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REPORT TO BEDDIS WATER SERVICE COMMITTEE
MEETING OF THURSDAY 18 FEBRUARY 2010

SUBJECT **PROJECT STATUS AND PLAN TO COMPLETE**

PURPOSE

To present for information to the Beddis Water Service Committee a status report on the capital project, and alternatives to complete and commission the water treatment plant.

BACKGROUND

The history of the Beddis Water Service of the Capital Regional District (CRD) is summarized as follows:

Year	Event
ca.1975	Beddis Waterworks District (BWD) established to supply water from Cusheon Lake to the Beddis Road community.
1999	BWD requests CRD to conduct a feasibility study to evaluate water system deficiencies and to apply for an infrastructure grant to upgrade treatment.
2000	Study completed and infrastructure grant application submitted to fix deficiencies which include: • Water treatment does not comply with current standards. • Sky Valley reservoir seismically unstable, and cannot be safely maintained. • Maintenance of watermains inadequate to manage bacterial regrowth.
2004	Federal/provincial grant awarded to CRD ($506,894) to: • upgrade water treatment to meet current drinking water standards • upgrade storage, and modify distribution infrastructure as required for new configuration Beddis electors pass referendum to convert to CRD and borrow $325,000 as community share of upgrade project.
2005	Design and construction supervision contract awarded to Bullock Baur Associates Ltd. Stipulated price contracts awarded for supply and construction of a reservoir, and for supply of prefabricated water treatment system components. Stipulated price tender received for watermain and pump station construction; low bid significantly greater than budget. Contract is not awarded on the basis of insufficient funds. Beddis Water Service Committee (BWSC) decides to postpone distribution work and to complete the more urgently needed water treatment upgrade.
2006	CRD receives only a single bid for treatment plant construction, which exceeds budget by roughly 60 percent. BWSC approves alternative project delivery model with CRD as general contractor, and construction contracted in smaller stipulated price contracts or on a cost plus basis. Scope and design of plant construction modified to reduce costs. Staff advise BWSC that in order to complete and commission the new plant, an increase in the overall project budget funded from available reserves will likely be required. It is anticipated that available reserves will not likely be adequate to complete the full project scope, including interconnection of the new Sky Valley reservoir to the distribution system.

2007 Stipulated price contract awarded to G&E Equipment Rentals Ltd. to construct treatment plant building.

General and mechanical construction by the North Salt Spring Waterworks District, and electrical construction by Emery Electric Ltd., proceed on a time and materials basis.

2008 Project funding from reserves approved by BWSC, increasing the budget from $882,340 to $1,087,654.

2009 Revised budget is exceeded as construction nears completion. Work stops pending approval by the BWSC of a plan to fund completion of construction and commissioning.

Plan to Complete and Commission Water Treatment Plant

Further to correspondence between members of the BWSC and staff in the summer of 2009, staff presented three alternatives to complete plant construction and commissioning in a 29 October 2009 letter to the BWSC (Attachment 1). The following changes have occurred since that time:

- A financial audit of the project was completed at a cost of $7,500.
- An earlier 2009 provincial audit of the Fulford grant project found coding discrepancies. These findings were made available to the CRD in 2010. This information triggered a detailed internal audit which identified cost coding errors in 2006 on invoices relating to one vendor. This resulted in the requirement to reallocate expenses totaling $16,534 from the Fulford project to the Beddis project.
- The purchase of process control programming code from the Fulford project as planned was completed, at a cost of $5,000.

These changes increased the total project expense to $1,179,454 at 31 December 2009.

The following funding was applied to the project to cover the budget deficit:

• Community Works Fund (Gas Tax) 2009 grant	$80,000
• Internal interest earned on project funds	$5,772
• Transfer of 2009 operating budget surplus	$6,082

This funding increased the budget by $91,800, to $1,179,454.

The revised net estimated cost to complete the project after balancing the project budget and purchasing process control program code is shown in the following table:

Cost to Complete and Commission Beddis Water Treatment Plant

Alternative	Construction Management	Design-Bid-Build	Hybrid
Electrical construction	$41,094	$39,039	$41,094
Mechanical construction	$34,100	$32,395	$34,100
Control programming	$3,000	$3,000	$3,000
Commissioning	$35,000	$35,000	$35,000
Subtotal - bare cost	$113,194	$109,434	$113,194
Contingency	$20,000	$20,000	$20,000
Plans and specifications	$ -	$30,000	$20,000
Tender process	$ -	$10,000	$ -
TOTAL	**$133,494**	**$169,434**	**$153,194**

An additional Community Works Fund (Gas Tax) grant of $62,000 to the Beddis upgrade project has been approved for 2010 by the CRD Board, at the request of Director Garth Hendren. With this funding, the shortfall to complete water treatment plant construction ranges from $71,194 to $107,434. Given the urgent need to commission the new water treatment plant to meet current regulations for drinking water treatment and to realize the substantial investment by the community, it is proposed that the Beddis Water Service Committee seek a resolution of the CRD Board to borrow the required funds through a commercial bank, to be repaid by 2013. Such a loan would enable completion and commissioning of the Beddis water treatment plant in 2010.

