CONTRACT DOCUMENTS

TOWN OF PELHAM

WATERMAIN

BALFOUR STREET NORTH

FENWICK

Project EO 83621 December 1983

THE PROCTOR & REDFERN GROUP
Consulting Engineers and Planners
110 James Street, St. Catharines, Ontario
L2R 7E8

WB/ro

PROCTOR & REDFERN LIMITED
TENDERER'S CHECK LIST

Before submitting your tender, check the following points:

1. Has your tender been signed, sealed and witnessed? ☐

2. Have you enclosed the Tender Deposit, i.e. certified cheque or bid bond? (whichever is required by the Contract Documents) ☐

3. Have you enclosed the Agreement to Bond, signed and sealed by your proposed Surety? ☐

4. Have you completed all schedules and prices in the Form of Tender? ☐

5. Have you indicated and included the Contingency Allowance in the Form of Tender? (if you are required to do so) ☐

6. Have you indicated the number of addenda included in the tender price? ☐

7. Have you shown the time for completion of the work? (if applicable) ☐

8. Have you listed your Sub-Contractors? (if applicable) ☐

9. Have you listed your Experience in Similar Work? (if applicable) ☐

10. Have you listed your Senior Staff? (if applicable) ☐

11. Have you listed the Tenderer's Plant? (if applicable) ☐

12. Are the documents complete? ☐

Note: Items 13 and 14 are for Ministry of Transportation and Communication projects only.

13. Have you completed the Qualification Rating and forwarded to the Ministry of the Transportation and Communications? (if applicable) ☐

14. Have you enclosed the Form of Tender stamped "For Tendering Purposes Only" (if applicable) ☐

Note: 1. Your tender will be informal and may be disqualified if ANY of the foregoing points (if applicable) have not been complied with.

MAKE SURE THAT YOU SEAL THE TENDER IN AN ENVELOPE AND MARK THEREON THE CONTRACT NAME AND E.O. NUMBER.

Proctor and Redfern Limited
Form CD-30 - February 1973

LIST OF CONTRACT DOCUMENTS

The following shall form the Contract Documents:

	Paper Colour	No. of Pages
Addenda Numbered _____ to _____	Green	
Tenderer's Check List	Orange	1
List of Contract Documents	Pink	1
Tendering Information	Blue	3
Form of Tender	Yellow	4
Tendering Statements:		
Agreement	White	1
Agreement to Bond	White	1
Bid Bond (CCA Document No. (S)20)	White	1
Performance Bond (CCA Document No. (S)21)	White	1
Labour and Material Payment Bond (CCA Document No. (S)22)	White	2
List of Sub-Contractors (CD-3)	White	1
Tenderer's Experience in Similar Work (CD-4)	White	1
Tenderer's Senior Staff (CD-5)	White	1
Tenderer's Plant (CD-6)	White	1
Schedule of Equivalents (CD-7)	White	1
Supplementary General Conditions	Blue	2
General Conditions of Contract	Blue	8
Project Specifications:		
Section 01010 - General	White	3
Section 02550 - Site Clearing, Excavating, Backfilling and Restoration of Trenches	White	6
Section 02570 - Watermains	White	7

LIST OF DRAWINGS

Drawing No.	
A1-83621-P1	Balfour Street

LIST OF STANDARDS

E-83621-L1M	Bedding and Backfill Details for Watermain
E-83621-L2M	Valve Box Installation
E-83621-L3M	Concrete Thrust Blocks
E-83621-L4M	Water Service
E-83621-L5M	Blow-Off Detail
E-83621-L6M	Utility Support Detail
E-83621-L7M	Hydrant Installation

SECTION 00100 - TENDERING INFORMATION

TI.01 DELIVERY AND OPENING OF TENDERS

A. Sealed tenders, marked with the name of the project, will be received by -

Mr. M. Hackett, Clerk-Coordinator, Town of Pelham, P.O. Box 400, Fonthill, Ontario L0S 1E0

up to noon, local time - Wednesday, January 4, 1984.

B. The tenders will be opened publicly as soon after the closing time as possible.

C. Tenders shall be completed on the detachable Form of Tender included in the Contract Documents.

TI.02 DISCREPANCIES

A. If a Tenderer finds discrepancies in, or omissions from the Contract Documents, or if he is in doubt as to their meaning, he shall notify the Engineer, who may issue a written addendum. Neither the Owner nor the Engineer will make oral interpretations of the meaning of the Contract Documents.

B. Should the Tenderer not agree that the materials and methods specified, or designed on the Drawings, will provide an installation to meet the requirements of the project, he shall notify the Engineer in writing, stating his reason for objection and may submit a suggested alternative. In such an event, the Engineer may choose to issue an addendum.

C. Addenda issued during the tendering period shall be allowed for by the Tenderer.

TI.03 EXAMINATION OF SITE

A. The Tenderer shall visit the site of the Work before submitting his tender and shall by personal examination satisfy himself as to the local conditions that may be encountered during construction of the Work. He shall make his own estimate of the facilities and difficulties that may be encountered and the nature of the subsurface materials and conditions.

B. He shall not claim at any time after submission of his tender that there was any misunderstanding of the terms and conditions of the Contract relating to site conditions.

TI.04 SALES TAX

A. The Tenderer shall include or exclude sales tax in accordance with current sales tax legislation taking into account any changes that have been made known by the Government and that will occur during the life of the Contract.

B. If sales taxes are increased or decreased, or other amendments are made in the legislation, during the course of the Contract, that alter tax amounts carried in the Contract price, an adjustment will be made accordingly.

C. The Contractor shall keep records and invoices of accounts subject to Federal and Provincial Sales Tax for the purpose of establishing taxes paid and for substantiation in the event of changes to the tax legislation during the course of the Contract.

TI.04 SALES TAX (Cont'd)

D. The Tenderer shall contact the Sales Tax authorities and determine what the applicable taxes are and the procedures for tax exemption and/or refunding and include related administrative costs in the tender.

TI.05 PROOF OF ABILITY

A. The Tenderer shall be competent and capable of performing the various items of Work. The Tenderer shall complete the following statement sheets, which shall form a part of the Contract Documents -

1. Tenderer's Experience on Similar Work (CD-4) with list of specific examples completed within the last 5 yrs., with appropriate references

2. Tenderer's Senior Staff to be employed (CD-5)

3. Tenderer's Plant to be used (CD-6)

B. The Tenderer may be required to furnish additional statements covering other matters, including financial resources.

TI.06 TENDER DEPOSIT

A. The tender shall be accompanied by a tender deposit.

Tender deposit shall be a Certified Cheque payable to the Owner in the amount of $2,000.

The Tenderer shall keep his tender open for acceptance for ninety (90) days after the closing date. Withdrawal during this period will result in forfeiture or enforcement of the tender deposit.

Upon being notified that his tender has been accepted, the Contractor shall execute copies of the Agreement, supply bonds and insurance documents as specified, and start Work as specified.

Failure to execute the copies of the agreement, or to supply bonds and insurance documents, within 2 weeks of the date of acceptance of the tender, or to start Work as specified, will automatically mean the forfeiture or enforcement of the tender deposit.

