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AUTHORIZATION OF CONSULTING SERVICES SOUTHEAST COLLECTOR TRUNK SEWER PROJECT 74040

The Transportation and Works Committee recommends:

- 1. The presentation by Bala Araniyasundaran, Manager, Engineering Water and Wastewater, Infrastructure Design and Construction, be received; and**
- 2. The recommendations contained in the following report, December 16, 2004, from the Commissioner of Transportation and Works be adopted:**

1. RECOMMENDATIONS

It is recommended that:

1. The consulting engineering firm of Earth Tech Canada Inc. (Earth Tech) be engaged to expand its current role as Environmental Assessment Consultant to include the Individual Environmental Assessment, design, permitting and approvals and contract administration for the Southeast Collector Trunk Sewer Project, at an upset limit of \$14,638,400 excluding GST.
2. The Regional Chair and CEO and Clerk be authorized to execute the engineering agreement to retain Earth Tech Canada Inc.

2. PURPOSE

The purpose of this report is to update Council on the negotiations with Earth Tech for additional engineering services, as well as seek authorization to retain its services to complete the Individual Environmental Assessment (IEA), permits, design and contract administration services for the Southeast (SE) Collector Trunk Sewer Project. Council authorized staff to conduct the negotiations with Earth Tech Canada Inc. on May 20, 2004. In addition, the purpose of this report is to advise Council of the increase in project scope as a result of the decision by the Minister of the Environment on October 1st, 2004 to order the Region to comply with Part II of the Environmental Assessment Act for this project.

3. BACKGROUND

3.1 The Need

Both the 1997 York Durham Sewer System (YDSS) Master Plan and 2002 Master Plan Update stated that the existing SE Collector Trunk Sanitary Sewer would be reaching its

capacity based on projected growth in the Towns of Markham, Richmond Hill, Aurora, Newmarket and the City of Vaughan.

3.2 Project Description

The SE Collector Trunk Sewer is a critical component of the YDSS that moves wastewater from York Region to the Duffin Creek Water Pollution Control Plant (WPCP) located in the City of Pickering. Initially identified as a two phased approach, the first phase of the SE Collector Trunk Sewer would extend from Box Grove in the Town of Markham, through the northeast corner of the City of Toronto (formerly Scarborough) to the boundary meter located at the boundary between the City of Toronto and Durham Region. The second phase referred to as the SE Collector Pickering West Trunk Sewer would extend from the meter chamber to Valley Farm Road. (*see Attachment 1*).

The proposed project delivery approach is traditional design-tender-construct. This approach was selected as it reduces the overall project risks with respect to permitting/approvals, community relations, project schedules and contractual liabilities.

3.3 Project Status

3.3.1 Class Environmental Assessment

Earth Tech was retained in October 2001 in accordance with the purchasing by-law, to undertake the Class EA, preliminary design and property needs report for the SE Collector Trunk Sanitary Sewer.

In 2002, the first draft EA report proposed twinning the existing SE Collector Trunk Sewer through the Rouge Park management lands as the preferred alternative and this was presented to the public and key stakeholders.

The issues surrounding the SE Collector Trunk Sewer and York Region Infrastructure projects have been reviewed with a number of public agencies. Agencies included the City of Toronto, Town of Markham, Toronto and Region Conservation Authority (TRCA), Rouge Park Alliance, Ministry of Natural Resources (MNR) and Ministry of Environment (MOE). The following comments were provided:

- EA needs to assess groundwater and surface water impacts along all alternative alignments in detail.
- Groundwater and surface water assessment should identify cumulative impacts of all YDSS projects.
- Other alignments that avoid the Rouge Park should be explored.

The preferred solution for phase 1 should take into consideration the next phase from the meter chamber to Valley Farm Road and be considered and evaluated as a whole. More specifically, the Region was requested to undertake detailed investigations to assess the relative impact of dewatering for each of alternative alignments. In 2003, the Region retained Inspec-Sol Conestoga Rovers Associates (CRA) to undertake the necessary

hydrogeotechnical investigations for the SE Collector Trunk Sewer, Bathurst Collector and Langstaff Trunk Sewer, 9th Line Trunk Sewer and 16th Avenue Trunk Sewer projects in The Regional Municipality of York. The findings from this work will assist in the review of alternatives.

In addition to the hydrogeotechnical investigations and additional field work, the Region initiated an enhanced public consultation program as well as increased stakeholder relationship management program. A critical part of this process involved an intensive four day workshop held in June, 2004 with various stakeholders including agencies, neighbouring municipalities including City of Toronto and Durham Region as well as the Rouge Park Alliance. The outcome of the workshop revealed a number of alternatives that satisfied the project goal and a number of additional factors to be considered when evaluating the alternatives.

