



Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: Kerrie Romanow

SUBJECT: SEE BELOW

DATE: January 4, 2021

Approved

Date

1/7/2021

SUBJECT: SECOND AMENDMENT TO MASTER CONSULTANT AGREEMENT WITH KENNEDY/JENKS CONSULTANTS, INC. FOR ENGINEERING SERVICES ON THE 7448 – FILTER REHABILITATION PROJECT AT THE SAN JOSE-SANTA CLARA REGIONAL WASTEWATER FACILITY

RECOMMENDATION

Approve a Second Amendment to the Master Consultant Agreement with Kennedy/Jenks Consultants, Inc. for design and engineering services for the Filter Rehabilitation Project at the San José-Santa Clara Regional Wastewater Facility, extending the term of agreement from June 30, 2023 to June 30, 2025 and increasing the maximum total compensation from \$4,950,000 to an amount not to exceed \$7,500,000, subject to the appropriation of funds.

OUTCOME

Council approval of the Second Amendment will allow for additional engineering services during construction, testing, startup, commissioning, and post-construction needed to successfully complete work related to, but previously not contemplated under, the original scope of work for the Filter Rehabilitation Project.

EXECUTIVE SUMMARY

This amendment will increase the amount of compensation for design and engineering services by \$2,550,000, for a total agreement amount not to exceed \$7,500,000 to allow for the incorporation of engineering services during construction, testing, startup, and commissioning as the project design and construction cost are greater than originally projected. This amendment also extends the term of agreement from June 30, 2023 to June 30, 2025.

BACKGROUND*Agreement Background*

On December 12, 2015, Council approved a Master Consultant Agreement (Agreement) with Kennedy/Jenks Consultants, Inc. (K/J), in the amount of \$4,950,000, to provide design and engineering services for the Filter Rehabilitation Project (Project) at the San José-Santa Clara Regional Wastewater Facility (RWF). K/J is regionally recognized for their expertise in revitalizing wastewater filters and possesses relevant design and construction support resources in California. As part of their proposal for the Project, K/J presented the City with a number of projects that confirmed their engineering experience in the design of large, tertiary filters.

Council approved a first amendment to the Agreement on June 16, 2016 that incorporated updated contract language, with no change to scope, contract amount, or contract duration.

At the time of the original Council approval, the Agreement's maximum total compensation of \$4,950,000 represented approximately 22% of the estimated construction cost of approximately \$22,082,000, which staff considered to be within industry standard for design-bid-build projects. K/J completed a comprehensive condition assessment of the existing infrastructure, where critical inadequacies were found. The City completed a detailed alternatives analysis to determine the next steps, where new scope was added to the Project to address existing infrastructure inadequacies.

Agreement Status

There have been four Service Orders and nine Service Order amendments to allow funds to be released to K/J to complete critical design tasks to keep the Project on track. The nature of design evolution encountered over the last two years has adversely impacted the Agreement's not-to-exceed budget and has required the use of funds originally intended for K/J to provide engineering services during construction (ESDC). Project records show that K/J's effort, through December 2020, has significantly exceeded the original Agreement's assumptions, as summarized in Table 1.

Table 1: Summary of Engineering Services

Item	Original Allocation	Authorized to Date	Variance
Alternatives Analysis	\$ 800,000	\$ 849,995	(\$49,995)
Conceptual Design	\$ 250,000	\$ 273,930	(\$23,930)
Preliminary and Detailed Design	\$ 2,400,000	\$ 3,239,732	(\$839,732)
Bid & Award Services	\$ 75,000	\$ 237,467	(\$162,467)
Engineering Services During Construction	\$ 1,000,000	\$ 347,258	\$ 652,742
Technology Pilot (Optional)	\$ 350,000	\$ 0	\$ 350,000
Clean Water State Revolving Fund (SRF) Assistance	\$ 75,000	\$ 0	\$ 75,000
Total	\$ 4,950,000	\$ 4,948,382	\$ 1,618

The original term of the Agreement was from January 8, 2016 to June 30, 2023, based on the initial Project assumptions of 30 calendar months of construction and start-up. The Contractor's current schedule estimate for construction completion and start-up is 43 calendar months, almost 13 calendar months longer than originally assumed.

