

Re: PROPOSALS FOR PROFESSIONAL ENGINEERING SERVICES  
WATERMAIN INSTALLATIONS

ITEM	19
MANAGER'S REPORT NO.	50
COUNCIL MEETING	Aug. 3/76

Following is a report from the Municipal Engineer regarding proposals for engineering services.

We did the design with our Engineering Department as we had the time, but we do not have the time for inspection, so we have elected to call for proposals for the inspection work.

RECOMMENDATION:

1. THAT Kerr, Wood, Leidal Associates Ltd. be retained to provide engineering services as described above, and as detailed in their proposal dated July 28, 1976.

\* \* \* \*

TO: MUNICIPAL MANAGER

29 July, 1976

FROM: MUNICIPAL ENGINEER

SUBJECT: INSPECTION OF WATERMAIN INSTALLATIONS

Our current budget contains provision for the installation of watermains on Gilmore Avenue from Dawson Street to Still Creek Street, Still Creek Street from Ingleton Avenue to Gilmore Avenue and Byrne Road from Lowland Drive to Mandeville Avenue.

We invited proposals for engineering services from the following three firms:

1. Dayton and Knight Ltd.
2. Aplin and Martin Engineering Ltd.
3. Kerr, Wood, Leidal Associates Ltd.

The services we require would be contract preparation, survey layout and on site inspection. All three firms responded and the essence of their proposals are attached. All three firms indicated that they would be prepared to do the work and that remuneration would be in accordance with the Schedule of Minimum Fees as published by the Association of Professional Engineers of B.C. The work is somewhat specialized due to the nature of the soil conditions and although the firm of Kerr, Wood, Leidal and Associates has never previously been retained by the Corporation they have indicated that they would intend to utilize personnel who have previous experience in Burnaby on this type of installation.

RECOMMENDATION:

THAT Kerr, Wood, Leidal Associates Ltd. be retained to provide engineering services as described above, and as detailed in their proposal dated 28 July, 1976.

*E.E. Olson*  
MUNICIPAL ENGINEER

WCS:cmg

Attch.

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**KERR WOOD LEIDAL ASSOCIATES LTD.**  
 CONSULTING ENGINEERS  
 996 BEAUMONT DRIVE, NORTH VANCOUVER, B.C. V7R 1P6 PHONE 986-7525

RECEIVED IN  
 ENGINEERING DEPT.

JUL 28 1976

INITIALS	DATE
WCS	July 28, 1976.

Mr. E. E. Olson, P. Eng.,  
 Municipal Engineer,  
 The Corporation of the  
 District of Burnaby,  
 4949 Canada Way,  
 Burnaby, B. C.  
 V5G 1M2

Attention Mr. W.C. Sinclair, P. Eng, Operations & Construction  
 Engineer

Re: Preparation of Contract Documents,  
 Layout and Field Supervision for  
Installation of Watermains

Dear Sir:

With reference to your letter of July 22, 1976 requesting a proposal for engineering services for preparation of contract documents, field layout and inspection for the installation of approximately 3,000 feet of watermain we have summarized our proposal below.

Terms of Reference

The consultant shall develop and prepare contract documents, survey layout and control and resident on-site inspection for watermains on Gilmore Avenue from Dawson Street to Still Creek Street, Still Creek Street from Ingleton Avenue to Gilmore Avenue and Byrne Road from Lowland Drive to Mandeville. The drawings Nos 740044 sheet 1 to 3 inclusive and drawing No 750044 sheet 1 prepared by the District of Burnaby, will form part of the tender documents.

