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**Subject:** Award of Contract 2023-T-1 DeCew Falls Water Treatment Plant 3 Upgrades Contract 2 in the City of St. Catharines

**Report to:** Public Works Committee

**Report date:** Tuesday, August 8, 2023

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## Recommendations

1. Contract 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2 in the City of St Catharines **BE AWARDED** to the lowest compliant bidder, Maple Reinders Constructors Ltd. at their bid price of \$45,081,350.00 (including 13% HST); and
2. That the current approved Contract amount of \$599,761.85 (including 13% HST) awarded to Associated Engineering Ltd. **BE INCREASED** by \$1,502,161.21 (including 13% HST), for a total revised Contract of \$2,101,923.06 (including 13% HST) for DeCew Falls WTP Plant 3 Upgrades for the provision of Contract Administration and Inspection Services for DeCew Falls WTP Plant 3 Upgrades Contract 2.

## Key Facts

- The purpose of this report is to seek Council's approval for the award of Contract 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2 to the lowest compliant bidder, Maple Reinders Constructors Ltd. at their total bid price of \$39,895,000.00 (excluding 13% HST) and to seek Council's approval for the increase to the current approved contract amount of \$530,762.70 (excluding 13% HST) awarded to Associated Engineering for DeCew Falls WTP Plant 3 Upgrades by \$1,329,346.20 (excluding 13% HST) for a total revised Contract of \$1,860,108.90 (excluding 13% HST).
- The provision of Contract Administration and Inspection Services was contemplated in the original competitively bid RFP. As a result of splitting Plant 3 Upgrades into two construction phases, the construction duration was extended and additional fees are required to extend the Contract Administration and Inspection Services. The additional budget for the extension was accounted for in the total approved project capital budget.
- Proposed works include a new superstructure, process tank structural repairs, new low lift pumps, HVAC process control & SCADA system upgrades including process control panels to support the process upgrades.

- Construction is scheduled from December 2023 to December 2025 with a contract completion date of December 9, 2025.

## **Financial Considerations**

Project 20000185 DeCew Falls WTP Plant 3 Upgrades has a previously approved capital budget of \$45,350,000 including construction, engineering, inspection, and internal staff time as detailed in Appendix 1 – Total Estimated Project Cost. Due to funding limitations, this project has been split into two distinct construction contracts. Contract 1 construction is complete and in warranty. Contract 2 was planned for construction in 2023.

Schedule B of the Niagara Region Procurement By-law 02-2016 as amended February 28, 2019, requires Council approval for all tender awards in excess of \$5,000,000 (Recommendation 1) and for any Single Source award where the increase puts the total award value over \$1,000,000 (Recommendation 2).

Project 20000851 DeCew Falls WTP Low Lift Pumping Station Upgrades had a previously approved capital budget of \$16,706,500 including construction, engineering, inspection, and internal staff time as detailed in Appendix 1 – Total Estimated Project Cost.

Based on capital budgeting and planning forecasts, operational considerations and cost savings, staff determined that the preferred approach to proceeding with construction at DeCew Falls WTP was to tender DeCew Plant 3 Contract 2 and the Low Lift Pumping Station Upgrades together. As part of an approved change order under the DeCew Falls WTP Low Lift Pumping Station project, Associated Engineering incorporated the deferred design works from DeCew Falls WTP Plant 3 project into one tender package.

As part of a competitive bid process (2021-RFP-128), Associated Engineering Ltd. was awarded the contract to provide engineering services for the upgrades of DeCew Falls WTP Low Lift Pumping Station (Project 2000851). Contract Administration and Inspection services were evaluated as provisional items in the 2021-RFP-128 bid process in the amount of \$552,911.10 but were not awarded. Associated Engineering has provided revised fees for the provisional items for Contract Administration and Inspection services which increases the provisional amount by \$776,435.10 to include the extension in the contract duration based on current construction requirements, as well as scope change requests for extra design efforts requested by Niagara Region for a total addition to the current Purchase Order of \$1,329,346.20 (excluding 13% HST).

Six (6) General Contractors were Prequalified in a competitive public request for supplier qualifications process (2023-RFSQ-10) and were invited to bid on 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2.

On April 27, 2023, Niagara Region initiated a competitive public tender process (2023-T-1), to solicit bids from those prequalified companies to complete for these works.

