

Council Chamber  
City Hall, Saskatoon, Sask.  
Wednesday, February 10, 1993,  
at 12:30 p.m.

## **MINUTES OF SPECIAL MEETING OF CITY COUNCIL**

**PRESENT:** Councillor P. Mostoway in the Chair;  
Councillors Penner, Birkmaier, Cherneskey, Dyck,  
Hawthorne, Mann and McCann;  
City Commissioner Irwin;  
Director of Works and Utilities Gustafson;  
Director of Finance Richards;  
Solicitor McLeod;  
City Clerk Mann

Councillor Waygood entered the meeting at 12:42 p.m.  
His Worship the Mayor entered the meeting at 1:00 p.m.  
Councillor McCann excused himself from the meeting at 2:00 p.m.

The meeting was called by His Worship the Mayor in order to consider the following reports:

### **"REPORT NO. 5-1993 OF THE WORKS AND UTILITIES COMMITTEE**

#### Composition of Committee

Councillor M. Hawthorne, Chair  
Councillor D.L. Birkmaier  
Councillor B. Dyck  
Councillor O. Mann

- 1. Engineering Services  
Sewage Treatment Upgrade  
(Files CK. 7800-4 and 670-2)**

Report of the Director of Works and Utilities, January 20, 1993:

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"The engineering services for the sewage treatment plant upgrade are defined in three phases:

- Phase I - Study and Pre-design
- Phase II - Detailed Design
- Phase III - Engineering Services during and post construction.

At its meeting of May 25, 1992, City Council awarded the contract for Phase I of the engineering services to Stanley Associates Engineering Ltd./Cochrane-SNC-Lavalin for an upset fee of \$295,255.80. Phase I of the engineering services includes two distinct components; conceptual design and preliminary design. Conceptual design has now been completed.

In a conceptual design, the consultants review the various options available for the project to the degree necessary to select that option which is the most appropriate for the City of Saskatoon. The remainder of the project is based on the option selected. It is therefore very important that the findings of the conceptual design be reviewed in detail so that all concerned understand the basis on which \$40 million plus, is to be spent.

In addition, City Council at its meeting held on May 25, 1992, resolved in part:

- '4) that the Administration report further with respect to the selection of an engineering consultant relating to Phase II and III of the Sewage Treatment upgrade.'

City Council, at its special Budget Review meeting held on December 15, 1992, resolved:

- 'that Project 790 (Secondary Sewage Treatment) be approved in the amount of \$2,115,000 for design, and that the balance of \$7,000,000 be referred to the Works and Utilities Committee for a further report on or before April 1, 1993.'

Report of the Manager, Water and Pollution Control Department, January 4, 1993:

**"Conceptual Design**

The objective of the conceptual design was to select and recommend the most suitable secondary sewage treatment process for the City of Saskatoon. Work was carried out to characterize and project sewage flows, collect and analyze technical data, establish long range treatment requirements, develop feasible process options, and carry out a financial evaluation as well as a technical evaluation of the options. The attached report prepared by Stanley Associates Engineering Ltd./Cochrane-SNC-Lavalin summarizes their findings.

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The conceptual design developed eight options from the following basic processes:

1. Activated sludge plus chemical precipitation.
2. Biological nutrient removal.
3. Activated sludge and split chemical precipitation.
4. Combined chemical precipitation and biological nutrient removal.

The consultants carried out 20-year life cycle financial evaluation as well as a non-monetary evaluation of the eight options and summarized the work in a preliminary report. The preliminary report was reviewed by professional staff of the Water and Pollution Control Department and representatives of Saskatchewan Environment and Public Safety and the options were discussed at two formal workshops. The eight options were short listed to four and a further fine tuning of process parameters, phased construction, and cost estimates was carried out. The short list is referred to as the 'Optimized Options'.

