



**STAFF REPORT
ACTION REQUIRED**

**Amendment to Purchase Order Nos. 6025317 & 6025318
Request for Proposal No. 9117-07-7283
Highland Creek Treatment Plant – Implementation of
Odour Control Upgrades**

Date:	July 28, 2010
To:	Public Works & Infrastructure Committee
From:	Executive Director, Technical Services Director, Purchasing and Materials Management Division
Wards:	Ward 44 – (Scarborough East)
Reference Number:	P:\2010\Cluster B\TEC\PW10045

SUMMARY

The purpose of this report is to request authority to: (a) amend Purchase Order No. 6025317 for the provision of professional engineering services during design related to the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades with AECOM Canada Ltd., and (b) amend Purchase Order No. 6025318 for the provision of general office administration and site supervision services during construction related to the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades with AECOM Canada Ltd. The total amount being requested is \$1,527,521.00 net of all applicable taxes and charges (\$1,554,405.37, net of HST Recoveries) as outlined in recommendations 2 and 3 below.

The request for the Purchase Order amendments is to accommodate an increase in scope to provide an entirely new Grit Building as a result of a cost/benefit analysis being undertaken. The new building will provide enhanced odour collection and treatment thereby minimizing odours to the neighbouring community, and will address requirements of the Ministry of the Environment related to odour control reductions to facilitate regulatory compliance.

RECOMMENDATIONS

The Executive Director of Technical Services and the Director of Purchasing and Materials Managements recommend that City Council:

1. authorize the reallocation of funds in the amount of \$1,554,405.37, net of HST Recoveries to CWW045-01 Odour Control Upgrades – Phase 1 Engineering from CWW036-05 Transformers and Switchgear as indicated in the table contained in the Financial Impact section of this report.
2. grant authority to amend Purchase Order No. 6025317 for the provision of professional engineering services during design related to the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades with AECOM Canada Ltd. by an additional amount of \$938,441.00, net of all applicable taxes and charges (\$954,957.56, net of HST Recoveries), revising the current contract value from \$3,632,837.33 to \$4,571,278.33 net of all applicable taxes and charges.
3. grant authority to amend Purchase Order No. 6025318 for the provision of general office administration and site supervision services during construction related to the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades with AECOM Canada Ltd. by an additional amount of \$589,080.00 net of all applicable taxes and charges (\$599,447.81, net of HST Recoveries), revising the current contract value from \$1,211,188.71 to \$1,800,268.71 net of all applicable taxes and charges.

Financial Impact

The total value of purchase order amendments identified in this report is \$1,527,521.00 net of all applicable taxes and charges (\$1,554,405.37, net of HST Recoveries).

There is insufficient funding currently available in WBS Element CWW045-01 Odour Control Upgrades – Phase 1 Engineering for the purchase order amendments totalling \$1,554,405.37, net of HST Recoveries. As a result, the additional cash flow is to be reallocated from the approved 2010 Toronto Water Capital Budget and 2011-2019 Capital Plan.

The following table summarizes the cash flow requirements, for the purchase order amendments identified in this report, by year, net of HST Recoveries:

Account	2010	2011	2012	2013	2014	2015	Total
CWW045-01 Odour Control Upgrades – Phase 1 Engineering (Current Funds)	\$1,055,000.00	\$1,500,000.00	\$1,510,000.00	\$500,000.00	\$500,000.00	\$200,000.00	\$5,265,000.00
CWW036-05 Transformers and Switchgear (Additional Funds)	\$200,405.37	\$440,000	\$569,000.00	\$345,000.00			\$1,554,405.37
TOTAL CWW045-01 (including reallocation)	\$1,255,405.37	\$1,940,000.00	\$2,079,000.00	\$845,000.00	\$500,000.00	\$200,000.00	\$6,819,405.37

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

ISSUE BACKGROUND

AECOM Canada Ltd. was engaged through Request for Proposals (RFP) 9117-07-7283 for pre-design, detailed design, services during construction and post construction services.

At its meeting held on March 3, 4 and 5, 2008, City Council adopted Item No. PW13.11 of Report No. 13 of the Public Works and Infrastructure Committee that authority be granted to enter into agreements with AECOM Canada Ltd. The staff report can be found at the following link:

<http://www.toronto.ca/legdocs/mmis/2008/pw/bgrd/backgroundfile-10408.pdf>

The original scope of work identified in the RFP was:

- a) retrofit of the existing Headworks Building and electrical room to meet NFPA 820 requirements;
- b) new odour control collection and biofiltration treatment system for the existing Headworks Building and the existing covered aeration tanks in the Old Plant, Phase 1 and Phase 4;
- c) miscellaneous retrofits to the existing primary clarifiers in the Old Plant, Phase 1 and Phase 4, including replacement of some scum collection equipment, covers to weirs and launder to minimize odour emissions;
- d) dispersion modeling using AERMOD to support application for a plant-wide consolidated Certificate of Approval for Air for Odour Reduction Program (CofA) and negotiations with the Ministry of the Environment (MOE) to establish a phased strategy for odour control improvements.

COMMENTS

The Highland Creek Treatment Plant (HCTP) is located at the mouth of Highland Creek on a 59 hectares (ha) (145.8 acres) site in the Scarborough community (West Hill). The Municipality of Scarborough initiated the original plant construction under an agreement with the Municipality of Metropolitan Toronto in 1954, and construction was completed in 1956. The plant had a treatment capacity of 18,000 m³/d (4 mgd). Over the years the plant has been enlarged to its present capacity of 219,000 m³/d (48 mgd). The treatment of wastewater at the Highland Creek Treatment Plant is accomplished through the following processes: preliminary treatment, primary treatment, secondary treatment, phosphorous removal, sludge treatment, anaerobic digestion, disinfection, biosolids treatment, and odour control. The HCTP is located in a residential and industrial zone in the east end of the City.

