STAFF REPORT

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

From: **Mary Rogren, General Manager**

Agenda: **October 12, 2021**

Report Date: **October 8, 2021**

Subject: **Approval of Professional Services Agreement with Balance Hydrologics, Inc. for Denniston/San Vicente Stream Gaging, Groundwater Monitoring, and Data Analysis**

Recommendation:
Authorize the General Manager to enter into a Professional Services Agreement with Balance Hydrologics, Inc. for Water Year 2022 stream gaging, groundwater monitoring, and data analysis for the Denniston Creek and San Vicente Creek watersheds for an estimated time-and-materials cost of $99,412.

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 October 5, 2021 (Attachment A) covers WY22 continuation of gaging and analysis services for stations on Denniston and San Vicente Creeks, and groundwater monitoring.

Fiscal Impact:
Cost of $99,412 is included in the Capital Improvement Program for Denniston/San Vicente. (For comparison purposes, the Water Year 2020 agreement was approved for $98,162 in September 2020.)

Balance Hydrologics

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October 5, 2021

Mary Rogren, 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 and Hydrologic Conditions, Water Year 2022

Dear Ms. Rogren:

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 unconsolidated aquifers adjoining Denniston and San Vicente Creeks. This proposal encompasses continuation of the water year[1] 2011 (WY2011) through WY2021 into WY2022 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 these two watersheds drawing from the deeply-weathered granitics of the Montara Mountain watersheds, (as described in our previous reports). It is our understanding that 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.

During WY2021 we (a) continued monitoring five stream gages and (b) concurrently monitored water levels (and salinities) in three wells, plus three piezometers, and the three multi-level piezometers beneath Pillar Point Marsh, such that interaction of streamflow and groundwater conditions may be better described. Please see attached Figure 1 that shows past and current monitoring locations.

[1] A "water year" (WY) is defined as the period from October 1st of the preceding year through September 30th of the named year. For example, water year 2022 (WY2022) starts October 1, 2021 and ends September 30, 2022.

In WY2022 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).

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

1. *Water year 2022 stream gaging and monitoring*
2. *Draft and final water year 2022 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 2022 monitoring

The water year 2022 monitoring effort will include (a) approximately monthly site visits to the five 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) up to 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 staff plate (gage height) readings. During quarterly visits we will also download data from the leveloggers (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 endeavor to 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 and where logjams form and dissipate, etc.). These visits are used 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 also check, maintain, and service the field equipment owned by CCWD.

We recommend continuation of the low-flow synoptic measurements at both the station in Denniston Canyon just downstream of the Canyon Field diversion (DCAAD) and the former DCBD location 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 the highlights of the information collected at DCBC 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 the efficiency of winter storm monitoring, and allows us to continue to monitor in a more cost- and data-effective manner.

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. During WY2022 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 because WY2020 and WY2021 were dry years with few opportunities for storm streamflow measurements, and high-flow calibration data is desirable. 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 levelogger that records water level and temperature every hour. In addition, we are proposing to 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, are instrumented. These data help us to identify the lower boundary condition for the shallow aquifer system adjacent to San Vicente and Denniston Creeks, an anticipated contentious issue with both the Coastal Commission and the Division of Water Rights.

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 storm the winter or falls during the late summer months.

Deliverables: Raw real-time data describing current hydrologic conditions; 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 2022 reporting

We will summarize and explain the basic hydrologic findings in a water year 2022 report. The written report will include a summary form for each station tabulating the daily mean discharge data and identifying station descriptors, plots of the data, and water-surface elevation time series data for the monitoring wells, piezometers and Pillar Point Marsh water level gage. 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 anticipate submitting the draft report to you by late February 2023, and then will prepare a final report responding to your comments.

Deliverables: Draft report in Microsoft Word presenting and discussing the finalized water level and flow records for WY2022. 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: Draft cover letter for the permit compliance submittal with forms and table attachments.