Tender deposits of unsuccessful Tenderers will be returned not later than 2 weeks following Contract award.

The tender deposit of the successful Tenderer will be returned with the first progress certificate.

TI.07 AGREEMENT TO BOND

A. Every tender shall be accompanied by an 'Agreement to Bond' in the form attached, and shall be completed by a surety company lawfully doing business in the Province.

TI.08 SUB-CONTRACTORS

A. The Tenderer shall submit with his tender the names and addresses of Sub-contractors he proposes to use and the value for the subtrades listed in Form CD-3 'List of Sub-contractors'.

TI.10 ACCEPTANCE OF TENDERS

A. The lowest or any tender need not necessarily be accepted by the Owner.

TI.11 EQUIVALENTS

A. When an article is specified by its trade or other name (whether such name is followed by the phrase 'or approved equal' or not), the Tenderer shall base his tender price on the supply of the named article and no other.

The Tenderer may submit with his tender suggested equivalents to those articles specified by trade or other names. Such submissions shall be made on Form CD-7 attached and shall show the name of the article specified, the name and description of the suggested equivalent, and the total revision to the tender price that would result if the equivalent were accepted.

TI.12 CONDITIONS

A. No soils investigations were made on this site.

Test borings were made by McGlone & Associates Ltd. near this site for the geotechnical investigation for the Fenwick Sewer Project in 1981. The results and report for this investigation can be viewed at the offices of the Engineer. The Owner and the Engineer take no responsibility for the applicability of the soils investigation to this project.

FORM OF TENDER

FT.Ø1 TENDER PRICE

1. Offer by - Name - Blairick Limited

   Address - P.O. Box 520, Fort Erie, Ontario L2A 5Y1

   Date - January 4, 1984

2. To The Corporation of the Town of Pelham.

A. We, the undersigned, having examined the site of the Work, having carefully investigated the conditions pertaining to the Work and having secured all the information necessary to enable us to submit a bona fide tender, and having inspected all the Contract Documents, hereby agree to enter into a contract and to perform all the Work in a good and Workmanlike manner in accordance with the Contract Documents to the satisfaction of the Engineer for the total tender price of

Forty-four Thousand, Nine Hundred and Forty-seven Dollars and Forty-eight Cents

($44,947.48)

FT.Ø2 CONTINGENCIES AND ALLOWANCES

A. We agree that the tender price includes the contingency sum of $2,000.00 and that no part of this sum shall be expended without the written direction of the Engineer, and any part not so expended shall be deducted from the tender price.

FT.Ø3 QUANTITIES

A. The tender price is compiled from the Schedule Of Tender Prices included hereinafter. The quantities in the schedule being approximate, we agree that the final valuation will be made on the basis of actual quantities measured during and on completion of the Work at the prices in the schedule.

FT.Ø4 ADDITIONS AND DEDUCTIONS

A. We agree that the valuation of additions to, and deductions from, the Contract shall be made as follows -

1. The prices in the Schedule Of Tender Prices shall apply where appropriate.

2. If the prices in subsection 1 are not appropriate, valuation will be made by one of the following methods -

   (A) The Engineer may ask the Contractor for a quotation for the proposed Work.

   (B) If the quotation referred to in (A) above is not accepted by the Engineer, the actual cost of the Work will be determined as the total of only the following -

      (1) Actual cost of labour, including such items as Workmen's Compensation and Unemployment Insurance.

      (2) Actual cost of materials to be incorporated into the Work, including such items as freight and taxes.

      (3) For Work done by the Contractor, an amount equal to 15 percent of the totals from subsections (1) and (2) above, which shall constitute overhead and profit of the Contractor.

FT.Ø4 ADDITIONS AND DEDUCTIONS (Cont'd)

A. (Cont'd)

2. (B) (Cont'd)

(4) For Work done by Sub-contractors, an amount equal to 2Ø percent of the totals from subsections (1) and (2) above, which shall constitute overhead and profit of the Contractor and Sub-contractors.

(5) Rental of equipment and plant having a new value greater than $3ØØ. Rental rates shall be as set out in the current edition of MTC form 527.

3. Whenever extra Work is being performed under subsection 2(B) above, we agree to submit daily reports in writing, indicating the total chargeable costs incurred for the day. Valuation of the extra Work being so performed will be made only on the basis of the approved daily reports.

FT.Ø5 ADDENDA

A. We agree that we have received addenda 0 to 0 inclusive, and the tender price includes the provisions set out in such addenda.

FT.Ø6 COMPLETION

A. We agree to commence Work as specified, to proceed continuously to the completion and to complete all Work within 4 weeks from the date of issue of the written order to start Work.

FT.07 SCHEDULE OF TENDER PRICES

Item No.	Description	Unit	Estimated Quantity	Unit Price	TOTAL
SECTION 'A' - WATERMAINS AND APPURTENANCES					
A.01	Remove existing blowoff assembly			Lump Sum	$ 50.00
A.02	Connect new 150 mm diameter watermain to existing 200 mm diameter watermain in front of No. 1160 Balfour, including 200 mm to 150 mm reducer			Lump Sum	$ 350.00
A.03	Provide 150 mm diameter watermain	m	416	$ 51.48	$ 21,415.68
A.04	Provide 150 mm diameter gate valve and box	Each	3	$ 1,000.00	$ 3,000.00
A.05	Provide 150 mm diameter plug	Each	3	$ 53.00	$ 159.00
A.06	Provide hydrant set complete	Each	3	$ 1,700.00	$ 5,100.00
A.07	Provide 150 mm x 150 mm x 150 mm tee	Each	2	$ 175.00	$ 350.00
A.08	Provide 18 mm diameter water service connection, including connection to main, corporation stop, curb stop and curb box	Each	12	$ 277.00	$ 3,324.00
A.09	Provide 18 mm diameter copper water service pipe	m	105	$ 7.00	$ 735.00
A.10	Supply and place granular 'A' backfill material including disposal of excavated material	m^3	80	$ 11.00	$ 880.00
				TOTAL FOR SECTION 'A' WATERMAINS AND APPURTENANCES	$ 35,363.68
SECTION 'B' - PROVISIONAL ITEMS					
B.01	Supply and place 50 mm crusher run for bedding below design bedding, including excavation and disposal of excavated material	m^3	20	$ 14.74	$ 294.80
B.02	Provide 25 mm diameter water service connection to main, corporation stop, curb stop and curb box	Each	1	$ 300.00	$ 300.00
B.03	Provide 25 mm diameter copper water service pipe	m	6	$ 15.00	$ 90.00
B.04	Provide 200 mm diameter watermain	m	100	$ 60.24	$ 6,024.00
B.05	Provide 200 mm diameter gate valve and box	Each	1	$ 545.00	$ 545.00
B.06	Provide 200 mm x 200 mm x 150 mm tee	Each	1	$ 250.00	$ 250.00
B.09	Provide 200 mm diameter plug	Each	1	$ 75.00	$ 75.00
B.10	Excavate Rock	m^3	5	$ 1.00	$ 5.00
				TOTAL FOR SECTION 'B' PROVISIONAL ITEMS	$ 7,583.00

