



Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: Kerrie Romanow
David Sykes

SUBJECT: SEE BELOW

DATE: 07-25-11

Approved

Date

8/2/11

COUNCIL DISTRICT: City-Wide

SUBJECT: REPORT ON BIDS AND AWARD OF CONTRACT FOR THE RESIDUAL SLUDGE MANAGEMENT - SUPERNATANT AMMONIA MANAGEMENT PROJECT

RECOMMENDATION

Report on bids and award of contract for the Residual Sludge Management - Supernatant Ammonia Management Project to the sole bidder, Anderson Pacific Engineering Construction, Inc., in the amount of \$298,900, and approval of a contingency in the amount of \$44,000.

OUTCOME

Award of this construction contract will enable the construction and improve the efficiency in the monitoring and management of the supernatant flow from the Residual Sludge Management (RSM) area to the headworks of the San José/Santa Clara Water Pollution Control Plant (Plant). Approval of a 15 percent contingency will provide funding for any unanticipated work necessary for the proper completion or construction of this project.

BACKGROUND

The RSM facility at the Plant is an 800-acre biosolids processing area comprised of both inactive and active sludge lagoons, drying beds, a biosolids stockpiling area, a supernatant pump station, a primary effluent equalization basin, an emergency overflow storage basin, and an RSM Operations Center.

During the sludge stabilization process, a liquid layer called "supernatant" naturally forms over the sludge lagoons as the result of precipitation and settling of solids. This liquid waste stream, which contains a high concentration of ammonia, is collected and returned to the Plant headworks for treatment. Supernatant from RSM is by far the largest side waste stream accounting for about one percent of the Plant's influent flow and contributing between 15 and 20 percent of the ammonia loading to the secondary treatment process. This loading can cause a

substantial energy demand during the secondary aeration treatment process, especially when the timing of the supernatant return coincides with the arrival of the daily peak flow to the Plant.

In September 2009, the RSM Supernatant Return Project was implemented to better manage the supernatant return flow and the daily peak. This project installed new piping and manually operated sluice gates and stop gates to enable diversion of all supernatant flow to a flow equalization and ammonia treatment area. A night-time supernatant return schedule was then adopted to remove coinciding peak loading to the Plant headworks. After operating successfully under this scenario for over a year, staff determined that additional enhancements incorporating automatic ammonia and flow measurements would significantly ease this night time operation, enhancing staff safety, reducing sampling workload, and allowing better control over the treatment process.

This proposed project involves the following elements:

- Installation of flow measuring devices and level indicators in the flow stream
- Installation of City furnished ammonia sensors and solids monitoring instruments
- Installation of automatic flow control valves and associated control instrumentation
- Connecting all instrumentation and control elements to the Plant control room

These improvements are expected to eliminate the need for an operator to make multiple daily trips to the RSM area for manual diversion of collected supernatant to the Plant headworks, eliminate the need for weekly sampling and laboratory testing to obtain ammonia and suspended solids readings, and allow for an operator to remotely control the flow of supernatant to the Plant headworks. This allows for instantaneous control of the nitrogen loading to the Plant, which can cause secondary aeration treatment process upsets resulting in excessive ammonia or nitrites in the secondary effluent or a possible outbreak of soil bacteria-induced foaming problems.

ANALYSIS

Bids for this project were opened on May 5, 2011 with the following results:

<u>Contractor</u>	<u>Bid Amount</u>	<u>Variance Amount</u>	<u>Over/(Under) Percent</u>
Anderson Pacific Engineering (Santa Clara)	\$298,900	\$122,535	69
Engineer's Estimate	\$176,365	--	--

Because of the specialty nature of the work involved, the specifications for this project required bidders to have wastewater treatment project experience involving electrical instrumentation within the last 3 years. Staff believes this is a likely reason for the single bid received for this project.

