

## **STAFF REPORT**

**To:** Coastside County Water District Board of Directors

**From:** Mary Rogren, Assistant General Manager

**Agenda:** October 15, 2019

### **Report**

**Date:** October 11, 2019

**Subject:** Contract with Balance Hydrologics for Denniston/San Vicente Stream Gaging, Groundwater Monitoring, and Data Analysis

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### **Recommendation:**

Authorize the General Manager to enter into a contract with Balance Hydrologics, Inc. for Water Year 2020 stream gaging, groundwater monitoring, and data analysis for the Denniston Creek and San Vicente Creek watersheds for an estimated time-and-materials cost of \$96,935.

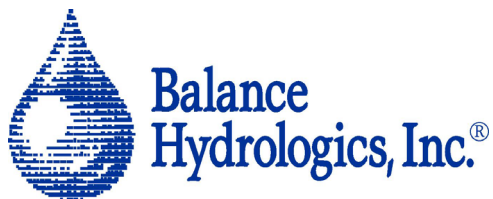
### **Background:**

Quantifying the amount of water available for diversion from Denniston and San Vicente Creeks is vitally important to the District's efforts to secure its water rights on those streams. Balance Hydrologics (Balance) has provided stream gaging, monitoring, and analysis services to the District starting with Water Year 2011 (WY11 - October 1, 2010 to September 30, 2011). Balance's proposal dated September 30, 2019 (Attachment A) covers WY20 continuation of gaging and analysis services for stations on Denniston and San Vicente Creeks, and groundwater monitoring.

### **Fiscal Impact:**

Cost of \$96,935 is included in the Capital Improvement Program for Denniston/San Vicente.





September 30, 2019

David Dickson, General Manager  
Coastside County Water District  
766 Main Street  
Half Moon Bay, CA 94019-1995

**RE: Proposal to gage Denniston Creek, San Vicente Creek and monitor inactive wells, Water Year 2020**

Dear Mr. Dickson:

It is our pleasure to provide you with this letter proposal containing our recommended scope to continue surface-water monitoring in Denniston and San Vicente Creeks, and groundwater in the alluvial aquifers adjoining Denniston and San Vicente Creeks. This proposal encompasses continuation of the Water Year 2011 (October 2010-September 2011, WY2011) through WY2019 into WY2020 of baseline stream gaging. Results will extend the flow record which will help the Coastside County Water District (CCWD) evaluate (a) streamflow availability and (b) meet regulatory-staff expectations – both for the CCWD ongoing EIR process and for eventually perfecting of your water rights -- and (c) in this case, basic streamflow and geomorphic characterization, such that CCWD can plan a program of diversions most compatible with the uniquely persistent flows of the watersheds drawing from the deeply-weathered granitics of the Montara Mountain watersheds, (as described in our previous reports). Extending the monitoring period will facilitate CCWD's environmental and permitting process and will be beneficial for assessing diversion strategies that meet your expectations for yield and for site-appropriate watershed protection.

In WY2019 we (a) continued monitoring five stream gages, (b) suspended monitoring at one stream gage, at Pilarcitos (PCBW), (c) relocated two stream gages, at Denniston Creek above diversion (DCAD) and San Vicente at Etheldore St. (SVAE)<sup>1</sup>, and (d) concurrently monitored water levels (and salinities) in three wells, plus three piezometers, and in Pillar Point Marsh, such that interaction of streamflow and groundwater conditions may be better described. Please see attached Figure 1.18 that shows past and current monitoring locations.

In WY2020 we will (a) continue monitoring five stream gages, (b) and concurrently monitoring water levels (and salinities) in three wells, three piezometers, and in Pillar Point Marsh, such that interaction of streamflow and groundwater may be better described (see Work Scope, below).

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<sup>1</sup> SVAE is still located at the upstream face of the Etheldore St. bridge but was moved to the north end of the bridge as a result of sedimentation around the crossing.

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To address the objectives of this work, we present a technical scope of work outlined under the following tasks:

1. *Water Year 2020 stream gaging and monitoring*
2. *Draft and final water year 2020 reporting*
3. *Golden Gate National Recreation Area (GGNRA) permit compliance reporting*
4. *Other studies not presently part of the scope of work which you may request and authorize.*
5. *Project administration*

The next several paragraphs elaborate on this proposed approach.

