



January 26, 2012

Mr. Denis Kelly,
Regional Clerk
The Regional Municipality of York
17250 Yonge Street
Newmarket, ON L3Y 6Z1



REGION OF YORK
CLERK'S OFFICE

FILE No. - P04
B. Hughes

The Regional
Municipality
of Durham

Clerk's Department

605 ROSSLAND RD. E.
PO BOX 623
WHITBY ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
Fax: 905-668-9963
E-mail: clerks@durham.ca
www.durham.ca

Pat M. Madill, A.M.C.T., CMM III
Regional Clerk

RE: ASSIGNMENT OF ENGINEERING SERVICES FOR STAGE 2 OF THE CLASS ENVIRONMENTAL ASSESSMENT TO ADDRESS THE CAPACITY LIMITATIONS OF THE EXISTING OUTFALL/DIFFUSER, PEER REVIEW OF TECHNICAL DOCUMENTATION, AND APPROVAL OF CONTINGENCY INVESTIGATIONS AT THE DUFFIN CREEK WATER POLLUTION CONTROL PLANT, IN THE CITY OF PICKERING (2012-W-3) (Our File: 02-28)

Please be advised the Works Committee of Regional Council considered the above matter and at a meeting held on January 25, 2012 Council adopted the following recommendations of the Committee:

- "a) THAT CH2M Hill Canada Limited be retained to provide engineering services for Stage 2 of the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant to an upset limit of \$690,466* with financing to be provided from the approved budget, shared between The Regional Municipality of Durham and the Regional Municipality of York as follows:
- | | |
|---|------------|
| Regional Municipality of Durham's Share (50%) | \$345,233 |
| Regional Municipality of York's Share (50%) | \$345,233; |
- b) THAT the Regional Chair and Clerk be authorized to execute the engineering services agreement with CH2M Hill Canada Limited;
- c) THAT approval be granted for a peer review of the technical documentation supporting the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant, with the engineering services agreement to be executed by the Regional Municipality of York, to an upset limit of \$167,608* with financing to be provided from the approved budget, to be shared between The Regional Municipality of Durham and the Regional Municipality of York as follows:

Regional Municipality of Durham's Share (50%)	\$83,804
Regional Municipality of York's Share (50%)	\$83,804;

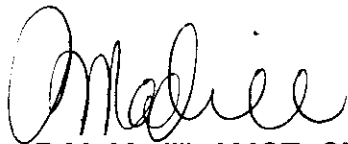


- d) THAT approval be granted to complete any required contingency investigations identified as part of the peer review process to an upset limit of \$100,000* with financing to be provided from the approved budget to be shared between The Regional Municipality of Durham and the Regional Municipality of York as follows:

Regional Municipality of Durham's Share (50%)	\$50,000
Regional Municipality of York's Share (50%)	\$50,000 ; and

- e) THAT a copy of Report No. 2012-W-3 of the Commissioner of Works be forwarded to the Regional Municipality of York."
*(including all disbursements and before applicable taxes)

As directed, please find enclosed a copy of Report #2012-W-3 of the Commissioner of Works.



P.M. Madill, AMCT, CMM III
Regional Clerk

PMM/cb

c: C. Curtis, Commissioner of Works, Region of Durham



The Regional Municipality of Durham
To: The Works Committee
From: Commissioner of Works
Report: 2012-W-3
Date: January 11, 2012

SUBJECT:

Assignment of Engineering Services for Stage 2 of the Class Environmental Assessment to Address the Capacity Limitations of the Existing Outfall/Diffuser, Peer Review of Technical Documentation, and Approval of Contingency Investigations at the Duffin Creek Water Pollution Control Plant, in the City of Pickering

RECOMMENDATIONS:

THAT the Works Committee recommends to Regional Council that:

- a) CH2M Hill Canada Limited be retained to provide engineering services for Stage 2 of the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant to an upset limit of \$690,466* with financing to be provided from the approved budget, shared between the Regional Municipality of Durham and the Regional Municipality of York as follows:

Regional Municipality of Durham's Share (50%):	\$345,233
Regional Municipality of York's Share (50%):	\$345,233

- b) The Regional Chair and Clerk be authorized to execute the engineering services agreement with CH2M Hill Canada Limited;
- c) Approval be granted for a peer review of the technical documentation supporting the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant, with the engineering services agreement to be executed by the Regional Municipality of York, to an upset limit of \$167,608* with financing to be provided from the approved budget, to be shared between the Regional Municipality of Durham and the Regional Municipality of York as follows:

Regional Municipality of Durham's Share (50%):	\$83,804
Regional Municipality of York's Share (50%):	\$83,804

- d) Approval be granted to complete any required contingency investigations identified as part of the peer review process to an upset limit of \$100,000* with financing to be provided from the approved budget to be shared between the Regional Municipality of Durham and the Regional Municipality of York as follows:

Regional Municipality of Durham's Share (50%):	\$50,000
Regional Municipality of York's Share (50%):	\$50,000

- e) A copy of this report be forwarded to the Regional Municipality of York.