3.3.2 Part II Order (Bump-Up) Request Granted

On October 1, 2004, the Minister of the Environment formally notified the Region that they had received a Part II Order on all YDSS Projects. There were specific concerns with the potential for the SE Collector Trunk Sewer to cause adverse environmental impacts. As a result, the Minister ordered pursuant to subsection 16 (1) of the *Environmental Assessment Act*, The Regional Municipality of York to comply with Part II of the *Environmental Assessment Act* for the proposed SE Collector Trunk Sewer (from 9th Line in the Town of Markham to Valley Farm Road in the City of Pickering) and to carry out a full IEA for this project.

The following provides a summary of the directions set forth by the Minister with regard to the preparation and content of the Terms of Reference (TOR) that must be prepared for this project:

- Identify and assess additional alternative routes as part of the EA.
- Develop monitoring and mitigation measures for any dewatering activities, including measures that address potential impacts to well users and the natural environment.
- Include the following criteria in the comparison of alternatives; dewatering activities and impacts on existing water users and on all local surface, groundwater and natural heritage features.
- Conduct pump tests and modelling, as well as data collection and baseline information.
- Conduct a comprehensive review of alternative routing options and alternative sewer design and construction techniques.
- Independent peer reviews of all technical studies.
- Prepare a technical analysis of the impacts of dewatering as part of the assessment and evaluation of alternative routes.
- Prepare a detailed dewatering evaluation for the preferred alternative.
- Technical assessments sufficient for all permits and approvals.

3.3.3 Key Differences Between Class EA and Individual EA

The Scope of Services for this project has been expanded to reflect the requirement to comply with Part II Order of the Environmental Assessment Act. This requires that the Region develop in full consultation with the public, the TOR for the SE Collector Trunk Sewer Project.

A project subject to a Class EA is approved under the EA Act provided that the Class EA planning process is appropriately carried out. In contrast, an Individual EA requires the preparation and submission of an environmental assessment document to the Minister of the Environment for approval. As a result, an Individual EA requires a number of additional activities beyond that of a Class EA including a TOR. A TOR must be prepared and approved by the Minister of the Environment before a proponent can begin the actual environmental assessment. A TOR provides the framework for the preparation and review of the environmental assessment and represents an agreement between a proponent and the Minister of the Environment that must be fulfilled.

Since an Individual EA is subject to review and approval by the Minister of the Environment, a proponent needs to ensure that all of the required elements of an environmental assessment as defined in the EA Act are sufficiently provided for, including the purpose and rationale for the undertaking, range of alternatives to the undertaking and alternative methods of carrying out the undertaking, description of the environment, impacts, and mitigation, and level of consultation.

In general, a Class EA can usually be completed between six and 12 months depending on the nature of the project. Individual EAs, on the other hand, can take up to 24 to 30 months or more depending upon the nature of the project, with MOE review and approval regulated timelines being more than nine months alone.

4. ANALYSIS AND OPTIONS

The Project Team has been working diligently towards developing an aggressive and comprehensive workplan that satisfies and respects the conditions set forth by the Minister of Environment, as well as implements a solution in the most time effective manner.

4.1 Negotiation of Consulting Services

In an effort to expedite critical activities of the project, ensure continuity and quality of service, and the quality of infrastructure, a negotiated procurement process for additional engineering services was recommended to Council on May 20, 2004.

Regional staff was authorized by Council on May 20, 2004 to negotiate with Earth Tech to expand their current role as Environmental Assessment Consultant to include the following additional engineering services: design, permitting and approvals, contract administration and site inspection services required to complete all remaining phases of the SE Collector Trunk Sewer Project. These services would now also include the preparation of an Individual Environmental Assessment.

4.1.1 Benefits of a Negotiated Process

The option of negotiating with the incumbent consultant Earth Tech was recommended for the following reasons:

- Maintain and continue existing relationships with the regulatory approval agencies and the public.
- Ensure continuity and one source of accountability for all issues associated with the project.
- Benefit from Earth Tech's thorough understanding of the project and the steps necessary for completion.
- The Region has been satisfied with Earth Tech's performance to date on this assignment.
- Negotiating the terms of the contract with Earth-Tech allowed the Region greater input as to what specialists and key sub-consultants should be included or carried as part of the project team to best achieve the Region's overall project objectives and schedule.
- Selecting a consultant through a competitive process for this work would have added several months to the project schedule and could have resulted in a lack of continuity and accountability for key aspects of the project.

