RESOLUTION 1016

A RESOLUTION AUTHORIZING AND DIRECTING THE MAYOR TO EXECUTE AUTHORIZATION NO. 95 WITH HDR ENGINEERING, INC. FOR ENGINEERING SERVICES FOR A FLOATING AERATOR

WHEREAS, the City maintains a Wastewater Treatment plant for processing the community's sanitary sewage; and

WHEREAS, aeration is an integral part of the treatment process providing needed air and oxygen to promote biological oxidation of the wastewater; and

WHEREAS, the aerators have reached the end of their useful life and need to be replaced with newer and more efficient equipment; and

WHEREAS, HDR Engineering Inc. has submitted Authorization No. 95 to complete the engineering design and specifications for a new floating aerator.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF SMITHVILLE, MISSOURI:

THAT the Mayor is hereby authorized to execute Authorization No. 95 with HDR Engineering, Inc. to complete the engineering design and specifications for a new floating aerator in an amount of $93,445.

PASSED AND ADOPTED by the Board of Aldermen and **APPROVED** by the Mayor of the City of Smithville, Missouri, the 18th day of January, 2022

_____
Damien Boley, Mayor

ATTEST:

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Linda Drummond, City Clerk

Board of Alderman Request for Action

MEETING DATE: 1/18/2022 **DEPARTMENT:** Public Works – Wastewater

AGENDA ITEM: Res 1016 – Authorization No. 95 - Sludge Basin Floating Aerator/Decanting System

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RECOMMENDED ACTION:
A motion to approve Resolution 1016, authorizing and directing the mayor to execute Authorization No. 95 with HDR Engineering, Inc. for engineering services for a floating aerator.

SUMMARY:
The City of Smithville operates a wastewater treatment plant using Sequencing Batch Reactor (SBR) Treatment Technology. In the SBR process of wastewater treatment, the activated sludge is aerated and mixed with the wastewater until the desired BOD (biological oxygen demand), COD (chemical oxygen demand) and nitrogen load is reached. Currently our aeration and decanting systems in Digestor 1 require improvements to maintain treatment levels. Our current system is a series of PVC pipes that are in the bottom of the digestor. These PVC pipes have deteriorated and are now brittle and break and get clogged up. To complete the cleaning and repair, the entire basin has to be taken down and manually cleaned (picture 1). The new floating aerator will float on the surface and force air down into the basin (picture 2).

Picture 1

Picture 2

The decanting process allows the liquid to be removed /separated from the digestor leaving the solids to continue to thicken so we less volume of sludge to haul.

Due to the increased scope of the project, staff has worked with HDR to determine that their services are necessary to engineer and plan the project.

PREVIOUS ACTION:

None

POLICY ISSUE:
Infrastructure Maintenance

FINANCIAL CONSIDERATIONS:
The 2022 CIP includes $200,000 for the Floating Aerator. Due to the increases in costs across all commodities, equipment and shipping, the price quoted in 2020 just for the aerator alone has doubled. Authorization No. 95 is $93,445.00. The estimated construction cost for the addition of the floating aerator, addition of submersible decant pump, and associated process, structural, SCADA, and electrical work is $ 350,000, for a total project cost of $443,445.

ATTACHMENTS:

☐ Ordinance	☒ Contract
☒ Resolution	☐ Plans
☐ Staff Report	☐ Minutes
☐ Other:	

AUTHORIZATION NO. 95
TO
AGREEMENT BETWEEN
CITY OF SMITHVILLE, MISSOURI
AND
HDR ENGINEERING, INC.
FOR
PROFESSIONAL ENGINEERING SERVICES

AEROBIC DIGESTER IMPROVEMENT PROJECT

In accordance with Section 1.A. of the December 18, 2003 Agreement, ENGINEER is hereby authorized to provide engineering services for the design, bidding and construction of the Aerobic Digester One Improvement Project.

Background

The Smithville Wastewater Treatment Plant (WWTP) is located in central Smithville, MO, west of Highway 169, and receives domestic wastewater flow from the Smithville service area. Aerobic Sludge Digester One requires improvements to the aeration and decanting equipment.

This Authorization is for the following engineering work:

- Preparation of engineering design and construction documents for the demolition of the existing aeration equipment at Digester 1, addition of floating aerator, addition of submersible decant pump, and associated process, structural, SCADA, and electrical work.

SCOPE

Task 1 – Data Collection & Project Management

1.1 Project Initiation meeting with the City staff and site visit to confirm objectives, finalize schedule, and obtain available information to be utilized during the development of the Project. Meeting will also serve as the primary multi-discipline site visit for site specific data acquisition.