Construction Status

On October 20, 2020, Council awarded a construction contract for the Project to the lowest responsive bidder, Walsh Construction Company II, LLC (Contractor), in the amount of \$33,290,577, with a 20% construction contingency in the amount of \$4,993,587, and a duration of 773 work days. The Project includes replacement of filter media for all sixteen granular media filters, replacement of the existing surface wash system with a new air scour system, replacement of valves and actuators serving the granular media filters, repair of concrete walkways and decks around the granular media filters, and replacement of electrical and instrumentation and control equipment for all sixteen granular media filters.

Since the construction contract award, Staff has held the Pre-Construction Meeting with the Contractor on December 1, 2020, issued the Contractor the Notice-to-Proceed (NTP) letter on December 2, 2020 and has commenced the submittal review process for critical equipment. Substantial completion is anticipated by June 2024.

ANALYSIS

The most significant factors that have contributed to the exhaustion of funds are discussed in the following sections:

Additional Electrical and Instrumentation Design

1) Code Compliance

Condition assessment found that electrical equipment was in disrepair. Initial design had all equipment being replaced in their existing location, indoors. However, during detailed design, it was determined that current electrical code required larger size of equipment and greater spacing requirements between panels, to accommodate required arc flash prevention systems. Thus, the new electrical switchgears were re-designed and moved from indoors to separate outdoor enclosures. This significantly increased design costs and required additional potholing to determine utility conflicts between existing buildings and new outdoor enclosures.

2) Existing Records for Major Electrical and Instrumentation Equipment

K/J, in performing the defined design work, found that the record drawings were missing information and did not align with existing field conditions. In many instances, electric distribution components had been modified over the years. Several condition assessments and site surveys by K/J electrical engineers and subconsultants were required to

determine the current field condition of electrical connections and instrumentation control panels. Also, additional engineering design was required to include temporary power systems to keep older equipment in service until new electrical equipment could be installed.

3) *Implementation and Updates of Programmatic Design Standards*

During the design of the Project, the City issued several updates to the programmatic design guidelines, including revisions to the instrumentation and controls system guidelines. The intent of the updates was to standardize items, such as uninterrupted power sources, distributed control system panels, and network switch architecture, across all RWF projects. These changes required additional effort by K/J in the form of additional meetings, design reviews, along with redrafting single line diagrams and design specifications.

Investigations Resulting in Additional Design Efforts

1) *Buried Utility Conflicts*

K/J completed extensive pot-holing efforts and reviewed existing utility records to identify potential utility conflicts. This common practice during design reduces risk of unforeseen conditions and minimizes the need to use construction contingency. During these efforts, many subsurface utility interferences were identified, requiring re-design to relocate existing utilities and resolve conflicts.

2) *Existing Equipment Failure*

The RWF Operations team tested the bypass valves at the Filtration Building to ensure that they were all working as part of routine testing. The Project team planned to use these valves in the event that there was a failure within the filtration process during construction and flows need to be bypassed. During the testing, it was discovered that more than one bypass valve was found to be faulty and needed replacement. New bypass valves were not part of the original scope of the Project and required additional design effort by K/J.

Project Interfaces

The Project has coordinated several intricate interfaces with other RWF Capital Improvement Program (CIP) projects that required changes to the design. The most substantial change was the upsizing of Switchgear S6 transformers as well as increasing the size of the outdoor enclosure to accommodate additional infrastructure for the Facility-wide Water Systems Improvements project. This was unforeseen and required K/J to re-design and provide additional panels within the system for new connections late in the design phase, which added design costs and extended the project schedule.

Ensuring Operational Reliability During Planned Shutdowns

The project team facilitated multiple discussions between K/J and Operations & Maintenance (O&M) staff, to help K/J develop a highly detailed construction sequencing plan, which was incorporated into the project specifications. K/J included key language detailing project constraints to ensure O&M staff were provided with the filtration treatment capacity to operate and to reliably produce recycled water while simultaneously accommodating major shutdowns during the construction phase. The intent of the detailed construction sequencing plan is to eliminate risks to ESDC

compliance in the case of failures within the filtration process during construction. This additional effort by K/J was necessary due to the complex nature of the construction work to be performed in a tight timeframe due to dry season constraints.