The negotiated approach allowed for a consultative approach to determining the scope of services required to complete the project.

4.1.2. Proposed Workplan

4.1.2.1 Technical Studies

Following the decision by the Minister of the Environment, EarthTech together with Regional staff revisited the composition of the technical team to reflect the needs of IEA. The result was the identification of a highly specialized and integrated team of experts which we believe is best qualified to successfully implement this project.

The project team has worked together to develop a comprehensive workplan that addresses the mandate to comply with the Part II Order for the SE Collector. Trunk Sewer Highlights from the workplan include:

- Development of a TOR Document.
- Establishing an expanded study area.
- Consultation with key stakeholders and agencies.
- Gathering of all available data within the expanded study area.
- Assessment of a long list of alternatives.
- Additional geotechnical investigations along alternative routes.
- Additional natural environment inventory for expanded study area.
- Assessment of shortlist of alternatives, including preliminary design and alternative construction methodologies for each alternative.
- Evaluation of alternatives.
- Establishing a preferred alignment and construction technique.

- Development of detailed environmental and hydrogeological mitigation measures for preferred alignment.
- Detailed design, including detailed environment impact studies, for preferred alignment.
- Securing of permits.
- Preparation of tender package(s).

Earth Tech is the lead consultant providing overall project management, IEA services, detailed design services, field compliance and certification, permitting and approvals and contract administration services. Earth Tech will utilize the technical strength and resources of the consulting firms, listed in Table 1, to augment its team thus providing the Region with comprehensive and effective services.

It is recommended that Earth Tech and its team be retained for the remainder of the project in order to maintain the continuity and expertise gained on the project to date. Key members have been selected based on their project experience and their successful relationships with York Region and the approval agencies.

4.1.2.2 Public Consultation and Stakeholder Relationship Management

The conditions imposed by the Minister of the Environment stipulated significant consultation requirements with the public and affected stakeholders. The Region recognizes the importance in improved stakeholder relationships and has thereby included a number of enhancements to the standard public consultation process. Such enhancements include the following:

- Outreach initiatives (door-knocking).
- Storefront drop-in centres.
- Web-sites that engage the stakeholders.
- Surveys, focus groups.
- Education programs to increase the stakeholder's knowledge of the issues.
- Training seminars and workshops.
- Downloadable maps, videos, other materials.
- Public forums.
- Advisory groups/committees.

4.2 Project Schedule

The following highlights the projected major milestones for the SE Collector Trunk Sewer Project.

Table 1
Major Milestones

Task	Completion Schedule
Finalize Workplan	January 2005
Terms of Reference	
Submit Draft TOR to Agencies	March 2005
Submit Final TOR to Agencies	May 2005
Approved TOR	August 2005
Individual Environmental Assessment	
Initiate IEA	August 2005
File IEA	January 2007
Detailed Design	Mid 2008
Submit Permit to take Water (PTTW)	Mid 2008
Receive PTTW	Late 2008
Tender Award	Late 2008
Initiate Construction	Late 2008
Complete Construction	Late 2010

4.3 Proposal Evaluation

Regional staff met with Earth Tech staff on various occasions to discuss the scope of services, the fees, project personnel and the specific expectations with respect to the engineering services. A detailed proposal covering the above aspects of the assignment was submitted to the Region on August 6 for review. The proposal has been revised to reflect the decision by the Minister of the Environment to comply with the Part II Order for an IEA.

5. FINANCIAL IMPLICATIONS

5.1 Project Cost

Originally, it was anticipated the SE Collector Trunk Sewer would be similar to the various sewer projects completed in the past. However, the Region's recent experiences with the 16th Avenue Trunk Sewer project have highlighted new and emerging technical, hydrogeotechnical, environmental and stakeholder concerns and issues which are also applicable to the SE Collector Trunk Sewer Project.

Our previous experience during our VE workshops and stakeholder input and analysis indicated that there is a high probability the preferred route may not be the shortest and most direct route. This may however result in higher capital costs than originally anticipated in 2002. However, the likelihood that the longer, lower impact alignments will be in-service sooner is greater than if we pursue the shortest, most direct routes. These routes may or may not be considered further depending on the TOR for the IEA for this project. However, in order to provide a capital cost estimate for this project, we have assumed the most likely route from our previous stakeholder analysis. Based on the value

based approach, the IEA may consider alternative alignments, which may not represent the most direct, nor the least expensive route.

