

**Minutes – Standing Policy Committee on Finance – January 15, 2016**

**REPORTS**

**Item No. 5                    South End Sewage Treatment Plant (Sewpcc) Upgrading and  
Expansion Financial Status Report No. 8 for the period from  
August 1, 2015 to October 31, 2015**

**STANDING COMMITTEE DECISION:**

The Standing Policy Committee on Finance concurred in the recommendation of the Winnipeg Public Service and received the report as information.

**Minutes – Standing Policy Committee on Finance – January 15, 2016**

DECISION MAKING HISTORY:

Moved by Councillor Lukes,

That the recommendation of the Winnipeg Public Service be concurred in.

Carried

# ADMINISTRATIVE REPORT

**Title: SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING AND EXPANSION FINANCIAL STATUS REPORT NO. 8 FOR THE PERIOD FROM AUGUST 1, 2015 TO OCTOBER 31, 2015**

**Critical Path: The Standing Policy Committee on Finance**

## AUTHORIZATION

Author	Department Head	CFO	CAO/COO
G.K. Patton, P. Eng. Manager of Engineering Services	M. L. Geer, CPA, CA Acting Director, Water and Waste Department	Mike Ruta	Doug McNeil

## RECOMMENDATIONS

That this report be received as information.

## REASON FOR THE REPORT

Administrative Directive No. FM-004 requires quarterly reporting to the Standing Committee on Finance.

## EXECUTIVE SUMMARY

This report identifies the financial status and significant events for the SEWPCC Upgrading and Expansion for the period August 1, 2015 to October 31, 2015.

## IMPLICATIONS OF THE RECOMMENDATIONS

Implications and mitigation actions for these items are under review.

## HISTORY / DISCUSSION

### DISCUSSION:

#### 1. THE PROJECT

The goal of this project is to expand the capacity of the SEWPCC for expected 2031 flows and upgrade the process to meet new effluent limits for nitrogen and phosphorous. The project is expected to cost \$335.6 million (Class 3 Estimate) and be complete in 2019 with an important milestone to meet new effluent limits by the end July 2018. The project design is based on the

lowest life cycle cost (NPV). In addition, the plant must operate continuously during the work and meet current effluent limits.

After the October 31, 2015 time period for this report, the City received a letter from the Province granting an extension to December 31, 2016, noting that consideration of further extensions will be subject to the City providing quarterly status reports and consultation with the Clean Environment Commission. The project team will comply with these requirements. It is intended that the quarterly Financial Status Reports will be submitted to the Regulator to satisfy the reporting requirement.

The project budget includes the following Project Identifications:

Project ID	Project Year	Adopted Budget
20320002EL <sup>1</sup>	2002	\$ 222,752
2032000207	2007	\$ 10,695,000
203210002B	2012	\$ 324,682,248
Total Project Budget		\$ 335,600,000

<sup>1</sup> Does not appear in the Capital Expenditures Monthly Report as the funds have been expended and it is designated as a closed Project ID.

The Executive Project Sponsor is the Director of Water and Waste. The Project Manager is Neil Harrington P. Eng.

## 2. MAJOR CAPITAL PROJECT STEERING COMMITTEE

Administrative policy for projects with capital cost exceeding \$20 million requires formation of Major Capital Project Steering Committee. The Committee has been formed and its members are:

Doug McNeil, Chief Administrative Officer  
 Michael Ruta, Chief Financial Officer  
 Moira Geer, Acting Director of Water and Waste  
 Lucy Szkwarek, Acting Manager of Finance and Administration, Water and Waste  
 Jackie Veilleux, Project Director Winnipeg Sewage Treatment Program, Water and Waste

The Committee has reviewed this report and recommended that the report be sent to the Standing Policy Committee on Finance.

## 3. RISKS AND RISK MITIGATION STRATEGIES

With a project this large and this complex, at this early stage, there are significant risks with respect to cost and schedule. In addition, the project is proceeding on a fast track basis with some construction contracts proceeding during design. In a fast track approach, we don't know the final bid for construction until the bid amount for final contract is known. The current project budget \$335.6M is based on a Class 3 cost estimate which has an AACE expected accuracy range of -20% to +30% or \$269.5M to \$436.3M.