Unanticipated ESDC and Post-Construction Support

1) *Testing, Startup, and Commissioning Support during ESDC*

The Project construction scope includes installation of a new air scour system and associated blowers. Such changes to the filtration process require extensive operational training, testing, and troubleshooting to ensure the process performance goals and requirements established by the design are achieved. The ESDC scope assumed in the original Agreement was determined prior to development of the programmatic guidelines which established the coordination, functional testing, operational testing, and performance testing staffing support necessary for all CIP projects prior to substantial completion and transition to Plant operation.

2) *Post-Construction Support*

Post-construction budget was not originally envisioned separately from ESDC for this Project. From key lessons learned by observing other CIP project issues during their post-construction phase, it is recommended that K/J be engaged even after the critical testing and startup of highly complex, new technologies is complete. Therefore, 12 months of extension of the agreement is being recommended to cover the first year of operation of new equipment and systems. Post-construction support includes conducting field visits, assessing the performance of the new equipment and systems, assisting with potential equipment warranty issues, or other engineering issues that arise.

Benchmarking

The new increased budget for ESDC of \$2,648,876 represents approximately 8% of the current project construction cost of \$33,290,577. This percentage is within the industry standard range of 5% to 10%, according to the American Council of Engineering Companies (ACEC).

Staff has also benchmarked ESDC costs for other wastewater agencies that have completed similar projects in the last few years. Because the projects present variations in overall scope, site conditions, construction completion date and geographical location, a direct comparison cannot be readily made. However, ESDC numbers and percentages of construction cost can be used as a

key indicator. The comparison completed by staff showed that other agencies had ESDC expenditures in the range of 4.5% to 10%, based on percentage of construction cost. Wastewater agencies included East Bay Municipal Utilities District (EBMUD), Orange County Sanitation District (OCSd) and Sacramento Echo Water Program, which all have projects in the same range of magnitude as the RWF CIP.

Summary of Recommendations

At the time of the original Council approval, the Agreement's total maximum compensation of \$4,950,000 represented approximately 22% of the estimated construction cost of approximately \$22,082,000 which staff considered to be within industry standard for design-bid-build projects. As the Project progressed through design, new scope was added to address existing infrastructure inadequacies as well as process-related upgrades to improve operational reliability. The current construction contract for the Project is \$33,290,577, which is a 51% increase from the original estimate. To date, K/J has expended \$4,948,382, or 99%, of the total maximum compensation of the original Agreement.

This amendment will increase the amount of compensation for consultant services by \$2,550,000 for a total agreement amount not to exceed \$7,500,000, which is still 22% of the construction cost. Of this amount, \$250,000 is allocated for post-construction support.

The ESDC are required primarily to address unforeseen site conditions and the extended construction schedule. In addition, funds are required to ensure the implementation of the programmatic guidelines for functional and operational testing, training and process performance testing for the complex systems associated with the filtration facilities. This amendment also extends the term of agreement from June 30, 2023 to June 30, 2025 to reflect the additional design efforts and construction timeline. With these changes, the Project schedule now assumes 43 months for construction and start-up, and 12 months for post-construction support, including operations training and engineering support.

CONCLUSION

This Second Amendment will increase the amount of compensation for engineering consultant services by \$2,550,000, for a total agreement amount not to exceed \$7,500,000 and will ensure that there are sufficient funds in the contract to cover necessary services through the end of the Project. Incorporation of these services does not affect the construction cost of the Project.

Staff recommends proceeding with the Second Amendment for engineering services during construction, startup and commissioning and believes that the increase in compensation is reasonable to address the unanticipated challenges encountered and the complexity of the Project, and still remains within the range of expected industry costs for these services. This Second Amendment also extends the term of agreement to reflect the additional construction timeline. With this change, the Project schedule now assumes 43 months for construction and

start-up and 12 months for post-construction support. The new end date for the agreement is June 30, 2025.