The Construction tender closed on June 12, 2023, and five (5) compliant bid submissions were received and opened with the lowest compliant bid being received from Maple Reinders Constructors Ltd. in the total bid amount of \$40,597,152 (including 1.76% non-refundable HST). Contract 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2 reflects the scope of work associated with both capital projects.

The total combined project budget is \$62,056,500. The construction costs associated with Contract 2 will be completed within the approved budget allocation of \$26,668,228 (Project 20000185) and \$13,363,000 (Project 20000851). The total estimated project costs after the award of Contract 2023-T-1 and contract amount increase for contract administration and inspection fall within the approved budget allocations. See Appendix 1 – Total Estimated Project Cost for a full budget breakdown.

## **Analysis**

The DeCew Falls Water Treatment Plant (WTP) is the largest WTP in the Niagara Region and serves approximately 181,000 people. The WTP service area includes the City of St. Catharines, the City of Thorold (excluding Port Robinson), the Town of Niagara-on-the-Lake, and the Town of Lincoln (Vineland/ Jordan). The DeCew Falls WTP consist of three (3) conventional water treatment plants (Plant 1, 2 and 3). Plant 3, shown on key plan in Appendix 3, was constructed in 1975 and includes three (3) filters to raise the plant capacity from 145.5 ML/d to 227 ML/d.

DeCew Falls WTP Plant 3 and the low lift pumping station has been in continuous use for over 45 years without any major upgrades or renewals. The existing filters and process equipment have reached the end of their service life and require upgrades. The low lift pumping station is a vital component for the DeCew Falls WTP as it provides raw water to all three (3) plants and the pumps are operating beyond their service life. In addition to the process equipment upgrades, a Structural Condition Assessment identified visible structural cracking on the filter bridge. In 2016, a DeCew Falls WTP Plant 3 Condition and Process Assessment was completed. The Assessment recommended various rehabilitation requirements as well as process improvements.

Currently, Plant 3 represents challenges for operations and maintenance staff with respect to limited access and poor visibility of flocculation and settling tanks from hatches located on the existing flat roof.

Plant 3 requires sustainability improvements to the existing process equipment and includes the addition of a building superstructure with outside wall extensions and a peaked metal roofing system. These works will open the existing flat concrete/membrane roof top structure to allow safe access and visibility to all process tanks to improve operations, maintenance, and ultimately water quality produced from the plant. Providing safe, reliable drinking water is a key objective of Niagara Region.

Two separate capital projects were initiated to address the sustainability upgrades necessary for Plant 3 and the Low Lift Pumping Station. Due to funding limitations, Plant 3 project was split into two distinct construction contracts. Contract 1 construction is complete and in warranty. Both Plant 3 Contract 2 and the Low Lift Pumping Station Upgrades project were scheduled for construction in 2023. Based on operational considerations, overlapping construction workspaces and cost savings, staff determined that the preferred approach to proceeding with construction at DeCew Falls WTP was to tender DeCew Plant 3 Contract 2 and the Low Lift Pumping Station Upgrades together. 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2 captured the scope associated with both Plant 3 Contract 2 and the Low Lift Pumping Station.

The following is the scope of work for 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2:

- Removal of existing roof slab and construction of new floor slab with openings above the flocculation and settling tanks.
- Construction of a new building superstructure above the flocculation and settling tanks and filter building including three (3) new stairwells for access to the new building super structure.
- Concrete repair works within the existing concrete structure.
- New lighting, electrical and HVAC for the new building superstructure area and low lift pumping station area.
- Process improvements including installation of a sludge collection system, replacement of gates, valves, and service water lines.
- Replacement of backwash pumps and low lift pumps.

In accordance with Niagara Region Procurement By-law 02-2016 as amended on February 28, 2019, and under the guidance of the Region's Procurement Department,

Niagara Region initiated a competitive public tender process (2023-T-1), on April 27, 2023, to solicit bids from those prequalified companies to complete these works. The tender closed on June 12, 2023, and five (5) compliant bid submissions were received and opened with the lowest compliant bid being received from Maple Reinders Constructors Ltd. in the total bid amount of \$39,895,000.00 (excluding 13% HST).

Niagara Region's Procurement and Strategic Acquisitions reviewed the bids received and determined that all bids received were compliant.

A summary of the bid submissions is included in Appendix 2.

