms.gov
Barney Poole <i>BP</i>	MDOC		601-507-2338	barney.poole@mdoc.state.ms.us
Britt Phelps	Hemphill		601-780-0940	
Ben McDaniel	Hemphill		601-720-5143	bmdaniel@hemphillconstruction.com
Tyler Creed	The Creed Co.	251-460-2722	251-751-1877	tyler@thecreedcompany.com
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## DIVISION 33 – UTILITIES

### SECTION 33 3213

#### PUMP STATION

#### PART 1 GENERAL

##### 1.1 SCOPE OF WORK

This Section is for the construction of new pump stations. At the locations indicated on Project Drawings, CONTRACTOR shall furnish and install a submersible duplex or triplex, self-priming sewage pump station complete with all accessories, controls, and appurtenances, as required for a complete operating system. Pump stations shall be constructed in accordance with the Project Drawings and the following Specifications.

##### 1.2 REFERENCE SPECIFICATIONS

The current edition of the publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A36	Standard Specification for Carbon Structural Steel
ASTM A48	Standard Specification for Gray Iron Fittings
ASTM A126	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM B16	Standard Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines
ASTM B62	Standard Specification for Composition Bronze or Ounce Metal Castings

#### AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B16.10	Face-to-Face and End-to-End Dimensions of Valves
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#### AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C508	Swing-Check Valves for Waterworks Service, 2-in. through 48-in. (50-mm through 1200-mm) NPS
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INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

IEEE 117

Standard Test Procedure for Thermal Evaluation of  
Systems of Insulating Materials for Random-Wound  
AC Electric Machinery

### 1.3 SUBMITTALS

Submit the following prior to commencing with any phase of work covered by this Section:

- 1.3.1 Descriptive data for all equipment to be used, which shall meet requirements specified in the CONTRACT DOCUMENTS;
- 1.3.2 Detailed description of recommended installation and testing procedures, per Manufacturer;
- 1.3.3 Bypass Pumping Plan, if applicable for the station being installed;
- 1.3.4 Traffic Control Plan, if applicable for the station being installed;
- 1.3.5 Health and Safety Plan detailing site-specific safety requirements;
- 1.3.6 Operation and Maintenance Manual; and
- 1.3.7 Manufacturer's warranty.

## PART 2 PRODUCTS

### 2.1 PUMP UNITS

- 2.1.1 Submersible pumping units shall be self-contained, integral pump/motor units designed to operate at continuous full load in a partially or completely submerged condition without the need for any external cooling devices. The motor shall be coded by an adequately sized motor frame, which shall conform to the latest applicable requirements of standards by the National Electrical Manufacturers Association (NEMA), the Institute of Electrical and Electronic Engineers (IEEE), the American National Standards Institute (ANSI), and National Electrical Code (NEC).
- 2.1.2 The name plate ratings of the motor shall be based on 40° C ambient environment. All motors shall be furnished and certified per IEEE 117 with Class F rated insulation materials or better.

