

Re: Dyking and Flood Control Improvements in the
Big Bend Area along the Fraser River
(Item 17, Report 71, September 24, 1973)

ITEM 19 (SUPPLEMENTARY)
MANAGER'S REPORT NO. 41
COUNCIL MEETING May 27/74

The attached Item 17, Report No. 71, was considered by Council on September 24, 1973. The recommendations noted therein were adopted unanimously by Council on that date.

The following report from the Municipal Engineer dated May 14, 1974, submits the report of the consultants.

On the introductory page of the report by the consultants, the following wording appears:

"This report is issued on the understanding that its contents are to be kept confidential by the Client and his Staff and are to be used only in connection with the Client's activities. Copyright hereof is expressly reserved by Swan Wooster Engineering Company Ltd."

We are not sure what this means as the report becomes a public document once it is received by Council and further we do not accept that the consultants have a "copyright" on the report or the design as we have not agreed to this as a term of the Engineering Agreement.

The new Marine Way could be affected by future flooding of the Big Bend if the dyke work is not constructed as recommended in the report. The Minister of Highways should be interested in this potential problem.

RECOMMENDATIONS:

THAT an appeal be made to the Premier, Minister of Lands, Forests and Water Resources and Minister of Highways by delegation to request 100% financial assistance for the staged dyking program with the Municipality to provide the rights-of-way outlined in this report; and
THAT the 3 Burnaby M.L.A.'s be asked to support this request in the strongest terms possible.

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TO: MUNICIPAL MANAGER

MAY 27, 1974

FROM: MUNICIPAL ENGINEER

RE: DYKING AND FLOOD CONTROL IMPROVEMENTS -
BIG BEND AREA ALONG THE FRASER RIVER

Background

Subsequent to several unsuccessful applications for assistance under the Federal Provincial Flood Control Program along the Lower Fraser Valley the Municipal Council on 24 September, 1973 approved of engaging the firm of Swan Wooster Engineering to perform investigations and basic preliminary design work for dyking and flood control along the Fraser River in Burnaby.

The consultants were to determine such things as:

1. Which areas of the river bank require dyking.
2. Shape and dimensions of the dyke, type of random fill that could be used, slope protection, etc.
3. Relation of the dyke to the proposed foreshore park strip.
4. Access points considering use of free random fill and possibility of staging the construction of the dyke and related pumping facilities.
5. Modifications required in the inland flood control system.
6. Pumping stations, flood control gates and staging priority.
7. Preliminary cost estimate.

Current

The consultant has completed his report, a copy of which is attached. The Engineering Department Legal Surveys branch is preparing plans of required easements which will be needed to construct the portions of dyke across the few private properties that exist at the river front. The easement survey and plans are being prepared as time permits and are expected to be completed by the end of June. The consultant has estimated the cost of the dyking and flood control works along the river at \$575,000, presuming that the work can be staged over approximately two years with the use of free random fill as it becomes available from other private and public construction projects.

The Municipal Engineer appealed again to the Department of Lands, Forests and Water Resources on 10 April, 1974 regarding their low priority to financing dyking and flood control work along the Fraser River in Burnaby. In a reply dated 23 April, 1974 the Acting Associate Deputy Minister of Water Resources advised that the Burnaby Dyking still had low priority and "would be reviewed together with others of a like economic feasibility towards the close of the program".

The current indications are that there will most likely be flooding along the Fraser River again this Spring and recognizing that no permanent improvements such as recommended in the report can be implemented by either the Federal/Provincial Flood Control Program or by Burnaby alone in the time available, we are proceeding with emergency flood control plans such as the purchase of 50,000 sand bags, rental of all pumps, boats, floodlights, etc., as available and inspecting railway fills, ditches, culverts and flood gates in the area to be prepared. Owing to the lack of a complete river front dyking system and with the only other control lines being railway fills located some distance inland, low-lying river frontages will be left unprotected.