The low bid submitted by Anderson Pacific Engineering Construction, Inc. (APEC) is 69 percent above the Engineer's Estimate. Given this large discrepancy, staff has evaluated the contractor's bid and cost breakdown against the engineer's estimate and found the following to be possible reasons for the discrepancy:

- Cost of the electrical control panels: The engineer's estimate for this element was based on previous cost estimates for similar items on a project of much larger scope. Because of the specialty skills and experience required for constructing the electrical control panel, and the lack of the economies of scale associated with the prior project, the installation costs were much higher for this project than had been estimated.
- Concrete slab and stainless steel: Recent increases in concrete and steel costs and the increased cost of fuel for transportation appears to have caused pricing for this item to be higher than the engineer's estimate.

Based on the staff analysis of the bid, staff considers the bid acceptable for the work involved. In addition, APEC has experience working on several Plant projects and has successfully completed construction of the new liquid chlorine disinfection facilities at the Plant. Therefore, staff recommends award of this contract to APEC.

Council Policy allows for a standard contingency of 10 percent for utilities and building construction projects, however, due to the complex nature of constructing these improvements around existing structures and active process pipelines, staff is requesting approval of a 15 percent contingency for this project. Construction is scheduled to begin in September 2011 with substantial completion in February 2012.

EVALUATION AND FOLLOW-UP

There are sufficient funds available to complete the project with an anticipated completion date in February 2012. No additional follow up action with the Council is expected at this time.

POLICY ALTERNATIVES

Alternative # 1: Reject the sole bid and drop the project.

Pros: Ability to fund other capital projects.

Cons: The operation and management of supernatant flow from the RSM area to the plant would continue to be operated manually, requiring multiple daily trips by plant operators and lab personnel for sampling for ammonia and total suspended solids readings.

Reasons for not recommending: Inefficient response in managing spikes in ammonia level in the secondary treatment process and inability to remotely control the flow from the RSM area.

Alternative #2: Reject bid and re-bid the project with the same scope.

Pros: May get lower bid prices.

Cons: Additional time and staff resources to go through the re-bid process.

Reason for not recommending: Cost of re-bid most likely will not result in overall savings for the project.

PUBLIC OUTREACH/INTEREST

- Criterion 1:** Requires Council action on the use of public funds equal to \$1 million or greater. **(Required: Website Posting)**
- Criterion 2:** Adoption of a new or revised policy that may have implications for public health, safety, quality of life, or financial/economic vitality of the City. **(Required: E-mail and Website Posting)**
- Criterion 3:** Consideration of proposed changes to service delivery, programs, staffing that may have impacts to community services and have been identified by staff, Council or a Community group that requires special outreach. **(Required: E-mail, Website Posting, Community Meetings, Notice in appropriate newspapers)**

This action does not meet any of the criteria listed above. To solicit bids, this project was listed on the City's Internet Bid Hotline, the *San José Post Record*, and various builders' exchanges in the Bay Area. This memorandum will be posted on the City's website for the August 16, 2011 Council agenda.

COORDINATION

This project and memorandum have been coordinated with the Office of Risk Management, Planning, Building and Code Enforcement Department, City Manager's Budget Office, and the City Attorney's Office. This item is scheduled to be heard at the August 11, 2011 Treatment Plant Advisory Committee meeting.

FISCAL/POLICY ALIGNMENT

This project is consistent with the Council approved Budget Strategy to focus on rehabilitating aging Plant 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: \$298,900

Project Delivery	\$152,000	
Construction	298,900	
Contingency	44,000	
City-furnished material	13,000	
TOTAL PROJECT COSTS	\$507,900	

2. SOURCE OF FUNDING: 512 – San José-Santa Clara Treatment Plant Capital Fund.
3. OPERATING COSTS: The proposed operating and maintenance costs of this project have been reviewed and will have no significant impact on the Plant operating budget.

BUDGET REFERENCE

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

Fund #	Appn #	Appn. Name	RC #	Total Appn.	Amount of Contract	Proposed CIP Budget (Page)	Last Budget Action (Date, Ord. No.)
Remaining Project Costs				\$507,900	\$298,900		
Current Funding Available							
512	5690	Plant Infrastructure Improvements	152655	\$13,102,000	\$298,900	V-167	06/21/11, Ord No. 28928
Total Current Funding Available				\$507,900	\$298,900		

CEQA

Exempt, PP10-183

/s/
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/s/
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