

THE CORPORATION OF THE DISTRICT OF BURNABY

19 March, 1965.

SPECIAL REPORT

His Worship, the Reeve,
and Members of the Council.

Gentlemen:

Re: Burnaby Lake Study

A Summary was made to outline the subject, scope and purpose of the proposed Study of Burnaby Lake. This Summary was used as the basic information supplied to interested Consultants. For the information of Council and to assist it in its consideration of the recommendation contained in this Report, the Summary is appended.

For the purpose of interviewing the Consultants, a "Technical Committee" of the Municipal Engineer, the Municipal Planner and the Parks Superintendent was set up with the Municipal Manager being present as time permitted.

Nine proposals were received.

The "Technical Committee" has now completed the interviews and has prepared a Report on its conclusions.

It is considered that because of the complexity of the task of making a recommendation in such a case, the Report of the "Technical Committee" should be presented with only minor deletion in view of its import. Selection in such a case is not a cut-and-dried proposition but must reflect a matter of opinion to a great degree.

With this in mind, the Report of the Technical Committee was reviewed with the Council Liaison Members for Engineering and Planning.

Your Municipal Manager concurs with the recommendation of the Technical Committee that the firm of Associated Engineering Services Ltd. acting as prime agents for a joint undertaking by Associated Engineering Services Ltd. and Swan Wooster Engineering Co. Ltd. be retained for this Study.

It is worthy of repetition that the figure given of \$38,500. by this consortium is not a firm quotation but rather is a rough estimate based on the anticipated staff requirements for the Study.

It has been emphasized in all interviews that at any point in the Study where it may have been determined that the development of Burnaby Lake may appear to be impractical from either the Engineering or Economic aspects, the Corporation will be made aware of the situation so that it may determine the future of the Study at that time. It is not proposed to attempt to establish any guide lines for these aspects but rather to expect a responsible evaluation by the Consultants. This could be achieved by regular and frequent progress Reports as part of the Agreement.

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BURNABY LAKE STUDY
MUNICIPAL MANAGER
19 March, 1965.

Associated Engineering Services Ltd. and Swan Wooster Engineering Co. have given a time estimate of approximately one year for the completed Study and Report.

No provision was made in the 1965 Provisional Budget for the cost of this Study.

Respectfully submitted,



H. W. Balfour
MUNICIPAL MANAGER

HWB:gr

Attach. (2)

REPORT OF TECHNICAL COMMITTEEBURNABY LAKE STUDY

We have completed the interviews "in depth" of each of the Consultants who were invited to submit proposals. The Consultants were listed in our memo to yourself, of 2nd December, 1964, and are now repeated:

- (1) Joint submission by Associated Engineering Services Ltd. and Swan Wooster Engineering Co. Ltd.
- (2) Phillips, Barratt and Partners
- (3) Spence and Brown Engineers Ltd.
- (4) Ingledow Kidd and Associates Ltd.
- (5) Haddin, Davis and Brown
- (6) Joint proposal by Joseph E. Ward and Associates (International) Ltd. and Underwood, McLellan and Associates Ltd.
- (7) N. D. Lea and Associates
- (8) Fenco
- (9) Willis and Cunliffe Engineering Ltd.

Each of the above expressed deep interest in the project, particularly concerning the challenging nature of such a unique and rare opportunity to display possible ingenuity in the use of Engineering talent.

The interviews were quite detailed and searching because of the necessity to seek out the special qualifications and attributes which will be peculiarly essential in a Consultant for a project of this nature. Particular attention was paid to the matter of how the Consultants interpreted the terms of reference for the Study, which were necessarily quite broad and open so as to permit a fair degree of freedom and scope for ingenuity on the part of the Consultant. Also, it was difficult to predict ahead of time how correct we were in assuming that the "engineering" part of the Study could be effectively considered a first stage of a comprehensive plan and one that could be carried out as an independent study by a Consultant. It was most gratifying to learn that some of the Consultants, including the one we are about to recommend for the Study, foresaw no difficulty in the separated but related engineering stage being carried out prior to the Land Use Planning stage. Some of the others, however, had difficulty in expressing themselves on this separation and still others expressed at least reservations of possibly having to do considerable work in the "Land Use", "Planning", or "Park Layout" phases of the overall comprehensive plan. As you know, at least one Consultant expressed the need for two rather extensive stages, one of which was expected to be "-----carried out over a considerable period of time".

We recommend that the Study be carried out as a joint undertaking by Associated Engineering Services Ltd. and Swan Wooster Engineering Co. Ltd. We believe that we are led to conclude on a better choice of a Consultant through emphasis of the positive advantages of a particular Consultant rather than emphasis on the negative aspects of the remainder, i.e. that a better choice is made through consideration of "plus factors" rather than elimination through consideration of "negative factors".