In consultation with our engineering advisors we have had to make assumptions about the pace of engineering design and the pace of construction. Any delays would typically result in increases in cost.

An ongoing risk management strategy has been implemented for the project encompassing a proactive process of identifying and assessing project risk, defining appropriate risk handling strategies and plans, and monitoring those actions to completion.

Formal risk and opportunity analyses of the project are scheduled to be performed by the Winnipeg Sewage Treatment Program, the design consultant and key City stakeholders at the following project milestones:

- End of Project Definition design stage – this analysis has been completed
- End of Preliminary Design phase – this analysis has been completed
- At 60% and 90% completion of Detailed Design – analysis has been completed for Contract 1 and for Contract 2
- Prior to the start of construction and quarterly during construction – third construction analysis has been completed. Forth analysis is being scheduled
- Prior to the start of and at the end of commissioning

A project risk register is being kept throughout the project and will be updated by the formal analysis. The risk register contains over one hundred and thirty specific risks cost and schedule risks associated with delivery, staffing, quality of work, production, fire and accidents, and unknown events. Some examples of risks of interest in this project include.

Risk Matrix <sup>1</sup>	
Risk Statement and Explanation	Mitigation
Construction Schedule is aggressive and actual construction takes significantly longer than planned.	Ongoing reviews of construction schedule as the design progresses, continuous review of construction contract packages, 3rd party review of construction schedule
Acceptable design is not completed on schedule delaying tendering and schedule.	Smaller packages of design reviews, advance review of specification, monitoring design schedule progress, ongoing review of 3D model
Contract 4 bid prices exceeds budget resulting in inability to award and schedule delay.	Ongoing discussion with consultant on any significant cost impacts, obtain an updated cost estimate of Contract 4 as early as possible
Rushed design to meet an aggressive schedule resulting in a lower design quality and a higher cost of contract change orders.	Conduct technical design reviews at 30%, 60% and 90% design progression including operation review and input, training of operations personnel in design review techniques, development and utilization of WSTP design standards
Unknown existing conditions are encountered during construction causing schedule delays and additional costs.	Contracting strategy with multiple construction contracts to minimize impact, early assessment of site conditions to minimize unknowns

<sup>1</sup>Risk Matrix is arranged vertically from higher to lower assessed risk

#### **4. CHANGES FROM LAST REPORT**

##### **RFP 682-2012 (Professional Consulting Services)**

- Detailed design is ongoing.
  - 60% design submittal and review for headworks completed
  - 60% design submittal and review for new BNR and Secondary Clarifiers is substantially complete
  - Substation preliminary design is progressing. The design technical memos have been issued for review
- The Project Implementation Plan contract packaging (Bid Opportunities to be tendered) and associated project schedule continues to be under review with the Consultant.
- The Consultant has issued Proposed Change Notices (PCN) for additional work related to Document Numbering, Standby Load Sequencing, National Energy Code Changes and Electrical Code Changes. These PCN's are under review by the Program Team.
- The Consultant has indicated that due to updated project schedule and contracting modifications outside of their control the assignment budget for project management and contract administration will not be sufficient to complete the work. The Consultant has been requested to provide the associated details for Program Team review.
- The Consultant has also been requested to provide a proposal to provide Construction Management services for the remainder of the project. The Program Team is currently performing this role but is having difficulty acquiring qualified personnel in the time frame required to meet the current contract needs.

##### **RFP 871-2013 (Supply and Delivery of Free-Moving Media)**

- Associated design work is progressing.
- Cost saving design proposed by the media supplier and validated by the design consultant is being implemented. Contemplated Change Order No. 1 has been issued by the Contractor Administrator to formalize the revised design of the IFAS media.

##### **RFP 873-2013 (Supply and Delivery of High Rate Clarification Equipment)**

- Contractor design work is substantially complete.
- First shipment containing High Rate Clarifier bridge structures is scheduled for delivery in July 2016.

##### **RFP 1067-2014 (Manitoba Hydro Load Interconnection Study)**

- This work is complete.
- A report to Council requesting approval to enter into single source negotiations with Manitoba Hydro for the needed Manitoba Hydro construction is required.