- 2.1.3 Motor shaft shall be one-piece, American Iron and Steel Institute (AISI) 416 stainless steel. Carbon-steel shafts or shaft sleeves are not acceptable. Rotor shall be dynamically balanced to meet NEMA vibration limits. All external hardware shall be stainless steel.
- 2.1.4 Cable leads shall enter at the top of the motor and shall allow the cable-to-motor connection to be accomplished in the field without soldering. All power and control lead wires shall be double-sealed to ensure cable-wicking does not occur upon entering the motor. This sealing system shall consist of a rubber grommet followed by epoxy with high adhesive qualities and a low coefficient of expansion.
- 2.1.5 A cable strain relief mechanism shall be an integral part of this sealing system. Cable sealing system shall be capable of withstanding an external pressure test of 1,200 pounds per square inch (psi) and a cable assembly pull test as required by Underwriters Laboratories (UL). Singular grommet or other similar sealing systems are not acceptable. Each motor shall be supplied with a minimum of 40 feet of multi-conductor type "SOW-A" or "W" power cable and control cable. Cable sizing shall conform to NEC specifications and be UL listed. Power and control leads shall be terminated on a sealed terminal board. The terminal board and its bronze lugs shall be sealed with O-rings.
- 2.1.6 Pump(s) shall be provided with two (2) separate tandem-mounted mechanical seals to prevent the pumped liquid from entering the rotor/stator cavity area, which would affect the reliability of operation. The upper and lower seals shall be mounted to rotate in the same direction. Seal materials for the upper seal shall be stainless steel and Buna-N components, with carbon rotating face and ceramic stationary face lapped to within three (3) helium light bands. Lower seal construction shall be stainless steel and Buna-N components with solid silicon carbide against tungsten carbide faces. To avoid damage, the lower mechanical seal shall be located in a recessed housing outside the main flow path of the pump. Mechanical seals that employ sprayed or laminated seal faces shall not be considered equal and shall not be accepted. The mechanical seals shall be readily and commercially available from third-party sources other than the pump and motor manufacturer and their agents, dealers and distributors. Use of mechanical seals utilizing single or multiple metal springs that may collect stringy material is prohibited. Type 21 mechanical seals shall be used.
- 2.1.7 A heavy-duty stainless steel lifting bail and cable shall be included. The bail and cable shall be of adequate strength to lift the entire pump and motor assembly.
- 2.1.8 Two (2) rails shall be provided to guide each pump when being raised or lowered. The rails shall be mounted on the discharge base/elbow at the bottom

and with a ductile iron bracket at the top. For guide rail lengths greater than 20 feet, a stainless steel intermediate bracket shall be installed.

#### 2.1.9 Materials of Construction – Pump

- 2.1.9.1 The pump casing (volute), impeller, motor housing and stationary base elbow shall be manufactured of close-grained cast iron that meets ASTM A48, Class 30 requirements.
- 2.1.9.2 A semi-concentric, one-piece volute shall be used. The volute shall have centerline discharge to minimize clogging or flow interference and to provide the proper weight distribution for use with the easy-lift disconnect system.
- 2.1.9.3 The impeller shall be of a bladeless, fully shrouded enclosed design and shall have large passages to provide smooth flow transition and unimpeded passage of large spherical solids. All impellers shall be statically and dynamically balanced to assure that vibration amplitudes, measured at the level of the upper bearing while operating in the vertical position, remain within the limits specified by the Hydraulic Institute Standards. Solids passing capability of the impeller offered shall be clearly indicated on the Manufacturer's performance curve. The impeller shall pass a minimum 3-inch solid without the use of cutter devices. Impeller shall be secured to the shaft by means of bolt, washer and key and shall be trimmed to meet specified conditions. Impeller shall be provided with 300-350 BHN stainless steel face style wear rings.
- 2.1.9.4 The volute shall also be cast in one piece with smooth internal contours and surfaces, provide obstruction-free passageways with low friction losses and complement the impeller in solids-passing capability and hydraulic efficiency. A stationary stainless steel 300-350 BHN wear ring, press-fit into the volute, shall maintain close tolerances between the rotating impeller and the stationary volute.
- 2.1.9.5 Deflection at the shaft seal within the operating range shall not be more than 0.002 inch (0.05 mm). The shaft shall be supported by anti-friction bearings designed for 50,000 hours B-10 life at the Best Efficiency Point (BEP), factory pre-lubricated for life.
- 2.1.9.6 All mounting hardware in contact with the pumped fluid shall be of AISI 304 stainless steel.
- 2.1.9.7 All external surfaces shall be protected by a corrosion-resistant coating of Sika Inertol Poxitar, Carboline Bitumastic 300 M, or approved equal.