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

It is possible that other work may be needed during the course of the water year. This work may include as-needed assistance with regulatory work, purchasing additional equipment on behalf of CCWD, etc. Should CCWD-owned equipment currently in the field be damaged or vandalized, Balance would purchase replacement equipment under this task after written authorization from CCWD. You may wish to request additional site or storm visits following a future earthquake swarm or watershed-disturbing rainfall or windstorms. 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 $1900/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 5% contingency allowance. The contingency allows for a smoother absorption of additional costs beyond our control (or yours) which inhibit the efficient completion of our work. Examples of situations that might require use of the contingency allowance are labor and materials associated with 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. We have decreased the recommended contingency from 10 to 5 percent, as the monitoring stations and procedures have become progressively more robust over the past 5 years. Also, 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 assignment has been spread to more junior staff to conserve costs, while also maintaining sufficient senior staff involvement to maintain quality and sustain professional registration. The spread amongst our staff allows work to be mobilized either from Berkeley or Santa Cruz as conditions dictate.

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 after WY2021 ends (Sept. 30, 2021) to cover our preparations already undertaken for the beginning of the 2022 water year and bill you once it has been approved by your Board of Directors. We will conclude monitoring on or about September 30, 2022. We anticipate providing a completed draft report to the District by the end of February 2023. If needed earlier for regulatory purposes, we will attempt to adjust the timeline.

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, Emma Goodwin, and Mark Woyshner (from Balance's Berkeley office), and John Hardy,

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 professional 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.

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.

