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ADDITIONAL FUNDING FOR DETAILED DESIGN AND CONTRACT REVIEW SERVICES PD7/PD8 PUMPING STATION AND AURORA-NEWMARKET WATERMAIN

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, November 20, 2008, from the Commissioner of Environmental Services:

1. RECOMMENDATIONS

It is recommended that:

1. Approval be granted to increase the expenditure limit of Purchase Order (PO-02-112) issued to Genivar Ontario Inc. for the Class Environmental Assessment, detailed design, contract administration and site inspection for the Aurora-Newmarket watermain project in the amount of \$278,450 from \$2,451,463.72 to \$2,729,913.72 excluding GST.
2. Approval be granted to increase the expenditure limit of Purchase Order (PO-02-112-1) issued to Genivar Ontario Inc. for the Class Environmental Assessment, detailed design, contract administration and inspection services for the Pressure District 7 and Pressure District 8 Pumping Station project in the amount of \$285,000 from \$1,032,672.43 to \$1,317,672.43 excluding GST.

2. PURPOSE

This report seeks Regional Council approval to increase the purchase orders for the previously retained consulting engineer to pay for additional required work. York Region's Purchasing By-law A-0353-2004-089 allows the value of a purchase order to be increased beyond the 15% contingency and 20% scope, subject to Council Approval.

3. BACKGROUND

AURORA-NEWMARKET WATERMAIN

This watermain is a key piece of the Region's water conveyance infrastructure and connects the lake-based York Water System to the Aurora and Newmarket water systems

The Aurora-Newmarket watermain is located on Keele Street, King Vaughan Road and Bathurst and runs from the Maple South Reservoir at Keele Street and Teston Road to the Aurora South Reservoir on Bathurst Street, north of Bloomington Road.

Genivar retained in March 2003 to provide services for the Class Environmental Assessment, detailed design, contract administration and site inspection of the Aurora-Newmarket watermain

The original assignment included Class Environmental Assessment, detailed design, contract administration and site inspection services. The Request for Proposal anticipated two construction contracts.

This project was initiated in 2002 on an urgent basis. The construction period stipulated in the Request for Proposal was estimated from preliminary project information

During detailed design, a decision was made to divide the work into three construction contracts. The third contract (along Bathurst Street) was combined with the road works along Bathurst Street.

The decision to divide the watermain construction into three contracts instead of two, as originally planned, was to increase the number of contractors that would have bonding capacity to bid on the smaller contracts, thus increasing competition, and facilitate coordination of the watermain work with the road work.

Reasons for the additional services required from Genivar are provided in the following sections.

Additional contract administration and construction inspection services for the watermains

Genivar's original assignment was based on providing 130 person weeks of contract administration and inspection services as detailed in the Request for Proposal prior to commencing the Environmental Assessment. The actual construction required 235 person weeks of inspection. 54 person weeks out of the 235 person weeks were included in a previous increase to the purchase order. The 2003 proposal contained a construction administration/site inspection fee of \$3,000 per week for each additional week. Regional staff concurred with the request to include a modest increase to \$3,450 per week to allow for inflation between 2005 and 2008.

Additional effort required prior to watermain being put in service

Timing of the three contracts in conjunction with commissioning of the PD7/PD8 pumping station necessitated a revision to the disinfection plan such that all three sections of the watermain were disinfected together on a just-in-time basis prior to

commissioning. This revised approval required additional technical and coordination services from Genivar.

Report to assess remedial roadwork required

A section of pavement completed in conjunction with the third watermain contract failed shortly after construction. The consultant was required to produce a report detailing the failure and give an opinion for the cause of the failure. The additional fees requested by the consultant for this item will be assessed by Transportation Services following their review of Genivar's report. For the purposes of approvals requested in this report, \$60,000 associated with this item is included within the requested increase.

Radio Communications improvements required as an enhancement

Additional design and field work were required to implement communications between the flow control valves and York Region's radio network.

PD7/PD8 PUMPING STATION

PD7/PD8 Pumping Station is located at the intersection of Keele Street and Teston Road in Vaughan on same site as South Maple Reservoir

The new pump house replaces an older pump house servicing the (PD7) pressure district and introduces a new pumping station (PD8) to service the Aurora-Newmarket water system.

Genivar was retained in March 2003 to conduct Class Environmental Assessment, detailed design, contract administration and site inspection for the PD8 Pumping Station

The original assignment included Class Environmental Assessment, detailed design, contract administration and site inspection of a PD8 pumping station on the same site as the existing PD7 pumping station and the Aurora South Reservoir.

Genivar provided additional services to those outlined in the Request for Proposal

During detailed design, a decision was made to advance expansion of the existing PD7 Pumping station and to construct the PD7 and PD8 Pumping Stations within one building. This required decommissioning and demolition of the existing PD7 pumping station after the new station was commissioned.