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The "plus factors" presented by the above-mentioned joint venture are:

- (1) An extremely well-expressed proposal for the Study, showing intelligent interpretation of the given terms of reference and independent thought for application of mature engineering judgment.
- (2) Extensive and well-balanced experience in the fields of engineering most directly applicable and useful to the Study under consideration.
- (3) Excellent availability of "Specialists" in particular disciplines on staff, thus minimizing the requirement to go "outside" the two firms involved for specialized studies. It is felt that the great advantage here is in built-in co-ordination and more informative reporting of results.
- (4) The choice of an exceptionally well-renowned sub-consultant in the soils-foundation field. There is little doubt indeed that foundation engineering and the unique application of soils knowledge and design presents one of the keys to solving the physical problems connected with developing Burnaby Lake.
- (5) It is considered that the other basic key to development of the Lake lies in the field of hydrology, i.e. in the possibility or otherwise of maintaining a desirable water level in the Lake. In this respect, it is felt that Associated Engineering, having by far the most extensive experience in the field of hydrological studies for Cities and Municipalities in British Columbia, has the most to offer in both adequately trained staff and experience in this discipline.
- (6) With the two firms involved, there is every possibility of receiving "better service" both in terms of quality of recommendation and in over-all timing, owing to the greater variety and availability of engineers from two firms, each having fair-sized staffs.
- (7) One of the principals of the basic firm, Associated Engineering Services Ltd., is well-known in Burnaby and has what is considered to be a well-respected and well-rounded knowledge of local issues and considerations forming a part of the Burnaby Lake Study. This is also considered to be of extreme importance in the "follow-through" or "selling" aspect of the Study, which part can be of grave importance in the final success or failure of a project, particularly one like the Burnaby Lake Study.
- (8) The Municipality has by now had considerable experience with the firm of Associated Engineering in the design of the accelerated sewer program. The Engineering Department has no reservation in saying that the firm and its employees present excellent service at reasonable engineering cost and in all ways conducts itself in a way that makes for ideal client-agent working relationships.

In the terms of reference, we requested each Consultant to provide us with an estimate of the expected total cost of the Study. It can be said, without exception, that each of the Consultants found this to be one of the most difficult parts of putting together their proposal and this is fully understood and appreciated, particularly for studies of this nature where the application of routine, well-established engineering techniques are not likely to be called upon to any appreciable degree. We expect, rather, that special application of ingenuity in the use of engineering talent is involved in this Study and this, coupled with the always-present difficulty of estimating total-time requirements, makes the provision of an estimate difficult. It is for these reasons that the estimates provided by the Consultant should not be considered in any way as tenders or firm prices, but are rough estimates and should be used only to provide an indication

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as to the expected total cost. Also, the choice of a Consultant, based solely or strongly upon cost considerations, could prove very dangerous and misleading when actual final costs are added up.

The wide range in the estimates of expected total cost (\$13,000 to \$120,000.) indicates to us the potential danger of relying heavily upon cost estimates as a basis for awarding the Study. There are at least two basic reasons for the wide range:

- (1) The inherent difficulty for this type of Study in estimating accurately the time requirements for the various facets of the Study in order to develop satisfactorily the required several conclusions. and
- (2) The difficulty experienced by some of the Consultants in "coming to grips" with the terms of reference given and satisfying themselves as to whether or not they could provide the required Study within those terms of reference.

As a matter of interest, the mean of the eight expected total costs provided is \$39,300., while the median is \$28,000. The middle quartile is \$26,000. to \$30,000.

A very interesting and thorough proposal was put forth by the firm of Phillips, Barratt and Partners. The proposal, in fact, was of a quality displaying sincere thought and discussion of the problem to the extent of your staff committee giving second rank to this firm's proposal. The basic problem confronting us is in the reconciliation of this firm's expected total cost estimate with that provided by Associated-Wooster. Phillips, Barratt's estimate of total expected cost is only \$17,000, compared to Associated-Wooster's \$38,000 and to make it more difficult, we are unable to differentiate to any appreciable extent between the relative qualities of the two proposals, particularly as to thoroughness of thought and discussion and proposed method of attacking the problem.

Regrettably, the answer is not clear and easy to obtain although, to the best of our knowledge, the firm enjoys a good reputation in its own specialized fields of endeavour.