##### **Bid Opportunity 333-2014 (Contract C1 – Site Preparation Works)**

- Piling work is ongoing however the work continues to be impeded by high breakage of piles during installation. As recommended by the Consultant, additional pile dynamic testing is being performed to monitor the replacement piles during installation in effort to minimize further breakage. Adjacent replacement piles are being installed when breakage occurs.
- The Contractor has submitted a claim for schedule delays and associated costs. The Contract Administrator has requested that the Contractor provide documentation to support their claim. Legal Services has been consulted with respect to the claim.

- The source of an existing leak near the UV Building has been determined to be a joint in the existing outfall structure. A repair procedure has been requested from the Consultant.

**Bid Opportunity 498-2015 (SEWPCC Asbestos Abatement)**

- This work has been completed.

**Bid Opportunity 601-2015 (Contract C2 – High Rate Clarifier and Grit Removal Concrete and Miscellaneous Works)**

- Bid Opportunity 601-2015 for Contract 2 - High Rate Clarifier and Grit Removal Concrete and Miscellaneous Works has been awarded to Graham Construction and Engineering LP, in the amount of \$9,549,100.00, MRST included, GST extra. Five tenders for the Bid Opportunity were received. The awarded cost was 11.3% higher than the pre-tender estimate.

**5. CURRENT ISSUES/RISKS REQUIRING FURTHER ATTENTION**

**Cost Risk**

Consultant PCN's are under review with alternate strategies being investigated by the Program Team to minimize cost impacts where possible.

Due diligence is being undertaken on Contractor claims for additional costs associated with 333-2014 Contract 1 piling, including consultation with Legal Services. At this time further information from the Contractor has been requested.

**6. SCHEDULE**

Current key schedule milestones are:

Milestone Description	Timeline	
	Previous Report	This Report
Complete Project Definition Report	May 2014	May 2014 <sup>1</sup>
Complete Preliminary Design Report	November 2014	November 2014
Start Detailed Design	March 2014	March 2014
Start Construction of Site Preparation and Piling (Contract 1)	October 2014	October 2014
Start Construction on High Rate Clarifier and Grit Removal Structural Concrete and Misc. Works (Contract 2)		November 2015
Start Construction Major Concrete Works (Contract 3)	May 2016	May 2016
Start Construction of Remaining Works (Contract 4)		December 2016
Complete Commissioning interim BNR configuration	July 2018	July 2018
Complete Commissioning of all project components	July 2019	July 2019

<sup>1</sup> Substantial completion

The Consultant has been requested to provide further detail on the Global Project Schedule. Further review to evaluate acceptability will be performed by the Program Team once the additional information has been received.

## 7. FINANCIAL ANALYSIS

The status of current Requests for Proposal and Bid Opportunities are as follows:

Request for Proposal or Bid Opportunity	Description	Current Status	Contract Value (GST and MRST extra as applicable)	Total Approved Over-Expenditures
682-2012	Professional Consulting Services for SEWPCC Upgrading/Expansion Project	Ongoing, CH2M Hill Canada Ltd.	\$25,350,419	\$2,980,179.13
871-2013	Procurement of Free-Floating Media and Associated Appurtenances	Ongoing, Veolia Water Technologies Canada Inc.	\$7,750,588	
873-2013	Procurement of High Rate Clarification Equipment	Ongoing, Veolia Water Technologies Canada Inc.	\$2,052,500	
333-2014	Contract 1- Site Preparation Works	Ongoing, PCL Constructors Ltd.	\$22,646,510	
353-2014	For Construction Cost Consulting Services for SEWPCC Upgrading/Expansion Project	Completed, Hanscomb Ltd.	\$50,700	
572-2014	Provision for the Purchase or Lease of a Trailer for Office Space	Completed, B&B Rentals Inc.	\$184,000	
1067-2014	Manitoba Hydro Load Interconnection Study	Completed, Manitoba Hydro	\$60,000	
343-2015	Relocation of Lox Tank	Completed, Praxair Canada	\$62,715	
498-2015	Asbestos Abatement	Completed, Western Waste Management	\$24,950	
601-2015	Contract 2 - High Rate Clarifier and Grit Removal Concrete and Miscellaneous Works	Awarded to Graham Construction and Engineering LP	\$9,549,100	
	Total		\$67,731,482.00	\$2,980,179.13

