

## SUNSHINE COAST REGIONAL DISTRICT STAFF REPORT

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**TO:** Infrastructure Services Committee – April 19, 2018

**AUTHOR:** Remko Rosenboom, General Manager, Infrastructure Services

**SUBJECT:** RAW WATER RESERVOIR – FEASIBILITY STUDY OUTLINE

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### RECOMMENDATION(S)

**THAT the report titled Raw Water Reservoir – Feasibility Study Outline be received for information.**

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### BACKGROUND

The *Engineered Lake* (raw water reservoir) is a long term recommendations identified in the Comprehensive Regional Water Plan (CRWP) in order to address the Regional Water System's supply capacity deficit. The CRWP the water reservoir project will target a reservoir with a storage volume of 0.43 Mm<sup>3</sup> to 0.76Mm<sup>3</sup>. Since the approval of the CRWP in 2013, growth projections, environmental flow requirements, and extended periods of less precipitation have indicated that a storage volume in excess of 0.76 Mm<sup>3</sup> might be required.

The 2018 budget proposal Regional Water Storage Capacity recommended a feasibility study that will include site identification, regulatory framework, preliminary engineering and estimated Class D costs. Staff commit to bring back more information on the investigation prior to tendering the required professional services.

This report described the project outline of the Feasibility and Development Study portion of the Raw Water Reservoir project (Attachment A).

The following resolution was adopted at the March 22, 2018 Board meeting:

104/18                      **Recommendation No. 7**      *Regional Water Service [370] – 2018 R2  
Budget Proposals*

THAT the report titled 2018 R2 Budget Proposal for [370] Regional Water Service be received;

AND THAT the following budget proposal be incorporated into the 2018 Budget, as amended:

- Budget Proposal 3 – Regional Water Storage Capacity, \$200,000 funded from Development Cost Charges (DCC's).

**DISCUSSION**

The Raw Water Reservoir Feasibility Study is a complex and multi-phased project which will be conducted with guidance of professional services and input from staff. The Feasibility Study is outlined in detail in the attached Project Outline (Attachment A) for Committee information.

The Feasibility Study, which comprises the first two phases of the project, will include the identification and review of all potential sites and selection of several preferred sites for further assessment. Other deliverables will include Class ‘D’ cost estimates for construction and operation, regulatory requirements, development timelines, and a summary report presenting the results of the first two phases. The target date for the Feasibility Study summary report is in Q4 of 2018.

Recommendations will also be brought forward for the Board’s consideration outlining next steps and budgetary requirements for the Development Study phases 3 and 4 as outlined in the Project Outline. These recommendations will be included in a report targeted for Q1 of 2019 to align with the 2019 budget process.

**STRATEGIC PLAN AND RELATED POLICIES**

The SCRD Strategic Plan’s Mission is to provide leadership and quality services to our community through effective and responsive government. This report outlines key projects that will help ensure the SCRD continues to provide the services of water purveyor. Interwoven in the projects outlined in this report are the SCRD Strategic Priorities of Ensuring Fiscal Sustainability, Embedding Environmental Leadership, Supporting Sustainable Economic Development, Enhancing Collaboration with the *shíshálh* and Skwxwú7mesh Nations, and Facilitating Community Development.

This report is built upon the Comprehensive Regional Water Plan’s elements to meet the community’s water needs now and in the future.

**CONCLUSION**

The development of a Raw Water Reservoir is recommended in the Comprehensive Regional Water Plan to address the Regional Water System’s storage capacity deficit. The siting and design of this reservoir will require a complex, multi-phased project. An outline of the Project Outline for the Feasibility Study is attached for information.

This report is built upon the Comprehensive Regional Water Plan’s elements to meet the community’s water needs now and in the future.

