

Award of Request for Tender Doc4279568020 to Alberici Constructors Limited for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C. Harris Water Treatment Plant, and Amendment to Purchase Orders 6051687 and 6055224

Date: January 30, 2023

To: General Government Committee

From: Chief Engineer and Executive Director, Engineering and Construction Services, and Chief Procurement Officer, Purchasing and Materials Management

Wards: 20 (Scarborough Southwest)

SUMMARY

The purpose of this report is to advise of the results of Request for Tender Doc4279568020, Contract Number 21ECS-MI-02HA, for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C. Harris Water Treatment Plant and to request authority to award the contract to Alberici Constructors Limited, in the amount of \$54,920,037 net of all applicable taxes and charges (\$55,886,630 net of HST recoveries).

Authority is also being requested to amend Purchase Order Number 6051687 with Associated Engineering (Ont.) Ltd., for the provision of Contract Administration Services during construction, in the amount of \$1,714,282 net of all applicable taxes and charges (\$1,744,453 net of HST recoveries), and to amend Purchase Order Number 6055224 with Associated Engineering (Ont.) Ltd., for the provision of Post-Construction Services, in the amount of \$19,336 net of all applicable taxes and charges (\$19,676 net of HST recoveries).

The Purchase Order Amendments for Contract Administration Services and Post-Construction Services with Associated Engineering are required due to changes in the project's scope, complexity and duration.

RECOMMENDATIONS

The Chief Engineer and Executive Director, Engineering and Construction Services and the Chief Procurement Officer, Purchasing and Materials Management recommend that:

1. The General Government Committee, in accordance with Section 195-8.4 of the Toronto Municipal Code Chapter 195 (Purchasing By-Law), grant authority to award Request for Tender Doc4279568020, Contract Number 21ECS-MI-02HA, for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C. Harris Water Treatment Plant, in the amount of \$54,920,037 net of all applicable taxes and charges (\$55,886,630 net of HST recoveries) to Alberici Constructors Ltd, having submitted the lowest compliant bid and meeting the specifications in conformance with the Tender requirements.
2. The General Government Committee grant authority to amend Purchase Order Number 6051687 with Associated Engineering (Ont.) Ltd., for the provision of Contract Administration Services by increasing the value by \$1,714,282 net of all applicable taxes and charges (\$1,744,453 net of HST recoveries), from \$1,233,217 net of all applicable taxes and charges (\$1,254,922 net of HST recoveries) to \$2,947,499 net of all applicable taxes and charges (\$2,999,375 net of HST recoveries).
3. The General Government Committee grant authority to amend Purchase Order Number 6055224 with Associated Engineering (Ont.) Ltd., for the provision of Post-Construction Services by increasing the value by \$19,336 net of all applicable taxes and charges (\$19,676 net of HST recoveries), from \$63,061 net of all applicable taxes and charges (\$64,171 net of HST recoveries) to \$82,397 net of all applicable taxes and charges (\$83,847 net of HST recoveries).

FINANCIAL IMPACT

Award for Contract Number 21ECS-MI-02HA

The total value of the contract award for Doc4279568020, Contract Number 21ECS-MI-02HA, for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C. Harris Water Treatment Plant, is \$54,920,037 net of all applicable taxes and charges. The total cost to the City is \$55,886,630 including contingency and provisional sums, and net of HST recoveries.

Funding for this contract is available in Toronto Water's 2024 Capital Budget and 2025-2033 Capital Plan included in the 2024 Staff Prepared Budget. Funding details with forecasted expenditures (net of HST recoveries) are summarized in Table 1 below:

Table 1: Financial Impact Summary of Recommended Contract Award

WBS Element	2024	2025	2026	Total (net of HST recoveries)
CPW070-05-02 (Harris WTP)	\$15,264,000	\$35,616,000	\$2,278,910	\$53,158,910
CPW070-09 (WTP- Plantwide)	\$645,000	\$1,235,260	\$ 847,460	\$ 2,727,720
Total (net of HST recoveries)	\$15,909,000	\$36,851,260	\$3,126,370	\$55,886,630

Purchase Order Amendments

a) Purchase Order Number 6051687 Contract Administration Services

The request to amend the Purchase Order Number 6051687 with Associated Engineering (Ont.) Ltd, will increase the total contract value by \$1,714,282 net of all applicable taxes and charges (\$1,744,453 net of HST recoveries), revising the current Purchase Order value from \$1,233,217 net of all applicable taxes and charges (\$1,254,922 net of HST recoveries) to \$2,947,499 net of all applicable taxes and charges (\$2,999,375 net of HST recoveries).