Future major Bid Opportunities anticipated are:

- Contract 3 - Major Concrete Works (Bioreactors and Secondary Clarifiers)
- Contract 4 – For the remaining works including mechanical, electrical and automation



## Project funding

The approved capital and current projected budget are as follows:

YEAR	CAPITAL PROGRAM	ACTUAL + PROJECTED CASH FLOWS	CUMULATIVE CAPITAL BUDGET REMAINING
Up to 2015	335,600,000 <sup>1</sup>	51,900,849	283,699,151
2016		43,174,791	240,524,360
2017		99,684,997	140,839,363
2018		80,822,910	60,016,453
2019		60,016,453	0
Total	335,600,000	335,600,000	

<sup>1</sup> Capital budget approved by Council

A summary of the budget to forecast comparison is contained in Appendix 2.

This project will receive \$37.42 million in Canadian Strategic Infrastructure and \$22 million in Green Infrastructure funding. The balance of the project cost will be funded using a combination of cash, Environmental Projects reserve and debt funding. Each of these sources are internally funded by rates as forecast in the Council approved rate report.

### Overall Sewage Treatment Program Funding

The Province of Manitoba and the Government of Canada have committed \$287.8 million towards the sewage treatment plant upgrades:

The Province has committed;

- \$25 million from the Canada Strategic Infrastructure Fund program
- \$11 million from the Green Infrastructure Fund program
- \$3.8 million from the 2004 Urban Capital Projects Allocation
- \$195 million in its 2007 Throne Speech

The Government of Canada has committed;

- \$42 million from the Canada Strategic Infrastructure Fund program
- \$11 million from the Green Infrastructure Fund program

Of the total \$287.8 million committed to sewage treatment plant upgrades, the City projects federal and provincial funding of \$59.42 million towards the south end sewage treatment plant upgrade.

Funding for the SEWPCC and the WSTP is outlined in Appendix 1.

## 8. OTHER

### Winnipeg Sewage Treatment Program (WSTP)

Under the WSTP Veolia is to provide advice to the City of Winnipeg in the design and construction of the SEWPCC project. As indicated in the latest WSTP Annual Report (tabled at

City Council on July 15, 2015, Veolia is delivering value to the City of Winnipeg. In this project, the City of Winnipeg is benefitting from:

- Provision of expert advice on SEWPCC upgrade and expansion
- Share in the risks of the capital project delivery

## FINANCIAL IMPACT

**Financial Impact Statement**      **Date:**      **December 16, 2015**

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**Project Name:**

**SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING AND EXPANSION  
FINANCIAL STATUS REPORT NO. 8 FOR THE PERIOD FROM AUGUST 1, 2015 TO  
OCTOBER 31, 2015**

**COMMENTS:**

As this report is submitted for informational purposes only, there is no financial impact associated with this recommendation.

*"Original signed by L. Szkwarek, CPA, CGA"*  
Lucy Szkwarek, CPA, CGA  
Acting Manager of Finance and Administration

## **CONSULTATION**

In preparing this report there was consultation with:

N/A

## **OURWINNIPEG POLICY ALIGNMENT**

The SEWPCC Nutrient Removal/Expansion will reduce the environmental impact of our citizens on the Red River and the downstream lakes and rivers. It is in collaboration with the Regulatory Licence requirements issued by the Province of Manitoba.

OurWinnipeg Reference: Section 02-2 Environment

## **SUBMITTED BY**

Department: Water and Waste  
Division: Engineering Services  
Prepared by: N. A. Harrington, P. Eng.  
Date: December 23, 2015  
File No.: 020-17-08-25-01, S-926

c: Major Capital Project Steering Committee (email)  
J. Veilleux, P. Eng., Water and Waste Department (email)  
N. A. Harrington, P. Eng., Water and Waste Department (email)

### **ATTACHMENTS:**

Appendix 1 – Funding: South End Sewage Treatment Plant (SEWPCC) and Winnipeg Sewage Treatment Program (WEWPCC)  
Appendix 2 – Costs of SEWPCC Upgrading/Expansion Project

**Funding: South End Sewage Treatment Plant (SEWPCC) and Winnipeg Sewage Treatment Program (WSTP)  
Appendix 1**

1) Funding for the SEWPCC is as follows:

<b>SEWPCC Nutrient Removal/Upgrade (in \$millions)</b>	Total Cost	Funded to Date		Funding Pending		Total Funding		City Share of Costs
		Canada	Manitoba	Canada	Manitoba	Canada	Manitoba	
Environment Act Licence Driven Funding								
CSIF    BNR	147.0	2.11	6.08	29.23		31.34	6.08	109.58
GIF    Wet Weather	60.0			11.00	11.00	11.00	11.00	38.00
Other	128.6							128.60
<b>Estimated Program Costs</b>	<b>335.6</b>	<b>2.11</b>	<b>6.08</b>	<b>40.23</b>	<b>11.00</b>	<b>42.34</b>	<b>17.08</b>	<b>276.18</b>

2) Funding for the Winnipeg Sewage Treatment Programs is as follows:

<b>WSTP All Projects (in \$millions)</b>	Total Cost	Funded to Date		Funding Pending		Total Funding		City Share of Costs
		Canada	Manitoba	Canada	Manitoba	Canada	Manitoba	
WEWPCC Biological Nutrient Removal	33.23	5.07	8.19			5.07	8.19	19.97
NEWPCC Centrate and UV Disinfection	52.08	5.59	14.54			5.59	14.54	31.95
SEWPCC Nutrient Removal/Expansion	335.60	2.11	6.08	40.23	11.00	42.34	17.08	276.18
NEWPCC Nutrient Removal/Upgrade	569.37		26.94		168.06		195.00	374.37
<b>Estimated Program Costs</b>	<b>990.28</b>	<b>12.77</b>	<b>55.75</b>	<b>40.23</b>	<b>179.06</b>	<b>53.00</b>	<b>234.81</b>	<b>702.47</b>

Notes: WEWPCC Biological Nutrient Removal and NEWPCC Centrate and UV Disinfection have been completed. The City's share of the SEWPCC project costs will be funded by the Environmental Projects Reserve (\$60 million) and debt financing (\$216.18 million). The funding distribution is subject to change, depending on the actual timing of spending and prevailing borrowing rates.

**SEWPCC UPGRADING/EXPANSION PROJECT  
WATER AND WASTE DEPARTMENT - ENGINEERING DIVISION  
APPENDIX 2  
As at October 31, 2015**

Components	COSTS				PROJECTED COSTS TO COMPLETE				
	Approved Budget To Date <sup>1</sup>	Costs Incurred up to last report	Costs submitted this report	Total Costs Incurred to Date (per G/L) 31-Oct-15	2015	2016	2017	2018	Total Costs Remaining to Complete
<b>A PROFESSIONAL SERVICES <sup>2</sup></b>	<b>45,378,175</b>	<b>17,808,304</b>	<b>1,181,096</b>	<b>18,989,400</b>	<b>2,819,889</b>	<b>11,178,019</b>	<b>5,933,439</b>	<b>3,680,518</b>	<b>2,776,910</b>
<b>B CONSTRUCTION <sup>3</sup></b>	<b>257,215,289</b>	<b>19,070,652</b>	<b>2,464,399</b>	<b>21,535,051</b>	<b>8,556,509</b>	<b>31,996,772</b>	<b>93,751,558</b>	<b>77,142,392</b>	<b>24,233,007</b>
<b>C CONTINGENCIES</b>	<b>33,006,536</b>								<b>33,006,536</b>
<b>TOTALS</b>	<b>335,600,000</b>	<b>36,878,956</b>	<b>3,645,495</b>	<b>40,524,451</b>	<b>11,376,398</b>	<b>43,174,791</b>	<b>99,684,997</b>	<b>80,822,910</b>	<b>60,016,453</b>

Percentage Complete

12%

<sup>1</sup> Total budget of \$335.60 Million for the SEWPCC Upgrading/Expansion Project and Distribution of costs for Components A), B) and C0 was done by the Water and Waste Department. revised as the project progresses.

<sup>2</sup> Professional Services include Professional Engineering Services, other expert design and cost review, CSIF Funding Audits, Municipal Corporate Utility Model review, overhead and

<sup>3</sup> Construction includes Commissioning and Construction Management Services