## ***Work Scope***

### ***Task 1. Water Year 2020 monitoring***

The water year 2020 monitoring effort will include (a) approximately monthly site visits to the six gaging locations to collect baseline data, (b) approximately quarterly visits to monitor groundwater levels (and salinities) at three wells, three piezometers, and in the Pillar Point Marsh, and (c) 3-4 visits during storms.

## **Monthly streamflow measurements**

The measurements must conform with the requirements of the Division of Water Rights, as put forth below. Monthly visits allow us to calibrate flow measurement at stations by performing a flow (discharge) measurement and a staff plate (gage height) readings. During quarterly visits we will also download data from the levelloggers (San Vicente above diversion) and make channel observations (such as new high-water marks, bed conditions, and changes in the riffles and/or logs which control flow at the various gages), plus perform maintenance and calibration. During winter storms when flows are elevated, we will make supplemental field visits to measure flow and other observations (i.e. identify high-water marks, field-meter and qualitative observations of water quality, when minor logjams form and dissipate, etc.). These visits are required to complete the stage-to-discharge rating curve(s) through the highest flows observed. In the office, we will calculate the flow, enter the information into the station log, plot the data on a stage-to-discharge rating curve, add the downloaded data to the station spreadsheet, and reduce the data to daily mean flow values.

We recommend continuation of the low-flow synoptic measurements at the former DCBD locations to characterize potential gains and losses between the reservoir and mouth of Denniston Creek at station DCAD (above Denniston Reservoir, at the water treatment plant bridge).

Presently the preliminary station data are made available via our real-time system on the Balance Hydrologics website for the four real-time stations, SVAE, SVCA, DCAD and DCBC. This feature provides real-time information to both the CCWD staff and Balance staff. You have chosen to make some of this information available to the community at large, such that GGNRA and resource-agency staff as well as residents of the area can come to better understand the local streams. Finally, in addition to CCWD uses of the real-time data portal, having this information available remotely will continue to improve winter monitoring, and allows us to continue to monitor in a more cost-effective manner.

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### **Storm streamflow measurements**

Due to the highly mobile sandy beds on both Denniston Creek and San Vicente Creek, gaging these creeks is particularly challenging relative to channels that have more stable bedrock, cobble-boulder, or even gravel beds. To meet this challenge, we will continue to regularly visit the sites, particularly during high flow events. The real-time record also allows us gage more precisely and b) refine our formal flow-rating curves for stations on both Denniston Creek and San Vicente Creek. In recent years, monitoring has focused on developing the low end of the rating curve. During WY20 we will continue to refine the low end of the rating curves, but also refine the high end of the rating curves, getting better estimates of flow during storm or post-storm runoff, when diversions can most easily be accommodated with minimal environmental effects. This is particularly important for the new and re-located stations, such as Denniston above the diversion (DCAD) and San Vicente at Etheldore St. (SVAE). As such, we will continue to make regular site visits at intervals of about a month throughout the year, in addition to a number of planned storm visits.

### **Measuring shallow groundwater and surface-groundwater interaction**

Each of the three monitoring wells (Inactive wells 4, 7, and 9) is currently equipped with a levellogger that records water level and temperature every hour. In addition, we suggest that you continue to monitor the three-piezometer nest (three co-located piezometers screened at staggered depths) located at the north flank of West Avenue at Pillar Point Marsh. The three piezometers, initially constructed in 1989, have been cleaned out and have been instrumented for the past 6 years. These data help us to identify the lower boundary condition for the shallow aquifer system adjacent to San Vicente and Denniston Creeks.

This task provides time for us to measure depth-to-water and specific conductance in the three monitoring wells and three Pillar Point Marsh piezometers and download data during four quarterly site visits. In the office, we will enter the information into the station log, add the downloaded data to the station spreadsheet, calibrate and plot the hourly data. We will develop graphics comparing the water levels in each of the wells, and rate at which the water table is recharged during storms or falls during the summer months.

**Deliverables:** Raw data used to develop a record of daily mean flow and temperature for each of the six stations and posted near-real-time to public and/or operational websites; raw data that may be used to develop a record of daily mean water level and temperature for each of three CCWD monitoring wells and Pillar Point Marsh piezometers.

