

Township of Southgate

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Staff Report CAO2022-010

Title of Report: Holstein Dam – BM Ross Engineering Cost to provide updated Project Pricing Estimates Report

Department: Administration

Council Date: March 16, 2022

Council Recommendation:

Be it resolved that Council receive Staff Report CAO2022-010 as information; and

That Council approve staff direct BM Ross Engineering to proceed with the cost estimate of \$4,500.00 plus HST to update the proposal of project cost estimates for the Holstein Dam flood resiliency upgrade work.

Background:

In 2003 & 2004 BM Ross Engineering completed a review of the Holstein Dam structure in response direction from Southgate Council in 2002 by approving the following resolution 425-02.

Moved by Furlong; **Seconded by** Harrison;

THAT Council retains the services of B. M. Ross and Associates Limited to complete a preliminary evaluation of dam and embankment modifications, including f establishing a cost estimate for implementation of that work.

Carried. No. 2002-425

BM Ross reviewed the surfaces of the bridge and dam structure on February 13, 2003 in spite of the ice and snow buildup. The 2 main considerations of the work related to the dam to be assessed by BM Ross Engineering staff were:

1. To help reduce the potential for flooding at the regional storm; and
2. The potential during a regional storm event in the former railway embankment that still exists would be the flood water would overbank to the south of the bridge where the road enters by the park gates.

Based on their assessment of the entire structure the distance between the bridge and the dam overflow is not sufficient and would restrict the regional flow with this size of opening. The solution options would be to replace the bridge which is overdesigned for its present walking trail use, or a least cost solution would be to raise the present bridge deck. The cost estimate in 2003 dollar cost was \$41,400.00. To estimate what it would cost today would be impossible without a new quotation.

The assumption of the February 27th, 2003 letter report (Attachment #1) is if the bridge deck was raised it would maintain the pond level below lowest level of the present embankment elevation of 408.65 m to the north of the bridge.

To the south of the bridge the low point of the embankment is 408.0 m. It is recommended in the report that a concrete flood wall would be required from the south bridge abutment to park lane then turn east to the park's gates for a total wall length of 65 meters. The cost of this wall in 2003 dollars was estimated at \$37,800.00. The total cost of both solutions in 2003 dollars is \$79,200.00.

Not determined in the February 27th, 2003 letter report, is if the railway embankment must be raised. The final recommendation is the flow model should run again to confirm that the combination of the flood wall in place and the bridge deck raised is able to protect against a 100 year storm or regional flow event.

On October 5, 2004 the Township received a second letter report (Attachment #2) on the Holstein Dam. This letter reported that the modeling proposed earlier had not been completed. It further reported that an Environmental Assessment should be undertaken to consult with the public through a meeting and that approvals would likely be required from SVCA, Ministry of Natural Resources and Transport Canada Marine Division. This report provided quote for the following work:

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|--|-------|------------|
| 1. Computer modeling of spillway with bridge raised. | Cost: | \$1,900.00 |
| 2. Design, approval apps, EA, contracts & tendering. | Cost: | \$5,500.00 |
| 3. Review Bridge construction & administration. | Cost: | \$3,400.00 |
| 4. Design Flood Wall | Cost: | \$4,100.00 |
| 5. Review Flood Wall construction & administration. | Cost: | \$2,700.00 |

Total Cost of Engineering Work		\$17,600.00
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The final letter report received December 10, 2004 (Attachment #3) reports on several options and assesses the effectiveness of each of the 6 options. The following options would not solve the problems of managing flood condition flows:

- Leave the infrastructure in it existing state;
- Raising the Bridge Deck by 300 mm and no flood wall;
- Raising the Bridge Deck by 450 mm and no flood wall; and
- Removing the Bridge Deck only.

The following options would solve the problems of managing flood condition flows:

- No adjustments to the Bridge and construction of a flood wall; and
- Raising the Bridge Deck by 300 mm and construction of a flood wall.

At the December 1, 2021 Council meeting staff report CAO2021-081 was presented on the Holstein Dam Review of 2004 BM Ross Engineering Report and the following resolution was approved as direction to staff:

Moved By Councillor Sherson; **Seconded By** Councillor Rice;

Be is resolved that Council receive Staff Report CAO2021-081 as information; and **That** Council proceed with this report actions in relation to the time that has past and the historical performance of the dam structure over time since the 2004 report; and

That Council direct staff to take the action to refresh quotes and report back to Council.

Carried No. 2021-717

Staff Comments:

Staff received the Attachment #4 letter on March 3, 2022 from BM Ross Engineering reporting on the cost to address the Holstein dam flood resiliency concerns.

Staff recommend that Council approve this cost to update the 2004 project report and cost estimate to address the Holstein dam flood concerns. The new report will have value in supporting Council in the decision making to complete the work or not, in the budget preparation of capital funding of the project and in future years looking for grant funding under Climate Change Resiliency opportunities that are likely to come available over the next 1 to 5 years.

Financial Impact or Long-Term Implications

There has not been any funding allocated in the 2022 Budget to deal with the cost of the Holstein Dam. The cost of refreshing the 2004 cost estimates is \$4,500 plus HST for the scope of the work as outlined in the Attachment #4 letter from BM Ross Engineering. By the time we receive a project cost estimate we will need to consider the work in the 2023 capital budget.

Communications & Community Action Plan Impact:

This report has been written and presented to Council to communicate accurate information to the public.

Goal 5 - Upgrading our "Hard Services"

Action 5: The residents and businesses of Southgate recognize our linear services - roads, bridges, water and sewer works, for example - to be a fundamental purpose of municipal government. This infrastructure needs to be serviceable and sustainable so that our businesses and communities can thrive and grow.

Concluding Comments

1. That Council receive staff report CAO2022-010 as information.
2. That Council proceed with the BM Ross Engineering proposal at the cost of \$4,500.00 plus HST to update the proposal of project cost estimates for the Holstein Dam flood resiliency upgrade work.

Respectfully Submitted,

PW Manager approval: Original Signed By

Jim Ellis – Public Works Manager

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Respectfully Submitted, **CAO approval:** Original Signed By

Dave Milliner – CAO

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Attachments:

- Attachment 1 – BM Ross Engineering Report Letter dated February 27th, 2003
- Attachment 2 – BM Ross Engineering Report Letter dated October 5, 2004
- Attachment 3 – BM Ross Engineering Final Report Letter dated December 10, 2004
- Attachment 4 – BM Ross Engineering Report Letter dated March 3, 2022