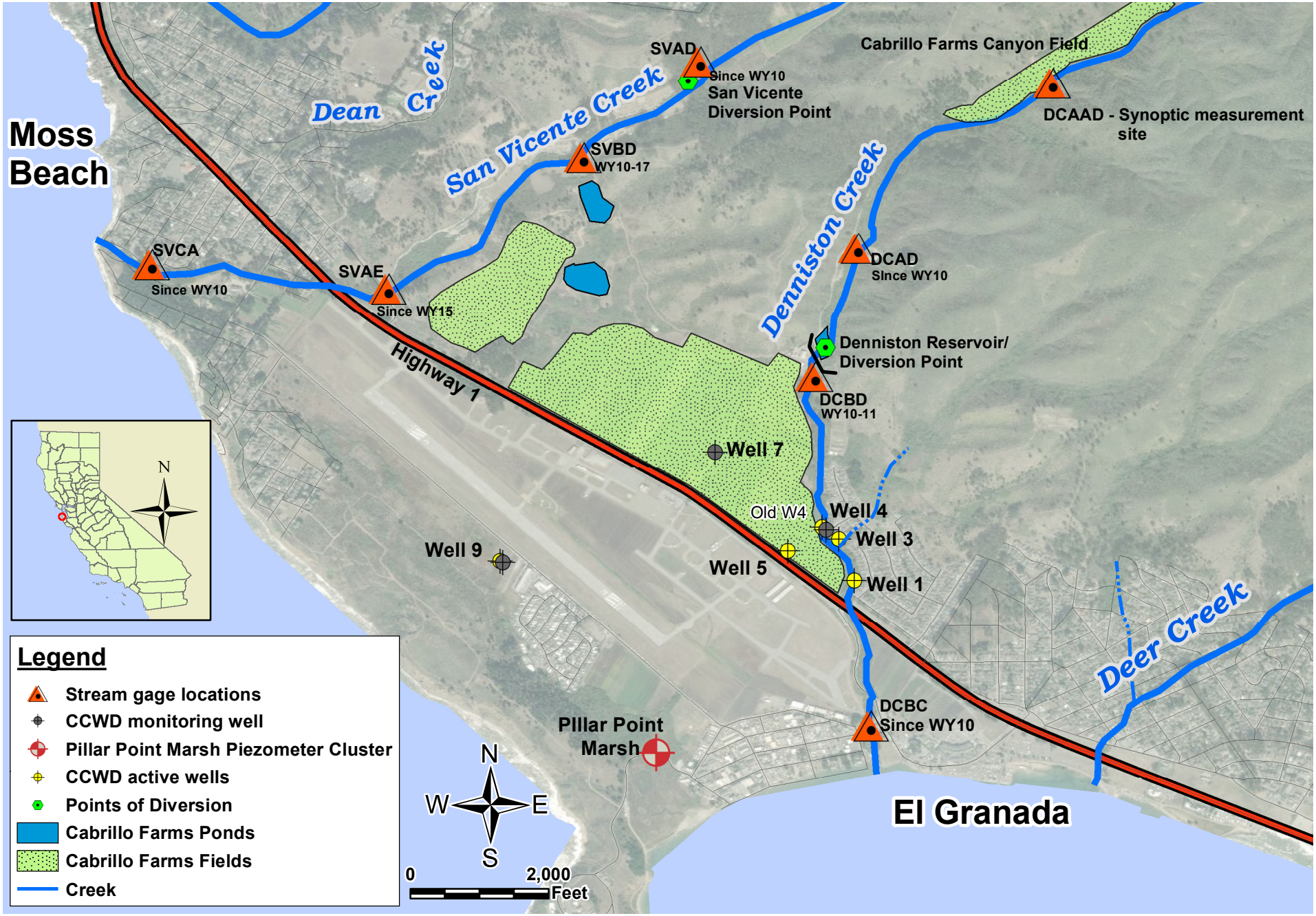
John Hardy

John Hardy
Project Hydrologist

Eric Donaldson, P.G.
Project Manager

Barry Hecht, CEG, CHg
Senior Principal

Enclosures: Figure 1. Site map: Past and current gaging locations
Budget Tables 1 and 2 for WY2022



Balance Hydrologics, Inc.

219057 Figure 1.mxd

Figure 1. Hydrologic setting and monitoring locations within the Airport Aquifer, Coastside County Water District, San Mateo County, California.

Table 1. Anticipated Staff Hours by Task

222057 Coastside County Water District Hydrologic Monitoring, WY2022

Task Number and Description	Sr. Principal	Principal II	Principal I	Senior Professional	Project Professional	Sr. Staff Professional	Staff Professional	Assistant Professional	Junior Professional	GIS/CADD Senior Analyst	GIS/CADD Analyst	GIS/CADD Assistant Analyst	Sr. Proj Admin	Sr. Report Specialist	Report Specialist	Hydrologic Tech	Labor Costs For Task
Hourly Rate	*$245*	*$230*	*$220*	*$195*	*$185*	*$175*	*$150*	*$140*	*$130*	*$145*	*$130*	*$115*	*$130*	*$105*	*$98*	*$95*	
Task 1. Water Year 2022 monitoring	10	20		30		140	180										$64,400.00
Task 2. Draft and final water year 2022 reporting	6			18		40	45			10				16			$21,860.00
Task 3. Permit compliance reporting	1			3										1			$935.00
Task 4. Tasks to be authorized during the year, if any							No work presently authorized										
Task 5. Project administration	1			10			2						12				$4,055.00
Subtotal Hours	18	20		61		180	227			10			12	17			
Total Hours	**545**																

Notes:

TOTAL LABOR	**$91,250.00**
Expenses from Table 2	***$3,428.00***
Contingency from Table 2	***$4,733.90***
GRAND TOTAL	**$99,411.90**

Table 2. Estimated Costs

222057 Coastside County Water District Hydrologic Monitoring, WY2022

Professional Fees	**Rate**	**Hours**	**Allocation**
Sr. Principal	$245	18	$4,410.00
Principal	$230	20	$4,600.00
Associate Principal	$220	0	$0.00
Senior Professional	$195	61	$11,895.00
Project Professional	$185	0	$0.00
Senior Staff Professional	$175	180	$31,500.00
Staff Professional	$150	227	$34,050.00
Assistant Professional	$140	0	$0.00
Junior Professional	$130	0	$0.00
GIS/CADD Senior Analyst	$145	10	$1,450.00
GIS/CADD Analyst	$130	0	$0.00
GIS/CADD Assistant Analyst	$115	0	$0.00
Senior Project Administrator	$130	12	$1,560.00
Senior Report Specialist	$105	17	$1,785.00
Report Specialist	$98	0	$0.00
Hydrologic Technician	$95	0	$0.00
		Labor Subtotal (Table 1)	$91,250.00

Expenses				
Direct Expenses				
Mileage	**1700**	miles @	$0.64	$1,088.00
Mileage, 4-Wheel Drive*		miles @	$0.67	$0.00
Vehicle Rental				$0.00
Equipment Costs (Samplng 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
Reimbursable Costs				
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
			Expenses Subtotal	$3,428.00
			ESTIMATED TOTAL	**$94,678.00**
			Contingency (reduced to 5%)	**$4,733.90**
Notes			**TOTAL w/ CONTINGENCY**	**$99,411.90**

* 4WD rates apply only if required by site conditions. See Balance policy re 4WD.

+Plotting costs vary according to complexity of design

Project-related expenses will be bill at cost plus 10%; including work by outside consultants and analytical or testing laboratories.