### **Task 2. Draft and final water year 2019 reporting**

We will summarize and explain the basic hydrologic findings in a water year 2020 report. The written report will include a summary form for each station tabulating the daily mean data and identifying station descriptors and plots of the data and rating curves, and water surface time series data for the monitoring wells. This is a data report. In-depth interpretation will be reserved and authorized separately should it become necessary for further feasibility, EIR or regulatory efforts. We will submit the draft report to you, and prepare a final report responding to your comments.

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**Deliverable:** Draft report in Microsoft Word. Final report pdf, plus an editable copy of the draft in Word.

*Task 3. Permit compliance reporting*

Since 2016, GGNRA manages much of San Vicente and Denniston Creek watersheds. CCWD is now required to submit data reports as part of the scientific sampling permit which GGNRA has issued to you. The data reports are submitted for one gage on San Vicente Creek (SVAD) and one gage on Denniston Creek (DCAD), all of which are within or adjacent to GGNRA jurisdiction. We will prepare the annual data forms for submittal by CCWD.

**Deliverable:** Cover letter permit compliance submittal with forms and table attachments.

*Task 4. Tasks to be authorized during the year, if any.*

Given other regulatory initiatives in the area, it is possible that other work may be needed during the course of the water year. If and as you ask for additional services, we will track these as tasks 4a, 4b, etc., so that you have total clarity on what these additional assignments may cost. We appreciate the trust that has developed between CCWD and Balance and want to be sure you are able to understand and track such costs.

*Task 5. Project administration*

This task provides time to help schedule and administer the project in a way that best helps you and us regularly track schedule and budget.

***Anticipated Costs***

Our estimates of staff assignments and level of effort for each task are shown in Table 1. The estimated total costs to complete this work are shown at the bottom of Table 2. In addition, Table 2 covers expenses not allocated to individual tasks, such as mileage. The rental fees include modem line fees (anticipated to be \$30/month for real-time sites) and travel and equipment fees (anticipated to be approximately \$1500/year), and the occasional purchase of hardware to repair gaging stations damaged by floods, winds, or wildlife.

As is customary for field-related jobs, our costs also include a 10% contingency allowance. The contingency allows for a smoother absorption of additional costs beyond our control which inhibit the efficient completion of our work. Examples of situations that might require use of the contingency allowance are repair and/or replacement of hydrologic equipment or data damaged by high flows, earthquakes or other “Acts of God”, changes requested by your staff or a landowner, a very wet year requiring additional visits, or shifts in regulatory requirements and lost samples due to lab or shipping company errors. A breakdown of rental costs associated with this project is available upon request. We have also assumed that CCWD will continue to help obtain ready access to the gages and wells.

We have made every effort to minimize the impact of these changes by allocated staff hours in a prudent, technically sound, but cost-effective manner. The monitoring budget has been spread among billing categories to account for a range of the staff we expect to be available.

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Although we have made out best effort to provide an accurate estimate to you, our work is done on a time-and-expense basis, so costs could be somewhat higher or lower than these estimates.

### ***Anticipated Schedule***

We will begin drawing from this budget as WY19 ends (Sept. 30, 2019) to cover our preparations already under taken for the beginning of the 2020 water year and bill you once it has been approved by your Board of Directors. We will conclude monitoring on September 30, 2021. We will provide a completed draft report to the District in a timely manner. If needed earlier for regulatory purposes, we will attempt to adjust as needed for reporting.

### ***Proposed Project Staff***

Barry Hecht will continue as the Principal in charge, and act as senior reviewer. Eric Donaldson will serve as project manager. John Hardy will serve as deputy project manager. Field hydrologists Eric Donaldson, John Hardy, Emma Goodwin, Mark Woysner, and Gustavo Porras (from Balance's Berkeley office), and Jason Parke and Chelsea Neill (Santa Cruz office) have been servicing the stream gaging stations and wells and working with the data; they will continue to do so. Other staff may be called upon during winter storm flow monitoring. We have assigned more field staff to this project than usual, so that storm assignments can be discharged either from Berkeley or Santa Cruz, since access to this part of San Mateo County can be problematic during winter weather.

### ***Registration***

Work will be conducted under active State of California registration, as required under the State's Business and Professional Code. The Division of Water Rights has recently tightened its enforcement of active registration for hydrological reports.

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***Closing***

Thank you for asking that we prepare this proposal. We appreciate the opportunity to continue the streamflow gaging and monitoring groundwater through the next water year and look forward to supporting your water information needs through the ongoing and future work.

