ITEM	8
MANAGER'S REPORT NO.	77
COUNCIL MEETING	Oct. 15/73

8. Re: Preservation and Conservation of Streams
(Item 32, Report No. 48, July 31, 1972)

Following is a report from the Director of Planning regarding the preservation and conservation of streams in the Municipality.

RECOMMENDATION:

THAT Council endorse the approach described in the above report, and authorize the Staff Project Committee (Planning, Parks, Engineering and Health) to proceed with the preparation of a watercourse inventory, and the establishment of criteria to govern the preservation of such watercourses; and

THAT the Staff Project Committee be authorized to call for proposals to be considered by Council for any consultants required to assist in the preparation of the Inventory; and

THAT the Staff Project Committee report its findings from the Inventory and the criteria to the Municipal Council before proceeding with detailed administrative or development proposals; and

THAT a copy of this Report Item be forwarded to the Parks and Recreation Commission.

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PLANNING DEPARTMENT
OCTOBER 11, 1973

SUBJECT: PRESERVATION AND CONSERVATION OF STREAMS

On June 5, 1972, Council requested a report, indicating a procedure through which the preservation and conservation of streams in the Municipality might be accomplished.

In response to this request, material prepared by the Planning, Parks, and Engineering Departments was presented to the July 31, 1972 meeting of Council in a Manager's Report item (copy attached) recommending that:-

> "Authorization be given to staff to prepare a report for Council on the preservation of streams, to include terms of reference, a list of appropriate prime consultants that are best qualified to conduct a comprehensive study of the matter and approximate cost of such a study" (The basic elements to be included in the study were enumerated in a July 25, 1972 Planning Report.

This recommendation was adopted and research was started into the matter of cost and terms of reference, the main contact being with Swan Wooster Engineering Co. Ltd. who indicated their interest in such a study, and provided information on what could be achieved for a sum of $20,000.00.

As a result of these preliminary findings, a sum of $20,000.00 was placed in the 1973 Planning Department Budget for Consulting Services and the preparation of a report for Council was commenced. However it was necessary to check the proposed report with the Engineer, the Parks and Recreation Administrator and the Medical Health Officer to ensure that they agreed with the suggested terms of reference.

It soon became apparent that there was not a staff concensus on this matter and that there had been a tendency to over-simplify the approach by requesting a Consultant's Report. The view was

expressed that it was impossible to carry out an adequate study for $20,000.00; that much of the material was already available in the Municipal departments; and that the study should be primarily a continuous effort by Municipal departments rather than a one-shot effort by a Consultant.

Sporadic attempts were made during mid 1973 to resolve these questions, by carrying out further research into the approaches taken by other Municipalities (North Vancouver District and West Vancouver) by obtaining advice from other consultants; and by circulating material to the various Municipal departments involved; but it was not until August 1973 that a concerted effort was made to reach a concensus by engaging in a series of inter-departmental meetings involving Planning, Parks, Engineering and Health.

As a result of these meetings there was a concensus reached that the scope of the problem could first be defined by the preparation of an inventory which would be the responsibility of the Staff Committee, assisted where necessary by consultants who would provide a specialized service, rather than be responsible for the study.

While this inventory was being prepared, the Staff Committee would list the criteria by which to judge the suitability of a stream for preservation and following the completion of these two subjects, the Committee would be in a position to make specific recommendations to Council.

The idea behind this approach is that all watercourses would be included in the inventory, while the criteria would decide which watercourses are worth preserving, leading of course to the third step of taking physical action to actually preserve them.

The definition of a watercourse for the purpose of the inventory is agreed as being basically stable natural watercourses, of all sizes with water running in them most of the year.

The type of information required in the Inventory, with a suggestion as to its source is shown below.

