

ADDENDUM NO. 2
WASTEWATER SYSTEM IMPROVEMENTS
CONTRACT 16-02
MILLER AVENUE WASTEWATER TREATMENT PLANT
IMPROVEMENTS
JACKSON ENERGY AUTHORITY
JACKSON, TENNESSEE
WAUFORD PROJECT NO. 3590
JEA WORK ORDER NO. 1700553
CDBG DISASTER PROJECT NO. 54299

Date of Addendum: Monday, January 7, 2019

Mandatory Pre-Bid Conference:

Tuesday, January 8, 2019, 10:00 a.m. Local Time

Bid Opening: Thursday, January 17, 2019, 2:00 p.m. Local Time

1. BID FORM:

Replace with the attached BID FORM.

2. Detailed Specifications, Section 6. Rehabilitation of Gravity Sewer and Manholes:

Delete this Section from the project manual.

3. Detailed Specifications, Sub-Section 10B. Circular Secondary Clarifiers:

Replace Pages DS 10B-5, DS 10B-6, DS 10B-7 and DS 10B-8 with the attached Pages DS 10B-5*, DS 10B-6*, DS 10B-7* and DS 10B-8*.

J. R. WAUFORD & COMPANY,
CONSULTING ENGINEERS, INC.



J. Gregory Davenport, P.E.
Tennessee License No. 104881

BID FORM

An Individual	<input type="checkbox"/>
A Partnership	<input type="checkbox"/>
A Corporation	<input type="checkbox"/>
A Limited Liability Company	<input type="checkbox"/>

Date _____

1. BID for construction of Wastewater System Improvements for the Jackson Energy Authority, Madison County, Tennessee as Owner.

TO THE JACKSON ENERGY AUTHORITY:

I /
WE _____
Name of Bidder

Address of Bidder

The undersigned, as Bidder, proposes to furnish all necessary labor, machinery, tools, apparatus, materials, equipment, service and other necessary supplies, in strict accordance with the terms and conditions of the Detailed Specifications, Contract Documents and the Plans hereto attached and referred to herein for the construction of Wastewater System Improvements, Contract 16-02 – Miller Avenue Wastewater Treatment Plant Improvements and do such other work incidental thereto as may be ordered by the Engineer, at the unit or lump sum prices listed herein.

2. The Bidder declares that he has examined the sites of the work and informed himself fully in regard to all conditions pertaining to the places where the work is to be done; that he has examined these Detailed Specifications and Contract Documents for the work and has read all addenda furnished prior to the opening of bids; and that he has satisfied himself relative to the work to be performed. The Bidder further declares that he understands the unit price work is subject to increase or decrease, and that should the scope of any of the items of work be changed materially, the undersigned proposes to do the additional work using the unit prices set out herein. Should the quantities be decreased the undersigned will make no claim for anticipated profits.

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3. The Bidder is required to fill in all blank spaces in the BID FORM for all Schedules. Failure to fill in all blank spaces for unit or lump sum prices in both words and figures may be grounds for declaring a bid irregular.
4. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with JEA 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.
5. Bidder accepts all of the terms and conditions of the Instructions to Bidder including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of JEA.
6. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
7. Bidder has considered the information known to Bidder; 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 the Site-related reports and drawings identified in the Bidding 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, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
8. The Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
9. Bidder has given JEA written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by JEA is acceptable to Bidder.
10. The bidding documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

11. Bidder certifies that:

- a. If required by the State of Tennessee, Bidder is a licensed Contractor with a classification of MU or MU-A or MU-B (water, wastewater or gas), in accordance with the laws of the State of Tennessee, commonly known as "Contractors' Licensing Act of 1994" and all amendments thereto that are in effect on bid receipt date, and Bidder will maintain his license in force and effect during the life of the contract including the guarantee period;
- b. 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;
- c. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- d. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- e. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph:
 - (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 JEA, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive JEA 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 JEA, 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 execution of the Contract.