The alternative alignments being considered under this EA, range in cost from approximately \$80,000,000 to almost \$103,000,000, depending on the length and complexity of the route.

5.2 Project Engineering Fees

5.2.1 Project Team

Following authorization to proceed with the negotiations with Earth Tech, Regional staff met Earth Tech representatives to discuss the expectations for this critical project. Earth Tech assembled a partnership of first-class specialists to undertake this assignment and address all issues from the EA phase through to construction. Key members have been selected based on their project experience and their successful relationships with York Region and the approval agencies.

5.2.2. Scope of Service

Earth Tech's original assignment was to undertake the Class Environmental Assessment (EA) for the SE Collector Trunk Sewer Project at an upset fee of \$148,610. Given the fact that EarthTech has worked extensively over the past two years on the Class EA, their knowledge and background data will be useful to the IEA and will likely help expedite this process after the TOR have been established. Therefore, Regional staff recommend that authorization be given to retain Earth Tech and its team to complete the IEA, detailed design, permitting and approvals and contract administration as outlined above. Table 2 provides a listing of the fees required for the complete engineering services excluding the original upset fee.

Table 2
Breakdown of Fees by Firm

Firm	TOR	IEA	Design	Contract Administration
<i>Prime Consultant</i>				
Earth Tech (sewer design/project management)	\$355,800	\$1,442,320	\$2,183,100	\$1,505,050
<i>SubConsultants</i>				
Ogilvie, Ogilvie & Co. (stakeholder relationship management)	100,000	230,000	0	0
Earthfx (3-D hydrogeological modeling)	20,000	299,900	0	0
Gartner Lee Ltd. (Environmental investigation and mitigation, approvals management)	382,700	799,070	462,370	162,450
Hatch (Tunnel Methodology, Design, and Inspection)	0	98,410	589,410	853,840
Inspec Sol (Hydrogeological investigation and mitigation, and monitoring)	111,570	929,680	449,630	272,110
Inspec Sol Subs (Drillers, water quality tests)	0	1,880,840	0	178,410
Revay (Project Reporting/ Project Control)	50,730	73,310	167,550	4,480
Thurber (Geological investigation, and monitoring)	0	333,660	19,150	111,560
Misc. Subs (Specialized services)	58,190	156,780	356,330	0
Total By Phase	\$1,078,990	\$6,243,970	\$4,227,540	\$3,087,900
TOTAL PROJECT				\$14,638,400

5.2.3. Evaluation of Proposal

The project team has developed a comprehensive services proposal with detailed tasks, project plan and a fee schedule. The Region has reviewed the detailed proposal to ensure best value. A review of the work packages, hourly rates and resources has been completed and we agree with the breakdown detailed in Table 3. Regional staff concur that the workplan, fees and hourly rates are reasonable.

Traditionally the percentage of fees related to the Environmental Assessment, Detailed Design and Contract Administration Phases of a typical infrastructure project represent 3%, 4% and 3% of the total construction value. The fees associated with the Detailed Design and Contract Administration Phases of the SE Collector Trunk Sewer Project represent 3% and 4% of the total construction value. The fees associated with the TOR and IEA are higher than a traditional project due to the fact that traditionally sewers are carried out under the Class EA process and significantly more environmental field work and public consultation is required for this project.

The detailed services proposal will form part of the engineering agreement and will provide the basis for on-going project scope and cost control.

The total fee for the IEA, design, permitting, approvals and contract administration is \$14,638,400.

Sufficient funds are included in the 10-Year Capital Plan to cover the cost of the services discussed in this report. As well, sufficient funds are allocated in the proposed 2005 Capital Budget.

6. LOCAL MUNICIPAL IMPACT

This sewer is required to accommodate future growth within York Region. The trunk sewer expansion will continue to provide service to the Towns of Markham, Richmond Hill, Aurora, Newmarket, Whitchurch-Stouffville, the City of Vaughan and the communities of Holland Landing, Queensville and King City.

The SE Collector Trunk Sewer will have a direct impact on development approvals if not in service within a timely manner. This project is considered critical to the ability to provide wastewater service to the Region.

7. CONCLUSION

This report is in-line with the recommendations for negotiation of engineering services in Clause 6 of Report No. 5 adopted, as amended, by Regional Council on May 20, 2004.

Regional staff has reviewed this proposal in detail and believe the Project Team represents good value to York Region, and will enable the Region to meet its servicing objectives as quickly as possible.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause was included in the agenda for the January 5, 2005 Committee meeting.)