

Contract Award No. 08FS-59WS, Tender Call 156-2008 and Purchase Order Amendment, F.J. Horgan Water Treatment Plant Capacity Expansion to 800 ML/D

Date:	October 29, 2008
To:	Public Works and Infrastructure Committee
From:	General Manager, Toronto Water Acting Director, Purchasing and Materials Management Division
Wards:	Ward 44 – Scarborough East
Reference Number:	P:\2008\Cluster B\TW\pw08021

SUMMARY

The purpose of this report is to advise on the results of the Tender Call 156-2008 issued for the F.J. Horgan Water Treatment Plant. This capital project is required to increase plant capacity and meet demand forecasts in York Region and the City of Toronto. The report requests authority to award a contract to the recommended bidder and amend two purchase orders for professional engineering services with CH2M Hill Canada Limited. This project is being cost shared with York Region.

RECOMMENDATIONS

The General Manager of Toronto Water and the Acting Director of Purchasing and Materials Management recommend that Public Works and Infrastructure Committee grant authority to:

1. Award Contract 08FS-59WS, Tender Call 156-2008, for the F.J. Horgan Water Treatment Plant Capacity Expansion to 800 ML/D, to Alberici Constructors, Ltd., in the total amount of \$179,332,263.24, net of GST plus contingency in the amount of \$36,000,000.00, for a total project cost of \$215,332,263.24, net of GST, having submitted the lowest bid meeting specification in conformance with the tender requirements.
2. Amend the purchase order (P.O. No. 6019292) for professional services with CH2M Hill Canada Limited for additional design services by an additional amount of \$400,000.00 net of

GST, for a revised total of \$6,778,450.42, net of GST, and extension of time from Dec. 31, 2008 to Dec. 31, 2013.

3. Amend the purchase order (P.O. No. 6019297) for professional services with CH2M Hill Canada Limited for the additional provision of general office administration, construction administration and site supervision services during construction by an additional amount of \$2,000,000.00 net of GST, for a revised total of \$6,092,151.23, net of GST, and extension of time from Dec. 31, 2008 to Dec. 31, 2013.
4. Increase the fee for additional professional services with CH2M Hill Canada Limited for the provision of post construction services by an additional amount of \$152,000.00 net of GST. The post construction services purchase order will be issued upon completion of the construction work, which is anticipated to be in late 2011.

FINANCIAL IMPACT

Construction Work

The total construction contract award identified in this report is \$179,332,263.24 excluding the contingencies amount of \$36,000,000.00. The total cost of the project is \$215,332,263.24 including contingency. Funding is available in the approved 2009 Toronto Water Capital Budget in WBS Element CPW002 F.J. Horgan Water Treatment Plant Capacity Expansion. All amounts are net of GST.

The cash flow requirements for this construction contract are \$42,000,000.00 in 2009, \$63,000,000 in 2010, \$74,000,000.00 in 2011, and \$36,332,262.24 in 2012 all amounts are net of GST.

In accordance with the agreement with the Regional Municipality of York (York) dated March 1, 2005 - Contribution to Cost Sharing Facilities Schedule B2 (Horgan Expansion - 31.99%), York's contribution to the construction contract will be \$68,884,791.00, net of GST. The City of Toronto's financial commitment to this component of the project will be \$146,447,472.20, net of GST.

Engineering Work

The additional design services for this project total \$400,000.00 net of GST. The additional construction administration services during construction and post construction services for this project total \$2,152,000.00 net of GST. Funding is available in the approved 2009 Toronto Water Capital Budget in WBS Element CPW002 - F.J. Horgan Water Treatment Plant Capacity Expansion.

The cash flow for the additional design and construction administration services during construction and post construction services to be increased by \$700,000.00 in 2009, \$1,000,000.00 in 2010, \$500,000.00 in 2011 and \$352,000.00 in 2012, all amounts net of GST.

The total construction and engineering costs for this project inclusive of all taxes is \$228,778,476.40 (\$217,884,263.24 net of GST).

The engineering estimate for this construction contract was \$185,000,000.00 net of GST, exclusive

of contingencies.

The Acting Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

ISSUE BACKGROUND

The F.J. Horgan Water Treatment Plant (WTP), located in Scarborough, was constructed between 1974 and 1979 and is one of four water treatment plants operated by Toronto Water. It was initially designed with a capacity of 455 million litres per day (ML/d) and a build-out capacity of 1,365 ML/d. Subsequent to commissioning, a technical assessment determined that the capacity of the plant could be increased to its present day limit of 570 ML/d without any structural or process additions/upgrades required to the facility.

