
TO: Committee of the Whole**MEETING:** March 12, 2019**FROM:** Duncan Taylor
Manager, Engineering Services**FILE:** 5330-20-FCPCC EXPAN IV**SUBJECT:** French Creek Pollution Control Centre, Engineering Services

RECOMMENDATION

That the Board approve an additional \$222,172 (excluding GST) to AECOM Engineering Services contract for Thickener Facility Upgrade engineering and Landscape Architecture design.

SUMMARY

In July 2018, the Board approved the award of Detailed Engineering Services for the French Creek Pollution Control Centre (FCPCC) Stage IV Expansion and Odour Control Upgrade Project to AECOM with a contract value of \$2,506,980 (excluding GST).

At the start of the Detailed Engineering, two key tasks were undertaken for effective project design and execution:

1. Technical Design Peer Review of the preliminary design to verify design concepts and project direction.
2. Constructability Review, where the design is analyzed from a constructability aspect.

These review processes identified two additional tasks that should be included in the current detailed engineering assignment.

1. Sludge Thickener Facility Upgrade to support increased plant capacity; and
2. Landscape analysis and design recommendations to minimize the visual impact from Highway 19A.

The cost of these additional engineering services is \$ 222,172 excluding GST.

BACKGROUND

The FCPCC Stage IV Expansion will be designed to provide adequate treatment capacity for the service population to the year 2035 and it is anticipated that the expansion will be fully commissioned by early 2022. In addition, the existing plant is also in need of many upgrades to improve efficiency and replace failing infrastructure.

A process selection report for the FCPCC Stage IV Expansion was completed in 2012. This assignment provided a conceptual design and high-level cost estimate for the project. This information was used in the preliminary design assignment which the RDN Board awarded to AECOM in 2017. The preliminary design provided details and refinement of the project scope, updated engineering cost and identified future upgrades beyond the Stage IV Expansion.

In 2018, after an RFQ process, the RDN Board approved the award of the Detailed Engineering, Tendering and Construction Management Services for the Stage IV Expansion to AECOM.

At the start of the Detailed Engineering Phase of this project, two key tasks required for effective project design and execution were undertaken:

1. Technical Design Peer Review of the preliminary design to verify the design concepts and project direction.
2. Constructability Review, where the design is analyzed from a constructability aspect.

These review processes have identified several items that will improve operational and construction efficiency which will be addressed in the detailed engineering scope currently underway. The review also identified two tasks that should be considered and added to the Detailed Engineering Assignment:

1. Advancing the engineering of the Sludge Thickener Facility Upgrade which is currently identified later in our 10 year capital plan. This project will assist with solids processing capacity in the existing plant.
2. Landscape analysis and design recommendations to minimize the visual impact from Highway 19A due to the facility expansion and optimize the landscaping budgeted in the construction phase.

Sludge Thickener Facility Upgrade – Sludge thickening is a critical process unit for a conventional activated sludge wastewater treatment facility. Inadequate thickening will affect the overall plant performance by reducing the volume solids processed through the digesters. The Preliminary Engineering Phase of the project identified the need for additional sludge thickening capacity at a date behong the Stage IV Upgrade Project.

A peer review by wastewater process specialists has concluded that the schedule for this work be accelerated and included in the current Stage IV Expansion Project to eliminate process capacity limitations prior to year 2035.

Landscape Analysis and Design – The initial phase of the constructability review process has been completed. This process analyzes the design from a construction aspect to identify areas of optimization that will result in efficient construction methods and ultimately ensure that construction costs and construction scope changes are minimized.

As part of this process, preliminary construction sequencing and tree clearing schedules were reviewed. The facility expansion borders Highway 19A without a substantial vegetation buffer between the facility and this road. It is proposed that the development of a planting plan by a Landscape Architect be completed prior to the removal of any natural vegetation. This will expedite rehabilitation of vegetation along the project boundary to blend in with the existing natural vegetation.

AECOM Canada Ltd. calculated the cost associated with these additional tasks (excluding GST.)

• Thickener Facility Upgrade Engineering	\$188,172
• Landscape Analysis Design	\$ 14,000
• Contingency (10%)	<u>\$ 20,000</u>
Total	\$222,172

This amounts to a 9% increase to the current Stage IV Expansion project Detailed Engineering contract with AECOM.

ALTERNATIVES

1. Approve an additional \$222,172 (excluding GST) to the AECOM Engineering Services Contract for Thickener Facility Upgrade Engineering and Landscape Architecture design.
2. Defer the Thickener Facility Upgrade Engineering and Landscape Architecture design to a future plant upgrade project.

FINANCIAL IMPLICATIONS

Alternative 1

The increase of \$222,172 to the engineering assignment and estimated \$1,300,000 in construction costs for an additional thickener will be covered by the project contingency and not increase the overall \$32,960,000 project budget.

Alternative 2

Deferring spending of \$222,172 for additional engineering design on this project will introduce:

- a. higher future construction costs and process capacity limitations.
- b. risk of invasive plant species taking hold and affecting the visual image of the facility.

STRATEGIC PLAN IMPLICATIONS

The design and construction of the FCPCC Stage IV Expansion Project and Odour Control Upgrades directly supports the Board Strategic Priority to Focus on Organizational Excellence. This priority states that the RDN will deliver efficient, effective and economically viable services that meet the needs of the region, including funding infrastructure in support of our core services employing asset management focus.

This project supports the strategic priority to Focus on Economic Health and recognizes the importance of wastewater in supporting economic and environmental health.



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Reviewed by:

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