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ENGINEERING PROPOSAL

- |   | Estimated<br>Fees                   |
|---|-------------------------------------|
| 1. Prepare contract documents which shall be prepared in accordance with the District of Burnaby's standard format. The technical portion of the specification shall be written to conform to the District of Burnaby's design drawings.  | \$2,500 - \$3,000                   |
| 2. Survey Control and Layout - Alignment only, watermain to be installed at approximately a 4 foot bury.  | \$1,600 - \$1,800                   |
| 3. Full time inspection by a senior technician with at least weekly visits by the Project Engineer - The total cost of resident on-site inspection will depend on the duration of the project and we suggest for this phase of the work the contractor be limited to 30 working days which we consider to be realistic if construction is undertaken prior to the fall rainy season.<br>(ie. 6 weeks @ \$850.00 = \$5,100.00)<br>Weekly rate based on an average inspection cost of \$19.00 / hour plus an allowance for inspection by a professional engineer. | \$5,100.00<br>(based on \$850/week) |
| 4. In addition to the above, we recommend additional drawings be prepared detailing the special thrust blocks for fittings located in peat and/or poor soil conditions special trench X-sections and other details similar to the stage I and stage II Big Bend watermains. These drawings would be reduced to 8½ x 14 and bound with the specifications.   | \$ 800 - \$1,100                    |

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Our total fee range for the project including full time resident inspection would be \$10,000 to \$11,000 plus disbursements. The disbursements for this project would consist of reproduction and printing costs plus car mileage payment for the Inspector.

Our engineering fees would be based on scale one of the Association of Professional Engineers minimum fee schedule dated February 1, 1975.

Our hourly charges for personnel working on this project are as follows:

Project Engineer	--	\$37.35
Design Engineer II	--	28.90
Senior Instrumentman/ Technician	--	23.10
Senior Draughtsman/ Technician	--	18.50
Rodman	--	13.85

The majority of the engineering would be completed at the Design Engineer II hourly rate.

#### Special Design Alternative

We recommend that in addition to the dresser coupling joint harness assembly and coal tar enamel felt wrapped outside coating for the steel pipe, the following exterior coating and jointing system be considered as an alternate when tendering.

The pipe would be coated inside with coal tar enamel and on the outside with Polyethylene Yellow Jacket (see enclosed brochure). The ends of the pipe would be either shop fabricated with Corten steel inserts or Corten steel butt ends. The pipe would be joined in the field with a single full penetration butt weld and the outside of the welded joint would be covered with a Polyethylene heat shrink sleeve (see enclosed brochure). The few inches of unprotected area inside the pipe would be protected by self protecting corrosion coating properties of the Corten Steel.

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This system would eliminate the costly joint harness assembly as well as the slow and costly hot coal tar enamel field coating process. We would expect the savings would be in the order of 10 to 15 percent of the total cost of the entire pipe installation.

Engineering costs to detail the special joint and investigate the welding system, and if required, the preparation of material lists for all materials involved in the project (ie. materials purchased by your purchasing department) would be as follows:

	Estimated Fees
(a) Special joint details and investigations	\$500
(b) Preparation of material lists and details of fabricated steel specials ( if required)	\$800

Project Personnel

The project engineer would be Mr. Ken Kerr, P. Eng. assisted by Mr. Alex Wood, P. Eng. on matters associated with any special fabrication, coating or welding techniques. Mr. Ken Neveroski assisted by Mr. A. Silver would complete all field layout associated with the project. Our full time inspector would be Mr. Rick Kreisch and/or Mr. Ken Neveroski depending on the timing of the project. Messrs Kerr, Wood and Neveroski have all participated in the engineering work associated with Phase I and Phase II of the Big Bend Watermains.

Please do not hesitate to contact us if you should have any questions concerning the above proposal.

Yours very truly,

KERR WOOD LEIDAL ASSOCIATES LTD.

*J.A. Wood*  
J.A. WOOD, P. Eng.

JAW/td  
Encl.

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**DAYTON & KNIGHT LTD.**

Consulting Engineers

1865 MARINE DRIVE, BOX 91247, WEST VANCOUVER, B.C. V7V 3N9 PHONE 922-3255

RECEIVED IN  
ENGINEERING DEPT.