Construction challenges have increased the duration of construction

The challenge of working around existing facilities while maintaining their operation increased the contract duration. Genivar's original assignment, based on the contract duration estimated in the Request for Proposal prior to the Environmental Assessment allowed for 80 weeks of site inspection. The General Contractor had difficulties with passing some acceptance testing, which also extended the contract duration. It is anticipated that 156 weeks of site inspection will be required for completion of construction. Previous increases to the purchase order have accounted for 28 weeks. The 2002 proposal contained a contract administration/site inspection fee of \$3,000 per week for each additional week. Regional staff concurred with the request to include a modest increase to \$3,450 per week to allow for inflation between 2005 and 2008.

Piping repair and retesting

During construction, the contractor was required to re-install a section of the yard piping. This was a result of defective work by the contractor. In remedying the defective work, Genivar was required to provide additional engineering and field reviews.

Site Plan and Grading revisions in cooperation with the landowner to the north

The project team was approached recently by the landowner immediately north of the Region's site with a request to modify the proposed grading at the interface of the two properties to accommodate their housing development. The developer's consultant provided a revised grading plan which was reviewed and commented on by the Region's consultant until agreement was reached.

Assessment of claims, schedule extensions and liquidated damages

The contractor has applied for and was granted several extensions to the contract, however, not all of the requested extensions have been granted. Detailed reviews of the requests/claim and recommendations regarding extensions and assessment of liquidated damages has required additional effort by our consultant.

Combining the two pumping stations increased the complexity of the SCADA monitoring and communications systems

Changes made during the design stage will improve energy efficiency and reduce life cycle costs.

Increased operator training requirements

The new PD7 pumping station with increased capacity and complexity added to the operator training requirements, both in the number of operators requiring training at the facility and the duration of the training workshops.

4. ANALYSIS AND OPTIONS

Genivar has provided services that are deemed to be additional to the services outlined in the Request for Proposals (P-02-112 and P-02-112-1) issued in 2002, and additional services approved prior to 2008. Regional staff are recommending an increase of \$278,450 to Purchase Order P-02-112 as detailed in Table 1 below and an increase of \$285,000 to Purchase Order P-02-112-1 as detailed in Table 2 below.

Table 1
Recommended Fee Increase to Aurora-Newmarket Watermain (P-02-112)

Item	Notes	Amount
Contract Administration and Site Inspection	Additional 51 Person Weeks	\$175,950
Disinfection	Coordination Meetings and Reports	10,000
Remedial Roadwork	Analysis and Report	60,000
Communications	Field Work	7,500
Project Documentation	Road works "As Constructed" Drawings	25,000
Total		\$278,450

Table 2
Recommended Fee Increase to PD7/PD8 Pumping Station (P-02-112-1)

Item	Notes	Amount
Contract Administration and Construction Inspection	Additional 48 Weeks	\$165,600
Piping Repair and Retesting	Includes Review and Recommendation of Repair Method and Specialized Inspection	41,300
Site Plan Revision	As Requested by Landowner to the North	10,000

Assessment of Claims	Including Recommendations and Assessment of Liquidated Damages, and Schedule Extension	7,000
SCADA/Communications		48,500
Operator Training		12,600
Total		\$285,000

5. FINANCIAL IMPLICATIONS

The total project budget for the Aurora-Newmarket water supply project is \$66,459,000. Outstanding expenditures for this project are funded 95% from development charges and 5% from user rates. There are sufficient funds identified in the 2008 Capital budget within the Aurora-Newmarket water supply projects (Project numbers 77390 and 77320), to cover the expenditures outlined in this report.

Cost of the Engineering Services will be partially offset by liquidated damages for the PD7/PD8 Pumping Station project

The proposed \$285,000 increase to Genivar under P-02-112-1 will be offset by \$213,500 in liquidated damages deducted from the General Contractor for the PD7/PD8 Pumping Station project.

6. LOCAL MUNICIPAL IMPACT

The Aurora-Newmarket watermain establishes a connection of the lake-based York Water System to Aurora and Newmarket. Commissioning of the completed works has enabled York Region to transfer water from Vaughan to Aurora and Newmarket.

Work for the PD7/PD8 Pumping Station will provide a more reliable, energy-efficient water supply to PD7 (Vaughan and Richmond Hill) and will establish a lake-based water supply to Aurora and Newmarket.

7. CONCLUSION

Regional staff request authorization to increase the purchase order P-02-112 to pay Genivar for additional services provided during the construction phase of the Aurora-Newmarket watermain. Regional staff reviewed the cost submission from Genivar and recommend an increase of \$278,450.

Regional staff are requesting authorization to increase the purchase order P-02-112-1 to pay Genivar for additional services provided during the construction phase of the PD7/PD8 Pumping Station. Regional staff reviewed the fee request from Genivar and recommend an increase of \$285,000.

The total requested increase of \$563,450 is offset by \$213,500 in liquidated damages deducted from The General Contractor resulting in a net cost request of \$349,950.

The total engineering fee of \$4,588,743 is approximately 7.4% of the \$61,870,257 construction cost for this project. This percentage is well within industry norms for these types of infrastructure projects.

For more information on this report, please contact Bala Araniyasundaran, Director of Capital Planning and Delivery, Environmental Services at Ext. 5131.

The Senior Management Group has reviewed this report.