

Agenda Report Details (With Text)

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Title: ACTIVATED SLUDGE-1 AND SECONDARY CLARIFIER REHABILITATION, PROJECT NO. P1-140
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Date	Ver.	Action By	Action	Result
12/7/2022	1	OPERATIONS COMMITTEE		

FROM: James D. Herberg, General Manager
Originator: Kathy Millea, Director of Engineering

SUBJECT:

ACTIVATED SLUDGE-1 AND SECONDARY CLARIFIER REHABILITATION, PROJECT NO. P1-140

GENERAL MANAGER'S RECOMMENDATION

RECOMMENDATION: Recommend to the Board of Directors to:

- A. Approve a Professional Design Services Agreement with HDR Engineering, Inc., to provide engineering services for Activated Sludge-1 and Secondary Clarifier Rehabilitation, Project No. P1-140, for an amount not to exceed \$18,462,443; and
- B. Approve a contingency of \$1,846,244 (10%).

BACKGROUND

The Orange County Sanitation District (OC San) has three biological secondary treatment facilities at Plant No. 1, one of which is the Activated Sludge-1 (AS-1) Facility. This process removes suspended and dissolved organic material using microorganisms, enabling OC San to meet ocean discharge permit limits and the required influent quality for the Groundwater Replenishment System (GWRS). The facility consists of a blower building, aeration basins, secondary clarifiers, a return activated sludge (RAS) pump station, and various utilities. This critical facility was built in 1973, expanded in 1999, and partially rehabilitated in 2008.

RELEVANT STANDARDS

- 24/7/365 treatment plant reliability
- Comply with California Government Code Section 4256 to engage the best qualified firm “on the basis of demonstrated competence and qualifications” and negotiate fair and reasonable fees”
- Meet volume and water quality needs for the GWRS

PROBLEM

Multiple components of the AS-1 Facility are nearing the end of useful life and require replacement or rehabilitation. Major mechanical equipment in the blower building, aeration basins, and secondary clarifiers are difficult to maintain, nearing the end of useful life, and require replacement. Major mechanical and electrical equipment in the recycled activated sludge pump station have reached the end of life and require replacement. All associated utilities have been identified to be in poor condition.

The ammonia loadings to the AS-1 Facility have increased since the last major rehabilitation, resulting in a higher nitrate concentration in the secondary effluent. High nitrates cause solids to float in the secondary clarifiers which impacts water quality.

The Dissolved Air Flotation Thickeners Facility and the 12 KV Distribution Center adjacent to the AS-1 Facility have previously been decommissioned and need to be demolished to create space for future facilities.

PROPOSED SOLUTION

Approve a Professional Design Services Agreement for Activated Sludge-1 and Secondary Clarifier Rehabilitation, Project No. P1-140. This project will rehabilitate the AS-1 Facility to ensure reliable service for the next 20 plus years. This includes replacement of several major equipment items that are near the end of their useful lives, rehabilitation of large influent and effluent piping, replacement of air piping to the aeration basins, repair of secondary clarifiers, and repair or replacement of various utilities.

A new process flow return pump station is required to improve the denitrification process at the AS-1 Facility, which will remove nitrates from the secondary effluent.

This project will also demolish decommissioned facilities including the Dissolved Air Flotation Thickeners and 12 KV Distribution Center as well as Power Building 2, which will be decommissioned during this project.

The services of a design consultant are required to complete this work.

TIMING CONCERNS

If this project is delayed, OC San will continue to operate with a less reliable AS-1 Facility.

RAMIFICATIONS OF NOT TAKING ACTION

Significant structure, equipment, and piping failure could impact OC San’s ability to meet its ocean discharge permit and its ability to meet GWRS influent quality requirements.

PRIOR COMMITTEE/BOARD ACTIONS

N/A

ADDITIONAL INFORMATIONConsultant Selection:

OC San requested and advertised for proposals for Activated Sludge-1 and Secondary Clarifier Rehabilitation, Project No. P1-140 on July 12, 2022. The following evaluation criteria were described in the Request for Proposals (RFP) and used to determine the most qualified Consultant.

CRITERION	WEIGHT
Project Understanding and Approach	40%
Related Project Experience	25%
Project Team and Staff Qualifications	35%

Three proposals were received on August 30, 2022 and evaluated in accordance with the evaluation process set forth in OC San's Purchasing Ordinance by a pre-selected Evaluation Team consisting of the following OC San staff: Senior Engineer (Project Manager), Senior Engineer (Project Engineer), two Engineering Supervisors, and the Chief Plant Operator. The Evaluation Team also included one non-voting representative from the Contracts Administration Division.

The Evaluation Team scored the proposal on the established criteria as summarized in the table below:

	Firm	Approach (Max 40)	Related Experience (Max 30)	Team (Max 30)	Total Score (Max 100)
1	HDR Engineering, Inc.	31	18	23	72
2	Carollo Engineers, Inc.	26	18	23	67
3	CDM Smith, Inc.	26	16	25	67

Based on this scoring, all three Consultants were invited for interviews on September 27, 2022. Following the interviews, each member of the Evaluation Team scored the Consultants based on both the proposals and interviews using the evaluation criteria and weighting described above. Based on the scoring shown below, HDR Engineering, Inc. was selected as the most qualified Consultant.