Completed in January 2004, the Toronto/York Joint Optimization Study recommended expansion of the F.J. Horgan WTP by 230 ML/d in Phase 1, to a total capacity of 800 ML/d. This expansion is required to meet the demand forecasts of both the City of Toronto and York Region identified in the York/Toronto Water Supply Agreement approved by City Council at its meeting of May 17 to 19, 2005. The Region of York is funding 31.99% of the project cost as shown in the following table.

	Total Cost	City of Toronto	York Region
Municipal Class EA – Schedule C (completed)	347,753.62	236,507.24	111,246.38
Engineering Services (Design and Contract Admin)	12,870,601.65	8,753,296.18	4,117,305.47
Engineering Services (Post Construction)	336,020.80	228,527.75	107,493.05
Equipment Purchase*	11,000,000.00	7,481,100.00	3,518,900.00
Construction	215,332,263.24	146,447,472.23	68,884,791.01
TOTAL(excluding GST)	239,886,639.31	163,146,903.39	76,739,735.92

* Costs are estimated at this time as some equipment is scheduled for purchase in early 2009

COMMENTS

Construction Contract Award

On April 18, 2008 Purchasing and Materials Management Division issued a Request to Pre-Qualify for General Contractors, Mechanical Subcontractors, Electrical Subcontractors and Systems Integration Subcontractors for the construction of the F.J. Horgan Water Treatment Plant (WTP) Capacity Expansion to 800 ML/D. The Request to Pre-Qualify requirements was advertised in the Daily Commercial News on April 18, 2008 and on the City's website.

On May 16, 2008, Pre-Qualification documents from three (3) General Contractors, four (4) Mechanical Subcontractors, six (6) Electrical Contractors and three (3) Systems Integration firms were received. A City evaluation team composed of City staff and the City's consulting

engineering firm in consultation with PMMD reviewed all submissions, and based on the evaluation criteria included in the Request to Pre-Qualify, developed a short list of three (3) pre-qualified General Contractor firms that were invited to submit Tenders. Further, four (4) Mechanical Subcontractors, five (5) Electrical Contractors and two (2) Systems Integration firms were prequalified and invited to participate in the tendering process.

The Purchasing and Materials Management Division, at its Public Opening held on September 17, 2008, opened the following bids for Contract 08FS-59WS, Tender Call 156-2008, for the F.J. Horgan Water Treatment Plant Capacity Expansion to 800 ML/D.

<u>Tenderer</u>	<u>Price Complete Including All Charges, net of GST</u>
Alberici Constructors, Ltd.	\$179,332,263.24*
Kenaidan Contracting Ltd.	\$195,904,761.91

*Note: Tender Price corrected for mathematical errors. Purchase and Material Management Division has verified that the mathematical errors were corrected.

The Tender documentation submitted by the recommended bidder has been reviewed by the General Manager of Toronto Water and was found to be in conformance with the Tender requirements.

Toronto Water and Technical Services staff have compared the bid to the estimated cost and found the price of the recommended bidder to be reasonable given the tender prices of all bidders.

The Fair Wage Office has reported that the recommended firm has indicated that it reviewed and understands the Fair Wage Policy and Labour Trades requirements and has agreed to comply fully.

Contingency Allowance

The plant capacity expansion to 800 ML/D involves construction of new facilities and tanks as well as upgrades and retrofit work to the existing 30 year old plant. It is recommended that a contingency allowance of \$36,000,000.00, net of GST, being approximately 20% of the capital cost of the contract, be authorized to cover contingencies and/or additional work or services under the construction contract and/or professional consulting services agreement of this project for the following reasons including: excavation of the construction site is complex due to existing buried structures; possible soil remediation; unanticipated upgrades of sensitive ozone and electrical equipment; possible increased shoreline protection of the Bluffs; intake structural work to replace zebra mussel control system is complex; and the magnitude of the retrofit work is significant as virtually every existing plant system is impacted by the new construction work.

Best efforts have been made to investigate the condition of the existing plant equipment, buried structures, tanks and facilities to mitigate any unknowns in the construction contract. An on-site field survey of existing equipment and tanks has been completed, where possible, however, a significant portion of the buried infrastructure is of unknown condition.