The last portion of the immediately-preceding sentence is underlined because we feel that therein lies one of the principal distinctions forming the basis of your staff committee's recommendation of a choice of the Associated-Wooster proposal over the Phillips, Barratt proposal. A quick perusal of the Phillips, Barratt General Brochure will disclose that the firm's "principal line" is in the fields of structural engineering and "package engineering" involving combined use of civil, structural, mechanical, and electrical engineering disciplines. This fact was borne out in our interview with the firm's representatives who confirmed that their specialty was as indicated in their brochure. There is little doubt that in the two fields of endeavour wherein lie the keys to the development of Burnaby Lake, namely hydrology and soils or foundation engineering, the Associated-Wooster proposal is the one offering greater promise based upon knowledge, training, and experience of its personnel.

Your staff committee realizes the possible great difficulty in "selling" Associated-Wooster over Phillips, Barratt owing to the considerable difference in the estimated expected total cost provided by the two firms. We can only reiterate that the award of a Study, particularly one of this special nature, based wholly or heavily upon cost considerations, could be very dangerous indeed. The estimated expected total costs are, after all, only estimates (and very difficult ones to make at that); you realize how these estimates sometimes end up even though the very best of intentions and knowledge of conditions existing at the time of making the estimate were exercised. It is quite conceivable to

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expect that Phillips, Barratt's estimate is 50% too low and that Associated-Wooster's is 33% too high, which could then place the actual total cost at a very comparable level.

We feel that the time involved in the step by step process involving the time required to send out the terms of reference, for the Consultants to put together their proposals, for the Committee to review and discuss the proposals, for interviews with each Consultant, and for more detailed consideration of specially-revised proposals has been well repaid both in clarifying the nature of the study and in "firming-up" the choice of Consultant.

We recommend that the Burnaby Lake Study be carried out by retention of the firm of Associated Engineering Services Ltd., acting as prime agents for a joint undertaking by Associated Engineering Services Ltd. and Swan Wooster Engineering Co. Ltd.

The proposals of Associated-Wooster and Phillips, Barratt are enclosed herewith. The proposals received from the remaining seven Consultants, of course, are also available should you require them.

BURNABY LAKE STUDY

SUMMARY

Subject: A Consultant to undertake an Engineering Study devoted to an exhaustive analysis of the Lake itself.

Purpose: The Study will form the first stage of a comprehensive plan that will be prepared to support the expenditure of major sums of money by all three levels of government.

Following receipt of the Report from the Consultant, the Municipality will take the next step in having a Land Use Plan (which will include a programme of implementation) prepared. The assistance of the Consultant is to be solicited in preparing this Plan if it is considered necessary to gain answers to specific development questions.

Scope: The Engineering Study is to produce the following data:

1. The optimum size, shape and depth of the Lake that will be required to suit the following uses:
 - (a) Boating (including Rowing and Schulling to Olympic Standards), Sailing and Canoeing. Power boats would not be permitted and it is intended to ultimately prohibit sea-planes from using the Lake.
 - (b) Swimming in a selected area or areas.
 - (c) Fishing.
 - (d) A Bird Sanctuary on some natural waterfront area or areas.
2. The stability of the banks of the Lake, with particular reference to the questions of access for pedestrians and vehicles, loads in the vicinity of banks, etc.
3. Suitability of the water in the Lake (e.g., turbidity, pollution, colour, odour etc.) for the various uses planned.
4. Stability of the water level, with particular reference to the situation in respect of the replenishment of the water, sources of supply, catchment area and effect of future urban development on the Lake.
5. Costs of development from an engineering point of view.
6. Engineering costs of maintenance, which will include water replenishment, the maintenance of a constant depth, and bank stabilization.
7. The rate of silting that could be expected.

"Burnaby Lake Study" (cont'd)Scope (cont'd)

8. The effect development of the Lake would have on the maintenance of Brunette Creek.
9. The effect the development of the Lake would have on, or the relation of the development to, the Central Valley Drainage system and the requirements of the Greater Vancouver Sewerage and Drainage District.
10. The effect development of the Lake would have on, or the relation of the development to, the requirements of the Water Resources Branch of the Provincial Government.

It is understood that it may be necessary, in order to present complete information regarding the foregoing, for the Consultant to engage in studies beyond or not precisely within the terms of the scope as set out. In these cases, the Consultant is to obtain authority from the Corporation to proceed with work on the desired additional studies.

Additional Information:

1. The Consultant will present in his proposal to the Corporation, the following information:
 - (a) Schedule of fees to be used.
 - (b) Approximate total cost of the Study.
 - (c) Approximate length of time required for completion of the Study.
 - (d) Program of orderly scheduling of the various sections of the Study.
 - (e) List of Special Consultants and other assistance which is anticipated to be required.
 - (f) Amount of assistance, if any, anticipated to be required of Municipal staff.
2. The Consultant will be required to enter into an Agreement with the Corporation for the provision of the required services.