RECOMMENDATION:

The construction of dyking and flood control works is to be staged as follows:

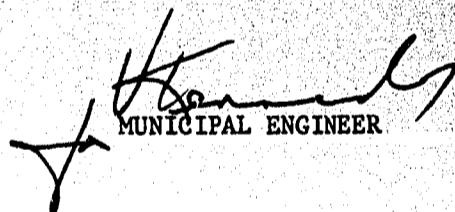
Stage I	Boundary Road to Byrne Road		12 months
	IA (includes P.S. at Byrne Road)	\$215,000.	
	IB (includes P.S. at Alfred Ave.)	\$150,000.	
		<u>\$365,000.</u>	
Stage II	Byrne Road to Wiggins		10 months
	IIA	\$ 37,000.	
	IIB	\$ 20,000.	
	IIC	\$ 10,000.	
	IID	\$ 9,000.	
	IIE	\$ 11,000.	
		<u>\$ 87,000.</u>	
Stage III	Vicinity Willard and Meadow		6 months
	IIIA	\$ 3,000.	
	IIIB (P.S. at Meadow)	\$120,000.	
		<u>\$123,000.</u>	
TOTAL -		\$575,000.	

It is recommended that the Burnaby Mayor and Council appeal directly to the Minister of Lands, Forests and Water Resources to give high priority to the dyking work as outlined in the attached report under the Federal/Provincial Flood Control Program.

VK:wlb

Att.

- cc: () Planning Director
- () Land Agent
- () Municipal Treasurer


MUNICIPAL ENGINEER

ITEM 19 (SUPPLEMENTARY)
MANAGER'S REPORT NO. 41
COUNCIL MEETING May 27/74

ITEM 17
MANAGER'S REPORT NO. 71
COUNCIL MEETING Sept. 24/73

Re: Proposal for Engineering Consulting Services
Dyking and Drainage in the Big Bend Area
(Item 21, Report No. 7, January 29, 1973)

Following is a request from the Municipal Engineer for authorization to retain an engineering consulting firm to perform investigative and basic design work in connection with dyking requirements for the Big Bend Area.

Attached for the information of the new members of Council is a letter dated January 17, 1973 from Mr. V. Raudsepp, Deputy Minister of Water Resources, and a staff report on the Municipality's application for implementation of a flood control program in the Big Bend Area. This information was received by Council on January 29, 1973.

RECOMMENDATIONS:

THAT Swan-Wooster Engineering Co. Ltd. be retained for the performance of engineering services as proposed in our request for services dated August 15, 1973, for a fee not to exceed \$11,000 plus disbursements, as stipulated in their proposal dated September 14, 1973, and amended by them by letter dated September 19, 1973; and

THAT the expenditure for services rendered be charged to Budget Code 22-01-17 (Consultants - Sundry Minor Projects); and

THAT an Engineering Agreement be entered into with Swan-Wooster Engineering Co. Ltd. for the performance of the required services; and

THAT the Mayor and Municipal Clerk be empowered to execute the necessary Engineering Agreement.

* * * * *

Engineering Department
21 September, 1973.

Mr. M.J. Shelley
MUNICIPAL MANAGER.

Dear Sir:

Re: Big Bend Area Dyking and Drainage

The Municipality has, over the past few years, made several applications for assistance under the Federal Provincial Flood Control Program for the Lower Fraser Valley scheme but we have never been successful in having our proposal approved. The latest report on this matter was submitted to Council on 29 January, 1973, at which time we advised the Council that, with some reluctance but out of seeming necessity, it would appear that Burnaby should be prepared to proceed, at least to some extent, with the provision of the required dyking works on its own; the same report mentions a further report would be submitted when we have had an opportunity to consider the matter further in light of the most recent failure to gain approval under the Federal Provincial scheme.

We have studied the matter of dyking requirements for the Big Bend Area in some detail and it is obvious to us that the Municipality required further investigative and basic design work to be carried out prior to breaking down the requirements and submitting a meaningful stage approach to the provision of the dykes.

In order to establish the afore-mentioned, long-range comprehensive program for the ultimate control of potential flooding in the Big Bend Area, proposals for engineering services have been received from three consulting firms specializing in this field of engineering.