SUMMARY

SECTION 'A' - WATERMAINS AND APPURTENANCES	$35,363.68
SECTION 'B' - PROVISIONAL ITEMS	$ 7,583.80
SECTION 'C' - CONTINGENCY ALLOWANCE	$ 2,000.00
TOTAL TENDER PRICE	$44,947.48

OFFERED ON BEHALF
OF THE CONTRACTOR

TOTAL TENDER PRICE $44,947.48

Signature

Signature

Blairick Limited

Company Name

P.O. Box 520
FORT ERIE, Ontario
L2A 5Y1

Address

January 4th, 1984

Date

CONTRACTOR'S SEAL

Witness

FT.07 SCHEUDLE OF TENDER PRICES (REVISED)

Item No.	Description	Unit	Estimated Quantity	Unit Price	T O T A L
SECTION 'A' - BALFOUR STREET					
A.01	Remove existing blowoff assembly			Lump Sum	$ 50.00
A.02	Connect new 150 mm diameter watermain to existing 200 mm diameter watermain in front of No. 1160 Balfour, including 200 mm to 150 mm reducer			Lump Sum	$ 350.00
A.03	Provide 150 mm diameter watermain	m	388	$ 51.48	$19,974.24
A.04	Provide 150 mm diameter gate valve and box	Each	1	$1,000.00	$ 1,000.00
A.05	Provide 150 mm diameter plug	Each	1	$ 53.00	$ 53.00
A.06	Provide hydrant set complete	Each	2	$1,700.00	$ 3,400.00
A.07	Provide 18 mm diameter water service connection, including connection to main, corporation stop, curb stop and curb box	Each	9	$ 277.00	$ 2,493.00
A.08	Provide 18 mm diameter copper water service pipe	m	71	$ 7.00	$ 497.00
A.09	Supply and place granular 'A' backfill material including disposal of excavated material	m^3	20	$ 11.00	$ 220.00
		TOTAL FOR SECTION 'A' WATERMAINS AND APPURTENANCES			$28,037.24
SECTION 'B' - PROVISIONAL ITEMS					
B.01	Supply and place 50 mm crusher run for bedding below design bedding, including excavation and disposal of excavated material	m^3	10	$ 14.74	$ 147.40
B.02	Provide 25 mm diameter water service connection to main, corporation stop, curb stop and curb box	Each	1	$ 300.00	$ 300.00
B.03	Provide 25 mm diameter copper water service pipe	m	6	$ 15.00	$ 90.00
B.10	Excavate Rock	m^3	5	$ 1.00	$ 5.00
		TOTAL FOR SECTION 'B' PROVISIONAL ITEMS			542.40

FT.07 SCHEDULE OF TENDER PRICES (REVISED)

Item No.	Description	Unit	Estimated Quantity	Unit Price	T O T A L
SECTION 'C' - ALDER ESTATES					
C.01	Provide 150 mm diameter water-main	m	28	$ 51.48	$ 1,441.44
C.02	Provide 150 mm diameter gate valve and box	Each	2	$1,000.00	$ 2,000.00
C.03	Provide 150 mm diameter plug	Each	2	$ 53.00	$ 106.00
C.04	Provide hydrant set complete	Each	1	$1,700.00	$ 1,700.00
C.05	Provide 150 x 150 x 150 mm tee	Each	2	$ 175.00	$ 350.00
C.06	Provide 200 mm diameter water-main	m	100	$ 60.24	$ 6,024.00
C.07	Provide 200 mm diameter gate valve and box	Each	1	$ 545.00	$ 545.00
C.08	Provide 200 x 200 x 150 mm tee	Each	1	$ 250.00	$ 250.00
C.09	Provide 200 mm diameter plug	Each	1	$ 75.00	$ 75.00
C.10	Provide 18 mm diameter water service connection, including connection to main, corporation stop, curb, stop and curb box	Each	3	$ 277.00	$ 831.00
C.11	Provide 18 mm diameter copper water service pipe	m	34	$ 7.00	$ 238.00
C.12	Supply and place granular 'A' backfill material including disposal of excavated material	m^3	60	$ 11.00	$ 660.00
			TOTAL SECTION 'C' ALDER ESTATES		$14,220.44
SECTION 'D' - PROVISIONAL ITEMS					
SECTION 'D' - PROVISIONAL ITEMS					
D.01	Supply and place 50 mm crusher run for bedding below design bedd including excavation and disposal of excavated material	m^3	10	$ 14.74	$ 147.40
			TOTAL SECTION 'D' PROVISIONAL ITEMS		$ 147.40

FT.07 SCHEDULE OF TENDER PRICES (REVISED)

SUMMARY

SECTION 'A' - BALFOUR STREET	$28,037.24
SECTION 'B' - PROVISIONAL ITEMS	$ 542.40
SECTION 'C' - ALDER ESTATES	$14,220.44
SECTION 'D' - PROVISIONAL ITEMS	$ 147.40
SECTION 'E' - CONTINGENCY ALLOWANCE	$ 2,000.00
TOTAL TENDER PRICE	$44,947.48

Proctor & Redfern Limited
Project EO 83621

AGREEMENT

This Agreement made in triplicate this 19TH day of MARCH 19 84 between Blairick Limited hereinafter called "The Contractor",

AND

The Town of Pelham hereinafter called "The Owner".

WITNESSETH, that the Contractor agrees with the Owner to perform all the Work in accordance with the Contract Documents referred to in the tender of the Contractor dated the Fourth day of January , 1984 , (which shall be deemed to form part of this Contract) to the satisfaction of the Engineer for the total contract price of $ 44,947.48 which Contract Documents are attached hereto and which are hereby expressly made part of this Contract.

The Owner hereby agrees with the Contractor, that in consideration of the Work being performed by the Contractor as specified, the Owner shall pay the Contractor for said Work in accordance with the prices set out in the Form of Tender attached hereto, and in accordance with the provisions set out in the attached Contract Documents.

Time shall be deemed the essence of this Contract.

IN WITNESS WHEREOF the parties hereto have executed this Agreement under their respective corporate seals and by the hands of their proper officers thereunto duly authorized.

SIGNED, SEALED AND DELIVERED
in the presence of:

OWNER

TOWN OF PELHAM
Name

ERIC BERGENSTEIN - MAYOR
Signed
E S Bergenstein
Name and Title

Signed *Witness*

MURRAY HACKETT - CLERK CO-ORDINATOR
Name and Title *Name and Title*

CONTRACTOR

BLAIRICK LTD
Name

Signed

BEN ANDRÉ PRESIDENT
Name and Title

Signed *Witness*

TONY GALLERO
Name and Title *Name and Title*

N.B. Where legal jurisdiction, local practice or Owner or Contractor requirement calls for proof of authority to execute this document, proof of such authority in the form of a certified copy of a resolution naming the person or persons in question as authorized to sign the Agreement for and on behalf of the Corporation or Partnership, parties to this Agreement, should be attached.