## 2.1.10 Materials of Construction – Motors

- 2.1.10.1 The submersible motor enclosure, including frame, end brackets, flanges and cap assembly, shall be constructed of close-grained cast iron that meets the requirements of ASTM A48, Class 40 or better.
- 2.1.10.2 The top end bracket shall be fitted with a lifting ball and shall be capable of supporting four (4) times the combined weight of the pump and motor.
- 2.1.10.3 All mating surfaces where watertight sealing is required shall be machined and fitted with Buna-N O-rings. Sealing shall be accomplished by automatic compression. Connections requiring specific torque limits or sealing compounds shall not be acceptable.
- 2.1.10.4 The one-piece motor/pump shaft shall be constructed of stainless steel and shall be precision-machined to ensure proper tolerances at all contact points. Entire rotating assembly shall be designed with sufficient rigidity and shall be balanced for minimal shaft deflection at extreme pump operating conditions.
- 2.1.10.5 Each pump shall be driven by a submersible, squirrel cage, induction motor. Motor shall be NEMA Design B for continuous duty, capable of sustaining a minimum of 10 evenly distributed starts per hour. The motor shall be the product of the pump manufacturer and shall be of the oil-filled, watertight design. All motors up to 20 hp shall be capable of running continuously in air without the use of cooling jackets or external cooling systems.
- 2.1.10.6 All stator windings and leads shall be insulated with moisture-resistant Class F insulation, capable of withstanding a maximum temperature of 311 degrees Fahrenheit (° F) [155 degrees Celsius (° C)], dipped and baked three (3) times. Upon assembly, the stator shall be heat-shrink-fitted into the stator housing; the use of bolts, pins, or other fastening devices that would require penetration of the stator housing shall not be acceptable.
- 2.1.10.7 A bi-metallic temperature sensor, wired in series and interlocked with the motor overload protection in the control panel, shall be embedded in each phase winding. Either of these sensors shall cut out electric power if the temperature in the winding exceeds 284° F [140° C], but shall automatically reset when the winding temperature returns to normal. The motor shall be non-overloading through the selected performance curve. Service Factor of the motor



shall be 1.15; motors with a Service Factor less than 1.15 shall not be acceptable.

- 2.1.10.8 All external hardware, including nameplates on the pump/motor, shall be AISI 304 stainless steel.

## 2.2 BEARINGS AND LUBRICATION

- 2.2.1 Bearings shall be specifically selected by the pump unit manufacturer to carry all radial and axial loads imposed by the pump and motor.
- 2.2.2 Bearings shall be rated to provide a minimum L10 bearing life of 50,000 hours at any design operating point within the design operating region of the pump unit. Bearing selection shall limit the bearing temperature rise to a maximum of 140° F [60° C] under full load operation.
- 2.2.3 All bearings shall be permanently lubricated with a premium moisture-resistant grease containing rust inhibitors; no additional or periodic lubrications shall be required. Bearings shall be suitable for operation over a temperature range of -13° F to 248° F [-25° C to +120° C]. All bearings shall be commercially available from third-party sources other than the pump/motor manufacturer.

## 2.3 MOISTURE DETECTION SYSTEM

- 2.3.1 A probe moisturizing sensing system in each pump unit shall detect the entrance of moisture and shall provide an alarm signifying moisture entrance.
- 2.3.2 The moisture detection system shall be designed to detect the entrance of moisture in the mechanical seal chamber.
- 2.3.3 The moisture sensing probe leads shall terminate at a Manufacturer-supplied conductance relay located in the control panel.

## 2.4 CABLE ENTRY SYSTEM

- 2.4.1 The power and control cable entry system shall be designed to provide a positive, leak-free seal to prevent liquid from entering the motor housing.
- 2.4.2 Provisions to prevent moisture from wicking through the cable assembly shall be incorporated in the design. Even in the event of a punctured cable jacket, the cable system shall still prevent moisture entry.
- 2.4.3 All cable shall be Type SEOW-A and UL listed for the intended submersible service.