It is proposed that a study be made to provide recommendations as set out in our attached letter dated 15 August, 1973.

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Lengthy proposals have been received, from which the following pertinent points have been extracted:

1. Web Engineering Ltd. -- Are prepared to undertake the work for a fee not exceeding \$19,800 based on minimum scales recommended by the Association of Professional Engineers of British Columbia, providing the work can be completed in their estimated time of twelve weeks. Should additional work or changes beyond their control occur, either as a result of the findings or otherwise, which results in additional time and/or work required, the estimated time and the above fee amount may be exceeded.
2. N.D. Lea & Associates Ltd. -- Are prepared to undertake the work for a fee estimated to be \$12,660 based on minimum scales recommended by the Association of Professional Engineers of British Columbia, which limit would not be exceeded without prior discussion and approval of the Corporation.
3. Swan-Wooster Engineering Co. Ltd. -- Are prepared to undertake the work for a fee estimated in their initial proposal dated 14 September, 1973, to be approximately \$8,500 plus disbursements based on Scale I of minimum charges recommended by the Association of Professional Engineers of British Columbia, with additional compensation at payroll costs plus fringe benefits and overhead costs, should extra time be required to finish the originally-prescribed work. Upon further discussion, the consultant has provided a letter dated 19 September, 1973, undertaking to complete the work for a fee not exceeding \$11,000 plus disbursements based on the minimum Scale I recommended by the Association of Professional Engineers of British Columbia; this amount includes \$1,700 for the services of a specialist soils consultant.

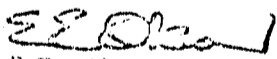
IT IS RECOMMENDED:

That Swan-Wooster Engineering Co. Ltd. be retained for the performance of engineering services as proposed in our request for services dated 15 August, 1973, for a fee not to exceed \$11,000 plus disbursements, as stipulated in their proposal dated 14 September, 1973, and amended by them by letter dated 19th September, 1973, and,

That an Engineering Agreement be entered into with Swan-Wooster Engineering Co. Ltd. for the performance of the required services, and,

That the Mayor and Municipal Clerk be empowered to execute the necessary engineering agreement.

Respectfully submitted,


E.E. Olson
MUNICIPAL ENGINEER

EEO/AP:op

Att.

c.c. () Municipal Treasurer
() Municipal Solicitor
() Planning Director

ORIGINAL COMMUNICATIONS (K)
Regular Council Meeting
January 29, 1973



ITEM 17
MANAGER'S REPORT NO. 71
COUNCIL MEETING Sept. 24/73
ITEM 19 (SUPPLEMENTARY)
MANAGER'S REPORT NO. 41
COUNCIL MEETING May 27/74

DEPARTMENT OF LANDS, FORESTS, AND WATER RESOURCES
OFFICE OF
THE DEPUTY MINISTER OF WATER RESOURCES
VICTORIA, B.C.

Files: 0257789 #17
0281550-B16

January 17, 1973

The Corporation of the
District of Burnaby
Municipal Hall
4949 Canada Way
Burnaby 2, British Columbia

Attention: Mr. E. Ward, Deputy Clerk

Dear Sirs:

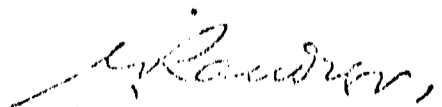
I refer to your letter of January 5, 1973, concerning your application for implementation of a flood-control program in the Big Bend area of your District.

Since receipt of your last correspondence, the economic viability of this project has been reviewed. The cost of flood protection works which could be cost-shareable under the Fraser River Agreement for the area extending from Boundary Road to the high ground east of Meadow Avenue is estimated at approximately one million dollars. Roughly ninety percent of this cost is for construction of works in the Big Bend area defined as the area limited by Boundary Road on the west and Meadow Avenue on the east. The benefits of these works have a present value substantially below one million dollars.

As you are aware, the flood-control program for the Lower Fraser Valley consists of a large number of projects and implementation of these are scheduled over a number of years by a Federal-Provincial Board. Priorities and the viability of projects are established on the basis of benefit-cost ratios and in this regard, your project is in an unfavourable position.