AGREEMENT TO BOND

Date _____ 198

Project EO 83621

*

*

Gentlemen:

Construction of a Watermain Extension on
Balfour Street North (Fenwick) in the Town of Pelham

In consideration of the Owner accepting the tender of and executing an Agreement with
(hereinafter referred to as 'the Tenderer') for the construction of a Watermain Extension on Balfour Street in the Town of Pelham (Fenwick), subject to the express condition that the Owner receive the Performance Bond and the Payment Bond in accordance with the said tender, we the undersigned hereby agree with the Owner to become bound to the Owner as surety for the Tenderer in a performance bond and a payment bond each in an amount equal to 100% of the tender price, in the standard forms of the Canadian Construction Association and in accordance with the said tender, and we agree to furnish the Owner with the said bonds within 7 days after notification of the acceptance of the tender has been mailed to us.

Yours very truly,

Note: This AGreement must be executed on behalf of the surety company by its authorized officers under the company's corporate seal.

* Enter name and address of surety company at the top of the page.

Form CD-22
Revised April, 1973

BID BOND

No. ..... $ .....

KNOW ALL MEN BY THESE PRESENTS THAT .....

..... as Principal

hereinafter called the Principal, and .....

a corporation created and existing under the laws of .....

and duly authorized to transact the business of Suretyship in .....

as Surety, hereinafter called the Surety, are held and firmly bound unto .....

..... as Obligee

hereinafter called the Obligee, in the amount of .....

..... Dollars ($ .....)

lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a written tender to the Obligee, dated the .....

day of ..... 19 ..... , for .....

.....

.....

.....

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the aforesaid Principal shall have the tender accepted within sixty (60) days from the closing date of tender and the said Principal will, within the time required, enter into a formal contract and give the specified security to secure the performance of the terms and conditions of the Contract, then his obligation shall be null and void; otherwise the Principal and the Surety will pay unto the Obligee the difference in money between the amount of the bid of the said Principal and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former.

The Principal and the Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of six months from the date of this Bond.

IN WITNESS WHEREOF, the Principal and the Surety have Signed and Sealed this Bond this .....

..... day of ..... 19 .....

SIGNED and SEALED
In the presence of

(.....
(Principal (Seal)

(.....
(Surety (Seal)

Endorsed by: R.A.I.C., A.C.E.C., C.C.A., E.I.C., S.W.A.C.

Approved by: INSURANCE BUREAU OF CANADA

PERFORMANCE BOND

C.C.A. Document No. (S) 21

No. ..... $ .....

KNOW ALL MEN BY THESE PRESENTS THAT .....

.....as Principal,

hereinafter called the Principal, and .....

a corporation created and existing under the laws of .....

and duly authorized to transact the business of Suretyship in .....

as Surety, hereinafter called the Surety, are held and firmly bound unto .....

..... as Obligee,

hereinafter called the Obligee, in the amount of .....

..... Dollars ($ .....)

lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a written contract with the Obligee, dated the .....

day of ..... 19 ....., for .....

.....

.....

.....

In accordance with the Specifications and Drawings submitted therefor which contract, Specifications and Drawings, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform the Contract then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Whenever the Principal shall be, and declared by the Obligee to be, in default under the Contract, the Obligee having performed the Obligee's obligations thereunder, the Surety may promptly remedy the default, or shall promptly

(1) complete the Contract in accordance with its terms and conditions or

(2) obtain a bid or bids for submission to the Obligee for completing the Contract in accordance with its terms and conditions, and upon determination by the Obligee and the Surety of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as work progresses (even though there should be a default, or a succession of defaults, under the contract or contracts of completion, arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract price," as used in this paragraph, shall mean the total amount payable by the Obligee to the Principal under the Contract, less the amount properly paid by the Obligee to the Principal.

Any suit under this Bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

No right of action shall accrue on this Bond, to or for the use of, any person or corporation other than the Obligee named herein, or the heirs, executors, administrators or successors of the Obligee.

IN WITNESS WHEREOF, the Principal and the Surety have Signed and Sealed this Bond this .....

day of ..... 19 .....

SIGNED and SEALED
In the presence of:

(.....
(Principal (Seal)

(.....
(Surety (Seal)

LABOUR AND MATERIAL PAYMENT BOND
(TRUSTEE FORM)

No. ..... $ .....

Note: This Bond is issued simultaneously with another Bond in favour of the Obligee conditioned for the full and faithful performance of the Contract.

KNOW ALL MEN BY THESE PRESENTS THAT .....

..... as Principal,

hereinafter called the Principal, and .....

a corporation created and existing under the laws of .....

and duly authorized to transact the business of Suretyship in .....

as Surety, hereinafter called the Surety are, subject to the conditions hereinafter contained, held and firmly bound unto

..... as Trustee,

hereinafter called the Obligee, for the use and benefit of the Claimants, their and each of their heirs, executors, administrators, successors and assigns, in the amount of .....

..... Dollars ($ .....)

of lawful money of Canada for the payment of which sum well and truly to be made the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a written contract with the Obligee, dated the .....

day of ..... 19 ..... , for .....

.....

.....

.....

which contract, Specifications & Drawings are by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall make payment to all Claimants for all labour and material used or reasonably required for use in the performance of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A Claimant for the purpose of this Bond is defined as one having a direct contract with the Principal for labour, material, or both, used or reasonably required for use in the performance of the Contract, labour and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment directly applicable to the Contract provided that a person, firm or corporation who rents equipment to the Principal to be used in the performance of the Contract under a contract which provides that all or any part of the rent is to be applied towards the purchase price thereof, shall only be a Claimant to the extent of the prevailing industrial rental value of such equipment for the period during which the equipment was used in the performance of the Contract. The prevailing industrial value of equipment shall be determined, insofar as it is practical to do so, In accordance with and in the manner provided for in the latest revised edition of the publication of the Canadian Construction Association titled "Rental Rates on Contractors Equipment" published prior to the period during which the equipment was used in the performance of the Contract.

2. The Principal and the Surety, hereby jointly and severally agree with the Obligee, as Trustee, that every Claimant who has not been paid as provided for under the terms of his contract with the Principal, before the expiration of a period of ninety (90) days after the date on which the last of such Claimant's work or labour was done or performed or materials were furnished by such Claimant, may as a beneficiary of the trust herein provided for, sue on this Bond, prosecute the suit to final judgment for such sum or sums as may be justly due to such Claimant under the terms of his contract with the Principal and have execution thereon. Provided that the Obligee is not obliged to do or take any act, action or proceeding against the Surety on behalf of the Claimants, or any of them, to enforce the provisions of this Bond. If any act, action or proceeding is taken either in the name of the Obligee or by joining the Obligee as a party to such proceeding, then such act, action or proceeding, shall be taken on the understanding and basis that the Claimants; or any of them, who take such act, action or proceeding shall indemnify and save harmless the Obligee against all costs, charges and expenses or liabilities incurred thereon and any loss or damage resulting to the Obligee by reason thereof. Provided still further that, subject to the foregoing terms and conditions, the Claimants, or any of them, may use the name of the Obligee to sue on and enforce the provisions of this Bond.