Attachment – Project Outline for Raw Water Reservoir Feasibility and Development Study

Reviewed by:			
Manager		CFO	X – T. Perreault
GM		Legislative	
CAO	X – J. Loveys	Other	

April 19, 2018  
Infrastructure Services Committee

## **Project Outline for Raw Water Reservoir Feasibility and Development Study**

### **1. Project Objective:**

The SCRD is considering the construction of a raw water reservoir for the storage of water from Chapman Creek. The Comprehensive Regional Water Plan (June 2013) proposed the development of a water reservoir for the storage of water from Chapman Creek to augment the supply during extended periods with less precipitation.

A consulting firm will be commissioned to conduct a Feasibility Study to assess multiple locations for the suitability to construct a reservoir and will result in the completion of pre-construction activities related to a selected location.

### **2. Project Description:**

The study involves the investigation of a potential location for a raw water storage reservoir which would include site identification, preliminary engineering and costing.

The concept consists of the construction of a lined raw water storage reservoir that collects water during spring time and stores it for use during the summer months. Infrastructure would be required to capture water from the creek, to fill the reservoir, and to supply the stored water to the Chapman Creek Water Treatment Plant (CCWTP) when required for treatment and distribution to the Regional Water Service area.

Several options and locations will be assessed which will ultimately result in the initial steps towards the development of such reservoir. As each possible site will differ in limitations, water storage capacity (i.e. area x depth), requirements in terms of infrastructure, land acquisition, permitting, and operational/construction costs and risks, the preferred site and design criteria will be selected during a phased approach in which the feasibility of the sites will be assessed with an increased level of detail.

### **3. Minimum Requirements:**

- Sizing of the reservoir for future supply requirements.
- Feasibility study to locate a potential reservoir location.
- Preliminary investigation indicating a high likelihood that all authorizations required for the construction and use of the reservoir as drinking water source can ultimately be issued by the appropriate authorities.
- shíshááh Nation consultation
- Construction Impact Assessment with consideration that the construction impact is reasonable given the increased community water supply it provides.
- Cost effective operational maintenance using the best available technologies.
- Engineered design of required infrastructure to capture water from Chapman Creek, store raw water in a lined reservoir, and to supply the water from the reservoir to the CCWTP.

### **4. Timeline:**

The project will consist of a Feasibility Study and Development Study, each with two phases:

### **Feasibility Study**

#### Phase 1: Desktop study and field reconnaissance July-August 2018

- The contractor will review the Comprehensive Regional Water Plan and all other available information to determine the volume required to meet the long term demand needs of the SCRD to the year 2030
- Identification of all potential sites and assessment based on multiple criteria related to their feasibility
- Multi-Criteria Analysis to select a limited number of sites to be further investigated in Phase 2
- Preliminary review with all regulatory agencies and shíshálh Nation

#### Phase 2: Preliminary Site Assessment September-November 2018

- Detailed review of selected sites
- Further assessment based on preliminary designs
- Class D cost estimates for construction and operation
- Conceptual drawings
- Regulatory requirements
- Development timelines
- Cost-benefit analysis
- Engineering process to select the first and second preferred locations and design criteria

### **Development Study (only if development of reservoir is approved by the Board)**

#### Phase 3: Selection of desired site and design criteria December 2018 -January 2019

- Additional site assessment of preferred location to confirm suitability
- Class C cost estimates for construction and operation

#### Phase 4: Site Design and development 2019-onwards

- 90% design drawings
- Assess and submit required applications for provincial authorizations and shíshálh Nation support
- Assist the SCRD in securing the land ownership rights
- Class A capital cost estimate
- Develop detailed life-cycle costing analysis
- Vendor cost information and asset life analysis
- Final report detailing decision making and analysis
- Develop Request for Proposal documents to be issued for construction

## **5. Deliverables**

The project is expected to result in the following deliverables:

- A complete report identifying the preferred location of a reservoir that includes:
  - Design
  - Capital costs
  - Life cycle costs
  - Asset Life analysis
- Assessment and assistance in:

- Provincial Authorization
- shíshálh Nation support
- Land ownership rights
- Request for proposal development

**6. Excluded from Feasibility and Development Study**

- Activities directly associated with the actual construction (e.g. actual construction, project management, construction monitoring).
- Assisting the SCRD to secure funding for the construction of a raw water reservoir.