Due to the proximity of a residential subdivision, the plant has instituted various odour control systems in the past. In order to ensure that the odour control systems are functioning at an optimal level, are not contributing to nuisance odours in the surrounding community, and meet the MOE's requirements, the City completed a Plant Wide Odour Assessment at the HCTP (December 2005). As a result of the study, the City made commitments to the community and the MOE to implement Phase 1 odour control measures, as recommended in the odour study, at the HCTP. The capital projects associated with implementing the recommendations derived from the Phase 1 portion of this assessment form the basis of this project.

Requirement for Additional Professional Services from AECOM:

AECOM Canada Ltd. is to provide engineering services for pre-design, detailed design, services during construction and post construction services for the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades, at a total cost of \$5,119,755.57 which comprises the following:

- \$3,632,837.33 net of GST for pre-design and detailed design services;
- \$1,211,188.71 net of GST for services during construction including general office administration and site supervision services;
- \$225,729.52 net of GST for post-construction services;
- and \$50,000.00 net of GST for a five year service agreement to update the odour model as required to support future Certificate of Approval for Air for Odour Reduction Program (CofA) applications.

AECOM's cost of services submission was time-based to upset limits based upon estimated effort and hourly rates, that were a blend of 2007 – 2008 rates, as no allowance for inflation was included in AECOM's proposal. The fees for the base scope of work for general office administration and site inspection were \$1,211,188.71 net of GST, with a weekly rate of \$8,399.38 net of GST for any additional general office administration and site supervision services during construction, if the time period identified by the contractor was greater than the 72 weeks included by AECOM in their proposal. Services

during construction, and the weekly rate, were based on a total of one full time site supervisor for 72 weeks as identified by the City in the RFP.

The design project was initiated in 2008 and during the conceptual design stage, the project team consisting of City and consultant staff collectively completed a comprehensive evaluation of the facility condition based on the original scope of work listed above including several alternatives to relocate the bar screens upstream of the existing grit removal channels. This approach was identified by the City team at the RFP stage, as this was the recommended solution for the Ashbridges Bay Treatment Plant (ABTP), which was experiencing similar operational and odour control problems. The results of this evaluation showed that construction of a new Headworks Building consisting of new raw sewage screens, grit removal systems and new chemical storage and dosing systems for phosphorus removal will provide the City with the best long-term solution and meet all of the MOE requirements. The chief advantages of the preferred alternative are as follows:

1. The elimination of grit conveyance fouling problems;
2. Improved grit removal efficiency and effectiveness;
3. Provision of a new enclosed truck loading bay, which would eliminate odour emissions during grit and screenings bin removal – MOE and community commitment;
4. Improved odour collection and treatment – MOE and community commitment;
5. Elimination of ferrous chloride delivery trucks inside the plant's roadways;
6. New capability to measure and control bypass through the provision of a new bypass channel equipped with a flow meter and a new flow meter access chamber to measure the total flow entering the plant for treatment – MOE commitment;
7. The existing ferrous chloride and pumping systems is located in the waste activated sludge thickening building. A separate project is underway to upgrade the waste activated sludge thickening building and due to space constrictions the relocation of the ferrous chloride and pumping systems will be required. The new ferrous chloride and pumping systems will be incorporated into the new Headworks Building;
8. Provision of a new septage receiving station for unattended and automatic handling of septage truck wastes in a centralized location.

The recommended upgrades are more extensive than those needed for the ABTP due to site specific issues (close proximity to residential community) and constraints at the HCTP which is primarily related to the aging grit removal system and general building design deficiencies as it relates to NFPA 820 and building code compliance.

The newly proposed Headworks Building will also include for a new underground tunnel to house piping and ancillary systems (e.g. sump pumps, ventilation systems, etc.) that will connect to the existing tunnel system.

As a result of the overall change to the design concept the estimated construction period has been extended from an estimated 18 months to 30 months and additional fees are also required for services during construction comprising of project management, office support and resident site inspection and disbursements during the construction. The increase in complexity, size and construction value of the new Headworks Building also results in increase in office support services and necessitates a site inspection team comprising of two full time members: one senior and one junior. The maximum weekly rate for services during construction is now increased to \$15,640.00 net of GST. This rate is to be used for adjustment to the Upset Limit, where approved by the Executive Director of Technical Services or designate in accordance with delegated signing authority, in the event that the actual construction period is shorter, or longer than anticipated.

Based on the above, it is recommended that Purchase Order No. 6025317 to AECOM Canada Ltd. for the provision of professional engineering services during design related to the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades be amended by an additional amount of \$938,441.00, net of all applicable taxes and charges, for a revised total of \$4,571,278.33 net of all applicable taxes and charges. It is also recommended that Purchase Order No. 6025318 to AECOM Canada Ltd. for the provision of general office administration and site supervision services during construction related to the Highland Creek Treatment Plant – Implementation of Odour Control Upgrades with AECOM Canada Ltd. be amended by an additional amount of \$589,080.00 net of all applicable taxes and charges, for a revised total of \$1,800,268.71 net of all applicable taxes and charges.

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SIGNATURE

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