## 2.5 SLIDING GUIDE BRACKET AND RAIL SYSTEM

- 2.5.1 Each pump shall be supplied with an auto-coupling/slide rail system to automatically connect the pump to the discharge piping without any adjustments, fasteners, or clamps. Personnel shall not be required to enter the wet well to remove or reinstall the pumping equipment. The auto-coupling components shall be constructed of ASTM A48 Class 40 gray cast iron and shall be free of casting irregularities. Slide rails shall be made of stainless steel.
  - 2.5.2 The auto-coupling shall mount on the pump discharge flange and shall mate to the rigid discharge base provided. Sealing of the pump at the discharge flange shall be accomplished by a simple downward linear motion of the pump with the entire weight of the pump guided to and pressing against the discharge connection. A rubber seal ring, integral with the auto-coupling, shall be compressed between the pump and the slide rail base insuring a leak-proof connection. No part of the pump shall bear directly on the sump floor, and no rotary motion of the pump shall be required for sealing. Metal-to-metal connections and separate rubber rings (O-rings or flat rings) shall not be acceptable.
  - 2.5.3 Guide claws attached to the pump shall be non-binding and shall guide the pump up and down with no less than two (2) round slide rails of standard pipe diameter. The pump shall be allowed by guide claws to be raised or lowered despite trash or deposits. Guide claws shall not spread the slide rails, nor shall they allow the pump to escape from between the rails until the pump is raised to the top of the rail assembly.
  - 2.5.4 The rigid discharge base-elbow shall provide the lower fixed mounting for the slide rails and shall terminate with an ANSI vertical discharge flange. A ductile iron upper guide rail bracket shall be furnished to attach and align the upper ends of the guide rails to the wet well cover. For guide rail lengths greater than 20 feet, a stainless steel intermediate bracket shall be installed. Stainless steel anchor bolts shall be furnished for the rigid discharge base-elbow.
  - 2.5.5 Each pump shall be furnished with stainless steel cable attached to the heavy-duty stainless steel lifting bail with capture loops of proper size to permit raising and lowering of the pump in the wet well in one lift.
- 2.6 ACCESS FRAME AND COVER
- 2.6.1 The access door shall be the double door type of the size recommended in writing by the pump manufacturer.
  - 2.6.2 Door leaf shall be 1/4" thick aluminum floor plate reinforced to 300 pounds per square foot (psf) live load.
  - 2.6.3 Door frame shall be extruded aluminum with an integral anchor flange and seat.

- 2.6.4 Access door shall be equipped with a flush aluminum drop handle, which does not protrude above the cover, and an automatic hold-open arm with vinyl grip on a release handle.
  - 2.6.5 Hinges shall be all stainless steel with tamper-proof stainless steel bolts and nuts and shall be removable for maintenance after the access door is cast in place.
  - 2.6.6 For security, the access door shall be equipped with a staple for padlock.
  - 2.6.7 Access door shall be furnished with mill finish.
  - 2.6.8 The access door shall be delivered to the job site complete with pre-mounted upper guide rail brackets and level switch holder.
  - 2.6.9 Padlocks for all access doors, all keyed alike, shall be provided by the CONTRACTOR.
- 2.7 CHECK VALVES
- 2.7.1 Each pump leg shall be equipped with a full flow type swing-check valve that meets AWWA C-508 requirements. The check valve shall be capable of passing a full line size spherical solid with outside lever and spring.
  - 2.7.2 The valve clapper shall be cast bronze and shall meet the requirements of ASTM B62. When fully open, the valve clapper shall swing clear.
  - 2.7.3 Hinge pin shall be brass and shall meet the requirements of ASTM B16. The hinge pin shall be furnished with bronze bushings, a shaft that meets ASTM B16 requirements, and a bronze seat that is in accordance with ASTM B62.
  - 2.7.4 Valves shall be rated at a maximum operating pressure of 200-psi.
- 2.8 PINCH VALVES
- 2.8.1 The discharge header shall include flanged pinch valves to permit either or both pumps to be isolated from the common discharge header. Valves shall be able to pass spherical solids equal to the line size.
  - 2.8.2 Valves are to be full cast metal body mechanical pinch type with flanged ends. The valve shall have the same flange to flange dimensions of a standard gate valve in accordance with ASME B16.10.
  - 2.8.3 Flanges will be drilled to mate with Class 125 and Class 150 flanges.