* (including all disbursements and before applicable taxes)

REPORT:

Attachment No. 1: Works Committee Report No. 2008-W-85

1. PURPOSE

The purpose of this report is as follows:

- To obtain approval to execute an engineering services agreement with CH2M Hill Canada Limited (CH2M Hill) for Stage 2 of the Class Environmental Assessment (EA) to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant (WPCP);
- To obtain approval to undertake a peer review of the technical documentation supporting the Class EA to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek WPCP, with the engineering services agreement to be executed by the Regional Municipality of York (York); and
- To obtain approval to undertake contingency investigations identified as part of the peer review process supporting the Class EA to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek WPCP.

2. BACKGROUND

The Duffin Creek WPCP outfall/diffuser is a critical component of the York-Durham Sewage System (YDSS). Treated effluent from the Duffin Creek WPCP is discharged through the three-metre diameter outfall pipe and numerous diffuser ports into Lake Ontario approximately one kilometre from shore. The YDSS currently services the City of Pickering, the Town of Ajax and most of York. Primary components of the YDSS, including the Duffin Creek WPCP and

the outfall/diffuser, are jointly owned by the Regional Municipality of Durham (Durham) and York (Regions).

In 2004, Durham and York engaged CH2M Hill to undertake a Class EA to plan for additional process capacity at the Duffin Creek WPCP. Work had been done previously to investigate the existing outfall/diffuser but it was during the 2004 Class EA that the capacity limitations of the outfall/diffuser were clarified. Subsequent to the 2004 Class EA being completed, the Ministry of the Environment (MOE) approved the expansion of the Duffin Creek WPCP from a process capacity of 420 megalitres per day (ML/d) to 630 ML/d.

However, due to the capacity limitations of the existing outfall/diffuser, discharge of effluent from the plant was limited to 520 ML/d. Since the approved discharge limit is less than the process capacity of the plant itself, the MOE stipulated that the Regions must have a solution in place to address the capacity limitations of the existing outfall/diffuser prior to flows reaching 520 ML/d. Based on existing population projections for Durham and York, it is anticipated that flows will reach 520 ML/d by approximately 2019.

In June 2008, the Regions of Durham and York engaged the firm of CH2M Hill to initiate a Class EA to address the capacity limitations of the existing Duffin Creek WPCP outfall/diffuser (Attachment No. 1). However, subsequent to award, the project was delayed due to public concerns expressed during the Southeast Collector Trunk Sewer Individual Environmental Assessment (IEA), which Durham and York Regions were co-proponents on. Now, Stage 1 of the Class EA for the outfall/diffuser is nearing completion and Stage 2 will be starting shortly in 2012.

For this Class EA, the project team and CH2M Hill proposed using a delivery approach comprised of three distinct stages incorporating the activities under the Municipal Class EA Planning Process for a Schedule C undertaking. This three-stage approach was utilized because the scope of some of the tasks in the later phases of the Class EA could not be confirmed until initial tasks had been completed.

In addition to the work being done by CH2M Hill, a separate assignment to undertake geotechnical investigations of Lake Ontario was completed by Coffey Geotechnics Incorporated (Coffey) in 2011. The geotechnical information gathered is currently being used to support this Class EA. Also, due to the high level of local stakeholder scrutiny this project has received, a peer review of the technical documentation supporting the Class EA will be undertaken.

3. DISCUSSION

This Class EA was planned in three stages because there was considerable uncertainty in what the recommended solution would be and the potential alternatives could have vastly different levels of effort to satisfy the requirements of the Class EA process. Now that Stage 1 of the Class EA is nearing

completion, CH2M Hill has been able to provide an upset limit cost to complete Stage 2 so that a solution to the capacity limitations of the existing outfall/diffuser can be identified and implemented prior to flows reaching 520 ML/d. As originally intended at the outset of the project, major Stage 2 activities include the following:

- Develop short list of alternatives;
- Ongoing consultation activities;
- Stakeholder Advisory Committee meetings;
- Public Information Forums;
- Undertake any additional investigations; and,
- Stage 2 Assessment Report.

