
Subject: Niagara Falls Water Treatment Plant Phase II Upgrades – Contract Changes

Report to: Regional Council

Report date: Thursday, August 13, 2020

Recommendations

1. That the original contract amount of \$12,667,413.00 (including 13% HST) awarded to Maple Reinders Constructors Ltd. **BE INCREASED** by \$621,500.00 (including 13% HST), for a total revised contract amount of \$13,288,913.00 (including 13% HST).
2. That the gross budget for the Niagara Falls Water Treatment Plant Phase II Upgrades project **BE INCREASED** by \$200,000 and that the increase **BE FUNDED** from the Capital Variance Reserve – Water.

Key Facts

- The purpose of this report is to seek Council's approval for an increase to the gross budget for project 20000460 (Niagara Falls Water Treatment Plant Phase II Upgrades) and to increase Maple Reinders Constructors Ltd. (MRCL) original award amount to \$13,288,913.00 (including 13% HST) for the Niagara Falls Water Treatment Phase II Upgrades.
- In September 2019, Council approved Staff's recommendation to award the original contract to MRCL pursuant to a competitive public tendering process (2018-T-116) as well as to increase the project budget funded by the Capital Variance Reserve - Water by \$2,637,129 in order to accommodate the original contract award.
- As the requested increase in contract value proposed herein was not contemplated as part of the original tender (2018-T-116), Staff are requesting Council approval to single source award this work in accordance with Purchasing By-law section 18(a)(iv), specifically that an urgency exists to complete this work during active construction.
- As the cumulative value of the initial award and single source request identified herein exceeds \$5,000,000, Staff have prepared this consideration report for Council approval in accordance with Schedule B of the Procurement By-law 02-2016 as amended on February 28, 2018.
- As Council has already approved a budget increase through the Capital Variance Reserve – Water in excess of \$250,000, subsequent funding requests through the

Capital Variance Reserve - Water for this project require Council approval in accordance with the Budget Control By-law.

- Upgrades include structural rehabilitation and process and mechanical replacements of the interior of the filter buildings (plants 1 and 2), and structural rehabilitation of the exterior of high lift pumping station building and chemical storage building.
- Construction commenced in October 2019 and is anticipated to be complete by November 2020. The plant remains in operation during the construction.
- Given the age of the plant, the structural concrete repairs have far exceeded the estimated contract allowance. The extent was not able to be fully quantified until the existing layers of coatings were removed.
- Coordination with the Region's Operations team and construction team is continuous to ensure adequate performance of the upgraded filters for water demand in the City of Niagara Falls.
- This project is eligible for funding from the Clean Water and Wastewater Fund (CWWF) for a combined federal and provincial contribution of \$2,808,000.00. The Contract includes provision to ensure that the value of work required is completed to receive the full remaining eligible funding. All eligible funds must be spent by December 31, 2020 (achieved) and substantial performance must be achieved by June 30, 2021.

Financial Considerations

The Niagara Falls Water Treatment Plant Phase II Upgrades project (20000460) has a previously approved capital budget of \$12,752,129, with total expenditures and commitments as of July 27, 2020 of \$12,230,768. Federal and Provincial funding of \$2,808,000 has been awarded to this project through the Clean Water and Wastewater Fund (CWWF).

An increase to the project budget was previously approved by Council in PW 50-2019 in the amount of \$2,637,129 due to higher than estimated tender prices resulting from unknown risks associated with structural restoration and inspection costs, which was funded from the Capital Variance Reserve - Water. At this time, a further budget increase of \$200,000 (inclusive of 1.76% non-refundable HST) has been requested. This increase is required due to significant concrete repairs encountered during construction, underdrain condition and performance and additional curing time for high performance coatings. As well, consulting engineering services for WSP are expected to increase given the complexity of work, highly regulated environment and the unknown magnitude of risks.

The provisional items from the tender in the amount of \$396,000.00 were not awarded in PW 50-2019 as staff estimated that the original contingency would be sufficient to handle any unknowns. The items covered in the original tender do not represent the changes proposed in this report. Therefore, this request is separate from the provisional items and staff do not foresee awarding the tendered provisional items at any point in the contract.

The requested budget increase of \$200,000 is to be funded from the Capital Variance Reserve – Water, which has an uncommitted balance of \$916,722 as of July 29, 2020. This will result in a total project budget of \$12,952,129 and does not impact the previously approved CWWF funding. Any unspent surplus funds remaining upon project completion will be returned to the Water Capital Reserve so that these funds can be used to fund future capital projects

A full budget breakdown can be found in Appendix 2 – Total Estimated Project cost.