ALTERNATIVES

1. That the Beddis Water Service Committee:

    a. Direct staff to complete and commission the water treatment plant under a Design-Bid-Build model; and
    b. Approve additional project funding of $62,000 from 2010 Community Works Fund grant and $107,433 from a commercial bank loan, increasing the project budget to $1,348,888; and
    c. Resolve that the Capital Regional District enter into an agreement with a commercial bank for a loan to fund the completion and commissioning of the Beddis Water Treatment Plant, on a repayment plan that will end no later than 31 December 2013.

2. That the Beddis Water Service Committee:

    a. Direct staff to complete and commission the water treatment plant under a Construction Management model; and
    b. Approve additional project funding of $62,000 from 2010 Community Works Fund grant and $71,194 from a commercial bank loan, increasing the project budget to $1,312,648; and
    c. Resolve that the Capital Regional District enter into an agreement with a commercial bank for a loan to fund the completion and commissioning of the Beddis Water Treatment Plant, on a repayment plan that will end no later than 31 December 2013.

3. That the Beddis Water Service Committee:

    a. Direct staff to complete and commission the water treatment plant under a Hybrid model; and
    b. Approve additional project funding of $62,000 from 2010 Community Works Fund grant and $91,194 from a commercial bank loan, increasing the project budget to $1,332,648; and
    c. Resolve that the Capital Regional District enter into an agreement with a commercial bank for a loan to fund the completion and commissioning of the Beddis Water Treatment Plant, on a repayment plan that will end no later than 31 December 2013.

FINANCIAL IMPLICATIONS

1. The annual cost of a four-year, $107,433 loan is estimated to be $29,710 based on a current lending rate of 3%. In order to service this new debt, the annual parcel tax will increase by $226.59 per parcel for the next 4 years; 2010 through 2013. In the proposed 2010 budget (which is based on this alternative), the effect of the new debt servicing is reduced by an estimated surplus carry forward of $30,324 from the 2009 operating budget to 2010. The full effect of the debt servicing would apply in years 2011 through 2013.

2. The annual cost of a four-year, $71,194 loan is estimated to be $25,220 based on a current lending rate of 3%. In order to service this new debt, an additional parcel tax of $192.35 per parcel would be required over the next 4 years, 2010 through 2013.

3. The annual cost of a four-year, $91,194 loan is estimated to be $19,690 based on a current lending rate of 3%. In order to service this new debt, an additional parcel tax of $150.17 per parcel would be required over the next 4 years, 2010 through 2013.

Under Alternatives 1-3, any project or operating surplus will be applied to pay down the balance on the bank loan until it is paid off.

SUMMARY/CONCLUSIONS

It has been anticipated since 2006 that the original budget for the Beddis water system upgrade project, including a provincial grant and a 15-year borrowing, would be insufficient to complete construction of a new water treatment plant. It is now anticipated that the budget required to complete and commission the plant (and distribution works already completed) is approximately $1.3 million. Alternatives and a recommendation for funding completion and commissioning of the water treatment plant are provided. Completion of remaining distribution upgrades included in the original project scope will be deferred to a later date, and will require a separate funding plan.

RECOMMENDATIONS

That the Beddis Water Service Committee:

a. Direct staff to complete and commission the water treatment plant under a Design-Bid-Build model; and

b. Approve additional project funding of $62,000 from 2010 Community Works Fund grant and $107,433 from a commercial bank loan, increasing the project budget to $1,348,888; and

c. Resolve that the Capital Regional District enter into an agreement with a commercial bank for a loan to fund the completion and commissioning of the Beddis Water Treatment Plant, on a repayment plan that will end no later than 31 December 2013.

FOR

Colwyn Sunderland, ASct
Local Services Engineering Coordinator

Ted Robbins, BSc, CTech
Acting Senior Manager, Water Management Division
Concurrence

CS:ls
Attachment: 1

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Attachment 1

October 29, 2009

File: 0550-20.03

Beddis Water Service Committee
c/o Ms. Zwanette Pereboom
Vice Chair, Beddis Water Service Committee
130 Miles Avenue
Salt Spring Island, BC V8K 2E1

Dear Ms. Pereboom:

RE: BEDDIS WATER TREATMENT PLANT PROJECT – COMPLETION PLAN

As you know, the Beddis water treatment plant is nearly complete, with the remaining works on hold since the spring. In order to proceed with completion and commissioning of the treatment plant, staff have developed three alternatives with varying levels of construction cost risk, and associated financial implications, for the committee to consider. The estimated costs and relative cost risks associated with each alternative are summarized in the following table:

Estimated Cost to Complete and Commission Water Treatment Plant

Alternative	Construction Management		Design-Bid-Build		Hybrid	
	Cost	Risk	Cost	Risk	Cost	Risk
Unfunded cost to date	$ 63,682	none	$ 63,682	none	$ 63,682	none
Electrical construction*	$ 41,094	low	$ 39,039	low	$ 41,094	low
Mechanical construction**	$ 34,100	moderate	$ 32,395	low	$ 34,100	moderate
Control programming***	$ 8,000	moderate	$ 8,000	moderate	$ 8,000	moderate
Commissioning	$ 35,000	moderate	$ 35,000	moderate	$ 35,000	moderate
Subtotal - bare cost	$181,876	moderate	$178,116	low	$181,876	moderate
Contingency	$ 20,000	n/a	$ 10,000	n/a	$ 20,000	n/a
Plans and specifications	$ -		$ 30,000	low	$ 20,000	low
Tender process	$ -		$ 10,000	low	$ -	
TOTAL	$201,876	moderate	$228,116	low	$221,876	moderate

* estimate submitted by Emery Electric Ltd.
** estimate submitted by North Salt Spring Waterworks District
*** estimate submitted by CRD Operations staff

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1. Construction Management (Cost Plus)

Under this alternative, construction and commissioning work would proceed on a cost-plus basis under Capital Regional District (CRD) management. The bare cost to complete and commission the water treatment plant under this alternative is estimated to be $181,876, including unfunded costs already incurred.

Recent cost estimates for the remaining electrical, mechanical and commissioning works have been prepared. Although costs have been estimated conservatively, there remains a significant risk that actual costs will exceed the estimates. A $20,000 contingency is included in order to minimize cost risks, bringing the total cost of this alternative to $201,876.

In consideration of the proposed allocation of $142,000 of Community Works (Gas Tax) funding by Regional Director Garth Hendren, the net expense to the community would be $59,876. Given that this funding is required in order to provide drinking water that meets current regulatory requirements, the cost may be recovered over three years through a commercial bank loan. Due to an anticipated operating surplus of $32,270 in 2009, the costs of principal and interest on such a loan in 2010 can be recovered without requiring a tax or fee increase (although a user fee increase is anticipated for 2010 to cover increased operating costs). However, a parcel tax increase of approximately $152 per taxable folio is expected to be necessary in 2011 and 2012 to recover the remainder of the cost of the loan.

2. Design-Bid-Build (Stipulated Price)

Under this alternative, construction cost risks would be reduced by fixing costs through a tender process and stipulated price contracts based on plans and specifications prepared in advance. Competition may also result in small savings in construction costs, for which a 5% reduction is assumed. However, commissioning and process control programming cost risks would not be significantly reduced, since this work is somewhat unpredictable and will be done primarily by operations staff.

The development of tender documents (i.e., plans and specifications) suitable for tendering work to contractors unfamiliar with the project, and the tender process itself, would add an estimated $40,000 to the overall cost to complete the treatment plant. This increase may be partially offset by a reduction in the proposed contingency to $10,000, bringing the total estimated cost of this alternative to $231,876.

Considering an allocation of $142,000 in Gas Tax funding toward the work, the balance to be funded by the community under this alternative would be $86,116. Assuming this is borrowed and repaid over a three-year term, it would require a parcel tax increase of $71 per taxable parcel for 2010, and a further tax increase of $69 per taxable parcel for 2011 and 2012.

3. Hybrid (Cost-Plus with Engineering Drawings)

This alternative is intended to address the committee's request for detailed plans, while avoiding the cost of tendering construction. Plans would be prepared in advance of construction, and would be revised as needed to reflect as-built conditions upon completion of construction. These plans would include a process flow diagram and process and instrumentation diagram, location plans for buried pipes and conduits, and other drawings needed for a complete record of the system and to support operation, maintenance and future upgrades to the plant. However, plans, sections, piping layouts and construction specifications that would be required for tender would be omitted, reducing associated costs.

Since this alternative does not significantly reduce construction cost risks compared to alternative 1, a contingency of $20,000 is retained. The preparation of plans adds $10,000, bringing the total cost of this alternative to $211,876.

Considering an allocation of $142,000 in Gas Tax funding toward the work, the balance to be funded by the community under this alternative would be $79,876. Assuming this is borrowed and repaid over a three-year term, it would require a parcel tax increase of $54 per taxable parcel for 2010, and a further tax increase of $53 per taxable parcel for 2011 and 2012.

We trust that the foregoing provides the Beddis Water Service Committee with the information needed to provide staff direction at the November budget meeting on how the remainder of the treatment plant project should be completed. If further clarification is needed regarding this information, please do not hesitate to contact Colwyn Sunderland at 250-360-3175 at your convenience.

Yours truly,

Colwyn Sunderland, AScT
Local Services Engineering Coordinator

Richard Edwards, PEng
Project Engineer

CS/cl

cc: Garth Hendren, Director, Salt Spring Island Electoral Area
Larisa Hutcheson, Acting General Manager, Environmental Services
Ted Robbins, Acting Senior Manager, Operations and Local Services
Dan Telford, Senior Manager, Engineering Services