3. No suit or action shall be commenced hereunder by any Claimant:

   (a) unless such Claimant shall have given written notice within the time limits hereinafter set forth to each of the Principal, the Surety and the Obligee, stating with substantial accuracy the amount claimed. Such notice shall be served by mailing the same by registered mail to the Principal, the Surety and the Obligee, at any place where an office is regularly maintained for the transaction of business by such persons or served in any manner in which legal process may be served in the Province or other part of Canada in which the subject matter of the Contract is located. Such notice shall be given

      (1) in respect of any claim for the amount or any portion thereof, required to be held back from the Claimant by the Principal, under either the terms of the Claimant's contract with the Principal, or under the Mechanics' Liens Legislation applicable to the Claimant's contract with the Principal, whichever is the greater, within one hundred and twenty (120) days after such Claimant should have been paid in full under the Claimant's contract with the Principal;

      (2) in respect of any claim other than for the holdback, or portion thereof, referred to above, within one hundred and twenty (120) days after the date upon which such Claimant did, or performed, the last of the work or labour or furnished the last of the materials for which such claim is made, under the Claimant's contract with the Principal;

   (b) after the expiration of one (1) year following the date on which the Principal ceased work on the Contract, including work performed under the guarantees provided in the Contract;

   (c) other than in a Court of competent jurisdiction in the Province or District of Canada in which the subject matter of the Contract, or any part thereof, is situated and not elsewhere, and the parties hereto agree to submit to the jurisdiction of such Court.

4. The Surety agrees not to take advantage of Article 1959 of the Civil Code of the Province of Quebec in the event that, by an act or an omission of a Claimant, the Surety can no longer be subrogated in the rights, hypothecs and privileges of Said Claimant.

5. The amount of this Bond shall be reduced by, and to the extent of any payment or payments made in good faith, and in accordance with the provisions hereof, inclusive of the payment by the Surety of Mechanics' Liens which may be filed of record against the subject matter of the Contract, whether or not claim for the amount of such lien be presented under and against this Bond.

6. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

IN WITNESS WHEREOF, the Principal and the Surety have Signed and Sealed this Bond this .....

day of ..... 19 .....

SIGNED and SEALED
In the presence of

(.....
(Principal ..... (Seal)

(.....
(Surety ..... (Seal)

Endorsed by: R.A.I.C., A.C.E.C., C.C.A., E.I.C., S.W.A.C.

Approved by: INSURANCE BUREAU OF CANADA

Statement Sheet
CD-3

LIST OF SUB-CONTRACTORS

SUB-TRADE	NAME OF SUB-CONTRACTOR	ADDRESS OF SUB-CONTRACTOR	VALUE OF SUB-CONTRACT
N/A	N/A	N/A	N/A

Note to Tenderer - Refer to Articles 3 of the General Conditions and TI.08 of Tendering Information.
- Names and addresses must be filled in and submitted with the tender. If a sub-contractor is not to be used for any work listed then show "by own forces."

Proctor & Redfern Limited
Consulting Engineers
November, 1977

Statement Sheet
CD-4

TENDERER'S EXPERIENCE IN SIMILAR WORK

YEAR COMPLETED	DESCRIPTION OF CONTRACT	FOR WHOM WORK PERFORMED	NAME OF CONSULTANT ENGINEER	VALUE
1983	Claire Ave., watermain	City of Welland	City of Welland	$50,000.
1983	Almond & Hazel watermain	City of St. Catharines	City of St. Catharines	$100,000.
1983	Permilla, Hilda watermain	City of St. Catharines	City of St. Catharines	$50,000.
Note to Tenderer - Refer to article TI.05 of Tendering Information				

Proctor & Redfern Limited
Consulting Engineers
November, 1977

Statement Sheet
CD-5

TENDERER'S SENIOR STAFF

NAME	APPOINTMENT	QUALIFICATIONS AND EXPERIENCE
Office		
Ben Anger	President	15 years
Jack Helinga	Project Manager	10 years
Field		
Ron Winger	Foreman	15 years
Tom Barrett	Superintendent	15 years

Proctor & Redfern Limited
Consulting Engineers
November, 1977

Statement Sheet
CD-6

TENDERER'S PLANT

The Tenderer shall list the plant, machinery and equipment he proposes to use on the work.

PLANT OWNED:

20 H.RE. Track Backhoe
680 E Case Rubber Tired Backhoe
544 JD Rubber Tired Loader
1 T/A Dump Truck

PLANT TO BE RENTED OR LEASED:

PLANT TO BE PURCHASED:

Statement Sheet
CD-7

SCHEDULE OF EQUIVALENTS

SPECIFIED ARTICLE	NAME OF SUBMITTED EQUIVALENT	CATALOGUE NO. ETC. OF SUBMITTED EQUIVALENT	PROPOSED PRICE REVISION

Proctor & Redfern Limited
Consulting Engineers
November, 1977

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

SC.01 GUARANTEE PERIOD

A. The guarantee period for the Contract shall be twelve months, unless an extended guarantee period is called for in any specific Section.

SC.02 DEFINITION

A. 'Department of Highways' and 'DHO' means 'The Ministry of Transportation and Communications' and 'MTC'.

B. 'The Department of Transportation and Communications' and 'DTC' means 'The Ministry of Transportation and Communications' and 'MTC'.

C. The word 'provide' shall mean - supply labour, materials, equipment, handling and cartage required for complete installation of the item concerned.

D. The words 'work' or 'works' have the same meaning as for 'Work' as defined in the General Conditions.

SC.03 INSURANCE

A. Damage insurance

1. Notwithstanding the provisions of clause 28 of the General Conditions, no 'Damage Insurance' will be required on this Contract.

SC.04 LIQUIDATED DAMAGES

A. Should the Contractor fail to complete the Work in accordance with the Contract and to the satisfaction of the Engineer, within the time specified in the Form of Tender, or as amended on the written authority of the Engineer, the Contractor shall pay to the Owner the sum of $200.00 for each calendar day that the Work shall remain unfinished after such time.

B. Such payments are agreed upon and fixed as liquidated damages that the Owner will suffer by reason of delay and default, and not as a penalty. The Owner may deduct and retain the amounts of such liquidated damages out of the monies which may be due or become due to the Contractor under the Contract.

SC.05 HOLDBACK FOR RECTIFICATION AFTER ACCEPTANCE OF THE WORK

A. To cover rectification costs during the guarantee period, the Owner will retain 5 percent of the value of Work done, such amount being held back in each progress certificate. This holdback will be retained for a period of 1 year from the 'Acceptance Date' which is described in article 35 of the General Conditions. Additional monies will be held back as required by provincial statutes.

SC.06 PAYMENT BOND

A. The Contractor, together with a surety company approved by the Owner and authorized by law to carry on business in the Province shall furnish a 100 percent labour and materials payment bond to the Owner using C.C.A. Document (S) 22. The bond shall remain in effect until the issue by the Engineer of the final payment certificate.