- 2.8.4 Valves shall be operated with a handwheel actuator. The wheels shall be equipped with an arrow indicator showing direction of closing and opening.
  - 2.8.5 Sleeve trim shall be one-piece construction with integral flanges drilled to be retained by the flange bolts. The sleeve trim shall be reinforced with calendared nylon or polyester fabric.
  - 2.8.6 Sleeves shall be connected to the pinch bars by tabs imbedded in the sleeve trim reinforcing ply. All internal valve parts shall be isolated from the process fluid by the sleeve trim. Interior surface of the sleeve shall be smooth; no arches or folds shall be permitted.
  - 2.8.7 The steel pinching mechanism shall be double-acting with pinching of the sleeve occurring equally from two (2) sides. To prevent pitting, corrosion, seizing or jamming, the pinch mechanism and side rails shall be fully enclosed within the valve body.
  - 2.8.7 The stem shall be non-rising and shall have a non-rising handwheel. Handwheel shall be fitted with a grease fitting to allow lubrication of the valve stem.
- 2.9 PIPING
- 2.9.1 All internal transmission piping and fittings shall be flanged or mechanical joint ductile iron.
  - 2.9.2 Thickness shall be Class 51 for pipes with 3" or 4" diameters; pipes of all other diameters shall have Class 50 thickness.
  - 2.9.3 All ductile iron pipe and fittings installed within the scope of this project shall be cement-lined, per AWWA C104/A21.4.
  - 2.9.4 The common discharge shall be provided with a coupling for connection to the existing force main.
- 2.10 FLOW METER
- 2.10.1 Meter shall be a velocity-sensing electromagnetic type, complete with microprocessor-based signal converter, sealed housing and flanged tube. Minimum working pressure for the meter shall be 150-psi. The meter shall be manufactured to highest standard available for magmeters. Size of the meter shall be equal to the line size of the force main pipe in which the meter is to be installed. The meter shall have a digital indicator having a range of 0 to 35,000 gallons per minute (gpm) and shall be equipped with six-digit digital totalizer reading in units of gallons per day. Flow readings shall be accurate within +/- 0.5% of true flow. Meter assembly shall operate within a range of 0.2 feet per



second (fps) to 32 fps. The meter shall have an operating temperature range of 33° F to 150° F [0.56° C to 65.56° C]. All meters shall be rated for direct buried service.