As with Stage 1, York is co-managing and co-funding Stage 2 of this Class EA.

York and Durham will be initiating a peer review of the technical documentation supporting the Class EA due to the high level of local stakeholder scrutiny this project has received. The engineering services agreement for the peer review will be executed by York.

4. FINANCIAL IMPLICATIONS

4.1 Purchasing By-Law No. 68-2000

Under Section 9.4.2 of the Region's Purchasing By-Law No. 68-2000, where the project or annual value of the consulting or professional service assignment is expected to be more than \$50,000, the approval of the applicable Standing Committee and Regional Council is required.

4.2 Financing

Stage 2 is one of three stages of the Class EA to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek WPCP. Stage 1 is nearing completion, Stage 2 is scheduled to start in 2012 and Stage 3 is tentatively scheduled to begin in 2013.

The cost of engineering and consulting services for Stage 2 is available from the approved budget for the project and will be shared equally between the Region's of Durham and York, as follows:

Region	Cost Share	Percentage Share
Durham	\$ 345,233	50%
York	<u>345,233</u>	<u>50%</u>
TOTAL	<u>\$ 690,466</u>	<u>100%</u>

The cost of consulting services for the peer review is available from the approved budget for the project and will be shared equally between the Regions, as follows:

Region	Cost Share	Percentage Share
Durham	\$ 83,804	50%
York	<u>83,804</u>	<u>50%</u>
TOTAL	<u>\$ 167,608</u>	<u>100%</u>

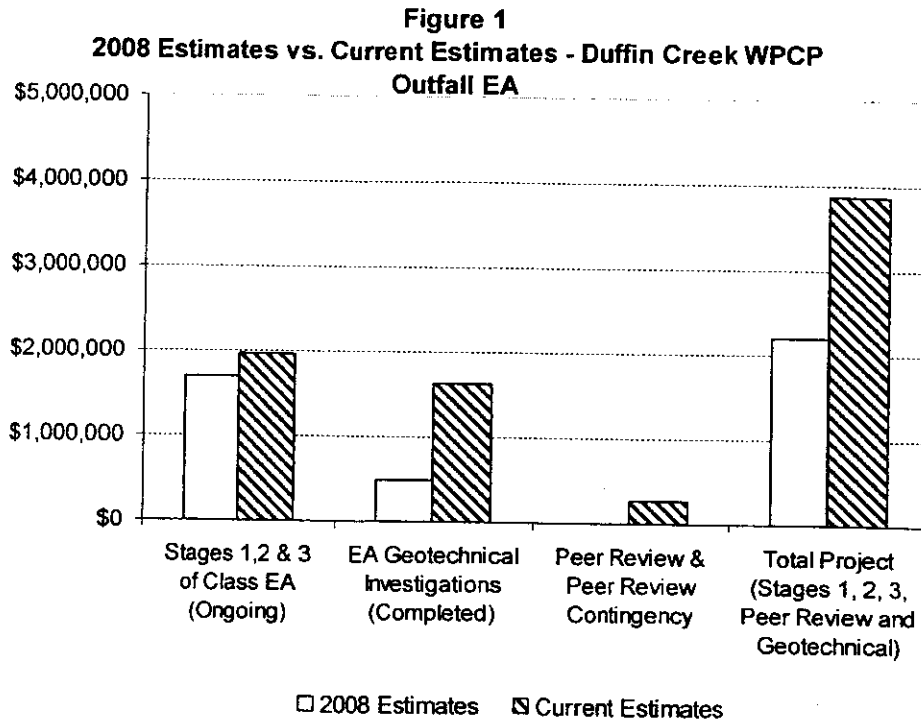
The cost of contingency items that may be required as a result of the peer review is available from the approved budget for the project and will be shared equally between the Regions, as follows:

Region	Cost Share	Percentage Share
Durham	\$ 50,000	50%
York	<u>\$ 50,000</u>	<u>50%</u>
TOTAL	<u>\$ 100,000</u>	<u>100%</u>

As agreed upon previously, EA work related to the Duffin Creek WPCP is shared equally between both Regions as co-owners. The cost sharing for the construction of the preferred alternative for this project will be confirmed prior to implementation.