The following table lays out long-term capital cost schedules for the options that were evaluated:

Capital Cost Schedules					
	1996	2006	2011	2016	Total
Initial Options					
1	44,100,000	8,000,000	1,500,000	9,900,000	63,500,000
2	44,100,000	17,900,000	1,500,000	0	63,500,000
3	49,300,000	3,620,000	1,500,000	2,800,000	57,220,000
4	49,300,000	6,420,000	1,500,000	0	57,220,000
5	43,400,000	5,430,000	1,500,000	6,300,000	56,630,000
6	43,050,000	9,430,000	1,500,000	2,280,000	56,260,000
7	47,300,000	4,000,000	1,500,000	2,380,000	55,180,000
8	47,220,000	5,880,000	1,500,000	0	54,600,000
Optimized Options					
9	39,905,000	12,265,000	1,500,000	3,710,000	57,380,000
10(a)	42,290,000	4,740,000	1,500,000	3,720,000	52,250,000
10(b)	41,100,000	4,950,000	1,500,000	3,720,000	51,270,000
11	46,910,000	5,015,000	1,500,000	4,235,000	57,660,000

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All of the options under consideration are supported by Saskatchewan Environment and Public Safety as acceptable treatment options for the City of Saskatoon.

Following an evaluation of the short list, the consultants concluded that the combined chemical precipitation/biological nutrient removal process [10(b)] was the most advantageous to the City of Saskatoon. Water and Pollution Control Department staff subsequently carried out a further financial evaluation of the three options with the lowest initial capital cost [9, 10(a), 10(b)]. This latter evaluation was aimed at determining the impact of debenture costs based on the Sewer Utility's projected reserve balances at the time of construction. In addition, sensitivity analyses were carried out by varying interest rates, chemical dosages, and sewage flows. Based on circumstances most likely to occur the evaluation can be summarized:

OPTION	INITIAL CAPITAL COST	TOTAL LIFE CYCLE COST	TOTAL PRESENT VALUE
9	\$39,905,000	\$124,330,000	\$98,190,000
10 a	\$42,290,000	\$118,160,000	\$93,400,000
10 b	\$41,100,000	\$113,500,000	\$89,660,000

The summary indicates that although Option 9 has the lowest initial cost, its total 20-year life cycle cost exceeds the recommended Option 10(b) by approximately \$11,000,000 (1992 dollars). The net present value of this difference is approximately \$8,500,000. Sensitivity analyses, that included variations in rates, dosages, and flows that could reasonably be expected to occur, also supported the consultant's conclusion that 10(b) is the preferred option. Based on this analysis, the Administration has selected Option 10 -Optimized Chemical/BNR treatment as the most appropriate option for the City of Saskatoon.

The conceptual design included a brief review of the implications of odour control. The consultants' experience with the recommended process indicates that the only significant source of odour is the fermentation units. Covers and appropriate odour control will be provided for the units and related costs have been included in the cost comparisons.

As part of the treatment process upgrade, some of the existing facilities will be modified with the result that odour will be reduced. These include installing a continuous grit removal system, submerging the effluent overflow weirs, and reducing the retention time in the primary clarifiers.

The consultants estimate the cost of enclosing the existing grit removal area and the primary clarifiers and scrubbing the outgoing air to be \$4.5 million. Since the process upgrade will reduce the potential for odours from the existing facilities, it would be prudent to delay further odour control measures until the impact of these changes have been assessed in

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practice.

**Preliminary Design**

The preliminary design component of Phase I includes:

- evaluation of various systems within the existing plant.
- site surveys and geotechnical evaluations.
- establish process schematics and design criteria.
- evaluate optional re-use of existing plant units.
- evaluate alternative equipment.
- refine cost estimates.
- prepare a predesign report that specifies all concepts that will govern the detailed design.

Phase I of the engineering services was originally scheduled for completion by the end of 1992 in order to complete the detailed design in 1993. While portions of the preliminary design have been finalized, it is anticipated that the final draft of the pre-design report will not be available until the end of March 1993.

**Phase II - Detailed Design**

In dealing with the matter at its meeting held on May 25, 1992, City Council directed the Administration to report further on the selection of a consultant for Phase II.

Proposals for the engineering services required for the design, construction, and commissioning of the upgrade of the City of Saskatoon sewage treatment plant were received on Feb. 13, 1992. Proposals were received from five consortiums:

Associated Engineering (Sask.) Ltd./Novatec  
Cochrane•SNC•Lavalin/Stanley Associates Engineering Ltd.  
Cominco Engineering Services Ltd./Gore & Storrie Ltd.  
Kilborn (Saskatchewan) Ltd.  
UMA Engineering Ltd./Reid Crowther & Partners Ltd.

As stated earlier, City Council awarded the contract for Phase I of the engineering services to Cochrane•SNC•Lavalin/Stanley Associates Engineering Ltd. as recommended by the Administration. To date, the Administration has been pleased with the quality of work carried out by the consortium.

