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**Subject:** Thorold Zone 3 Elevated Tank Rehabilitation, 2019-T-129 (RN 19-29)

**Report to:** Public Works Committee

**Report date:** Tuesday, May 7, 2019

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## **Recommendations**

1. That the Gross Budget for Thorold Zone 3 Elevated Tank Rehabilitation **BE INCREASED** by \$627,110 and that the increase **BE FUNDED** from the Capital Variance – Water Project.

## **Key Facts**

- The purpose of this report is to seek Council's approval for an increase in gross budget for Thorold Zone 3 Elevated Tank (ET) Rehabilitation project.
- Proposed works at Zone 3 ET is to undertake a full rehabilitation including interior and exterior coatings, piping, valve and instrumentation replacement, safety upgrades, electrical upgrades and site works.
- This tank has been in service for 40 years without any interior rehabilitation work. Based on annual inspection reports from 2016 and 2017, the tank was found to be at risk of failure requiring rehabilitation. Based on additional inspections, it was deemed that interim repairs were not feasible.
- \$2,365,000 has been approved in the 2018 Capital Budget for Water/Wastewater under ET Rehabilitation-Thorold South Zone 3.
- A public tender process was initiated and a total of two (2) bids were received with the lowest bid being \$2,430,434 (excluding taxes) resulting in the need to increase the construction budget

## **Financial Considerations**

The Elevated Tank construction is a very niche market, with only four (4) qualified contractors in Ontario that could have participated in the bidding process. Only two (2) bids were received from the qualified contractors. Due to the operational risk of taking the Zone 3 ET out of service, the design consultant and bidding contractors were not able to enter the tank prior to tender. This left uncertainties regarding interior tank condition and specific rehabilitation works. Provisional items were included in the contract for these unknowns, however the risk with the uncertainties resulted in higher prices.

The total project expenditures and revenues are shown in the Total Project Budget Summary in Appendix 1. As outlined in Appendix 1, there is an overall approved budget of \$2,365,000 for this project (project number 20000626). Actual expenses and

commitments total \$229,346 as at April 10, 2019. The RFT has additional contingency and provisional items built-in to cover potential uncertainties such as additional metal works and unknown repairs. Due to the increase in contingency in the RFT, the Project Contingency was reduced by \$50,000. A \$25,000 increase to the consulting engineering services item was necessary, as the consulting fees were higher than anticipated. A budget increase is being requested in the amount of \$627,110 to be funded from the Water Capital Variance Reserve. As of April 10, 2019, the balance of the Water Capital Variance Reserve is \$1,553,537.

Any unspent surplus funds will be returned to the Water Capital Variance Project upon project completion so that these funds can be used to fund future capital projects.

## **Analysis**

The Thorold Zone 3 ET provides a stable supply of potable water to the Thorold South area. The ET is a “Composite Design” which is comprised of a concrete base that provides the elevation needed to meet operational pressures and a steel tank that holds the needed water volume to meet the demands of the service area. The ET holds 2.7 million litres (ML). A standard practice for the Region is to have all ETs inspected every year to ensure that the condition is known and to address condition or safety related problems.

In the fall of 2016, Zone 3 ET was inspected by Landmark, using a remote operated underwater vehicle (ROV), and found the tank to be at risk of failure. “Tank Interior - The interior lining should be removed and replaced within the next 1 to 2 years before corrosion cells cause irreparable damage to the plate junctions and thinned out areas”, Landmark. An inspection conducted in 2017 confirmed the 2016 report and provide the same recommendations. Additional inspections were carried out to determine whether interim repairs could be undertaken; however, it was deemed that a full rehabilitation of the tank was more cost-effective.

It is imperative that the ET rehabilitation begin as soon as possible ensure severely corroded areas are repaired to reduce the risk of failure. Along with the interior lining, the tank also requires exterior painting, safety upgrades, process piping and instrumentation replacements, electrical upgrades and site civil works.

The ET rehabilitation design commenced in 2018 with the intent to begin construction in the spring of 2019. ET relining is seasonal work, as the temperature of the tank must remain above 15°C for lining coating. If construction is delayed and the schedule is extended into the late fall or winter, the entire ET and hoarding would require heating at a substantial cost to the project.

A budget increase in the amount of \$627,110 is required to award 2019-T-129 for \$2,473,210 (including 1.76% non-refundable HST).

## **Alternatives Reviewed**

Delays in construction of the Thorold Zone 3 ET could increase the risk of failure, increase project costs, and potentially compromise the stable supply of potable water to Thorold South area.

## **Relationship to Council Strategic Priorities**

This recommendation is related to Organizational Excellence since the planned rehabilitation will support a stable supply of potable water to the community of Thorold.

## **Other Pertinent Reports**

None

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### **Recommended by:**

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Acting Commissioner  
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### **Submitted by:**

Ron Tripp, P.Eng.  
Acting Chief Administrative Officer

*This report was prepared by Lindsay Jones, Senior Project Manager, Water & Wastewater in consultation with Pamela Hamilton, Program Financial Specialist W-WW, and reviewed by Tony Cimino, Associate Director, Water & Wastewater Engineering.*

## **Appendices**

Appendix 1                      Total Estimated Project Cost

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**PW 26-2019 APPENDIX 1  
TOTAL ESTIMATED PROJECT COST  
Budget Adjustment**

**Contract 2019-T-129 (RN 19-29) Thorold Zone 3 Elevated Tank Rehabilitation**

**Total Estimated Project Cost 20000626 \***

- (a) Construction (includes contract contingency)
- (b) Project Contingency
- (c) Consulting Engineering Services (Design, Contract Administration, & Inspection)
- (d) Project Management & Internal Costs

**Total Estimated Project Cost**

Total Council Approved Budget	Budget Increase / Reallocation	Revised Council Approved Budget	Expended & Committed as of April 10, 2019	Forecast	Budget Remaining
(A)	(B)	(C) = (A) + (B)	(D)	(E)	(F) = (C)-(D)- (E)
1,821,100	652,110	2,473,210		2,473,210	-
289,000	(50,000)	239,000		239,000	-
195,400	25,000	220,400	222,636	(2,236)	-
59,500		59,500	6,710	52,790	-
<b>2,365,000</b>	<b>627,110</b>	<b>2,992,110</b>	<b>229,346</b>	<b>2,762,764</b>	<b>-</b>

**Project Funding Sources**

Regional Reserves & Debt

<b>(2,365,000)</b>	<b>(627,110)</b>	<b>(2,992,110)</b>	<b>(229,346)</b>	<b>(2,762,764)</b>	<b>-</b>
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\* All costs above include the non-refundable 1.76% portion of HST.

\*\* Total lowest tender is equal to i) \$2,430,434 before tax; ii) \$2,473,210 including 1.76% non-refundable HST; iii) \$2,746,390 including 13% HST