SC.07 PERFORMANCE BOND

A. The provisions of the General Conditions shall apply except that C.C.A. Document (S) 21 shall be used.

SC.08 CONSTRUCTION LIEN ACT

A. The new Construction Lien Act shall apply to this project.

GENERAL CONDITIONS OF THE CONTRACT

SUBJECT INDEX

PROCTOR & REDFERN LIMITED
CONSULTING ENGINEERS

Form CD-1
(Revised May 1978)

GENERAL CONDITIONS OF THE CONTRACT

1. DEFINITIONS

1. Wherever used in the Contract Documents, or other documents forming part of the Contract:
   (a) the word "Contract" means: the Contract to do the Work, the Bonds or Securities, the Addenda (if any), the Specifications, the General and Supplementary General Conditions, the Tendering Information, the List of Contract Documents, the Drawings, and other documents referred to or connected with the Agreement.
   (b) the word "Owner" means the person or corporation accepting the Tender.
   (c) the word "Contractor" means the person or corporation to whom the Contract for the Work has been awarded.
   (d) the word "Subcontractor" means the person or corporation having a contract with the Contractor (or with another subcontractor) for the execution of a part or parts of the Work included in the Contract, or for the supplying of material for the Contract and worked to a special design according to the Drawings and Specifications.
   (e) the word "Engineer" means Proctor & Redfern Limited, Consulting Engineers, and their duly authorized agents.
   (f) the word "Work" means labour, materials and other things required to be done, that are shown, described or implied in the Contract Documents, and includes extra and additional Work that may be ordered by the Engineer.

2. DOCUMENTS

2. (a) The Contract Documents shall be signed and sealed, in triplicate, by the Owner and the Contractor.
   (b) The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intention of the Documents is to include plant, labour and materials (except as specifically excepted) necessary for the complete and proper execution of the Work.
   (c) Drawings and Specifications shall be read and interpreted together. Work not specifically described, but obviously necessary for the satisfactory completion of the Work for the purpose intended shall be supplied and performed by the Contractor as though it had been described and shown in the Drawings and Specifications.
   (d) Reference to published standard specifications shall be to the edition current at the time of the signing of the Contract Documents.

3. SUB-CONTRACTORS

3. (a) Without the written approval of the Engineer, the Contractor shall not change the Subcontractors named in the Contract.
   (b) The Contractor shall be held as fully responsible to the Owner for the acts and omissions of his Subcontractors (and of persons directly and indirectly employed by them) as for the acts and omissions of persons directly employed by the Contractor.
   (c) The Contractor shall bind every Subcontractor to the terms of the Contract Documents, as far as applicable to the Subcontractor's Work.
   (d) Nothing in the Contract Documents shall create any contractual relation between Subcontractors and the Owner.
   (e) Divison of the Specifications into sections or subsections shall be only for clarity of reading and reference, and shall not be taken to be a division into trades, subtrades or sections of Work of any kind.

4. NOTICES

4. (a) Any notice or communication to the Contractor shall be deemed to be legally well and sufficiently given and served, if:
   (i) handed to the Contractor or his authorized representatives, or
   (ii) posted or sent to the address given in the Tender, or,
   (iii) posted or sent to the Contractor's domicile or usual place of business, or
   (iv) posted or sent to the place where the Work is, or is to be, carried on, or
   (v) posted to or left at his last known address.

(b) If the Work is closed, suspended or stopped for the winter (or for other approved reasons), the Contractor shall remove material from streets, sidewalks, boulevards and other public property.

(c) The Contractor shall ensure that the charges of explosives used, and the time at which they are exploded, shall be such as not to cause suffering, inconvenience or injury to persons nor damage to property.

(d) Explosives shall be properly housed and protected, and no explosives that have deteriorated shall be used. Approved methods of handling and thawing frozen explosives shall be followed. In blasting operations, the Contractor shall exercise the greatest care at all times.

(e) The Contractor shall provide, erect and maintain necessary barriers, fences and other proper protection, and shall provide and maintain watchmen and lights as may be necessary to ensure the safety of the public and others. Unless otherwise specified, the Contractor shall keep streets and sidewalks open for use by the public. The Contractor shall provide, erect and maintain a sufficient number of detour signs, and other proper notices, wherever the use of streets or sidewalks is dangerous due to the Contractor's operations.

(f) When Work is carried on at night, the Contractor shall provide, erect and operate a sufficient number of lights to enable the Work to be performed satisfactorily.

11. PROSECUTION OF THE WORK

11. (a) The Contractor shall complete the Work in accordance with a schedule set down in co-operation with the Engineer at the time of the award of the Contract. Amendments to this schedule may be made by the Engineer, on application by the Contractor.

(b) Should the Engineer be of the opinion that the quantity or quality of labour or plant supplied by the Contractor is not sufficient, or that the methods being employed are not such as will ensure that the Work will be completed within the specified time, the Contractor shall forthwith improve the quality and increase the number of men employed, shall make revisions to the plant, and shall employ Work methods satisfactory to the Engineer.

12. OPERATIONAL RISKS

12. (a) Damage, loss, expense and delay incurred or experienced by the Contractor in the prosecution of the Work, by reason of unanticipated difficulties, bad weather, strikes, wars, acts of God, or other mischances, shall be borne by the Contractor and shall not be the subject of a claim for additional compensation.

(b) The position of pole lines, conduits, watermains, sewers and other underground and overground utilities and structures is not necessarily shown on the Contract Drawings, and, where shown, the accuracy of the position of such utilities and structures is not guaranteed. Before starting Work, the Contractor shall inform himself of the exact location of such utilities and structures, and shall assume liability for damage to them. Unless otherwise specified, the Contractor shall support such utilities and structures, or temporarily remove them, and restore them, to the satisfaction of the owners of the utilities and structures.

13. WORKMANSHIP AND MATERIALS

13. (a) Workmanship shall be first-class and material new and of best quality. The Contractor shall pay due regard to the neat and attractive appearance of the finished Work.

(b) If ordered by the Engineer, the Contractor shall make such openings in the Work as are needed to re-examine the Work, and shall forthwith make the Work good again. Should the Engineer find the Work so opened up to be faulty, the whole of the expense of opening, checking and making good shall be borne by the Contractor. Should the Engineer find the Work opened up to be in an acceptable condition, such expense will be borne by the Owner.

(c) The Contractor shall remove and make good defective Work, and the entire cost of such removal and making good shall be borne by the Contractor.

14. COLD WEATHER

14. When Work is permitted or ordered by the Engineer to be done in cold weather, the Contractor shall provide suitable means for heating and protection, and the materials shall be heated and protected. All Work that may be injured by frost, and which cannot be satisfactorily completed, shall be put in a proper and satisfactory condition, and shall be protected from damage by frost. Unless otherwise specified, the cost of such protection shall be borne by the Contractor.

The Engineer's decision as to matters referred to in this clause shall be binding upon the parties concerned.

(b) When the Engineer makes a decision under this clause, the Contractor shall immediately proceed with Work affected by the decision. Additions to or deductions from the Contract price shall be made only as provided for in the Contract, and no revisions to the completion time shall be made, unless approved by the Engineer.