Please let us know if you have questions, or suggestions, or if your needs and schedule differ from our assumptions, above.

Sincerely,

BALANCE HYDROLOGICS, INC.

Eric Donaldson, P.G.  
Project Manager

John Hardy  
Project Hydrologist

Barry Hecht, CEG, CHg  
Senior Principal

Encl. Figure 1.18 Site map: Past and current gaging locations  
Tables 1 and 2 for WY2020





Figure 1.18. Hydrologic setting and monitoring locations within the Airport Aquifer, Coastside County Water District, San Mateo County, California.

**Table 1. Anticipated Staff Hours by Task**  
**220057 Coastside County Water District Hydrologic Monitoring, WY2020**

Task Number and Description	Sr. Principal	Senior Professional	Project Professional	Sr. Staff Professional	Staff Professional	Assistant Professional	GIS Sr Analyst	Sr. Proj Admin	Sr. Report Specialist	Labor Costs For Task
Hourly Rate	\$245	\$190	\$175	\$160	\$135	\$125	\$125	\$90	\$85	
Task 1. Water Year 2020 monitoring	20	20	90	100	100	60				\$61,450
Task 2. Draft and final water year 2020 reporting	14		18	8	45	20	10		16	\$19,045
Task 3. Permit compliance process	1		3						1	\$855
Task 4. Additional tasks, if any, to be authorized.	No work presently authorized									
Task 5. Project administration	1		10		2			12		\$3,345
<b>Subtotal Hours</b>	36	20	121	108	147	80	10	12	17	
<b>Total Hours</b>	<b>551</b>									

Notes:

**Total Labor \$84,695.00**

**Expenses from Table 2 \$3,428.00**

**Contingency from Table 2 \$8,812.30**

**GRAND TOTAL \$96,935.30**

**Table 2. Estimated Costs***220057 Coastsides County Water District Hydrologic Monitoring, WY2020*

Professional Fees	Rate	Hours	Allocation
Sr. Principal	\$245	36	\$8,820.00
Principal	\$210	0	\$0.00
Senior Specialist	\$195	0	\$0.00
Senior Professional	\$190	20	\$3,800.00
Project Professional	\$175	121	\$21,175.00
Senior Staff Professional	\$160	108	\$17,280.00
Staff Professional	\$135	147	\$19,845.00
Assistant Professional	\$125	80	\$10,000.00
Junior Professional	\$115	0	\$0.00
GIS Senior Analyst	\$125	10	\$1,250.00
GIS/CADD Specialist	\$115	0	\$0.00
Senior Project Administrator	\$90	12	\$1,080.00
Senior Report Specialist	\$85	17	\$1,445.00
Technical Typist	\$85	0	\$0.00
Hydrologic Technician	\$75	0	\$0.00
<b>Labor Subtotal (Table 1)</b>			<b>\$84,695.00</b>
<b>Expenses</b>			
<b>Direct Expense Estimates</b>			
Mileage	1700 miles @	\$0.64	\$1,088.00
Equipment Costs (Sampling gear during site visits, e.g, flow meter, etc.)			\$800.00
Phone Line fees for Modem (4 stations @ 12 mo)	@	\$30/mo	\$1,440.00
<b>Reimbursable Costs</b>			
Other Travel, Subsistence	trips @		\$0.00
Express Mail, Deliveries			\$0.00
Maps and Aerial Photos			\$0.00
Outside Copying, Blueprint			\$0.00
Outside Consultants			\$0.00
Analytical Laboratory Fees			\$0.00
Materials and Supplies			\$100.00
Permits, Licenses or Agency Inspection fees	client responsibility		\$0.00
Printing			\$0.00
Other			\$0.00
<b>Expenses Subtotal</b>			<b>\$3,428.00</b>
<b>ESTIMATED TOTAL</b>			<b>\$88,123.00</b>
<b>Contingency</b>			<b>\$8,812.30</b>
<b>TOTAL w/ CONTINGENCY</b>			<b>\$96,935.30</b>

**Notes**

Additional costs may be incurred if the instrumentation network is destroyed or damaged by a high-recurrence storm.

Project-related expenses will be bill at cost plus 7.5%; including work by outside consultants and analytical or testing laboratories.