Funding for this Purchase Order Amendment is available in Toronto Water's 2024 Capital Budget and 2025-2033 Capital Plan included in the 2024 Staff Prepared Budget. The total cost to the City is \$1,744,453 net of HST recoveries. Funding details with forecasted expenditures (net of HST recoveries) are summarized in Table 2 below:

Table 2: Financial Impact Summary of Purchase Order Amendment for Contract Administration Services

WBS Element	2024	2025	2026	Total (net of HST recoveries)
CPW070-04	\$550,000	\$850,000	\$344,453	\$1,744,453

b) Purchase Order Number 6055224 Engineering Post-construction Services

The request to amend the Purchase Order Number 6055224 with Associated Engineering (Ont.) Ltd, will increase the total contract value by \$19,336 net of all applicable taxes and charges (\$19,676 net of HST recoveries), revising the current Purchase Order value from \$63,061 net of all applicable taxes and charges (\$64,171 net of HST recoveries) to \$82,397 net of all applicable taxes and charges (\$83,847 net of HST recoveries).

Funding for this Purchase Order Amendment is available in Toronto Water's 2024 Capital Budget and 2025-2033 Capital Plan included in the 2024 Staff Prepared Budget. The total cost to the City is \$19,676 net of HST recoveries. Funding details with forecasted expenditures (net of HST recoveries) are summarized in Table 3 below:

Table 3: Financial Impact Summary of Purchase Order Amendment for Post-Construction Services

WBS Element	2025	2026	2027	Total (net of HST recoveries)
CPW070-04	\$4,000	\$5,000	\$10,676	\$19,676

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting of June 28, 2017, the Bid Award Panel granted authority to enter into an agreement with Associated Engineering (ON) Limited, for the provision of Provision of Engineering Services for the Design, Construction Administration and Post Construction Services for a Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C Harris, R.L. Clark and F.J. Horgan Water Treatment Plants, being the highest scoring proponent meeting the requirements of Request for Proposal 9117-17-7043, in the amount of \$2,142,488 net of all applicable taxes and charges (\$2,180,196 net of HST recoveries). The total award value was made up of three (3) Purchase Orders: one for design, one for services during construction and one for post-construction services. The Bid Award Panel Decision Document can be found at:

[Agenda Item History - 2017.BA29.3 \(toronto.ca\)](#)

At its meeting of June 18, 2019, City of Toronto Council granted authority to negotiate and enter into a Memorandum of Understanding with the Regional Municipality of Peel and the Regional Municipality of Durham to undertake tasks and to share costs associated with the implementation and operation of a Lake Ontario based monitoring, information management, and forecasting system (the "Monitoring System"), covering the Lake Ontario based source waters for the water treatment plants of the three municipalities. The three municipalities will jointly develop, fund, administer and implement infrastructure, instrumentation, equipment and tools to monitor lake circulation and water quality and assist in forecasting impacts of contaminant spills which will guide emergency spills response and water treatment plant operations. The Adopted Council Document can be found at:

<https://secure.toronto.ca/council/agenda-item.do?item=2019.IE5.8>

At its meeting of January 11, 2021, the Infrastructure and Environment Committee adopted IE19.4 - Award of Contract Number 20ECS-MI-01TW for the Upgrades of Zebra Mussel Control System and Lake Monitoring Equipment at the R.L. Clark and F.J.

Award of Request for Tender Doc4279568020 to Alberici Constructors Limited for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C. Harris Water Treatment Plant, and Amendment to PO's 6051687 and 6055224

Horgan Water Treatment Plants to Alberici Constructors Limited in the amount of \$23,259,299 net of all applicable taxes and charges (\$23,668,663 net of HST recoveries), having submitted the lowest compliant bid and meeting the specifications in conformance with the Request for Tender requirements. The Infrastructure and Environment Committee Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.IE19.4>

COMMENTS

Background

Toronto Water operates four water treatment plants located along the waterfront, named from west to east as the R.L. Clark, Island, R.C. Harris and F.J. Horgan Water Treatment Plants, respectively. The plants draw raw water from Lake Ontario. The water is treated at the plants and then transmitted through an integrated system of pumping stations, storage reservoirs, transmission mains and water mains to residents, industry and commercial users across the city, and the southern portion of York Region. The R.C. Harris Water Treatment Plant, located near Victoria Park Avenue and Queen Street East, was initially constructed in the 1930s and produces an average of 365 mega litres of potable water per day, with a maximum production capacity of 950 mega litres per day.