1.2 Review existing WWTP record drawings pertinent to sludge digester, SCADA, and electrical system.

1.3 Project Management activities including project management plan development, safety plan implementation, schedule/budget control, and invoice management.

Task 2 – Design Phase Services

2.1 Complete preliminary design, finalize existing equipment demo, confirm size of floating aerator, finalize decant design approach, layout new equipment and piping, and design electrical and SCADA system improvements.

2.2 Prepare Construction drawings and specifications for the bidding and construction of the Digester Improvements. Drawings anticipated include:

a. Title page, sheet index, legend sheets, and diagrams
b. Standard Details

c. Site Layout and Electrical Power Plan
d. Demolition plan
e. Process and structural plans
f. Electrical and controls plans
g. Project manual/technical specifications

2.3 Prepare Engineer's opinion of probable construction costs
2.4 Conduct one (1) design review meetings with the City to review 90% construction documents
2.5 Finalize construction documents based on City comments and perform internal quality control review

Task 3 – Bid Phase Services

3.1 Prepare Advertisement and Bid Package (submit electronically to City and Drexel Technologies for distribution to potential bidders)
3.2 Address questions from potential bidders and suppliers and prepare up to two (2) addenda, as necessary.
3.3 Attend Bid Opening and prepare bid tabulation
3.4 Evaluate bidders and prepare recommendation of award to the City
3.5 Prepare Conformed to Bid contract documents and distribute four (4) copies for execution
3.6 Prepare Notice or Award and Notice to Proceed to the selected bidder

Task 4 – Construction Phase Services

4.1 Conduct preconstruction meeting (prepare agenda/meeting notes)
4.2 Review up to ten (10) Contractor submittals
4.3 Conduct monthly progress/coordination meetings (4 meetings)
4.4 Address up to 5 RFIs, issue Field Orders or Work Change Directives
4.5 Issue up to 2 Change Orders
4.6 Review Contractor's application for payment (3 total)
4.7 Engineer site visits at key project milestones (4 total)
4.8 Review Operation and Maintenance manuals submitted by the Contractor
4.9 Perform substantial completion inspection and prepare punch list
4.10 Perform final completion inspection and project closeout documentation
4.11 Prepare record drawings

PROJECT ASSUMPTIONS

1. Aerobic Digester One will be taken out of service during construction
2. The modifications will be able to utilize existing SCADA system
3. No upgrades to the WWTP power supply are anticipated
4. Engineer will not be performing full time construction observation
5. The project will be bid one time only

FEE

The CITY shall compensate ENGINEER for the Design, Bidding, and Construction Administration assistance of the AEROBIC DIGESTER ONE IMPROVEMENT PROJECT in an amount not to exceed $93,445.00.

SCHEDULE

Task(s) 1 and 2 will be completed within 90 calendar days from notice-to-proceed.

Task 3 will be completed 45 calendar days after the completion of Task 2.

Task 4 schedule will be dependent on availability of Project equipment. Due to current global supply constraints, delivery of key project components may be delayed for several months outside of the Contractor's control. If this occurs, it is anticipated the construction contract will be suspended until equipment delivery. The Digester will not be taken out of service until necessary equipment to complete the Project is on site.

This AUTHORIZATION shall be binding on the parties hereto only after it has been duly executed and approved by the CITY and ENGINEER.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this AGREEMENT in duplicate on the respective dates indicated below.

CITY: SMITHVILLE, MISSOURI

By: _____

_____
Type or Print Name

Title _____

Date _____

ENGINEER: HDR Engineering, Inc. (formally E.T. ARCHER CORPORATION)

By: Joseph Drimmel (Jan 10, 2022 15:38 CST)

Joseph Drimmel, P.E.
Type or Print Name

Title: Senior Vice President

Date: Jan 10, 2022

Smithville Authorization 95 Sludge Basin Aerobic Digester Improvements
Scope and Fee 01-04-2022

