

	AGENDA ITEM SUMMARY District Impacted ☐ 1 = Wolosin ☐ 2 = Woolard ☐ 3 = Scott ☐ 4 = Fowler ☐ 5 = Macaluso ☒ All
AGENDA DATE	May 14, 2019
DESCRIPTION	CONSIDER RESOLUTION NO. 2019-R45; A RESOLUTION AUTHORIZING THE CITY MANAGER TO ENTER INTO AND MANAGE AN AGREEMENT BETWEEN THE CITY OF BOERNE AND HDR ENGINEERING, INC. FOR REINSTALLATION OF BIOLOGICAL NUTRIENT REACTORS AND WASTE ACTIVATED SLUDGE PIPING IMPROVEMENTS. <i>(Old San Antonio Road Wastewater Treatment and Recycling Center)</i>
STAFF'S RECOMMENDED ACTION (be specific)	Approve Resolution No. 2019-R45; Authorizing to contract with HDR for design of repairs/remediation to basin mixers and to install sludge return piping at the Old San Antonio Road Wastewater Treatment and Recycling Center in an amount not to exceed \$27,700.00.
CONTACT PERSON	Michael Mann – Utilities Director
SUMMARY	The Old San Antonio Road Wastewater Treatment and Recycling Center (WWTRC) became operational in 2013. The treatment process at that plant consists of screening for large debris, biological treatment of organics, separation of water and sludge, and filtration. The biological consumption of organics occurs in a Biological Nutrient Reactor basin (BNR). It is essentially a large tank separated into anaerobic and aerobic zones where beneficial bacteria consumes organic components in the mix. Sludge is the sediment and biomass that results from this treatment, not the organic materials themselves. The resultant volume of sludge is much less than the volume of organic material in the raw flow. The sludge/water mixture runs from the BNR to clarifiers where the sludge settles to the bottom and clear water runs off the top. At the bottom of the clarifiers, there are two sets of pumps that either send sludge to waste (Waste Activated Sludge - WAS) or back to the BNR (Return Activated Sludge – RAS). No piping interconnections were installed between those pump stations during construction of the plant to save initial construction costs. However, the design included accommodations to add the connection later if desired. Operation of the plant has shown that having the interconnection would be beneficial for several reasons. Therefore, we are proposing to install the connections at this time. This work includes the pipe and the structural hangers to support the pipe between the two

pump manifolds shown in the following photograph.



In a separate matter, damage recently occurred to a motorized mixer mount on the anaerobic zone of the BNR. There are twelve of these mixers, consisting of electric motors mounted on top of the enclosed portion of the BNR with long paddle mixer rods that extend into the flow below. Their purpose is to keep the organic materials and the biomass in suspension to promote more efficient treatment. The photo below is of a hoist supporting the damaged mixer motor.



One of the four mounting bolts on the damaged unit had broken at the surface of the concrete. This was apparently due to fatigue in the mounting bolt caused by rocking of the mixer under rotation. We observed other motors that were rocking slightly, so other mounting

bolts may already be broken as well. The damage has likely occurred due to the very rigid method of mounting the assemblies during initial construction. The mounts need to be more flexible in order to reduce stress concentrations.



HDR has presented a revised mounting assembly design that will provide this flexibility and spread the load for each mixer over a larger area. The installation of these mounts will be very involved and will require a specialty contractor that can x-ray the suspended slabs of the BNR to avoid steel reinforcement in the slabs and properly locate the new embedded bolts.

The estimated construction cost for the sludge piping installation is \$55,000. The estimated construction cost for the BNR mixer mount modifications is \$70,000. Contractor procurement for either one of these project amounts would require competitive bidding per State Law. Because the construction of both is at the same site and requires similar contractor capabilities, Staff feels it would be best to bid both tasks under a single project.

That bidding process requires preparation of detailed construction documents by an engineer. HDR Engineering was selected for this work because of their experience with our systems and the firm's qualifications to complete the work. We have negotiated a scope and fee for this design work, and the total lump-sum price for their design, bidding and construction phase services is \$27,700.00.

Staff recommends the Council authorize the City Manager to proceed with this design work by HDR. After the bidding is complete, Staff will

	recommend award to the appropriate contractor.
COST	\$27,700.00
SOURCE OF FUNDS	Wastewater Operating Fund
ADDITIONAL INFORMATION	

This summary is not meant to be all inclusive. Supporting documentation is attached.