Three of the plants, the R.L. Clark, the R.C. Harris and F.J. Horgan Water Treatment Plants include Zebra Mussel Control Systems at their raw water intakes. The Zebra Mussel Control Systems consist of chlorine solution and water sampling lines. The chlorine solution lines direct a small amount of highly concentrated chlorine solution to either the intake well (called on-shore pre-chlorination) or to the intake crib structure (called off-shore pre-chlorination).

In December 2015, the Toronto Water Quality Master Plan identified that Zebra Mussel Control Systems at all three water treatment plants were at the end of their service life and required replacement and recommended that the replacement systems should be designed to operate year-round to minimize accumulation of mussels at the raw water intakes based on observed increase in Zebra and Quagga mussel colonization patterns year-round. Historically, the Zebra Mussel Control System was only operated seasonally although R.C. Harris has operated the off-shore system year round in recent years.

In 2006, the Ontario government passed the Clean Water Act, 2006 [S.O. 2006, c 22] (the "Act") to address drinking water source protection recommendations made by Justice O'Connor in his judicial inquiry into the tainted water tragedy that occurred at Walkerton in 2001. The Ministry of Environment, Conservation and Parks approved the Credit Valley, Toronto and Region and Central Lake Ontario (CTC) Source Protection Plan (CTC Plan), with an effective date of December 31, 2015. The Plan outlines policies that are intended to protect Lake Ontario, Toronto's drinking water source, from spills of contaminants and similar unplanned events by implementing risk reduction

measures at their source, and by improving the knowledge base available for forecasting lake circulation and water quality impacts to the City's water treatment plant intakes, when there is a spill impacting Lake Ontario.

In 2019, City of Toronto Council approved the Lake Ontario Monitoring System which fulfills part of the City's responsibilities related to the CTC Plan and established the basis for an agreement with neighbouring municipalities to operate and maintain a Lake Ontario Monitoring System. The Lake Ontario Monitoring System includes the installation of new lake current and water quality instrumentation near the Plant intakes, complimented with databases to collect, store, and share data on Lake Ontario currents and water quality.

Given the synergies between the installation of the Lake Ontario Monitoring System and the replacement of the Zebra Mussel Control Systems, the design and installation of both were grouped as a single engineering design assignment. In 2017, through a Request for Proposal, the City retained Associated Engineering (Ont.) Ltd to undertake the Preliminary Design, Detailed Design, Construction Contract Administration and Post-Construction Services for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.L. Clark, R.C. Harris and F.J. Horgan Water Treatment Plants. The design phase was initiated in July 2017 and completed in October 2023.

Construction Contract 1, Contract Number 20ECS-MI-01TW, for construction at the F.J. Horgan and R.L. Clark Water Treatment Plants, was tendered on September 16, 2020. Construction commenced in March 2021 and was substantially completed in August 2023.

The Request for Tender for Contract 2, Contract Number 21ECS-MI-02HA for the Zebra Mussel Control System and Lake Current Monitoring System at the R.C. Harris Water Treatment Plant, was issued on November 8, 2023, and closed December 19, 2023. The Zebra Mussel Control System needs upgrading as it is approaching the end of its service life. Additionally, to effectively combat the increasing mussel population, system changes are necessary, including the introduction of chlorine usage and a shift to year-round operations. The Lake Current Monitoring Upgrades respond to requirements identified in the 2006 Clean Water Act and the subsequent CTC Source Protection Plan mandate measures to protect Lake Ontario, including monitoring lake currents and water quality. The Lake Ontario Monitoring System will be installed alongside the updated Zebra Mussel Control Systems, offering combined benefits in water quality management.

The design for the R.C. Harris Water Treatment Plant includes open-cut trenching on the lakebed and on-shore micro tunnelling for the installation of the pipe bundles outside of the raw water intake due to the existing intake configuration, which precludes installation inside the intake line.

Award for Contract Number 21ECS-MI-02HA, Doc4279568020

Request for Tender Doc4279568020, Contract Number 21ECS-MI-02HA, for the Zebra Mussel Control System and Lake Current Monitoring Upgrades at the R.C. Harris Water Treatment Plant was issued by Purchasing and Materials Management Division and was advertised on both the City's and Ariba Discovery websites on November 8, 2023, with a closing date of December 19, 2023 and an issuance of four (4) addenda. A total one (1) bidder responded as listed in Table 4 below:

Table 4: Suppliers and Bid Prices for Doc4279568020

Suppliers	Bid Price excluding HST *
Alberici Constructors Limited	\$45,910,736.00

*Pursuant to the Request for Tender document the contract award price includes contingency. Bid prices shown do not include contingency.