	Staff Name	Bresette	Patrick	Boyd	Kalivoda	Keyhill	Witte	Young	Wiseman	Berne	Smith	Mynatt		
	Rate Schedule Code	Senior Project Manager II	Engineer III	Engineer III Electrical/SCADA	Engineer III	Cadd/GIS Technician IV	Engineer IV	Senior Technical Specialist	Senior Technical Specialist	Admin Assistant	Project Accountant I	Project Assistant I		
	Project Role	PIC	PM/Process		Structural	BIM/CAD	QC	QC	QC	Admin Assistant	Accountant	Admin Assistant		
	Billing Rate	$250.00	$150.00	$150.00	$150.00	$145.00	$170.00	$280.00	$280.00	$80.00	$100.00	$95.00	*HDR Expenses*	*Total*
	TASKS													
A.	**Task 1 - Data Collection & Project Management**													
1	Project Initiation and Site Visit	4	4	4	4				4				$200	$4,120
2	Review existing WWTP record drawings		4	4	2									$1,500
3	Project Management including invoicing (PMP, SP, 12 Invoices)	1	14								14	4		$4,130
	Subtotal Hours	**5**	**22**	**8**	**6**	**0**	**0**	**0**	**4**	**0**	**14**	**4**		
	Subtotal Dollars	**$1,250**	**$3,300**	**$1,200**	**$900**	**$0**	**$0**	**$0**	**$1,120**	**$0**	**$1,400**	**$380**	**$200**	**$9,750**
	Total Task 1													**$9,750**
B.	**Task 2 - Design Phase Services**													
1	Complete preliminary design		8	8	4		1	1	1					$3,730
2	Prepare Construction drawings and specifications	7	69	59	13	82	4	2	2	31			$750	$39,745
3	Prepare Engineer's opinion of probable construction costs		6	6	2				1					$2,380
4	Conduct one (1) design review meetings with the City	4	4										$100	$1,700
5	Finalize construction documents		4	2		8				4			$100	$2,480
	Subtotal Hours	**11**	**91**	**75**	**19**	**90**	**5**	**3**	**4**	**35**	**0**	**0**		
	Subtotal Dollars	**$2,750**	**$13,575**	**$11,250**	**$2,850**	**$13,050**	**$850**	**$840**	**$1,120**	**$2,800**	**$0**	**$0**	**$950**	**$50,035**
	Total Task 2													**$50,035**
C.	**Task 3 - Bid Phase Services**													
1	Prepare Advertisement and Bid Package		2											$300
2	Address Questions from Potential bidders and suppliers and prepare up to two (2) addenda	2	16	4		4				8			$100	$4,820
3	Attend Bid Opening and prepare bid tabulation	2	6										$100	$1,500
4	Evaluate bidders and prepare recommendation	1	8											$1,450
5	Prepare Conformed to Bid contract documents		4			8				4			$500	$2,580
6	Prepare Notice of Award and Notice to Proceed		2											$300
	Subtotal Hours	**5**	**38**	**4**	**0**	**12**	**0**	**0**	**0**	**12**	**0**	**0**		
	Subtotal Dollars	**$1,250**	**$5,700**	**$600**	**$0**	**$1,740**	**$0**	**$0**	**$0**	**$960**	**$0**	**$0**	**$700**	**$10,950**
	Total Task 3													**$10,950**
D.	**Task 4 - Construction Phase Services**													
1	Conduct preconstruction meeting	4	4											$1,600
2	Review up to ten (10) Contractor submittals		10	10	2									$3,300
3	Conduct monthly progress/coordination meetings (4 meetings)	4	12										$200	$3,000
4	Address up to 5 RFIs, issue Field Orders or Work Change Directives		4	8										$1,800
5	Issue up to 2 Change Orders		4	8										$1,800
6	Review Contractor's application for payment (3 total)		3											$450
7	Engineer site visits at key project milestones (4 total)	4	16	4	4								$400	$5,000
8	Review Operation and Maintenance manuals submitted by the Contractor		4	4										$1,200
9	Perform substantial completion inspection and prepare punch list	4	4	4										$2,200
10	Perform final completion inspection and project closeout documentation		4											$600
11	Prepare record drawings		2	2		8								$1,760
	Subtotal Hours	**16**	**67**	**40**	**6**	**8**	**0**	**0**	**0**	**0**	**0**	**0**		
	Subtotal Dollars	**$4,000**	**$10,050**	**$6,000**	**$900**	**$1,160**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$600**	**$22,710**
	Total Task 4													**$22,710**
	Total Hours	**37**	**218**	**127**	**31**	**110**	**5**	**3**	**8**	**47**	**14**	**4**		**604**
	Total Billing Amount	**$9,250**	**$32,625**	**$19,050**	**$4,650**	**$15,950**	**$850**	**$840**	**$2,240**	**$3,760**	**$1,400**	**$380**	**$2,450**	**$93,445**

imated Project **$93,445**