Information Required	Source
Location of watercourse and reference	Staff
Peak flow in watercourse based on 10-year rainfall curves (includes catchment area information)	Consultant
Gradient of watercourse invert	Consultant
Cross Section dimensions of watercourse	Consultant
Adjacent topography	Staff
Existing perimeter storm sewer discharging to watercourse	Staff
Water quality	Staff
Ownership of abutting lands	Staff
Existing land use adjacent to watercourse	Staff
Potential land use adjacent to watercourse	Staff
Type of soil	Consultant
Elevation and location of nearby buildings	Consultant

ITEM 8
MANAGER'S REPORT NO. 77
COUNCIL MEETING Oct. 15/73

Information Required	Source
Flood plain elevation and characteristics	Consultant
Description of natural vegetation	Consultant
Description of aesthetic situation	Staff
Description of associated wildlife (fish; birds).	Consultant

The type of criteria suggested for deciding upon the preservation and treatment of a watercourse are as follows:-

Water quality, and quantity.

Possibilities of flooding or erosion.

Ownership, existing use, and potential use of abutting property.

Quality of landscape and abutting property.

RECOMMENDATION

1. THAT Council endorse the approach described in the above report, and authorize the Staff Committee (Planning, Parks, Engineering and Health) to proceed with the preparation of a watercourse inventory, and the establishment of criteria to govern the preservation of such watercourses.

2. THAT the Staff Committee be authorized to employ specialized Consultants up to a maximum cost of $20,000.00 to assist in the preparation of the Inventory; additional funds if necessary to be the subject of a report to Council.

3. THAT the Staff Committee report its findings from the Inventory and the criteria to the Municipal Council before proceeding with detailed administrative or development proposals.

Respectfully submitted on behalf
of the Staff Committee,

A. L. Parr,
DIRECTOR OF PLANNING.

ALP:cm
Attach.
c.c. Medical Health Officer
c.c. Municipal Engineer
c.c. Administrator of Parks and Recreation

ITEM 32
MANAGER'S REPORT NO. 48
COUNCIL MEETING July 31/72

ITEM 8
MANAGER'S REPORT NO. 77
COUNCIL MEETING Oct. 15/73

32. Re: Preservation of Streams

Attached are three letters from staff concerning the preservation of streams in Burnaby. The letters contain background information and recommendations, and are submitted to Council in compliance with a June 5, 1972 Directive to the Manager to report on the subject.

RECOMMENDATION:

THAT authorization be given to staff to prepare a report for Council on the preservation of streams, to include terms of reference, a list of appropriate prime consultants that are best qualified to conduct a comprehensive study of the matter and approximate cost of such a study (see Planner's letter which enumerates the basic elements that should be included in the study).

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PLANNING DEPARTMENT
25 JULY, 1972

MR. M. J. SHELLEY.
MUNICIPAL MANAGER

DEAR SIR:

RE: PRESERVATION AND CONSERVATION OF STREAMS

On June 5th 1972, Council requested a report from the Manager, indicating a procedure through which the preservation and conservation of streams in the Municipality might be accomplished.

Rather than going into the matter of administrative procedures at this time, I believe we need to embark on a comprehensive study of the streams and watercourses in the Municipality, with the ultimate objective of implementing a policy of preservation and conservation.

The study could be carried out by a staff team, with members drawn from Planning, Engineering, Parks, and Sanitation, with appropriate specialised consulting advice. OR the job could be handed over to a Landscape Architect as prime consultant, who would have to draw in ecologists, engineers, planners, biologists, etc.

Whichever approach is taken (in house or consultant) the work should include the following items:

1. Establishment of criteria which makes a stream worthy of preservation, e.g. water quality, adjacent development, landscape quality, control of erosion and flooding, fish life etc.

2. Location, analysis, and classification of Burnaby watercourses.

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Re: Preservation and Conservation of Streams

3. Selection of streams deserving preservation.

4. Recommended methods and procedures including such items as land acquisition, treatment of banks, cleaning up of pollution sources, budget allocation, etc.

ITEM 8 MANAGER'S REPORT NO. 77 COUNCIL MEETING Oct. 15/73

RECOMMENDATION

That such a study be approved in principle by Council, and that a Staff Committee from Planning, Engineering and Parks be authorised to draw up terms of reference, prepare a short list of appropriate prime consultants and an approximate cost of the study, and report back to Council.