The bids were reviewed and evaluated by staff from Purchasing and Materials Management Division and the Engineering and Construction Services Division and were found to be in conformance with the Tender requirements. The recommended supplier for Contract Number 21ECS-MI-02HA is Alberici Constructors Limited. The bid price of the recommended supplier is in the amount of \$45,910,736 net of all applicable taxes and charges, is approximately 3.2 percent higher than the pre-tender engineering estimate of \$53,144,910.

A contingency allowance on the base scope of work has been added to the proposed contract award for additional work and/or services which may be required to address any unforeseen conditions which may arise during construction. This contingency is deemed necessary to address the significant risks associated with the retrofit work of an older operating plant such as R.C. Harris Water Treatment Plant, and the complex marine construction involving trench digging on the lakebed. The construction of the Zebra Mussel Control System and Lake Current Monitoring Upgrades will be undertaken while the plant remains fully operational and must always meet regulatory compliance requirements.

The Fair Wage Office reported that the recommended Supplier, Alberici Constructors Limited, indicated they have reviewed and understand the Fair Wage Policy and Labour Trades requirements and the recommended Supplier has agreed to comply fully.

The Tender submission from Alberici Constructors Limited for Doc4279568020, includes their agreement to complete the works within 720 calendar days from the date that the written order to commence work is issued by the City.

A single Purchase Order will be issued to Alberici Constructors Limited for Doc4279568020 in the amount of \$54,920,037 net of all taxes.

Recommended Adjustments to Contract Administration Services and Post-Construction Services Fees

In January 2017, the City of Toronto issued Request for Proposal 9117-17-7043 to procure Engineering Services to Upgrade the Zebra Mussel System and Lake Current Monitoring System at the R.L. Clark, R.C. Harris, and F.J. Horgan Water Treatment Plants. The assignment was awarded to Associated Engineering (Ont.) Ltd, on June 28, 2017. This engineering assignment was to be carried out by issuing three (3) distinct Purchase Orders, one each for Detailed Design, Contract Administration and Post Construction Services.

The Request for Proposal included a timeline of one (1) year for the design phase for all three plants, and three (3) staggered construction contracts, each with a 12-month duration for a total duration of 48 months, followed by a standard 24-month warranty period at the completion of each construction contract. Additionally, the Request for Proposal required Associated Engineering to provide a total of 156 weeks of Contract Administration services for construction at all three plants. Construction Contract 1, Contract Number 20ECS-MI-01TW to Upgrade Zebra Mussel Control System and Lake Current Monitoring System at R.L. Clark and F.J. Horgan Water Treatment Plants, is substantially complete and utilized 104 weeks of the total 156 weeks of Contract Administration. Construction Contract 2, Contract Number 21ECS-MI-02HA to Upgrade Zebra Mussel Control System and Lake Current Monitoring System at the R.C. Harris Water Treatment Plant, has a total contract duration of 116 weeks. As a result, Associated Engineering must provide a total of 220 weeks of Contract Administration services, which is 64 weeks more than their base scope of 156 weeks of services.

a) Amendment to Purchase Order Number 6051687 for Contract Administration Services

The Request for Proposal scope was based on the new pipes being installed in the same location as the existing pipes, re-using the existing trench. To keep the existing system operational for as long as possible and ensure uninterrupted operation, it was decided during design to install new pipes in a new trench, and new alignment that would not interfere with the existing buried pipes and intake. The geotechnical investigations along the new alignment identified varying soil conditions, which requires thorough review during construction from a dedicated marine inspector. This was not anticipated during the Request for Proposal with installation planned in the existing trench. Toronto and Region Conservation Authority also imposed turbidity monitoring requirements as part of permitting processes, which was not anticipated at the time of the Request for Proposal.

Consequently, the scope of Construction Contract 2 is significantly different from that originally foreseen by the City, and the Contract Administration Services that were stipulated in the Request for Proposal are insufficient for the magnitude and complexity of the project being delivered.

The existing Contract Administration Services Purchase Order with Associated Engineering (Ont.) Ltd needs to be amended to adequately respond to the requirements of the Zebra Mussel Control System and Lake Monitoring Upgrades at the R.C. Harris Water Treatment Plant construction contract.