Commencement of Phase II - Detailed Design is required as early in 1993 as possible if

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construction schedules and commissioning are to meet regulatory deadlines by the end of 1995. Preliminary design work that has been completed to date can be used to initiate portions of the detailed design at this time.

Based on the quality of work to date, the scope and intent of the original proposals, and given the tight time constraints, we believe that the agreement for the engineering services required to carry out Phase II - Detailed Design should be negotiated with the consortium at this time. Capital Project No. 790 includes a provision of \$2,115,000 for design services approved for 1993.

**Construction**

The preliminary Capital Budget Project 790 also included a provision of \$7,000,000 for the construction of secondary clarifiers in 1993. This work would require fast tracking of that portion of the detailed design so that tenders could be called and awarded, and work commence in 1993. This was referred to the Works and Utilities Committee for a further report.

While it is still possible to have construction underway late in 1993, it is not really practical. Both the consultants and the project staff at the Water and Pollution Control Department would prefer that construction not proceed until 1994."

The consultants will be in attendance to make a presentation to City Council on the conceptual design.

- RECOMMENDATION:**
- 1) that the matter of covers and air scrubbing for the existing facilities be deferred until after the effects of the treatment process upgrade can be assessed;
  - 2) that the Administration be instructed to negotiate with Stanley Associates Engineering Ltd./Cochrane·SNC·Lavalin an upset fee for the detailed design (Phase II) of the sewage treatment expansion;
  - 3) that upon completion of the negotiations, a report be submitted to City Council for consideration of the award; and
  - 4) that the \$7,000,000 provision included in the 1993 Capital Budget, Project 790 - Secondary Sewage Treatment for construction, be deferred to 1994.

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**REPORT NO. 4-1993 of the CITY COMMISSIONER**

**Section A - Works and Utilities**

**A1) Sewage Treatment Plant Upgrade  
(File Nos. 7800-4 & 670-2)**

Attached is a copy of a letter from Mr. R. G. Ruggles, Saskatchewan Environment and Public Safety, supporting the options under consideration by the City with regard to secondary treatment processes.

**RECOMMENDATION:** that the information be received."

*Moved by Councillor Penner, Seconded by Councillor Mann,*

*THAT Council go into Committee of the Whole with His Worship the Mayor in the Chair.*

*CARRIED.*

*The City Clerk circulated copies of the following documents:*

- *Letter dated December 17, 1992, from the Director of Works and Utilities to the Director of Saskatchewan Environment and Public Safety summarizing the conceptual design work to date.*
- *Letter dated February 10, 1993, from Councillor Mark Thompson, requesting Council to consider allowing other firms an opportunity to submit a proposal for Phase Two.*

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- *Letter dated February 10, 1993, from the Area Manager, Lockerbie and Hole, urging the City not to delay construction until 1994.*

*The following representatives from Stanley Associates Engineering Ltd. made a presentation to Council:*

*Mr. Ken Zondervan, Saskatchewan Manager, Stanley Associates Engineering Ltd.  
Dr. Bob Dawson, Process Specialist, Calgary Office  
Mr. Rolf Johnson, Technical Project Manager, Saskatoon Office*

- IT WAS RESOLVED:*
- 1) that the additional information circulated by the City Clerk be received;*
  - 2) that Clause A1, Report No. 4-1993 of the City Commissioner be received;*
  - 3) that the matter of covers and air scrubbing for the existing facilities be deferred until after the effects of the treatment process upgrade can be assessed;*
  - 4) that the Administration be instructed to negotiate with Stanley Associates Engineering Ltd./Cochrane-SNC-Lavalin an upset fee for the detailed design (Phase II) of the sewage treatment expansion;*
  - 5) that upon completion of the negotiations, a report be submitted to City Council for consideration of the award; and*
  - 6) that the \$7,000,000 provision included in the 1993 Capital Budget, Project 790 - Secondary Sewage Treatment for construction, be deferred to 1994.*

*Committee arose.*

*Moved by Councillor Mostoway, Seconded by Councillor Penner,*

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*THAT the report of the Committee of the Whole be adopted.*

*CARRIED.*

*Moved by Councillor Mostoway, Seconded by Councillor Birkmaier,*

*THAT the meeting be adjourned.*

*CARRIED.*

The meeting adjourned at 2:20 p.m.

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Mayor

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City Clerk