I must therefore advise you that there is no assurance that the project for the Big Bend area will proceed, however, its status will be reviewed by a further economic study in two or three years' time.

Yours very truly


V. Faudsepp
Deputy Minister

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MANAGER'S REPORT NO. 7
COUNCIL MEETING Jan. 29/73

Re: Letter from Mr. V. Raudsepp, Department of Lands,
Forests and Water Resources, Victoria, B. C.
Fraser River Flood Control Program

Appearing on the Agenda for the January 29, 1973 meeting of Council is a letter dated January 17, 1973 from Mr. V. Raudsepp regarding this Municipality's application for implementation of a flood control program in the Big Bend area.

The Engineer advises that:

It is most unfortunate that the latest analysis of the cost benefit ratio for provision of dyking under the Federal Provincial Flood Control Program for the Lower Fraser Valley has still not provided a favourable enough return on the investment according to the letter from Mr. V. Raudsepp, Deputy Minister, Department of Lands, Forests and Water Resources of the Provincial Government.

We have attempted throughout in our submissions ever since the original application was made some years ago to stress the importance of our area in a rapidly changing and rapidly developing urban area such as our Big Bend. In our opinion, the need for dyking and attendant flood control works is still with us and we cannot, in our opinion, continue to simply stand by and await a further analysis in some two to three years' time.

With some reluctance, but nevertheless out of seeming necessity, it appears that Burnaby must be prepared to proceed, at least to some extent, in provision of the required works on its own. It will be some two or three months yet before we would be able to provide a report on the extent to which we should possibly go, but we will commence our analysis aimed at a set of recommendations to be provided to you and the Council within approximately that period of time. The only thought I wish to express at this time is that some consideration should be given to the creation of a special "Improvement District" in the Big Bend Area for the purpose of constructing and financing some or all of the required works."

This is for the information of Council at this point in time.

ITEM 19 (SUPPLEMENTARY)
MANAGER'S REPORT NO. 41
COUNCIL MEETING May 27/74

ITEM 17
MANAGER'S REPORT NO. 71
COUNCIL MEETING Sept. 24/73

15 August, 1973.

The Office of the Engineer

Swan Wooster Engineering
1525 Robson Street
Vancouver 5, B.C.

Attention: Mr. W.E. Patton

Dear Sirs:

Re: Big Bend Dyking and Drainage

Confirming our discussion on the above subject on 14 August, 1973, we would like you to provide us with a proposal for your engineering services for the subject project.

Primarily, we want to develop a staged program extending over several years to ultimately provide a total dyke system supplemented by gates and pumps, as necessary. We wish to commence filling to produce the dyke as required when fill becomes available. Other works as may be required will be provided as filling progresses.

It is necessary, therefore, that you review the earlier work and re-appraise the flood protection requirements for the area. We feel your work should determine the following aspects:

1. Those areas of the river bank which now require dyking.
2. Shape of the dyke; this should include a 15 ft. wide gravel surfaced maintenance road along the top and consider construction with random good earth fill on the existing base materials, slope protection, etc., with consideration being given to the development of a foreshore park.
3. The present points of truck access to the dyke areas.
4. The easement requirement above high water level, both width and length along the waterfront.
5. Priority for construction of dyke sections.
6. Any modifications which may be required in the inland flood control system.
7. Requirements for flood control gates, with priority order.
8. Requirements for pumping storm water, with priority order.
9. A general construction sequence based on priority requirements interlocking construction of dykes, gates and pumps.
10. An order of magnitude cost estimate would be very useful in order that we can propose a long-range program to Council.

Your engineering proposal should be directed toward the production of this information. You are by now familiar with our requirement to establish an upset limit to your fee, wherever possible. We would be glad to hear from you in this regard as soon as possible.

Yours very truly,

E.E. Olson, P.Eng.
MUNICIPAL ENGINEER

A. Phillips
by: A. Phillips, P.Eng.
DESIGN ENGINEER

AP:op

c.c. () Design Engineer