



**COMMISSION FILE NO:** 21-117-9      **DATE INTRODUCED:** September 13, 2021

**INTRODUCED BY:** Executive Director (Signature on File in the Office of the Commission)

**REFERRED BY COMMISSION CHAIRPERSON TO:** Operations Committee

**RELATING TO:** Change Order Request, Contract S02015D01, Engineering Services – Aeration Basin Diffuser Replacement at South Shore Water Reclamation Facility, and Restore the Executive Director’s Original Delegated Authority

**SUMMARY:**

The Commission is requested to authorize the Executive Director to execute a change order to Contract S02015D01, Engineering Services – Aeration Basin Diffuser Replacement at South Shore Water Reclamation Facility (SSWRF), with Carollo Engineers, Inc., (Carollo) in an amount not to exceed \$97,818 and to restore the Executive Director’s original delegated authority.

SSWRF uses a conventional activated sludge system to biologically treat wastewater. The activated sludge process involves growing microorganisms in the aeration basin with organic material in wastewater as the food source. To survive, the microorganisms must be continuously fed organic material and oxygen. Successful operation of an activated sludge system relies upon keeping a balance of microorganisms with nutrients in the wastewater and oxygen in the aeration basin. If oxygen or nutrients limit the health of the microorganisms, system performance suffers.

SSWRF has 28 aeration basins. Twenty-four basins were constructed in 1970 with four additional basins constructed in 1983. The basins have concrete walls separating each other, and there are precast concrete walkways between the basins. The aeration basins are equipped with fine bubble diffused air systems with approximately 2,500 diffusers in each basin. This diffuser system supplies the aeration basins with oxygen. Fourteen basins have ceramic plate diffusers, while the other 14 have flexible membrane diffusers. These diffusers systems are about 17 years old.

**ATTACHMENTS:**    **BACKGROUND**     **KEY ISSUES**     **RESOLUTION**   
**FISCAL NOTE**     **S/W/MBE**     **OTHER**  \_\_\_\_\_

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08-25-21*

**COMMITTEE ACTION:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**COMMISSION ACTION:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

## **SUMMARY (Cont'd)**

Change Order Request, Contract S02015D01, Engineering Services – Aeration Basin Diffuser Replacement at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

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The scope of Project S02015 includes both design and construction of upgrading and replacing the existing diffuser system. Contract S02015D01 with Carollo includes the design phase. After Carollo's design is complete, the District will publicly bid and award a construction contract that will build the upgrade and replacement of the diffuser system. This construction will take several years to complete.

Separate from this effort, Veolia Water Milwaukee has worked with the District to identify aeration basins that have deteriorated concrete above the basin normal water line. This deterioration results in compromised cast-in-place handrail, walkways that are a safety risk to workers, and spalled concrete that has fallen and damaged diffusers at the bottom of the aeration basins. The District has undertaken multiple construction contracts and completed concrete rehabilitation of 16 basins at SSWRF since 2002. Eight basins remain to be rehabilitated: basin numbers 10, 11, 17, 18, 19, 20, 22, and 25. The District had previously created Project S04033, which included design and construction of the concrete rehabilitation of these eight basins, with the focus of the concrete rehabilitation being above the basin normal water line. Design work was scheduled to begin this year.

During 2021, District staff identified multiple benefits to be accrued if the scope of the above the basin normal water line concrete rehabilitation work (both design and construction) is transferred from Project S04033 to Project S02015. Following are those benefits.

- Project S02015 already includes concrete demolition and rehabilitation work with the focus being below the normal basin water line. Design and construction of all concrete work can be more efficient under individual design and construction contracts.
- Consolidating the work into one construction contract reduces the number of aeration basin outages and reductions in system capacity.
- Concrete rehabilitation work should occur before the aeration diffuser system is replaced. This will avoid damage to the new diffuser system and make the concrete rehabilitation work more efficient.
- The transfer allows coordination of concrete rehabilitation work with the aeration diffuser system replacement in each basin under the same construction contract.

To implement this scope transfer, as part of the 2022 Capital Budget, staff proposes to move the scope and dollars of Project S04033, Aeration Basin Concrete Rehabilitation, to Project S02015, Aeration Basin Diffuser Replacement, and eliminate Project S04033.

## SUMMARY (Cont'd)

Change Order Request, Contract S02015D01, Engineering Services – Aeration Basin Diffuser Replacement at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

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To implement the design of the above the normal basin water line concrete rehabilitation, staff proposes to amend Contract S02015D01 and add this design to this contract. Under the proposed change order, Carollo will provide the following services related to engineering design of the concrete rehabilitation in aeration basins 10, 11, 17, 18, 19, 20, 22, and 25:

- Design services, including final plans and specifications.
- Bid and award services.
- Engineering services during construction.

After the design work is complete, the District will publicly bid the construction contract, which will include the construction of the improved diffuser system and both the above the basin water line and below the basin water line concrete demolition and rehabilitation work.

	AMOUNT	PERCENTAGE INCREASE OVER ORIGINAL CONTRACT	AUTHORIZED BY	SWMBE
Original Contract	\$2,009,823		Commission	23.7%
Previous Change Orders	\$170,386	8.5%	Executive Director	30.4%
Requested Change Order	\$97,570	4.9%	Request of Commission	30.0%
Total Change Orders	\$267,956	13.4%		28.9%
<b>TOTAL</b>	<b>\$2,277,779</b>			<b>24.5%</b>

For engineering service contracts greater than or equal to \$500,000, the Commission has delegated to the Executive Director the authority to make changes up to \$200,000 or 10 percent of the original contract price, whichever is less. For this contract, a limit of \$200,000 prevails. To date, the Executive Director has utilized \$170,386 of this authority, leaving a balance of \$29,614. The request to restore the Executive Director's authority is in case any other additional engineering services are needed.

## RESOLUTION

Change Order Request, Contract S02015D01, Engineering Services – Aeration Basin Diffuser Replacement at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

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**RESOLVED**, by the Milwaukee Metropolitan Sewerage Commission, that the Executive Director is authorized to execute a change order to Contract S02015D01, Engineering Services – Aeration Basin Diffuser Replacement at South Shore Water Reclamation Facility, with Carollo Engineers, Inc., in an amount not to exceed \$97,818, and that the Executive Director's original delegated authority is restored.