The scope of the Contract Administration Services assignment includes the following:

- Provide general engineering services for administrating the contract and site inspection of the work during the construction phase.
- Monitor and inspect the contractors work to ensure that the contractor carries out the work as designed per the contract specifications, and to confirm that the constructed facility will perform and function as intended.

The factors contributing to the amendment are:

1. Scope Changes - The scope of Contract Administration Services to support Construction Contract 2 has expanded due to increased complexity of marine works, with open cut excavation to install the new pipes in a new trench, and due to the soft soil lakebed encountered during the geotechnical investigation of the new alignment. There is also a requirement for the Contractor to monitor and report the turbidity while excavating in the lake and ensuring that the trench depth in various soil conditions meets the geotechnical recommendations. This requires an additional dedicated site inspector and part-time contract administrator to monitor marine works for two years of construction, which was not anticipated at the time of the Request for Proposal.
2. Extended Construction Schedule - The additional complexity of the project resulted in a construction schedule that is longer than originally estimated at 52 weeks at the time of the Request for Proposal. The successful bidder has confirmed a project duration of 116 weeks. This significantly increases the need for Contract Administration Services to support construction.
3. Complex multi-disciplinary retrofit projects require a much more intense level of effort from field staff to adequately address the complexities and time sensitive nature of this type of construction. Engineering and Construction Services experience in the last 5 years on large complex projects has resulted in utilization of larger site engineering teams to monitor the extensive contractor activities and co-ordinate with other projects and Plant Operations. Engineering and Construction Services staff have reviewed Associated Engineering (Ont.) Ltd.'s revised proposal for a larger site Contract Administration team and agree that the revised proposal is in line with similar complex multi-disciplinary retrofit projects currently ongoing and well within industry standards. The revised total for Contract Administration Services represents 3.1 percent of the construction fee, which is well below industry standard.

4. Inflationary Impacts – The fee schedule submitted during the Request for Proposal process requires adjustment to reflect current charge out rates Engineering Consultant staff employed on this assignment. The original Request for Proposal was issued and awarded in 2017. According to the terms of the agreement, those proposal rates are no longer applicable. The proposal from the Engineering Consultant for the construction period of the contract has revised rates that will be applicable from 2023 and will be adjusted yearly based on the Toronto - All Items Consumer Price Index (CPI). The Agreement for the engineering services will be amended to reflect the revised schedule and rate in 2023. All other terms will remain the same.

An amendment to the Contract Administration Services Purchase Order with Associated Engineering (Ont.) Ltd is required to provide for an additional 64 weeks of Contract Administration Services, beyond the 52 weeks originally provided in the Request for Proposal, to align with the contract schedule of 116 weeks. It is also recommended that a contingency in the amount of \$362,896 be included for any unforeseen issues that may arise during construction and further yearly rate adjustments. The total value of the Purchase Order Amendment, for Purchase Order Number 6051687, is in the amount of \$1,714,282 net of all applicable taxes and charges (\$1,744,453 net of HST recoveries), revising the current Purchase Order value from \$1,233,217 net of all applicable taxes and charges (\$1,254,922 net of HST recoveries) to \$2,947,499 net of all applicable taxes and charges (\$2,999,375 net of HST recoveries).

b) Amendment to Purchase Order Number 6055224 for Post-Construction Services

The scope of work for the Post-Construction Services assignment is to monitor and inspect the Contractor's warranty work, document warranty inspections, and provide as-built drawings at the end of the warranty period. Construction Contract 1 is currently in the warranty phase and has exhausted the available contingency to accommodate post-commissioning changes requested by the F.J. Horgan and R.L. Clark Water Treatment Plants.

The existing Post-Construction Services Purchase Order with Associated Engineering (Ont.) Ltd needs to be amended to adequately respond to the requirements of the Zebra Mussel Control System and Lake Monitoring Upgrades Project.

An amendment to the Post-Construction Services Purchase Order with Associated Engineering (Ont.) Ltd is required due to readjustment of the charge out rates of the staff employed on this assignment, as noted above. It is also recommended that a contingency in the amount of \$11,630 be included for any unforeseen issues that may arise during construction and further yearly rate adjustments. The total value of the Purchase Order Amendment, for Purchase Order Number 6055224, is in the amount of \$19,336 net of all applicable taxes and charges (\$19,676 net of HST recoveries), revising the current Purchase Order value from \$63,061 net of all applicable taxes and charges (\$64,171 net of HST recoveries) to \$82,397 net of all applicable taxes and charges (\$83,847 net of HST recoveries).

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