Engineering Services from CH2M Hill Canada Limited

Request for Proposal No 9117-05-7324 was awarded for the pre-design, detailed design, and general office administration and site supervision during construction, and post construction services for the Expansion of the F. J. Horgan Water Treatment Plant to CH2M Hill Canada Limited (Report No. 11, Clause 16 (o) of the 2005 Works Committee, as adopted by the Council at its meeting held on December 14 and 16, 2005). CH2M Hill was selected at a cost of \$10,654,572.40 net of GST, for work to be carried out in three phases consisting of design phase, construction services phase and post construction services phase.

Additional engineering fees for design services are recommended for the replacement of the zebra mussel control system in the intake. The design of this system was not included in the base scope of the plant expansion professional services RFP as test results for structural integrity of the intake pipes was obtained subsequent to the contract with CH2M Hill. The condition of the pipe material carrying the chlorine solution has deteriorated and should be replaced on a priority basis. The additional design cost for the new zebra mussel control system is \$400,000.00 net of GST.

New Supernatant Pipe from Horgan WTP to Highland Creek Treatment Plant

Additional professional services are required during and after the replacement and relocation of the existing supernatant pipe. The purpose of this pipe is to discharge treated filter backwash wastewater from the water treatment process. During the design process, and in consultation with the Ministry of the Environment, it was determined that the supernatant pipe should be relocated to discharge at a new location thereby reducing the impact to the near shore environment. The additional general office and site services cost is \$160,000.00 net of GST and additional post-construction services cost is \$32,000.00 net of GST.

Zebra Mussel Control System Replacement

The zebra mussel control system requires replacement due to structural integrity concerns and the impacts on the plant's ability to treat water resulting from its potential failure. The additional general office and site services cost for the zebra mussel control system is \$200,000.00 net of GST. The additional post-construction services cost is \$20,000.00 net of GST.

Pre-purchase of Ozone Equipment, Pumping Equipment, Filter Troughs and Media Retaining Baffles

Pre-purchasing critical equipment reduces the overall time period of the construction contract. CH2M Hill was requested to provide additional services for three (3) contracts for the pre-purchase of ozone equipment, pumping equipment, filter troughs and filter media retaining baffles. The additional general office and site services cost for the three pre-purchase contracts is \$640,000.00 net of GST.

MCC, 5kV Switchgears and Transformer Replacement

Upgrading and replacement of the Motor Control Centre (MCC), 5kV switchgears and transformer are required as the equipment is now over thirty years of age. The additional Construction and Contract Administration services cost for this work is \$200,000.00 net of GST.

New Office Addition

It is more efficient to accommodate for future staffing requirements by adding new office space during this major construction phase. The additional Construction and Contract Administration

services cost is \$100,000.00 net of GST.

Secondary Treated Water Suction Channel

A secondary treated water suction channel is required to ensure a constant treatment process and to provide additional pumping flexibility during maintenance activities. The additional Construction and Contract Administration services estimated cost is \$350,000.00 net of GST.

Retrofitting Existing Filters

Conversion of the existing filters to biological filtration will improve filtered water quality. Upgrading of current equipment will ensure that the existing filters are similar to the new filters being installed as part of the plant expansion. The design costs for this additional scope of work have been covered as part of the original design contingency funds. The additional Construction and Contract Administration services cost is \$350,000.00 net of GST.

Post-Commissioning Services

The base scope of construction services did not include post-commissioning services with respect to the entire plant operation. The implementation of ozone treatment is new to Toronto Water for potable water production and given the complexity of the new process (which is highly regulated) the additional support by CH2M HILL is considered essential to maintain water quality, ensure continuous production and meet health and safety regulations as staff gain experience in operating and maintaining new processes. The additional post-construction services cost for the post-commissioning services is \$100,000.00 net of GST.

CONTACT

Alex Vukosavljevic
Project Manager
Toronto Water
Telephone: (416) 392-2917
e-mail: avukos@toronto.ca

David Ferguson
Manager, Construction Services
Purchasing and Materials Management
Telephone: (416) 392-7323
e-mail: dfergus4@toronto.ca

SIGNATURE

Lou Di Gironimo
General Manager
Toronto Water

Victor Tryl, P. Eng.
Acting Director
Purchasing and Materials Management