

Amendment of Purchase Order #6032994 - Slope Stability on Pottery Road

Date:	October 19, 2011
To:	Public Works and Infrastructure Committee
From:	Executive Director, Technical Services Director, Purchasing and Materials Management
Wards:	Ward 29, Toronto-Danforth
Reference Number:	P:\2011\Cluster B\TEC\PW11042 (AFS # 14692)

SUMMARY

The purpose of this report is to request authority to amend Purchase Order No.6032994 which was issued to NuRoad Construction Ltd (Contract 11TE-04RD) for the construction of road, watermain, storm sewer and trailheads on Pottery Road, from Bayview Avenue to Broadview Avenue. The total amendment being requested is \$924,099.31 (including HST & charges) and the cost to the City is \$832,180.05 (net of HST Recoveries), to a revised amount of: \$6,104,403.51 (including HST & charges), \$5,497,204.44 (net of HST Recoveries) which is a revision from the Revised Purchase Order Amendment amount of: \$5,180,304.20 (including HST & charges), \$4,665,024.38 (net of HST Recoveries).

The amendment is required to cover the cost of additional emergency work such that the roadway can be re-opened to commuter traffic. This emergency work was granted in advance of the Public Works and Infrastructure Committee approval, and was done in accordance with the authority granted under the Toronto Municipal Code, Purchasing Chapter 195-9.B and 10.F.

In addition, this report is also providing an update of information on the Pottery Road reconstruction project, as per the letter dated October 4, 2011 from Councillor Mary Fragedakis, in Public Works and Infrastructure Committee, Meeting October 5 2011, Item 2011.PW8.10.

This report can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.PW8.10>

RECOMMENDATIONS

The Executive Director of Technical Services and the Director of Purchasing and Materials Management recommend that Public Works and Infrastructure Committee grant authority to:

1. Amend Purchase Order No. 6032994, issued to NuRoad Construction Ltd for Contract 11TE-04RD, by an additional amount of \$924,099.31 (including HST & charges) and the cost to the City is \$832,180.05 (net of HST Recoveries).

Financial Impact

The amendment for an additional \$832,180.05 (net of HST Recoveries) increases the purchase order value to \$5,497,204.44 (net of HST Recoveries).

The funding for this increase is available in the 2011 Transportation Capital Budget (Major Road Resurfacing Project, CTP310-01-36). The cash-flow requirement for this project is \$832,180.05 (net of HST Recoveries) all in 2011. There will be no financial impact in future years.

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

ISSUE BACKGROUND

On May 4, 2011, the Bid Committee awarded Contract 11TE-04RD, Tender Call No. 78-2011 for the Construction of road, watermain, storm sewer and trailheads on Pottery Road, from Bayview Avenue to Broadview Avenue to NuRoad Construction Ltd, in the amount of: \$4,177,127.00 (excluding HST), \$4,720,153.51 (including HST & charges), \$4,250,644.43 (net of HST Recoveries), being the lowest Tender meeting specifications. Purchase Order No. 6032994 was issued accordingly. The link to this report can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.BD22.1>

Construction commenced on May 24, 2011, with a complete road closure (with local/business access only), and a scheduled reopening date of September 6, 2011.

Due to unanticipated issues and project scope increase, the purchase order was amended to: \$5,180,304.20 (including HST & Charges), \$4,665,024.38 (net HST Recoveries) in accordance with the City's Financial Control By-Law. The root causes of the additional work were traffic signal modifications at the intersections of Bayview Avenue and Pottery Road, and Broadview Avenue and Pottery Road, modifying the type of retaining wall under the Don Valley Parkway (DVP), additional grinding/paving on Bayview Avenue for the pavement transition after the median removal, contractor working under a

compressed work schedule, additional archaeological monitoring, encountering unforeseen contaminated soils during sewer installation, modifying the storm sewer end wall at the DVP, and added erosion control measures. As a result, the overall project costs have increased.