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS

BASE BID FORM

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
1.	Lump Sum	Headworks Channel Improvements as shown on the Plans and specified herein including all materials, labor, bypass pumping, and incidentals, complete in place For _____ _____ Dollars _____ Cents, per lump sum		\$ _____
2.	Lump Sum	Three new Grit Blowers complete in place as shown on the Plans and specified herein including all incidentals and appurtenances For _____ _____ Dollars _____ Cents, per lump sum		\$ _____
3.	Lump Sum	Influent and Effluent Piping Improvements to Aeration Basin No. 2 as shown on the Plans and specified herein complete in place including all materials, excavation and appurtenances For _____ _____ Dollars _____ Cents, per lump sum		\$ _____

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS (cont'd)

BASE BID FORM (cont'd)

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
4.	Lump Sum	<p>Renovation of Secondary Clarifier Nos. 1, 2 and 3 as shown on the Plans and specified herein complete in place including all demolition equipment, materials and appurtenances For _____</p> <p>Dollars _____</p> <p>Cents, per lump sum _____</p>		\$ _____
5.	Lump Sum	<p>Renovation of Secondary Clarifier No. 4 as shown on the Plans and specified herein complete in place including all demolition equipment, materials and appurtenances For _____</p> <p>Dollars _____</p> <p>Cents, per lump sum _____</p>		\$ _____

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS (cont'd)

BASE BID FORM (cont'd)

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
6.	Lump Sum	<p>Post Aeration System Improvements as shown on the Plans and specified herein, including two new blowers and perforated membrane fine bubble diffuser system, complete in place including all labor, materials, blowers, piping, diffusers, and appurtenances</p> <p>For _____ _____ Dollars _____ Cents, per lump sum</p>		\$ _____
7.	Lump Sum	<p>Renovation of Sludge Thickener No. 1 as shown on the Plans and specified herein complete in place including all demolition, materials, equipment, labor, appurtenances and incidentals</p> <p>For _____ _____ Dollars _____ Cents, per lump sum</p>		\$ _____

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS (cont'd)

BASE BID FORM (cont'd)

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
8.	Lump Sum	Waste Activated Sludge Pumping Station and Digester Improvements as shown on the Plans and specified herein complete in place including all site piping, pumping station improvements, digester renovation, equipment, materials, and appurtenances For _____ _____ Dollars _____ Cents, per lump sum		\$ _____
9.	Lump Sum	Grease Tank Construction including new grease tank, mixing system, piping, labor, materials and incidentals complete in place or as shown on the Plans and specified herein For _____ _____ Dollars _____ Cents, per lump sum		\$ _____
TOTAL BID, BASE BID, CONTRACT 16-02, ITEMS 1 THROUGH 9				\$ _____

The Contractor shall be aware that the bid cost for this contract shall be the sum of bid items 1 through 10 and no additional payment will be made for work shown on the Plans or specified that is not described in a bid item.

Equipment to be Furnished

The prices for equipment listed below for work to be constructed under Sub-Sections 10A through 10H are included in the lump sum price shown previously as Paragraph 12, Lump Sum where applicable. The BIDDER may use the lowest priced item listed as an acceptable Base Bid item as the basis for arriving at his overall price. The BIDDER is required to fill in the items below in order to indicate the relative prices of the equipment of various manufacturers which may be considered by the Owner for various reasons. The Owner reserves the right to award the project based on any combination of equipment listed on Schedule "A". The prices shown below shall include the cost of furnishing and installing the various equipment items, including any modifications to the structure, piping, other equipment or other items which may be caused by the use of a particular piece of equipment.

The prices listed hereinafter are not to be in addition to the Lump Sum Price in Paragraph 12 but are to be included in it.