(c) The Engineer may at reasonable times visit, enter and check at buildings, factories, workshops, works or sites wherever materials are being prepared, made or treated, or where other Work is being done in connection with the Contract. The Engineer may also take such samples as he may consider necessary.

21. SHOP DRAWINGS

21. (a) Shop Drawings will be reviewed only to check general arrangement and conformance with the design concept of the project and compliance with the Contract Documents.

(b) Where the Engineer requires Shop and Setting Drawings, the Contractor shall submit them in sufficient time to allow for examination by the Engineer and for any corrections that he may require to be made. The Contractor shall not commence Work on items covered by Shop Drawings (where such drawings have been requested) before the Engineer's review.

(c) The Contractor shall make changes in Shop and Setting Drawings as the Engineer requires consistent with the Contract and shall submit revised prints to the Engineer. When submitting Shop and Setting Drawings, the Contractor shall notify the Engineer of every change made from the Contract Documents.

(d) Review of Shop Drawings by the Engineer shall not relieve the Contractor from compliance with requirements of the Contract Documents, nor relieve him of responsibility for errors made in the Shop Drawings.

(e) The Contractor shall be responsible for confirming and correlating quantities and dimensions; selecting fabrication processes and techniques of construction; and coordinating the Work of Subcontractors.

(f) Prior to submission to the Engineer the Contractor shall review Shop Drawings. By this review the Contractor represents that he has determined and verified field measurements, field construction criteria, materials, catalogue numbers and similar data or will do so and that he has checked and co-ordinated each Shop Drawing with the requirements of the Work and of the Contract Documents. The Contractor's review of each Shop Drawing shall be indicated by stamp, date and signature of a responsible person.

(g) Shop Drawings shall be properly identified by the name of the project, the E.O. number, the item and the area in which the item is to be used. Where options occur on the Shop Drawing, the option proposed to be used shall be marked. If applicable, the related Specification Section shall be indicated.

22. OWNERSHIP OF DOCUMENTS

22. Contract Documents, including Drawings, Specifications, models and similar items supplied by the Engineer are his property. Such Documents are not to be used on other work and, with the exception of the signed Contract Documents, shall be returned by the Contractor to the Engineer on the completion of the Work.

23. LIABILITY

23. The Contractor shall assume the defence of and shall indemnify and save harmless the Owner from claims:

(a) resulting from the prosecution of the Work, or

(b) resulting from any of the Contractor's operations, or

(c) caused by reason of the existence, location or condition of the Work, or

(d) caused by reason of any material, plant or labour used in the Work, or

(e) arising from an act of commission or omission on the part of the Contractor, or

(f) relating to inventions, copyrights, trademarks, patents (and rights to them) used in doing the Work, or in the use and operation of Work on completion, unless otherwise specified.

30. INSURANCE CLAIMS

30. (a) Claims or alleged claims received by the Contractor shall be dealt with immediately by the Contractor. If a claim is settled to the satisfaction of the claimant, the Contractor shall submit to the Engineer a copy of the claimant's release.

(b) If a claim or alleged claim is rejected by the Contractor and/or his insurance company, the Contractor shall report this fact in writing to the Engineer.

(c) Should 30 days elapse after the claim or alleged claim has been received by the Contractor, and the Contractor is not able to report settlement or rejection of the claim, he shall report to the Engineer the steps being taken with respect to the claim.

31. HOURS OF WORK

31. The Engineer may prohibit the Contractor from carrying on operations during hours of the day in which the Engineer, in his judgment, deems such operations to be a disturbance or nuisance to the public.

Such prohibition may be made notwithstanding prior consent, order, agreement or requirement in the Contract that stipulates maximum or minimum hours of Work.

32. VALUATION

32. (a) At monthly intervals, the Contractor and the Engineer shall make a valuation of the Work and materials supplied under the Contract. Should the Engineer wish to measure the Work or materials supplied, the Contractor shall assist in such measurements and furnish particulars required.

(b) The monthly valuations described in subsection (a) above shall not bind the Owner, the Contractor or the Engineer to final valuation of the Work to be done under the Contract, but shall be construed as approximations only for the purpose of Progress Certificates.

(c) The final valuation of the Work shall be prepared as soon as possible after the whole of the Work has been completed.

33. PROGRESS CERTIFICATES

33. The Contractor shall be entitled to receive partial payments upon the certificate of the Engineer of the value of Work done and materials supplied.

Unless otherwise specified, eighty-five per cent (85%) of the estimated value of the completed Work and material supplied will be certified, less amounts retained under Clause 36.

For Progress Certificates, the Engineer's decision as to the estimated value of completed Work and material supplied shall be final, but shall not be binding on him, the Contractor or the Owner in the establishing of the final value of the Work, nor shall it be taken as evidence as to ownership of, or payment for the Work.

34. SUBSTANTIAL COMPLETION AND HOLDBACK RELEASE

34. Holdbacks held under the provision of the Mechanics' Lien Act will be released upon application by the Contractor, and will be subject to the requirements of the Act. The Contractor's applications shall be made in the forms included as Appendices 1 and 2 to these General Conditions. When the Engineer is satisfied that the Work meets the requirements of Substantial Completion in the Mechanics' Lien Act he will issue a Substantial Completion Certificate to establish a date for commencement of the holdback period.

35. TOTAL COMPLETION CERTIFICATE

35. (a) When the Work required to be done under the Contract has been completed in every respect and is acceptable to the Engineer, a final valuation of the Contract will be prepared by the Contractor and the Engineer.

(b) The Contractor shall submit to the Engineer a statement indicating the Contractor's valuation of the Work according to records available to the Contractor. The Engineer will review this statement and either approve it or submit detail reasons for revisions that, in his opinion, should be made.

(c) Should the Engineer consider it advisable, the Engineer will prepare a final valuation of the Work and submit it to the Contractor who shall either approve it or submit detail reasons for revisions that, in his opinion, should be made.

(d) When the Engineer and Contractor have reached agreement as to the final value of the Work, the Engineer will issue a Total Completion Certificate, detailing the valuation of the Contract, and certifying its acceptance at a certain specific date, referred to as the "acceptance date."

(e) Should the Engineer and Contractor be unable to reach agreement as to the final value of the Work within a reasonable period, the Engineer will issue his Total Completion Certificate detailing his valuation of the Contract and certifying acceptance of the Work at a certain specific date, referred to as the "acceptance date."

41. The Contractor shall not assign the Contract, or any part of it without the written consent of the Owner, nor shall the Contractor assign monies due, or to become due, to him without the written consent of the Owner.

41. ASSIGNMENT

42. The Contractor shall employ a competent supervisor and necessary assistants who shall at all times, be in attendance at the place of the Work while Work is being performed.

42. SUPERINTENDENCE

The supervisor shall be satisfactory to the Engineer and shall not be changed except for good reason and only then after consultation with the Engineer.

The supervisor shall represent the Contractor at the place of the Work and directives given to him by the Engineer shall be held to have been given to the Contractor.