Associated Engineering was retained by Niagara Region through 2021-RFP-128 to complete the detailed design, tendering and contract administration and inspection services. Contract administration and inspection services were provisional items in the 2021-RFP-128 procurement. Fees for the provisional items were received and evaluated as part of the competitive bid process, however they were not awarded.

A change PO for Associated Engineering is required in the amount of \$1,329,346.20 of which \$552,911.10 was competitively procured with an additional \$776,435.10 (excluding 13% HST) for single source requests. Associated Engineering has provided revised fees for Contract Administration and Inspection services based on the current construction requirements as well as a scope change request for additional design efforts requested by Niagara Region. The change PO for Associated Engineering fees include the following items (all costs below are excluding 13% HST):

- Contract Administration and Inspection services (\$1,288,169.40 of which \$552,911.10 was provisional and \$735,258.30 is additional scope): The Request for Proposal (2021-RFP-128) stipulated a 14-month construction period. Through design development, which included combining Plant 3 Contract 2 with the Low Lift Pumping Station, detailing the construction sequence, identifying operational constraints, complexity and schedule, the estimated construction duration for Contract 2 has been set to 24 months. The revised Contract Administration and Inspection fees now reflect the length of construction necessary to complete Contract 2 and the support and oversight required from the consultant based on the project complexity.
- Additional Design Efforts (\$41,176.80): Additional design effort was performed by Associated Engineering based on Region requests during the final stages of design and tendering. During the final stages of design, Niagara Region identified constraints with the existing service water line feeding Plant 3. The service water line

is required for bi-annual plant cleanings and requires a minimum volume and pressure for cleaning. The improvement of this service line was added to the scope of work for this project. Electrical coordination was required to accommodate changes for the ongoing Valve House upgrades project. During the tendering process, through questions raised by the contractor, Niagara Region identified additional scope items to be included in the tender such as existing instrumentation protection and recalibration which required additional efforts from Associated Engineering to design and include in the tendering package through addenda. The addenda period was also extended for a total of nine weeks and included a second site visit due to the project complexity requiring additional engineering support.

Contract award requires resources from Legal Services and Corporate Services in order to execute the required contract documents and amending agreement. Water and Wastewater Engineering staff will be providing resources throughout the project in order to manage the contract with assistance from Corporate Services on contract/project payments.

### **Alternatives Reviewed**

1. Proceed with the Contract Award and Proceed with Contract Amount Increase – This alternative would enable staff to proceed with contract award to Maple Reinders Constructors Ltd. to construct DeCew Falls WTP Plant 3 Contract 2 upgrades and to proceed with contract amount increase to Associated Engineering Ltd. to meet the Niagara Region's objective of providing safe and reliable drinking water. The project will provide a sustainability upgrade to the existing process equipment, prolong the service life of the existing Plant 3 structure with functional upgrades, reduce energy consumption from obsolete equipment and improve the plant operation performance and water quality.
2. Do Nothing – This alternative does not adequately address the safe and reliable supply of potable drinking water to the communities as sustaining demand and meeting provincial compliance would be at risk.

Staff recommend Alternative 1 to proceed with contract award to Maple Reinders Constructors Ltd. and contract amount increase to Associated Engineering Ltd.

### **Relationship to Council Strategic Priorities**

This recommendation is related to the Responsible Growth and Infrastructure Planning, Objective 3.3: Maintaining Existing Infrastructure. Through asset management planning,

the DeCew Falls WTP Plant 3 upgrades project and Low Lift Pumping Station upgrades project is required to ensure sustainable investments in the infrastructure needed to provide safe and reliable potable water to residents and businesses.

### **Other Pertinent Reports**

Not Applicable

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#### **Prepared by:**

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#### **Recommended by:**

Dan Carnegie  
Commissioner of Public Works (Acting)  
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#### **Submitted by:**

Ron Tripp, P.Eng.  
Chief Administrative Officer

This report was prepared in consultation with Tony Cimino, C.E.T., Associate Director, W-WW Engineering; Ben Collins, Program Financial Specialist W-WW, and Michelle Rasiulis, Procurement Manager; and reviewed by Joseph Tonellato, P.Eng, Director W-WW and Renee Muzzell, Manager, Program Financial Support.

