

Agenda Item #

Page #

--	--

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON AUGUST 24, 2015
FROM:	JOHN BRAAM, P. ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	BURBROOK TRUNK STORM SEWER PROJECT AWARD

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services & City Engineer, the following actions **BE TAKEN** with respect to confirmation of project and the award of contract for the construction of the Burbrook Trunk Storm Sewer Project:

- (a) the price submitted by Ward and Burke Microtunnelling Ltd. of \$9,521,970.00, excluding HST, for the 2015 Burbrook Trunk Storm Sewer Project, **BE ACCEPTED**; it being noted that the price submitted by Ward and Burke Microtunnelling Ltd. meets the City's specifications and requirements in all areas and includes the installation of two crossings under CN Rail;
- (b) the financing for this project **BE APPROVED** as set out in the Sources of Financing Report attached hereto as Appendix "A";
- (c) the Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with this work, including that required to obtain Canadian National Railway approvals, working easements, and Permit To Take Water;
- (d) the approval given herein **BE CONDITIONAL** upon the Corporation entering into a formal contract or issuing a purchase order for the material to be supplied and the work to be done relating to this project (Tender 15-87); and
- (e) the Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents, if required, to give effect to these recommendations.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
--

- Civic Works Committee, January 6, 2015, 2015 Burbrook Trunk Storm Sewer Project Initiation
- Environment and Transportation Committee (ETC), August 7, 2007, Appointment of Consulting Engineer Vauxhall Sewershed Review.
- ETC, June 19, 2006, Appointment of Consulting Engineer ES3054: Burbrook Trunk Storm Sewer, Phase III (a).
- ETC, March 23, 2005, Recommendation for Settlement of Burbrook Trunk Sewer Phase III & IV Contract Dispute.
- ETC, March 21, 2005, Update for Burbrook Trunk Sewer Phase III & IV.
- Board of Control, July 30, 2003, Contract Award Burbrook Trunk Sewer Phase III & IV.

BACKGROUND

Purpose:

This report recommends the award of a tender to a contractor for the construction of two tunnel crossings under CN Rail lands by microtunnelling, known as the Burbrook Trunk Storm Sewer Project.

Agenda Item #	Page #

In January 2015, Civic Administration was directed to report back at a future meeting of the Civic Works Committee to confirm the project scope, including total estimated costs and to enter into negotiations for a single source contract for construction with Ward and Burke Microtunnelling Ltd. (Ward & Burke), in accordance with Section 14.4 (e) of the Procurement of Goods and Services Policy, being there are valid and sufficient reasons for selecting this particular contractor having special knowledge, skills, equipment, expertise and experience.

The project budget has been included in the approved 2015 Wastewater & Treatment Capital Works Budgets.

Background:

The Burbrook Trunk Storm Sewer Project is required to reduce basement flooding and allow for separation of storm flows from the existing combined sanitary sewers in the large Vauxhall subsewershed.

The Burbrook Trunk Storm Sewer extends from the south branch of the Thames River to Dundas Street. Phases 1 & 2 were constructed in 1999 & 2000. Phase III started in 2003 but stopped in 2004 due to settlement under CN Rail tracks resulting from a tunnelling operation by traditional methods. Since then, solutions have been developed and alternatives analyzed noting project estimates were in the range of \$13M to complete construction as of 2008. Tunnelling technologies have developed significantly over the last 6 years and microtunnelling for this application has been identified as the most predictable and reliable method to complete this project successfully.

In January 2015 Council approved the initiation strategy to support new design and construction methods to complete Phase III, the tunnel sections under CN Rail tracks.

A team of experts was assembled comprising of the consulting engineering firm Hatch Mott MacDonald (HMM), and specialty contractor Ward & Burke to work together to reduce risk, strengthen specifications, methodology and design in order to construct this project on time and on budget. Both firms are world leaders in their fields and are at the forefront of the microtunnelling industry, having received several nationally recognized tunneling awards. It was paramount to the success of the project that the team work together to tailor the design of this project to the required specialized equipment and engineer risk to a minimum noting HMM also developed a risk register matrix for this project in order to protect the City against unexpected impacts.

Discussion:

This project involves the installation of approximately 225m of 2.5m diameter trunk storm sewer and appurtenances within two underground crossings to be completed by trenchless microtunnelling (Appendix B - Catchment Area and Project Tunnel Crossing Locations). Crossing 1 will be completed underneath a CN Rail shunting yard containing 22 separate rail lines located between Pine Street and Brydges Street and is approximately 175m in length. Crossing 2 will be completed underneath two CN Rail spur lines located between Swinyard Street and Margaret Street and is approximately 50m in length.