EVALUATION AND FOLLOW-UP

No follow-up action with City Council is expected at this time. A progress report on this and other RWF capital projects will be made to the Transportation and Environment Committee and the Council on a semiannual basis. Monthly progress reports of the RWF CIP will also be submitted to the Treatment Plant Advisory Committee (TPAC) and posted on the City's website.

CLIMATE SMART SAN JOSE

The recommendation in this memo has no effect on Climate Smart San José energy, water, or mobility goals.

POLICY ALTERNATIVES

Alternative #1: Direct staff to complete the additional scope of work utilizing in-house resources.

Pros: None

Cons: Staff does not have the capacity or expertise to complete the required work. ESDC of the filtration facilities construction requires in-depth wastewater design, construction, and process engineering expertise spanning multiple engineering disciplines (e.g., civil, structural, mechanical, electrical, process, instrumentation and controls).

Reason for not recommending: The complexity of this project requires the use of specialized expertise and experience in the tertiary granular media filtration field.

PUBLIC OUTREACH

This memorandum will be posted on the City's Council Agenda website for the January 26, 2021 City Council Meeting.

COORDINATION

This amendment and memorandum have been coordinated with the Departments of Planning, Building and Code Enforcement, Fire, Finance, Public Works, the City Manager's Budget Office, and the City Attorney's Office.

COMMISSION RECOMMENDATION/INPUT

This item is scheduled to be heard at the January 14, 2021 TPAC meeting. A supplemental memo with TPAC's recommendation will be included in the amended January 26, 2021 City Council meeting agenda.

FISCAL/POLICY ALIGNMENT

This Project is consistent with the City Council-approved budget strategy to focus on rehabilitating aging RWF infrastructure, improve efficiency, and reduce operating costs. This Project is also consistent with the budget strategy principle of focusing on protecting our vital core services.

COST SUMMARY/IMPLICATIONS

1. AMOUNT OF RECOMMENDATION/COST OF PROJECT: \$2,550,000

2. COST ELEMENTS OF AGREEMENT/CONTRACT:

	<u>Original</u>	<u>Add</u>	<u>Amended</u>
Alternatives Analysis	\$800,000	\$49,995	\$849,995
Conceptual Design	\$250,000	\$23,930	\$273,930
Preliminary and Detailed Design	\$2,400,000	\$839,732	\$3,239,732
Bid and Award Services	\$75,000	\$162,467	\$237,467
Engineering Services During Construction	\$1,000,000	\$1,648,876	\$2,648,876
Post-Construction Services	\$0	\$250,000	\$250,000
Technology Pilot (Optional)	\$350,000	(\$350,000)	\$0
SRF Assistance	\$75,000	(\$75,000)	\$0
TOTAL AGREEMENT AMOUNT	\$4,950,000	\$2,550,000	\$7,500,000

3. SOURCE OF FUNDING: 512 – San José-Santa Clara Treatment Plant Capital Fund.

4. FISCAL IMPACT: The Project will have no additional impact on the San José-Santa Clara Treatment Plant Operating Fund (Fund 513) or the General Fund.

5. PROJECT COST ALLOCATION: In accordance with the recommendations set forth in the Capital Project Cost Allocations Technical Memo (Carollo Engineers, March 2016), this project is allocated 100% flow.

BUDGET REFERENCE

The table below identifies the fund and appropriations to fund the contract recommended as part of this memo and remaining project costs, including project delivery, construction, and contingency costs.

Fund #	Appn #	Appn. Name	Total Appn	Amt. for Contract	2020-2021 Adopted Capital Budget Page	Last Budget Action (Date, Ord. No.)
512	7227	Filter Rehabilitation	\$48,850,000	\$2,550,000	V-141	10/20/20 Ord. No. 30494

CEQA

Categorically Exempt, CEQA Guidelines Section 15301(b), Existing Facilities, File No. PP17-049.

/s/

KERRIE ROMANOW

Director, Environmental Services Department

For questions, please contact Napp Fukuda, Assistant Director, Environmental Services Department at (408) 793-5353.