Analysis

Niagara Region owns and operates the NFWTP located at 3599 Macklem Street in the City of Niagara Falls. The NFWTP was originally constructed in 1932 (Plant 1) and expanded in 1950 (Plant 2) with further modifications in 1980 and in 2005. The plant is rated at 145.5 ML/d and services the City of Niagara Falls, and parts of the City of Thorold and the Town of Niagara-on-the-Lake via a water main network, pumping stations, and service reservoirs. The raw water intake draws from the Welland River at the mouth of the Niagara River. Appendix 1 includes a key plan of the NFWTP.

The proposed upgrades include structural rehabilitation and process and mechanical replacements of the interior of the filter buildings (plants 1 and 2), and structural rehabilitation of the exterior of high lift pumping station building and chemical storage building. The plant remains in operation and the work has been divided into 6 phases – Plant 1 (phase 1 and 2), Plant 2 (phase 3, 4 and 5) and exterior works (Phase 6). The exterior works are weather dependent and are occurring in parallel with the interior works.

The contract was awarded to MRCL pursuant to a competitive public tender process (2018-T-116) was ratified by Council (Report PW 50-2019) in September 2019. Construction commenced in October 2019 and in the time since, they along with their team of subcontractors have been actively and progressively advancing the project through cooperation and innovation despite challenges.

Several issues have been identified very recently which require an increase in contract award to MRCL. These include the following main issues:

- Extensive concrete repairs – Given the age of the plant and several layers of existing coatings, concrete repairs have proven to be significantly more than the consultant or contractor could have estimated prior to the removal of the existing coatings. The repairs include spalled concrete, cracking, rust spots and removal of original form ties from cast in place filter troughs.
- Cleaning and performance of the filter underdrain system – The underdrains were not included for removal and cleaning as part of the contract given the Region's knowledge about their performance. Phase 2 underdrains contained an unidentified film, even through lab analysis, that required additional time and effort in order to get the filters back in operation. Phase 1 and 3 are not appearing to have the same issue. Phase 4 is still unknown at this time.
- Water production of new filters, specifically when transitioning between plant 1 and 2 – In the transition of work between plants 1 and 2, there were operational considerations that had to be addressed with the plant 1 upgraded filters to ensure that the Region could continue to meet water demands.
- New high performance coatings – curing took longer than scheduled and the Region requested additional curing time for better results to ensure the risk to operations was minimized.

The changes noted above are integral to the current upgrades as partial concrete repairs and insufficient curing time of new coatings could jeopardize warranty and interrupt operations if any failures occur. Similarly, the condition and performance of the underdrains is being closely monitored and analyzed in each phase to ensure the upgraded filters can meet their rated capacity and water demands.

The labour, materials and delays associated with the above work is above the originally contemplated scope of work as issued in 2018-T-116 and will be awarded as a single source in accordance with Section 18(a)(iv).

Alternatives Reviewed

Staff duly considered two alternatives:

1. Proceed with all required changes in a financially responsible, negotiated manner to ensure the contract and products meet the full warranty terms

2. Do not proceed with significant concrete repairs and application of new coating system, which would result in further concrete degradation, and possible structural failure of the tanks and leakage to the surrounding plant infrastructure and the environment.

Following a comprehensive review, Staff are recommending to proceed with Alternative 1 under the current contract of MRCL.

Relationship to Council Strategic Priorities

This recommendation is related to the Fostering Growth strategic priority since the planned upgrades will ensure reliable infrastructure to support growth and economic development within the City of Niagara Falls.

Other Pertinent Reports

[PW 50-2019 Award of Tender 2018-T-116, Niagara Falls Water Treatment Plant Phase II Upgrades](#)

Prepared by:

Lisa Vespi, P.Eng., PMP
Senior Project Manager
Water and Wastewater Services,
Engineering

Recommended by:

Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:

Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Pamela Hamilton, Program Financial Specialist W-WW, and reviewed by Joseph Tonellato, P.Eng, Director W-WW, Dan Ane, CPA, CA, Manager, Program Financial Support and Bart Menage, CSCMP, CRM, C.P.M., Director, Procurement & Strategic Acquisitions, Corporate Services.

Appendices

Appendix 1	Key Plan
Appendix 2	Total Estimated Project Cost