A technical memorandum was prepared by HMM to evaluate and review the feasibility and cost of completing Crossing 2 by microtunnelling versus open cut. HMM's study confirmed that microtunnelling is the preferred technology for construction of both crossings to minimize project construction and schedule risk, including potential settlement of CN Rail Tracks.

The Contract also includes five large maintenance hole structures, existing storm utility relocations, connections between the tunnelled crossings and the existing storm sewer pipe, traffic management controls, erosion and sediment control and all other work as outlined in the Contract Documents and Drawings.

For Crossing 1 the microtunnel boring machine will be launched from the north side of the crossing and will be received in a shaft located in the intersection of Pine and Oak Streets. For Crossing 2 the microtunnel boring machine will be launched from the south side of the crossing and will be received in a shaft located on the north side of the crossing.

Agenda Item #	Page #

Permanent easements to facilitate construction of both the long and short tunnel drives have been previously secured noting working easements are required and are currently in the process of being secured with the affected landowners.

Provided all necessary approvals are in place, the objective is to start construction early September 2015. Once Crossing 1 work begins, Crossing 2 works can happen in parallel generally speaking.

Crossing 1 (September – February)

- Construct Tunnel Shaft: Launch (one month), reception (one month), 10-12 hours days.
- Tunnelling (one month), 24 hour operation,
- Civil works and clean up: 2-3 months, 10-12 hour days.

Crossing 2 (September – February)

- Construct Tunnel Shaft: Launch (month), reception (month), 10-12 hours days
- Tunnelling (1/2 month), 24 hour operation
- Civil works and clean up: 2-3 months. 10-12 hour days

A public information session was held on August 20, 2015 specifically for all owners, tenants and property managers within and immediately bordering the project area to address questions and concerns.

The completion of this phase of the Burbrook Trunk Storm Sewer will allow the commencement of approximately \$40 Million worth of Capital reconstruction projects in the Burbrook area. The primary purpose of all these projects is storm and sanitary sewer separation noting all projects have been planned, and coordinated with water and transportation needs where possible (Appendix C – Future Project Phasing). To address the sensitivity and risks of completing tunnelling projects, staff have been working with Ward & Burke to determine the appropriate insurance package to help limit risk and exposure to the City in accordance with the London Construction Insurance Program (LCIP).

Tender Summary:

The tender for the 2015 Burbrook Trunk Storm Sewer Project was opened on August 10, 2015. Ward & Burke submitted tender price was \$9,521,970.00, excluding HST.

The tender was checked by the Environmental and Engineering Services Department and the City's consultant, Hatch Mott MacDonald (HMM). The price did not contain any mathematical errors.

The tender estimate prior to tender opening was \$8,865,300.00, excluding HST. The price is about 7% above the engineer's estimate and encompasses winter working conditions. The tender included a contingency allowance of \$350,000.00.

No additional annual operating costs are attributed to new infrastructure installation.

Consulting Services:

HMM staff are world experts in the tunnelling industry and have won many awards. They have a project team experienced in tunneling, are CN's preferred service provider, further they have a clear understanding of the project scope, risks and requirements for successful completion. In January 2015, Council recognized their technical expertise and awarded them the remainder of design and construction supervision to complete this project.

Conclusions:

The Burbrook Trunk Storm Sewer Project is required to protect properties, reduce basement flooding and allow for separation of storm flows from the existing combined sanitary sewers in the large Vauxhall subsewershed.

Subject to all necessary approvals being in place, this project involves the installation of two storm sewer tunnels under CN Rail tracks by microtunnelling and will commence this fall. A team of experts was assembled comprising of Hatch Mott MacDonald, and Ward and Burke Microtunnelling Ltd. to jointly review and reduce risk, strengthen specifications, methodology and

Agenda Item #	Page #

design in order to construct this project on time and on budget, while agreeing on mitigation measures collaboratively.

Award of the 2015 Burbrook Trunk Storm Sewer Project to Ward and Burke Microtunnelling Ltd. will allow the project objectives to be met within necessary timelines and available budget.

Acknowledgements:

This report was prepared within the Wastewater and Drainage Engineering Division by Ugo DeCandido, P. Eng., Environmental Service Engineer and Ryan Armstrong, C.E.T. Technologist II, Wastewater and Drainage Engineering.