Sub-Section	Description	Price	Equipment Used in Base Bid (Show only one per Sub-Section)
10A	<u>Positive Displacement Blowers (Grit / Post Aeration)</u>		
	Aerzen Corporation	\$ _____	\$ _____
	Robuschi	\$ _____	\$ _____
10B	<u>Circular Secondary Clarifiers</u>		
	Westech Engineering	\$ _____	\$ _____
	Evoqua Water Technologies, LLC	\$ _____	\$ _____
10C	<u>Fine Bubble Post Aeration System</u>		
	Sanitaire Corporation	\$ _____	\$ _____
	Stamford Scientific Int'l. Inc.	\$ _____	\$ _____
	Evoqua Water Technologies, LLC	\$ _____	\$ _____
	Aquarius Technologies, LLC	\$ _____	\$ _____
10D	<u>Waste Activated Sludge Thickener</u>		
	WesTech Engineering, Inc.	\$ _____	\$ _____
	Evoqua Water Technologies, LLC	\$ _____	\$ _____

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Sub-Section	Description	Price	Equipment Used in Base Bid (Show only one per Sub-Section)
10E	<u>Waste Activated Sludge Pumps and Controls</u>		
	Flygt Corporation	\$ _____	\$ _____
	Approved Equal TBD	\$ _____	\$ _____
10F	<u>Coarse Bubble Digester Aeration System</u>		
	Sanitaire Corporation	\$ _____	\$ _____
	Stamford Scientific Int'l, Inc.	\$ _____	\$ _____
	Evoqua Water Technologies, LLC	\$ _____	\$ _____
	Aquarius Technologies, LLC	\$ _____	\$ _____
10G	<u>Turbo Blowers (Digesters)</u>		
	Sulzer	\$ _____	\$ _____
	Approved Equal TBD	\$ _____	\$ _____
10H	<u>Compressed Air Mixing System (Grease Tank)</u>		
	Pulsair Systems Inc.	\$ _____	\$ _____
	Pulsed Hydraulics Inc.	\$ _____	\$ _____

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS (cont'd)

DEDUCTIVE ALTERNATES

The Owner reserves the right to deduct the following scope of work and resulting pricing from the total bid for Contract 16-02:

Deductive Alternate No. 1

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
7.	Lump Sum	Renovation of Sludge Thickener No. 1 as shown on the Plans and specified herein complete in place including all demolition, materials, equipment, labor, appurtenances and incidentals For _____ _____ Dollars _____ Cents, per lump sum		\$ _____
		TOTAL DEDUCTIVE ALTERNATE NO. 1	\$ _____	

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS (cont'd)

The Owner reserves the right to deduct the following scope of work and resulting pricing from the total bid for Contract 16-02:

Deductive Alternate No. 2

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
5.	Lump Sum	Renovation of Secondary Clarifier No. 4 as shown on the Plans and specified herein complete in place including all demolition equipment, materials and appurtenances For _____ Dollars _____ Cents, per lump sum		\$ _____
TOTAL DEDUCTIVE ALTERNATE NO. 2			\$	_____

12. CONTRACT 16-02 – MILLER AVENUE WASTEWATER TREATMENT
PLANT IMPROVEMENTS (cont'd)

The Owner reserves the right to deduct the following scope of work and
resulting pricing from the total bid for Contract 16-02:

Deductive Alternate No. 3

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
1.	Lump Sum	Headworks Channel Improvements as shown on the Plans and specified herein including all materials, labor, bypass pumping, and incidentals, complete in place For _____ _____ Dollars _____ Cents, per lump sum		\$ _____
		TOTAL DEDUCTIVE ALTERNATE NO. 3	\$	_____

13. Time of Commencement and Completion

The Bidder further proposes and agrees hereby to commence the work with adequate force and equipment on a date to be specified in a written order of the Engineer, and complete all work within the calendar days shown:

The Contractor is allowed three hundred sixty-five (365) calendar days to complete all work under this contract.

14. Liquidated Damages

The Bidder further understands that if the work is not completed within the time specified, that any additional engineering and resident construction observation costs incurred by the Owner due to the Contractor exceeding the time allowed for completion plus other damages, including the revenue lost from the project's water customers, will be deducted on a per calendar day basis from the compensation otherwise due him in accordance with the General Conditions for each day thereafter, Sundays and holidays included, that work remains uncompleted.