Respectfully submitted,

A. L. Parr
DIRECTOR OF PLANNING

ALP:ea

c.c. Municipal Engineer

c.c. Parks & Recreation Administrator

July 24, 1972

The urbanization process is in direct conflict with any attempt to maintain streams with reasonably constant flow, good water quality, and normal plant and animal life.

Every stream depends for its existence on the preservation of natural vegetation over its entire water shed area. Development of any kind whether it be logging, clearing for agriculture, construction of roads, or construction of buildings, tends to reduce the continuity of stream flow and increase the rate of run off during peaks. When an area becomes intensively urbanized as is now occurring in Burnaby the effect on the natural streams is very severe. Run off tends to become intermittent and streams tend to become polluted with petroleum-products from roads and parking lots, chemicals from winter de-icing of roads, chemicals from automobile exhausts and industrial air pollution, fertilizers, herbicides, and insecticides from agricultural and home gardening activities, etc. Eventually the stream becomes little more than a conductor of dirty water at which time it is better piped than preserved.

Most of the small streams which once existed in Burnaby have long ago become water courses with intermittent flows. Little can be done about this as the water sheds have been devoured by urban development. There is still some chance of maintaining streams in a few areas of Burnaby. Those that come to mind are Eagle Creek and Stoney Creek on Burnaby Mountain, Ramsey Creek in Burnaby Park, and Byrne Creek in Ron McLean Park. All of these have been damaged to some extent by development, but it may be possible with careful planning and severely restricted development of remaining water shed areas to preserve them in something resembling their present state.

Burnaby's major water courses, i.e. - Still Creek, Deer Lake Creek and the Brunette River, are in a pretty sorry state. Some improvement in water quality might be possible by the controlling and diversion of all sources of pollution, however, this might virtually dry up the water courses and we would then be faced with supplying clean water from the domestic system. Any attempt to deal with these water courses should be preceded by a detailed engineering study to determine the sources of pollution, methods of dealing with each and their effect on the water course. It is extremely doubtful that the Still Creek Burnaby Lake system could ever be restored to anything resembling its natural state without expenditures that would far exceed economic reason.

I noted with interest Mr. Olson's suggestion that subdivisions might be planned to retain water courses as an aesthetic feature and to minimize the necessity for culverting. I would note also that the long range Parks expansion programme envisages acquisition of a parkland strip along several of Burnaby's water courses. Both these approaches will help but a much greater programme of water shed preservation will be needed to provide any assurance that our existing streams will survive beyond a few more years.

Curtis W. Keil
DEPUTY ADMINISTRATOR
for:
B. R. Wilkinson
ADMINISTRATOR

ITEM 8
MANAGER'S REPORT NO. 77
COUNCIL MEETING Oct.15/73

THE CORPORATION OF THE DISTRICT OF BURNABY

INTER-OFFICE COMMUNICATION

RECEIVED
JUN 29 1972
MUNICIPAL MANAGER'S OFFICE

TO: Municipal Manager DEPARTMENT: DATE: June 26, 1972

FROM: Municipal Engineer DEPARTMENT: OUR FILE #

SUBJECT: Streams YOUR FILE #

With reference to the Municipal Clerk's letter 6th June, 1972 we would recommend that it would be impractical to have a standard procedure prohibiting the enclosure of any streams or watercourses. The enclosure of watercourses does on occasion become essential and the related problems are as outlined in our report 11th May, 1972 (copy attached).

There is in existence a Bylaw which makes it illegal to foul or obstruct any watercourse and this Bylaw prohibits individuals from placing material, debris or undersized pipes in any stream or watercourse.