5. TOTAL PROJECT COST

Below, Figure 1 indicates the 2008 and current estimates for Stages 1, 2 and 3 of the Class EA, the geotechnical investigations, the peer review activities and the total project costs.



The total cost estimate for CH2M Hill to complete Stages 1, 2 and 3 of this Class EA has increased by approximately 16 per cent from the original estimate in 2008. This increase is mainly due to the project being placed on hold in Stage 1 while the Regions addressed public concerns regarding the Southeast Collector Trunk Sewer and additional bathymetric survey work undertaken prior to the geotechnical work being initiated. In addition, local stakeholder involvement in the Class EA has been at a higher level than what was anticipated in 2008, and as a result, additional effort has been added to the scope for Stage 2 and is also expected for Stage 3.

As shown in Figure 1 above, the major increase to the total project cost is due to the geotechnical investigations of Lake Ontario, which were completed in 2011. In 2008, the cost for the geotechnical work was estimated by CH2M Hill to be approximately \$500,000; however, the final cost for this work was approximately \$1,600,000. Reasons for this cost increase were documented and approved which includes a change in barge subcontractor and additional regulatory requirements.

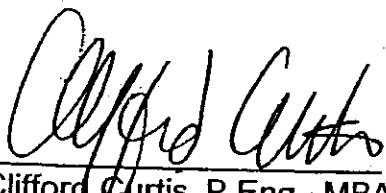
Also, an additional cost not included in the 2008 estimate was the peer review work being undertaken due to the high level of local stakeholder scrutiny this project has received.

6. CONCLUSION

In conclusion, the following recommendations are being made:

- CH2M Hill Canada Limited be retained to provide engineering services for Stage 2 of the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant to an upset limit of \$690,466*;
- Approval be given to undertake a peer review of the technical documentation supporting the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant to an upset limit of \$167,608*, with the engineering services agreement to be executed by the Regional Municipality of York; and
- Approval be given to undertake contingency investigations identified as part of the peer review process supporting the Class Environmental Assessment to address the capacity limitations of the existing outfall/diffuser to an upset limit of \$100,000*.

This report has been reviewed by the Finance Department.



Clifford Curtis, P.Eng., MBA
Commissioner of Works

Recommended for Presentation to Committee



G.H. Cubitt, M.S.W.
Chief Administrative Officer

EPS5/em



Regional Municipality of Durham
To: The Works Committee
From: Commissioner of Works
Report: 2008-W-85
Date: June 4, 2008

SUBJECT:

Assignment of Engineering Services for a Class Environmental Assessment to Address the Capacity Limitations of the Existing Outfall/Diffuser at the Duffin Creek Water Pollution Control Plant, in the City of Pickering

RECOMMENDATION:

THAT the Works Committee recommends to Regional Council that:

- a) CH2M Hill Canada Limited be retained to provide engineering services for the initial stages of a Class Environmental Assessment to Address the Capacity Limitations of the Existing Outfall/Diffuser at the Duffin Creek Water Pollution Control Plant at an upset limit of \$495,000 (excluding disbursements and applicable taxes);
 - b) The Regional Chair and Clerk be authorized to execute the agreement; and
 - c) A copy of this report be forwarded to the Region of York and the Ministry of the Environment.
-

REPORT:

1. BACKGROUND

The Duffin Creek Water Pollution Control Plant (WPCP) provides sanitary sewage treatment for the urban areas of the City of Pickering, Town of Ajax and portions of the Region of York. The plant is co-owned by the Regions of Durham and York, and is operated by the Region of Durham. Administration of the Duffin Creek WPCP is facilitated through the York-Durham Sewage System (YDSS) Management Committee, consisting of senior management staff from both Regions, including representatives from the Works, Finance and Legal Departments.

In 2004, the Regions of Durham and York engaged the firm of CH2M Hill Canada Limited to undertake a Class Environmental Assessment (EA), to plan for additional process capacity at the Duffin Creek WPCP. The resulting plan for expanding the Duffin Creek WPCP from its current process capacity of 420 megalitres per day (MLpd) to a capacity of 630 megalitres per day (MLpd) was approved by the Ministry of the Environment (MOE) in March 2007. The WPCP is to continue to discharge to Lake Ontario through the existing one (1) kilometre long outfall, which has a diffuser system at the end to ensure rapid assimilation of the treated effluent in the lake. A hydraulic evaluation of the existing outfall/diffuser capacity by CH2M determined that it can effectively discharge 520 megalitres per day (MLpd) of effluent to Lake Ontario. Since the capacity of the existing outfall/diffuser is less than the approved process capacity of 630 megalitres per day (MLpd), the first Certificate of Approval (No. 0823-6Z9LF7) issued by the MOE on May 8, 2007 for the process capacity expansion included the following condition:

The Owner shall initiate the environmental assessment activity required to address the limitations in the existing outfall/diffuser within six (6) weeks of receiving the Certificate of Approval (Air) for the Digestion and Boiler Buildings, the complete application for which shall be submitted to the Ministry for approval before the end of August 2007.