### **Appendices**

Appendix 1	Total Estimated Project Cost
Appendix 2	Summary of Bids
Appendix 3	Key Plan

**PW 25-2023 Appendix 1**

**Total Estimated Project Cost - Contract Award**

**DeCew Falls WTP Plant 3 Upgrades Contract 2**

<b><u>Total Estimated Project Cost (20000185)*</u></b>	<b>Council Approved Budget</b>	<b>Budget Increase/ Reallocation</b>	<b>Revised Council Approved Budget</b>	<b>Expended &amp; Committed as of 07/10/23</b>	<b>Contract Award/ Forecast</b>	<b>Budget Remaining</b>
	<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) + (B)</b>	<b>(D)</b>	<b>(E)</b>	<b>(F) = (C)-(D)-(E)</b>
(a) Construction	-	-	-	-	-	-
i. 2020-T-18 - DeCew Plant 3 Contract 1	10,725,272	-	10,725,272	10,725,272	-	-
ii. 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2	26,668,228	-	26,668,228	-	27,158,191	(489,963)
(b) Project Contingency	4,562,500	-	4,562,500	-	3,867,587	694,913
(c) Consulting Engineering Services	-	-	-	-	-	-
i. Detailed Design	1,125,000	-	1,125,000	1,292,560	-	(167,560)
ii. Contract Administration & Inspection	-	-	-	-	-	-
iii. Geotechnical Service-Quality Control	-	-	-	-	-	-
(d) Project Management (In-House) and Operations	1,447,000	-	1,447,000	131,310	1,315,690	-
(e) Warranty	822,000	-	822,000	-	822,000	-
(f) Miscellaneous	-	-	-	37,390	-	(37,390)
<b>Total Estimated Project Cost (20000185)</b>	<b>45,350,000</b>	<b>-</b>	<b>45,350,000</b>	<b>12,186,532</b>	<b>33,163,468</b>	<b>-</b>



<b><u>Total Estimated Project Cost (20000851)*</u></b>	<b>Council Approved Budget</b>	<b>Budget Increase/ Reallocation</b>	<b>Revised Council Approved Budget</b>	<b>Expended &amp; Committed as of 07/10/23</b>	<b>Contract Award/ Forecast</b>	<b>Budget Remaining</b>
Project Element	<b>(A)</b>	<b>(B)</b>	<b>(C) = (A) + (B)</b>	<b>(D)</b>	<b>(E)</b>	<b>(F) = (C)-(D)-(E)</b>
(a) Construction	-	-	-	-	-	-
i. 2023-T-1 DeCew Falls WTP Plant 3 Upgrades Contract 2	13,363,000	-	13,363,000	-	13,438,961	(75,961)
(b) Project Contingency	1,655,000	-	1,655,000	-	908,442	746,558
(c) Consulting Engineering Services	-	-	-	-	-	-
i. Detailed Design	537,000	-	537,000	540,105		(3,105)
ii. Contract Administration & Inspection	-	-	-	-	1,352,743	(1,352,743)
iii. Geotechnical Service-Quality Control	-	-	-	-	-	-
(d) Project Management (In-House) and Operations	823,500	-	823,500	32,576	100,000	690,924
(e) Warranty	328,000	-	328,000		328,000	-
(f) Miscellaneous	-	-	-	5,673	-	(5,673)
<b>Total Estimated Project Cost (20000851)</b>	<b>16,706,500</b>	<b>-</b>	<b>16,706,500</b>	<b>578,354</b>	<b>16,128,146</b>	<b>-</b>
<b>Total Estimated Project Cost Combined</b>	<b>62,056,500</b>	<b>-</b>	<b>62,056,500</b>	<b>12,764,886</b>	<b>49,291,614</b>	<b>-</b>

\*All costs include 1.76% non-refundable HST

\*\*Total Contract Award is equal to i) \$39,895,000 before tax; ii) \$40,597,152 including 1.76% non-refundable HST; iii) \$45,081,350 including 13% HST

**PW 25-2023 Appendix 2 - Summary of Bids (2023-T-1)**

<b>Vendor</b>	<b>Total Tender Price (excluding HST)</b>
Maple Reinders Constructors Ltd.	\$ 39,895,000.00
Graham Construction and Engineering LP	\$ 40,285,000.00
ROMAG Contracting Ltd.	\$ 40,585,000.00
North America Construction (1993) Ltd.	\$ 41,945,148.00
Bennett Mechanical Installations (2001) Ltd	\$ 41,997,000.00



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