The following sum is agreed by the parties to be liquidated damages:

One Thousand (\$1,000.00) Dollars per calendar day

15. Time Limit for Execution of Documents

The undersigned further agrees that, in case of failure on his part to execute the Contract and the Bond(s) in the six (6) counterparts within ten (10) consecutive calendar days after written notice being given of the award of the Contract, the check or bid bond accompanying this bid and the monies payable thereon shall be paid into the funds of the Jackson Energy Authority as liquidated damages for such failure; otherwise the check or bid bond accompanying this BID FORM shall be returned to the undersigned.

16. Bid Guaranty

Attached hereto is a certified check on the _____
Bank of _____ or a Bid Bond on the form
provided for the sum of 5% of Bid Dollars (\$_____) made payable to
the Jackson Energy Authority to insure that the Contractor will enter into the
Construction Contract and Contract Bond.

17. Drug-Free Workplace Affidavit

The Drug-Free Workplace Affidavit which follows must be satisfactorily completed in order for the bid to be considered.

18. Illegal Immigrants

The Compliance Certificate relative to Illegal Immigrants which follows must be satisfactorily completed in order for the bid to be considered.

19. Iran Divestment Act

The Statement of Compliance relative to the Iran Divestment Act which follows must be satisfactorily completed in order for the bid to be considered.

20. Interested Parties

The undersigned, as Bidder, hereby declares that the only person or persons interested in the BID FORM as principal or principals is or are named herein, and that no other person herein mentioned has any interest in this BID FORM or in the Contract to be entered into; that this BID FORM is made without connection with any other person, company, or parties making a bid or proposal and that it is in all respects fair and in good faith without collusion or fraud.

NAME

ADDRESS

21. Addenda

I hereby certify that I have received, read and examined the following numbered Addenda: _____, _____, _____, _____, _____, _____, _____.

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BY: _____
Name of Bidder

Address of Bidder

Signature of Authorized Representative

Title

ATTEST (For Corporations)

(Name)

Title

d. Drive Mechanism

(1) General

- (a) Drive mechanism consisting of primary helical gear reduction, intermediate worm gear reduction unit and enclosed final reduction unit consisting of internal spur gear and pinion in a turntable base is to be completely assembled and finish painted in the Manufacturer's shop.
- (b) All gearing shall be enclosed in gray cast iron ASTM A-48 Class 40B housings. ***Properly designed fabricated steel housings will be acceptable alternatives.***
- (c) The drive shall be designed to allow removal and replacement of internal gear, balls and strip liners without raising the walkway.
- (d) All components of the drive mechanism shall be designed in accordance with AGMA Standard 6034-B92 "Practice for Enclosed Cylindrical Worm Gear Speed Reducers and Gearmotors", and Standard 2001-D04 "Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth"; for 24-hour continuous, uniform load duty and 20-year design gear life at the specified output speed. The AGMA rated torque of the drive shall be the lowest value computed for worm gear set, spur gear and pinion for strength and durability.
- (e) Select conservative values for bending strength and pitting resistance life factors KI and CI based on a minimum of 420,000 cycles of the main gear. The drive AGMA torque rating shall be as specified above with a minimum 1.25 service factor.
- (f) All bearings shall be designed for a minimum B-10 life of 200,000 hours.

(2) Primary Reduction Unit

- (a) Provide commercially available helical gear reducer or gearmotor in a cast housing.
- (b) All bearings shall be anti-friction type running in oil.