	Firm	Approach (Max 40)	Related Experience (Max 30)	Team (Max 30)	Total Score (Max 100)
1	HDR Engineering, Inc.	31	18	26	76
2	Carollo Engineers, Inc.	29	17	26	71
3	CDM Smith, Inc.	24	16	25	65

HDR Engineering, Inc., the proposer with the highest score, excelled in both the proposal and the interview. Their technical proposal went beyond a general understanding of the Scope of Work (SOW) and provided specific examples of how the proposed team would efficiently approach design challenges of the Project. The following are key elements that were unique from HDR Engineering, Inc.'s proposal:

- Approach to replacing the 72-inch air header that will facilitate construction and improve accessibility for future condition assessment work and maintenance.
- Approach for bypass pumping that addresses the unique construction phasing/sequencing for multiple project elements.
- Provided an innovative idea to create additional space for Operations and Maintenance in the RAS Pump Station by eliminating the drain pumps and utilizing the RAS and Waste Activated Sludge pumps to provide the same functionality.
- Approach to incorporating the new control system with the new blowers.
- Approach to sequencing Power Building 2 demolition.

In the interview, HDR Engineering, Inc. confirmed they had a clear understanding of OC San's expectations and key challenges with performing a comprehensive rehabilitation of the AS-1 Facility. Therefore, the Evaluation Team determined that HDR Engineering, Inc. is the most qualified firm to complete the SOW.

Review of Fee Proposal and Negotiations:

Proposals were accompanied by sealed fee proposals. In accordance with Purchasing Ordinance, the fee proposal of only the highest-ranked firm was opened after approval by the Director of Engineering of the Evaluation Committee's recommendation.

Starting on October 6, 2022, staff conducted negotiations with HDR Engineering, Inc. to clarify the requirements of the SOW, the assumptions used for the estimated level of effort, and the proposed approach to meet the goals and objectives for the Project. Negotiations were conducted with multiple follow-up meetings, site visits, e-mails, and calls. During negotiations, the SOW was reviewed in detail and modifications to the level of effort for various project tasks were adjusted to increase efficiency. A summary of the results of the negotiation efforts is included below:

- The number of Design Memos was consolidated and reduced from twenty-five to eleven. Eleven Design Memos will be submitted as part of the Preliminary Design Report.
- HDR Engineering, Inc. omitted manned entry assessment of the three pipelines in their proposal since closed-circuit television (CCTV) of these pipelines are already in the SOW. However, OC San staff felt this work was essential since these pipelines had never been inspected before and a manned entry will give us a clearer understanding of their condition. Therefore, manned entry assessment of all three pipelines including draining, cleaning, mock shutdown and bypass pumping of primary effluent to aeration basins was added back to the SOW.
- Forty-two drawings were added (18 Electrical, 7 Electrical Demo, and 17 Instrumentation and

Controls) to clarify construction contract drawings for the highly integrated rehabilitation work.

- An environmental assessment, two soil borings, and soil testing were added for the diesel underground storage tank removal. OC San omitted this work in the initial SOW due to an oversight. HDR Engineering, Inc. recommended this work be added based on their previous experience with removing underground storage tanks.
- The removal of 961 hours for the scope provided by a contractor providing final field support and not engineering services. The work is captured as a Subcontractor, and their fee is now included as a direct cost based on a rate schedule.
- The overall effort for Deputy Project Manager decreased by 1,625 hours (approximately 54%) by reducing attendance of workshops and meetings.

	Original Fee Proposal	Final Fee Proposal
Number of Drawings	1,231	1,273
Total Hours	82,810	82,145
Total Fee	\$18,023,825	\$18,462,443

The Consultant's fringe and overhead costs, which factor into the billing rate, have been substantiated. The contract profit is 5.00%, which is based on an established formula based on OC San's standard design agreements. Staff is requesting a 10 percent contingency to address revisions as the project progress through preliminary and final design.

Based on the above, staff has determined that the final negotiated fee is fair and reasonable for the level of effort required for this project and recommends award of the Professional Design Services Agreement to HDR Engineering, Inc.

Construction Cost Estimate Increase:

OC San staff recently updated the construction cost estimate for this project, which was previously completed in March 2017 as part of the planning study. The updated cost estimate is substantially higher (at \$281,956,000) than the previous cost estimate (at \$177,500,000). Although the recent construction cost estimate is much higher than the previous cost estimate, staff recommends not requesting additional budget increase to cover the increase in the construction cost until after the Preliminary Design Report for the project is completed. This will allow the Consultant to evaluate potential cost saving ideas and to update the construction cost estimate based on the decisions made during the Preliminary Design phase.

CEQA

The project is exempt from CEQA under the Class 1 categorical exemptions set forth in California Code of Regulations Section 15301. A Notice of Exemption will be filed with the OC Clerk-Recorder after the OC San's Board of Directors approval of the Professional Services Design Agreement.

FINANCIAL CONSIDERATIONS

This request complies with the authority levels of OC San's Purchasing Ordinance. This item has been budgeted (Adopted Budget, Fiscal Years 2022-2023 and 2023-2024, Section 8, Page 63, Activated Sludge-1 Aeration Basin and Blower Rehabilitation at Plant No. 1, Project No. P1-140) and

the budget is sufficient for the recommended action. Although additional budget may be required for an increase in the construction cost estimate, staff recommends waiting until after the Preliminary Design phase of the project to request additional budget.

ATTACHMENT

The following attachment(s) may be viewed on-line at the OC San website (www.ocsan.gov) with the complete agenda package:

- Professional Design Services Agreement
- Presentation

CM: tk:sa