As required by the above condition, the Regions submitted an application for a Certificate of Approval (Air) before the end of August 2007. This application is still being processed by the MOE, and the Regions have not yet received the Certificate of Approval (Air).

2. ASSIGNMENT TO PROCEED WITH A CLASS ENVIRONMENTAL ASSESSMENT (EA)

The above noted condition of approval also requires the Regions to initiate an environmental assessment to address the capacity limitations with the existing outfall/diffuser within six (6) weeks of receiving the Certificate of Approval (Air). Although the Regions have not yet received a Certificate of Approval (Air) from the MOE, the YDSS Management Committee has authorized staff of Durham and York Regions to proceed with a Schedule 'C' Class EA to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek WPCP. This direction will allow enough time to plan and initiate the environmental assessment as mandated in the MOE's condition of approval.

A Schedule 'C' Class EA is a five (5) phase planning process that facilitates the sound environmental planning and design of municipal infrastructure projects. The requirements of a Schedule 'C' Class EA are based on the Municipal Engineers Association (MEA) document (issued in October 2000, as amended in 2007), and must include an effective public consultation program.

The Regions asked CH2M to prepare a work program for this Schedule 'C' Class EA since their previous evaluation of the existing outfall/diffuser allowed CH2M to become thoroughly familiar with its capacity limitations and hydraulic modelling requirements, and because CH2M demonstrated a high level of expertise on that previous assignment. CH2M subsequently advised the Regions that the scope of some tasks in the later phases of the Class EA could not be confirmed until the initial tasks had been completed, including the scope of the geotechnical investigations in Lake Ontario and the scope of any aquatic restoration/compensation plans. Consequently, CH2M submitted a detailed workplan for the initial Class EA tasks, including Phase 1 (Identify Problem or Opportunity) and the majority of Phase 2 (Identify and Evaluate Alternative Solutions), at an estimated cost of \$495,000 (excluding disbursements and applicable taxes). These initial stages of the Class EA include consultations with stakeholders, as well as the technical tasks necessary to satisfy the requirements of the Canadian Environmental Assessment Act (CEAA). A preliminary workplan to complete the later phases of the Class EA was also submitted by CH2M; however, the scope and preliminary cost estimate of \$1,700,000 for these tasks is subject to refinement. A detailed workplan and cost estimate for these later phases of the Class EA will be finalized once the initial tasks have been completed. Based on the information available at this time, the total estimated cost to complete the Class EA is approximately \$2,195,000.

3. **FINANCING**

The cost of consulting services for the Class EA to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek WPCP is to be shared equally between the Regions of Durham and York as follows:

Consultant: CH2M Hill (CH2M)	
Durham Region's Share (50%)	\$247,500
York Region's Share (50%)	<u>247,500</u>
Total	<u>\$495,000</u>

Funds for Durham Region's share are available from the 2008 Capital Sanitary Sewerage Budget Item 27 – "Durham Region's share of project to address the outfall limitations at the Duffin Creek WPCP, Pickering": \$250,000.

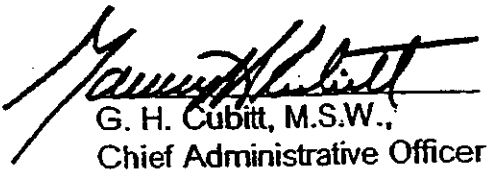
4. CONCLUSION

It is recommended that CH2M HILL Canada Limited (CH2M) be retained to provide engineering services for the initial stages of a Class Environmental Assessment (EA) to address the capacity limitations of the existing outfall/diffuser at the Duffin Creek Water Pollution Control Plant (WPCP) at an upset limit of \$495,000 (excluding disbursements and applicable taxes).



Clifford Curtis, P. Eng., MBA,
Commissioner of Works

Recommended for Presentation to Committee



G. H. Cubitt, M.S.W.,
Chief Administrative Officer

EPS3/rw