SUBMITTED BY:	CONCURRED BY:
TOM COPELAND, P. ENG. DIVISION MANAGER WASTEWATER AND DRAINAGE ENGINEERING	JOHN LUCAS, P. ENG. DIRECTOR, WATER AND WASTEWATER
RECOMMENDED BY:	
JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER	

August 23, 2015

UD

- Attach: Appendix "A" – Sources of Financing
 Appendix "B" – Catchment Area and Project Tunnel Crossing Locations
 Appendix "C" – Future Project Phasing

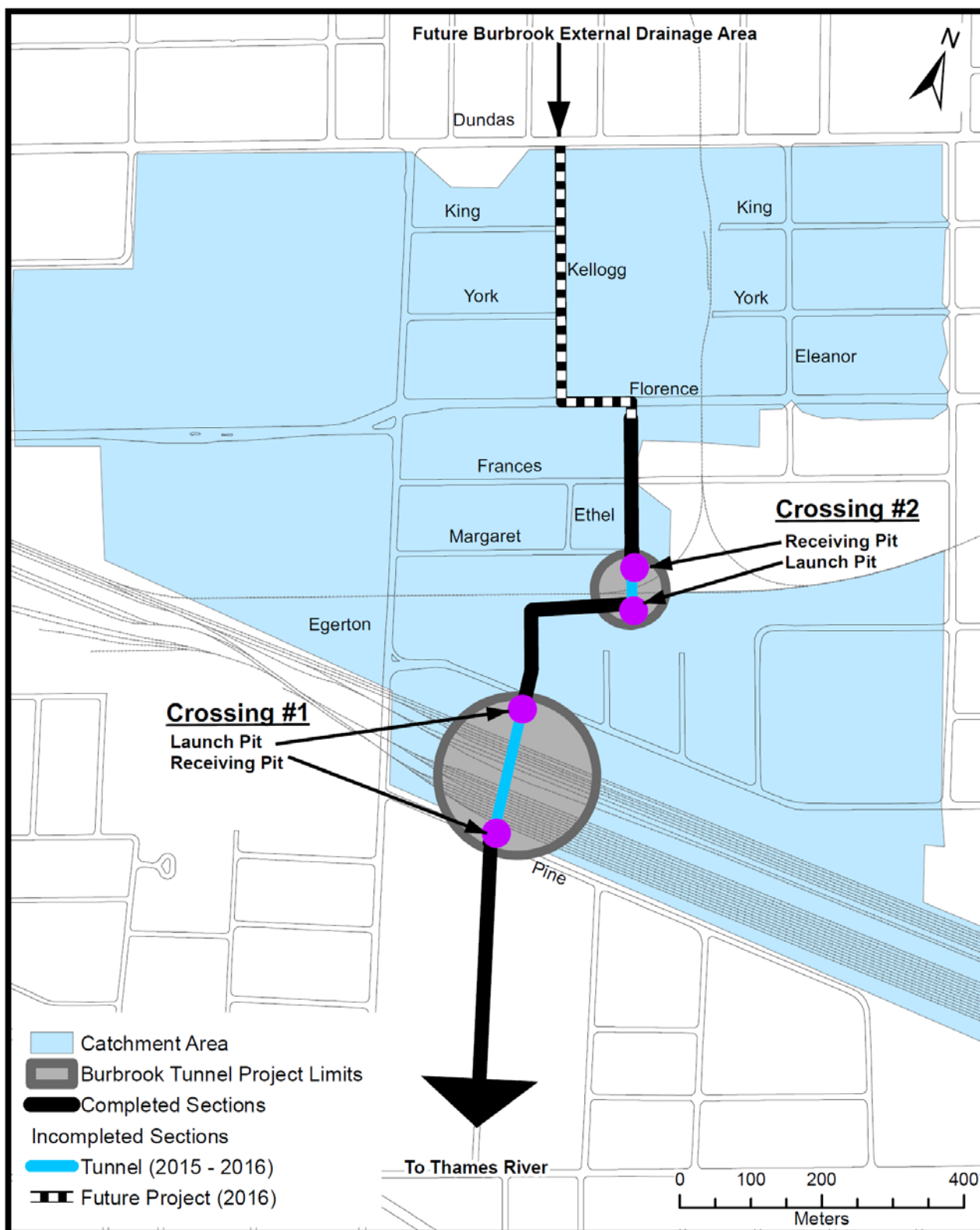
Aug 10-15 Burbrook Trunk Storm Sewer Project Award

- c.c. -Tom Copeland
 -Dave Mounteer
 -John Freeman
 -Paul Choma
 -Hatch Mott MacDonald, 5035 South Service Rd, 6th floor, Burlington, ON, L7L 6M9
 -Ward and Burke Microtunnelling Ltd., 2410 Meadowpine Blvd., suite 101, Mississauga, ON, LFN 6S2

Agenda Item #	Page #

Appendix "B"

BURBROOK STORM SEWER AREA
Catchment Area and Project Tunnel Crossing Locations



Agenda Item #	Page #

Appendix "C"

**BURBROOK STORM SEWER AREA
Future Project Phasing**