- (c) Motor shall be totally enclosed, ball bearing type, of ample power for starting and continuously operating the drive mechanism without overloading.
 - (d) Motor to conform to NEMA standards and be suitable for operation on 230/460 volt, 3 phase, 60 Hertz current.
 - (e) Primary reduction unit shall drive the intermediate reduction through a chain and sprocket arrangement with #80L self-lubricating chain and non-corrosive OSHA approved removable chain guard.
 - (f) Provide proper chain tension by an adjustable steel base mounted on the intermediate reduction unit.
- (3) Intermediate Reduction Unit
- (a) Provide worm gear speed reduction with grease and oil lubricated anti-friction type bearings in cast iron housing securely bolted on the machined top face of the final reduction unit. Worm and shaft shall be a two-piece assembly for ease of maintenance. ~~Cycloidal and planetary gearing will not be acceptable.~~
 - (b) Align and maintain accurate centers with the final reduction gearing. Swivel base mounting of the intermediate unit will not be acceptable.
 - (c) Mount an electro-mechanical overload device on the thrust end of the worm shaft consisting of plate spring assembly, plunger, indicator dial two (2) micro-switches (one N.O. and one N.C.) and a terminal block, all enclosed in a weather tight, gray cast iron housing. Amperage metering devices will not be considered equal to the overload device specified.
 - (d) Micro-switches shall be factory set to: (1) sound an alarm when the load on the mechanism reaches 100% of the AGMA torque; and (2) stop the motor when the load reaches 120% of the AGMA torque.
 - (e) Provide a shear pin device mounted on the drive end of the worm shaft.

(4) Final Reduction

- (a) Provide internal, full depth involute tooth design, ductile iron spur gear driven by a heat treated steel pinion from the slow speed shaft of the intermediate reduction unit. Stub tooth design will not be acceptable.
- (b) Provide bearings at top and bottom of pinion to ensure complete tooth contact between mating surfaces. Pinion and pinion shaft shall be furnished as a two-piece assembly for ease of maintenance.
- (c) Provide cast iron turntable base with annular raceway to contain balls upon which the internal gear rotates. The ball race shall ensure low unit ball load, long life and stability without the use of submerged guide shoes, bumpers or steady bearings.
- (d) Provide four (4) 3/8" thick x 3/4" wide renewable special hardened (38-42 Rockwell C) steel liner strips force fitted (pins and cap screws not permitted) into the turntable base and internal gear for balls to bear on vertically and horizontally.
- ~~(e) Provide an internal gear of split design with precision mating surfaces for ease of removal of gear, balls and liner strips without raising bridge. Drives without this feature are not acceptable.~~
- (f) Internal gear, pinion and balls to run in an oil bath and be protected by a felt seal and vertical neoprene dust shield.
- (g) Provide oil filling and level pipe along with a drain plug and sight gauge.
- (h) Turntable base shall be bolted to the center column and be designed to support the bridge, internal gear and rotating mechanism.

e. FEDWA Flocculation Baffles

- (1) Provide inlet baffles to promote effective mixing and tapered flocculation.

- (2) Flow shall impinge three (3) overlapping vertical target baffles in secession with a series of four (4) impingement zones. Maximum baffle exit velocity shall be less than 0.15 fps at peak influent flow.
- (3) Design to provide a "Gt" (t in seconds) value in the well not exceeding 6,000 with a velocity gradient "G" within the well of at least 35 fps/ft and not exceeding 60 fps/ft at a minimum water temperature of 10 degrees-C at peak influent flow.
- (4) Provide horizontal shelf baffles to prevent downward movement in flocculation zone.
- (5) Baffles shall bolt to center cage and well support beams.
- (6) The baffles to be fabricated from minimum 3/16" thick A36 carbon steel plate.
- (7) Hydraulic calculations shall be provided showing dimensional characteristics, port area, velocity, headloss, and mixing intensity.
- (8) **Dual Gate** EDI system shall be the only acceptable alternative to the FEDWA design

f. Flocculation Feedwell

- (1) The flocculation feedwell fabricated from 3/16" steel plate sections supported from the drive cage or bridge extensions.
- (2) Incorporate steel stiffeners at the top and bottom to maintain shape and rigidity.
- (3) Feedwell shall be of adequate size to diffuse the flow into the tank at a uniform flow through velocity.
- (4) Ports shall be cut into the flocculation feedwell to permit entrapped scum to escape.
- (5) Ports shall be baffled to prevent short circuiting to the weirs.
- (6) For ease of installation and to maintain quality during shipping, the well shall be constructed of straight segmented pieces (chordal design). Chordal well design shall incorporate plate sizes that closely approximates a circular shape. The chordal design shall provide the same flow velocities as a circular structure. Corner stiffeners and supports are to be sized in order to ensure rigidity of the well against local wind loadings during times when the clarifier