If, however, the streams under consideration are primarily related to the subdivision of property, we would recommend that the matter of stream treatment or enclosure be treated each occasion on its own merit, depending on the size of the watercourse and the location in relation to the proposed road and lot alignment. For example, if a subdivision can be planned in such a way that a watercourse traverses only rear property lines and the watercourse is an aesthetic feature, then it could be required that the watercourse be left open with some form of improvement such as stone lining on the sides and bottom with landscape treatment on the bank sloping towards the edge of the channel. If, however, a watercourse meanders diagonally through a subdivision in such a way that it cannot be aligned along rear lot lines, it may then be impractical to leave the watercourse open and it would have to be piped.

As a general rule of thumb in connection with subdivisions, we would recommend that watercourses requiring a pipe size of over 42 inch diameter could be left open with the above-named special treatment provided the approving officer can plan the subdivision around the watercourse so that it runs along the rear lot line of the newly created properties and not diagonally through properties or along flankage lines between houses.

E E Olson
MUNICIPAL ENGINEER

VK:jc

c.c. Municipal Clerk
Planning Director
Parks Administrator

Attach.

THE CORPORATION OF THE CITY OF BURNABY

INTER-OFFICE COMMUNICATION

TO: Municipal Manager DEPARTMENT: DATE: May 11, 1972

FROM: Municipal Engineer DEPARTMENT: MUNICIPAL MANAGER'S OFFICE OUR FILE #

SUBJECT: Subdivision Ref. #18/72 YOUR FILE #
Enclosure of Watercourse between Sperling & Jordan.

ITEM 8
MANAGER'S REPORT NO. 77
COUNCIL MEETING Oct. 15/73

This refers to a letter received 9th May 1972 from Mr. D. F. Cole and others in the 2000 and 2100 Block Jordan Drive.

In accordance with established policy regarding watercourses in subdivisions the above named subdivision has been processed with the requirement that the watercourse along the westerly edge of the subdivision be enclosed. This requirement has been in effect for some time and reconfirmed by Council as recently as last year in connection with a watercourse through a subdivision on Lister Court, west of Carleton Avenue. To restate the reasoning for this watercourse piping requirement we submit the following:

(1) Watercourses, after housing development adjacent thereto, have on most occasions become a source of complaint to the new home owners, and because of erosion or fear of children falling in have resulted in the demand by the owners to have the watercourse enclosed. As a recent example, we cite the Meadedale watercourse which was left open at the time of subdivision and within one year had to be enclosed by the Corporation at a cost of over $20,000. This was done to meet the demands of the new owners.

(2) This particular watercourse was enclosed last year by the developer to the south. The same watercourse is being enclosed by developers to the east of Sperling and if the subdivision in question is left open, it would be one of only two sections left open between Halifax and Broadway.

(3) When sections of watercourses are piped and sections left open, it leaves a hazardous intake structure at the beginning of each piped section. Hazardous from the standpoint of possible blockage by debris and serious flooding of basements downstream and hazardous to the possibility of children being carried, or through their own efforts, getting into the intake and being carried away down the pipe. We had an unfortunate incident last winter when a child of Mr. J. H. Walker, 2290 Jordan Drive (he wrote us, copy attached) managed to squeeze himself through the eight inch spaced steel bars protecting the intake and was washed several hundred feet down the pipe to Broadway. Fortunately the boy was not seriously injured. This presents a strong argument against having watercourses partly piped and partly open with the resulting hazardous intakes.

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ITEM 8 MANAGER'S REPORT NO. 77 COUNCIL MEETING Oct. 15/73

This particular subdivision and its watercourse is unusual as it meanders along the rear of the subdivision adjacent to and in fact partially in and out of properties with houses established for some years with one house apparently oriented towards the watercourse.

In view of the fact that we have already had two incidents of complications resulting from open sections of this watercourse (Mr. Walker's child getting into the intake structure and flooding of a basement and undermining of a sidewalk during a storm in the fall of 1971), we are unable to recommend departure from the established policy of requiring enclosure of watercourses in subdivisions. It is felt that the Corporation would be put into a potentially precarious moral and legal position if it were to so depart from policy.

E. E. Olson,
MUNICIPAL ENGINEER.

EEO:eb
CC: Municipal Planner
Municipal Clerk
Municipal Solicitor