- 2.10.2 Meter tube, or sensor, shall be fabricated stainless steel pipe and shall use ANSI 150 carbon steel raised face flanges rated at a minimum of 275-psi or AWWA Class D flat faced flanges rated for a minimum of 150-psi. The meter liner shall be made of either a hard rubber or fusion-bonded epoxy; liner material for meter shall be approved by the National Sanitation Foundation (NSF). Electrodes shall be AISI 316 stainless steel.
- 2.10.3 Mag shield shall be welded to the tube providing a completely sealed environment for all coils, electrode connections and wiring harness capable of IP68 continuous submergence.
- 2.10.4 Signal converter shall be pulsed direct current (dc) coil excitation type with auto-zeroing. The converter shall be remotely mounted away from the meter. Signal converter shall indicate direction of flow and shall provide a flow rate indication and a totalization of flow volume for both forward and reverse directions. Both forward and reverse totalizers shall be electronically resettable. Converter shall provide an isolated 4-20 mA output into 750-ohm load, a frequency output of a maximum of 0-800 hertz (Hz) and a scaled pulse output. The microprocessor-based signal converter shall have a self-diagnostic test mode and a backlit display that continuously displays "Rate of Flow" and "Total Volume". Configuration parameters on the signal converter shall be lockout protected; however, parameters may be changed via the front panel keypad or with the use of a personal computer or electronic organizer with a 9-pin RS232 serial interface port. The converter shall be compatible with Microsoft Windows and other software programs with built-in terminal communication capabilities. Converter shall be capable of being remotely mounted up to 300-feet from sensor. Supplied converter shall be in a sealed NEMA 4X case with all calibration complete for desired requirements. Converter shall be supplied with a programmable low flow drop out and empty pipe zero return. Additional sensor cabling up to 300-feet shall be available, at no additional cost to OWNER.
- 2.10.5 Grounding rings shall be AISI 316 stainless steel and shall be supplied with meter tube for meters up to and including 12-inch. For meters 14-inches and larger, grounding rings shall be either AISI 304 or AISI 316 stainless steel and shall be supplied with meter tube. Each meter shall be supplied with a grounding ring on the inlet and outlet side of the meter. All meters shall be supplied with earth ground.
- 2.10.6 PARTS & SERVICE: Supplier shall have test facilities, spare parts, and personnel required to maintain, instruct, train and provide all materials, products, and services required to maintain the meters.

- 2.10.7 Volumetric testing of all meters must be performed and approved prior to shipment. The complete meter assembly and signal converter shall be wet accuracy tested and calibrated as a unit near minimum, intermediate, and maximum flow ranges of the meter, per written recommendations of Manufacturer. Shipping tag attached to the meter shall show the amount of water used to conduct the test. The test facility must be certified annually to an accuracy of  $\pm 0.2\%$  and must be traceable to the National Institute of Standards and Technology. Testing shall be observed by PROFESSIONAL or a representative of PROFESSIONAL. A copy of the certified accuracy test record shall be furnished to PROFESSIONAL, at no additional cost to OWNER.

### PART 3 EXECUTION

#### 3.1 INSTALLATION

- 3.1.1 Equipment shall be installed in accordance with the Manufacturer's written recommended instructions.
- 3.1.2 A representative of the Manufacturer of the equipment being furnished shall be present at the job site for a minimum of two (1) day.
- 3.1.3 The Manufacturer's representative shall test the equipment after it is installed, shall certify that the equipment is installed as required, and shall instruct OWNER's personnel in the proper operation of the equipment.

#### 3.2 TESTING

- 3.2.1 Operations of the pumps and controls shall be tested at the factory before shipment. A certified and witnessed test document for the factory test shall be included with each unit.
- 3.2.2 Performance of pumps shall be tested at Manufacturer's plant prior to shipment. A certified and witnessed document for the performance test shall be included with each unit. The performance shall be within the limits set forth by the hydraulic institute. Certified curves shall be submitted to PROFESSIONAL upon request.
- 3.2.3 At minimum, each finished pump shall be performance-tested for total dynamic head, capacity, efficiency and power requirements at six (6) operating points and the shut-off head for the selected impeller diameter. Design capacity operating point shall be included.
- 3.2.4 After installation, CONTRACTOR shall perform a field test on each completed submersible pump and easy-lift assembly under the supervision of the Manufacturer's authorized representative. The test shall demonstrate the

following to the satisfaction of PROFESSIONAL: that the equipment meets all specified performance criteria; that the equipment is properly installed and anchored; and that equipment operates smoothly without exceeding the full load amperage rating of the motor or excessive motor heating.

### 3.3 WARRANTY

In addition to the warranty provisions of the General Conditions, all components of the sewer lift station shall be guaranteed in writing by the Manufacturer for a period of one year from the date of contract completion against defects in materials or construction. This warranty, however, does not cover items that are normally consumed in service, such as oil and grease.

- End of Section -