In mid-August 2011, concerns were raised with respect to the potential instability of the embankment above a newly installed retaining wall on the north side of Pottery Road, east of the Don Valley Parkway. During the installation of the retaining wall, it was determined that the Contract drawings prepared by the City's Engineering Consultant did not meet the manufacturer's criteria for the embankment slope above the wall, and hence the instability of the embankment above the retaining wall came into question. The City's Engineering Consultant proceeded to perform a detailed slope stability analysis and determined that the factor of safety should be increased to satisfy engineering criteria. The City's Engineering Consultant proceeded to prepare an engineering solution that would increase the stability of the embankment above the newly constructed retaining wall on the north side of Pottery Road, east of the Don Valley Parkway. During the preparation of the engineering solution, Pottery Road remained under a continued road closure.

As an interim measure until Pottery Road is fully reopened to vehicular traffic, Technical Services investigated the possibility of reopening the road for temporary two-way or a one way operation, with the second of two lanes reserved for construction activities. Both the retaining wall manufacturer, as well as the geotechnical engineering sub-consultant, identified that the existing condition contained a stability risk, and neither recommended the road to be re-opened. Transportation Services, Traffic Operations, also was consulted on the issue, and advised that the road should remain closed in its entirety from Bayview Avenue to Broadview Avenue, maintaining local access only due to the safety of the workers, narrow lanes for construction access/ commuter traffic, and for the overall safety of the travelling public.

The engineering solution involves the installation of numerous soil nails into the embankment that creates a stable reinforced soil mass. This method is preferred over others due to the shorter duration for installation, cost effectiveness, and recognized as being less obtrusive from a construction standpoint.

On the basis of engineering designs prepared by the City's engineering consultant, Technical Services obtained quotations and a schedule to complete the slope stabilization work, such that this key arterial could be re-opened to vehicular traffic. On October 11th 2011, the General Contractor submitted a quotation in the amount of: \$924,099.31 (including HST & Charges), \$832,180.05 (net of HST Recoveries) which is considered additional work to the contract. A construction schedule was submitted, outlining a completion date and Pottery Road is scheduled for re-opening on November 30 2011.

In order to ensure that the roadside embankment was safe, and prior to encountering construction and further complications with inclement weather, it was determined to proceed with the additional work such that the roadway can be re-opened to vehicular

traffic as soon as possible. This was done via the authority granted under the Toronto Municipal Code - Financial Control (Chapter 71-11.1.C), Toronto Municipal Code – Purchasing (Chapter 195-9.B.1 and Chapter 195-10.F) which refer to the emergency provisions in the municipal code.

COMMENTS

Various alternatives were explored to rectify the slope stability on Pottery Road. From an engineering perspective, a number of alternatives to reinforce the embankment were considered including tiebacks, soil anchors, piles; however due to site constraints were determined non-viable. Constraints that were accounted for included the close proximity of the City's property line (where tiebacks would be required to encroach onto private property), and/or vibration that may cause structural distress to the embankment or nearby structures, including the newly constructed retaining wall. Due to the factors involved, soil nailing was the recommended Engineering solution to achieve sufficient soil reinforcement.

The emergency works identified in this report are the result of an inconsistency between actual field conditions and the engineering design/contract documents. As such, staff will seek recovery of appropriate costs from the engineering consulting firm.

The scheduled completion date for Pottery Road is November 30, 2011. Communication with the public has occurred through a Media Release, flyer drop-offs in the area and through 87 Advanced Warning Signs.

Summary of Additional Costs

The total additional costs for Contract 11TE-04RD are summarized in Table No. 1 below.

Table No. 1: Summary of Additional Costs

Extra/Additional Work Type	Cost
1. Soil Nails	\$274,450.00
2. Shot-Crete and Reinforcing	\$307,450.00
3. Drainage System & Holes	\$24,200.00
4. Traffic Control, Field Office & Signs	\$94,534.92
5. Railing, Grading, Restoration & Project Overheads	\$89,255.08
6. Acceleration of Work Schedule	\$27,897.00
TOTAL (excl. HST)	\$817,787.00
TOTAL (including HST & Charges)	\$924,099.31
TOTAL (net of HST Recoveries)	\$832,180.05

CONTACT

Maurizio Barbon, P.Eng.
Manager, Design and Construction
Linear Infrastructure
Telephone: (416) 392-7659
e-mail: mbarbon@toronto.ca

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

SIGNATURE

Peter M. Crockett, P.Eng.
Executive Director
Technical Services

Lou Pagano, P.Eng.
Director
Purchasing & Materials Management