JUL 28 1976

REFER TO	NOTE	DATE
WLS		July 28, 1976

The District of Burnaby,  
Municipal Hall,  
4949 Canada Way,  
Burnaby, B.C.  
V5G 1M2

Attention: Mr. W. C. Sinclair, P.Eng.  
OPERATIONS & CONSTRUCTION ENGINEER

Dear Mr. Sinclair:

Re: Inspection of Watermain Installation

Thank you for your letter dated 22 July, 1976. We understand the design has been completed by your District, and we would provide the following services:

Phase I.

Development and preparation of contract documents.

- (a) Detailed specifications for watermains for the sections outlined as follows:
- i. Gilmore Avenue - Dawson Street to Still Creek Street.
  - ii. Still Creek Street - Ingleton Avenue to Gilmore Avenue.
  - iii. Byrne Road - Lowland Drive to Mandeville.

Included would be a brief review of the drawings to ensure continuity with the specifications. The contract documents would be assembled as we have done for you in the past ready for a Call for Tenders. Possibly you will also require a Control Estimate as you have in the past. We have also allowed for analysis of the tenders and letter report with recommendations.

Test excavations would be an item in the contract for the successful tenderer to undertake.

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Mr. W. C. Sinclair, P.Eng.  
The District of Burnaby

July 28, 1976

Phase II.

Survey layout and control and resident on-site inspection.

Some survey layout will be required from time to time, and part-time inspections. Possibly some office supervision may be required from time-to-time also in the event of design revisions due to unexpected conditions.

Since the drawing part of the design has been completed and inspections will be part-time, we suggest our services be undertaken on hourly rates in accordance with minimum rates set out by the Association of Professional Engineers of B.C. Our hourly rates as of July 1st, 1976, are just being tabulated and we can send you a copy of same within a week if you so wish.

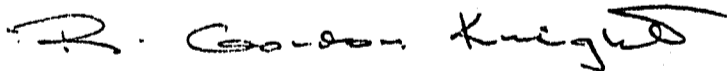
We would utilize Mr. Ken Ferraby, Assistant Project Engineer, for the Phase II inspections since he was involved in part of the Big Bend project. He reports to Mr. Bill Hayes, P.Eng., Project Engineer, who would assist with Phase I documentation and if necessary with Phase II.

Survey would be undertaken by Mr. Russ Robinson.

We hope this is sufficient at this time, and we shall await your further advice.

Yours very truly,

DAYTON & KNIGHT LTD.



R. Gordon Knight, P.Eng.

RGK/mef  
5.8/5.11





APLIN AND MARTIN

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ENGINEERING FEES

Due to the size and nature of these waterworks construction projects we feel that the most economical fee arrangement would be using hourly charge-out rates for our personnel based on actual time spent on the projects. The rates would be in accordance with Scale 1 of the A.P.E.B.C. Schedule of Fees which is Payroll Cost Plus Percentage.

The work would essentially be divided into three main parts,

- 1) Development and preparation of Contract Documents
- 2) Survey Layout and Control
- 3) On-Site Inspection

Part 1) would consist of developing a set of draft Contract Documents in the Standard Burnaby form using information and specifications supplied to us by the District of Burnaby. The Contract would then be assembled in final form by the District and then put out to tender by the District. A senior Engineer would provide our input for this part of the work.

Part 2) would consist of layout of construction work for the Contractor by a Survey Crew.

APLIN AND MARTIN

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ENGINEERING FEES

Part 3) would consist of on-site inspection by our Senior Inspector on a time basis as arranged with the District's Construction Engineer. Our Inspector would also provide the District with "as-built" information for future records.

We therefore propose that the following charge-out rates be used,

Senior Engineer (Project Co-ordinator)	\$38.00 per hour
Field Survey Crew (2 men including transport)	\$44.00 per hour
Senior Inspector (including transport)	\$27.20 per hour

It should be noted that any material testing ordered by our Inspector would be billed to the District of Burnaby at cost.

We are completely open to discussion on any other method of reimbursement for engineering services that you favour.