

# CITY OF SANTA BARBARA

## COUNCIL AGENDA REPORT

**DRAFT**

**AGENDA DATE:** January 15, 2013

**TO:** Mayor and Councilmembers

**FROM:** Engineering Division, Public Works Department

**SUBJECT:** Contract For Preliminary Design Services For Aeration Basin System Improvements, Phase 2

### **RECOMMENDATION:**

That Council authorize the Public Works Director to execute a City Professional Services contract with Brown and Caldwell in the amount of \$275,000 for preliminary design services for the Aeration Basin System Improvements Project, Phase 2; and, authorize the Public Works Director to approve expenditures of up to \$27,500 for extra services of Brown and Caldwell that may result from necessary changes in the scope of work.

### **DISCUSSION:**

#### **BACKGROUND**

On June 29, 2010, Council awarded a contract to Brown and Caldwell (B&C) to prepare an Assessment Report to evaluate and develop recommendations to improve the secondary treatment process at the City's El Estero Wastewater Treatment Plant (El Estero). B&C, working with staff, evaluated several alternative operational approaches for improving the secondary treatment process. This review resulted in B&C and staff's recommendation to pursue the Aeration System Improvement Project (Project).

On October 11, 2011, Council awarded a contract with B&C to prepare a Preliminary Design Report (PDR) for the Project. Since the Project will change El Estero's existing secondary treatment operating strategy from a non-nitrifying system to a nitrification/denitrification system involving a step-feed biological nutrient removal strategy, a PDR was needed to thoroughly evaluate and define the recommended improvements, and to develop design criteria to ensure there is a clear project definition for the final design. This operational change will improve and stabilize the secondary effluent quality and reduce the use of potable water, which will improve the overall treatment process at El Estero.

## PROJECT DESCRIPTION

During B&C's work on the PDR, hydraulic limitations were identified on the Return Activated Sludge (RAS) conveyance and pumping systems that will impact the denitrification process. There needs to be sufficient RAS flow to control denitrification in the secondary clarifiers, which the existing system falls short of by approximately 2.5 million gallons per day (MGD). Therefore, B&C and staff recommend replacing the existing gravity flow RAS withdrawal system with a pumped sludge withdrawal system. This will increase the total RAS pumping capacity, provide balanced sludge withdrawal from individual clarifiers, and balance RAS flows, thereby improving secondary clarifier performance and operator flexibility.

Additionally, insufficient flow splitting of the primary effluent into the secondary clarifiers was identified as a flaw in El Estero's existing treatment scheme. This also prevents optimal clarifier performance, which impacts the effluent quality. B&C proposes to install a cut-throat flume structure to provide equal splitting of the flow amongst the clarifiers.

Given the complexity of the secondary treatment process, a PDR for the Phase 2 improvements is needed, which will include the RAS pumping and flow splitting design. The previously completed B&C Assessment Report, along with the PDR for both Phase 1 and 2 will be used as the basis for final design work. A competitive Request for Proposal process will be used to select an engineering design firm for final design services for the Aeration Basin System Improvements.

## DESIGN PHASE CONSULTANT ENGINEERING SERVICES

Staff recommends that Council authorize the Public Works Director to execute a contract with B&C in the amount of \$302,500 to prepare a PDR for the Phase 2 Project. B&C was selected through a competitive process for the Assessment Report work effort and is on the City's Pre-qualified Engineering Services List. B&C has successfully completed similar work efforts for El Estero and other wastewater treatment plants.

## FUNDING

The following summarizes all estimated total Project costs:

### ESTIMATED TOTAL PROJECT COST

Design (by Contract)	\$284,621
Other Design Costs - City staff	\$38,000
<b>Subtotal</b>	<b>\$322,621</b>
Preliminary Design Phase 1 (by Contract)	\$398,886

Preliminary Design Phase 2 (by Contract)	\$302,500
Project Administration (by Staff)	\$49,815
<b>Subtotal</b>	<b>751,201</b>
Estimated Cost for Final Design and Construction	\$18,500,000
<b>Subtotal</b>	<b>\$18,500,000</b>
<b>TOTAL PROJECT COST</b>	<b>\$19,573,822</b>

There are sufficient funds in the Wastewater Capital Fund to cover this Professional services contract work.

This item was presented to the City's Water Commission at their meeting on December 10, 2012. The Water Commissioners voted X-X-X in favor of staff's recommendation.

**SUSTAINABILITY IMPACT:**

Nitrification/Denitrification will improve water quality for both recycled water production and treated effluent discharge into the ocean.

**PREPARED BY:** Joshua Haggmark, Principal Civil Engineer/LA

**SUBMITTED BY:** Christine F. Andersen, Public Works Director

**APPROVED BY:** City Administrator's Office