The Contractor shall provide the Engineer with the name, address and phone number of the supervisor and other responsible person(s) who may be contacted for emergency or other reasons.

APPENDIX 1 OF THE GENERAL CONDITIONS OF THE CONTRACT

APPLICATION FOR RELEASE OF SUBCONTRACTOR'S HOLDBACK

Owner:

Project:

EO: Contractor:

Subcontract:

Subcontractor:

1. We, the said Subcontractor hereby confirm that the Work under the said subcontract was completed on , that the subcontract price was $, and hereby request the issue of a certificate that such subcontract Work has been completed.

Date: _____ Signature: _____

SEAL:

2. We, the said Contractor hereby confirm that Work of the above subcontract has been complete in accordance with the Contract Documents and that the subcontract price was $, and hereby apply for a reduction in holdback with respect to the subcontract, in accordance with the provisions of the Mechanics' Lien Act.

Date: _____ Signature: _____

SEAL:

APPENDIX 2 OF THE GENERAL CONDITIONS OF THE CONTRACT

APPLICATION FOR RELEASE OF CONTRACTOR'S HOLDBACK

Owner:

Project:

EO: Contractor:

We, the said Contractor,
hereby confirm:

(i) that the Work under the above Contract is "substantially complete" as defined in the Mechanics' Lien Act, and

(ii) that there are no outstanding liens, garnishees, attachments or other charges affecting the Work, and

(iii) that the value of Work done to the date of substantial completion is $
and

(iv) that the value of Work remaining to be done is $

and hereby apply for release of holdback monies in accordance with the provisions of the Mechanics' Lien Act.

Date: _____ Signature: _____

SEAL:

SECTION 01010 - GENERAL

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. This Contract is for the construction of watermain and appurtenances on Balfour Street in the Town of Pelham, Ontario.

1.02 LIMITS OF SITE

A. The limits of the site are -

1. The road or street allowances on which Work is to be performed.

2. Such areas of private property adjacent to road or street allowances on which the Contractor is directed, in writing, to enter to carry out Work.

1.03 SETTING OUT OF THE WORK

A. The Engineer will set such stakes as are necessary to mark the location, alignment , elevation and grade of the Work. Give adequate notice of the need for such setting out.

Carefully protect and preserve stakes, lot pins, marks and reference points and replace, if destroyed or removed.

Provide grade stakes, masts, scaffolds, batter boards, straight edges, templates and other equipment necessary for laying out, and inspecting the Works.

Wherever necessary, suspend Work temporarily to permit the Engineer to inspect and check the line and grade of any portion of the work.

1.04 MEASUREMENT FOR PAYMENT

A. Unless otherwise specified, measurements will be taken in the horizontal plane.

1.05 CONSTRUCTION SCHEDULE

A. Within one week after being awarded the Contract, submit proposed construction schedule to the Engineer for approval. In the schedule show proposed progress in weekly stages for the main sections and subsections of the Work.

PART 2 PRODUCTS

2.01 TESTS

A. Where required by the Engineer, supply for testing, samples of materials to be used in the construction of the Work. Do not use materials until they have been so approved.

2.02 CANADIAN MATERIALS

A. Unless otherwise specifically approved, use materials and equipment of Canadian manufacture in constructing the Work.

PART 3 EXECUTION

3.01 TRAFFIC

A. Do not perform Work on public right-of-ways without approval of the road authorities.

B. Perform traffic control on streets in accordance with the rules of the appropriate road authority. Ensure that flagmen wear fluorescent red or orange safety vests, arm bands and hats.

C. Streets may be closed to through traffic only with the written permission of the Road Authority. Adequately mark detours on adjacent streets. Erect and maintain barricades on the closed streets and light at night. Inform the Road Authority when a road is re-opened to traffic.

D. On streets that are not officially closed, always maintain one lane of traffic in each direction. Should temporary detours be constructed, comply with the requirements of the road authority as to location, dimensions, strength, road markings, signing and other relevant details. Remove detours when no longer needed, and restore surfaces to the original condition.

E. Whether streets are officially closed or not, maintain reasonable access to adjacent properties for pedestrians and vehicles.

F. Maintain traffic signs in their original positions. Be sure that the signs are not obscured.

3.02 NOTIFICATIONS

A. When streets are to be closed, or traffic restricted, notify the appropriate fire and police departments, giving at least 7 days notice of the closing or restriction.

B. If bus routes are affected, notify the bus company, giving at least 7 days notice.

C. When streets are to be re-opened, or restrictions removed, notify the fire, police and bus authorities.

3.03 MUNICIPAL INSPECTORS

A. Municipal inspectors may be present during the construction of the Work. They have the power to order the Contractor to stop Work if the Work, in their opinion, is not being done in accordance with the set lines and grades or to the Drawings and Specifications.

Unless otherwise specified, the cost of municipal inspectors will not be charged to the Contractor.

3.04 USE OF HYDRANTS

A. Keep fire hydrants accessible and free of obstructions.

3.04 USE OF HYDRANTS (Cont'd)

B. Fire hydrants may be used as a source of water only with the approval of the water authority, and subject to its rules and conditions.

3.05 INCLEMENT WEATHER

A. Make adequate protection and take precautions at times of inclement weather.

B. Inclement weather or extra Work caused by such weather will not be accepted as reason for additional payment.

3.06 MUD AND DUST

A. Keep streets and other construction areas clean. If it is necessary to haul wet material, use suitable watertight trucks.

B. Control dust by the use of water or calcium chloride, or both.

3.07 OTHER CONSTRUCTION

A. Other construction may be proceeding at the same time near the Work of this Contract. Extend cooperation and free access to other companies and employees who may be Working in the area.

3.08 EXISTING UTILITIES

A. Contact the various utility companies prior to commencing Work and become informed of the exact location of utilities and protect them during construction and assume liability for damage to utilities.

B. Utilities that require relocation will be the responsibility of the Utility Company concerned at no expense to the Contractor. Cooperate with the utility companies concerned and always provide them free access to their plant.

C. Support existing pipes, ducts, or other underground services that intersect the pipe trench, or support the pipe trench in a manner acceptable to the Engineer and the Utility Company.

D. Where existing overhead pole lines are adjacent to the excavation, temporarily support them to the approval of the Engineer and the Utility Company concerned.

3.09 TEMPORARY ACCESS

A. Where necessary for access, provide and maintain suitable safe, temporary roads, walkways and bridges. Remove temporary access facilities and restore disturbed areas, after the Work of the Contract has been completed.

3.10 CLEAN-UP AND TIDY CONDITION

A. On a daily basis as the Work progresses and on completion of the Work, clean-up and remove the rubbish and debris from the site. Remove excess material that is not required to be left on the site by the conditions of the Contract.

B. Keep the site and the Work as tidy as practicable at all times.

SECTION 02550 - SITE CLEARING, EXCAVATING, BACKFILLING AND RESTORATION OF TRENCHES

PART 1 GENERAL

1.01 INTENT

A. This Section covers the Work for site clearing, excavating, backfilling and restoration for watermains and services.

B. Work included is as follows -

1. Existing utilities
2. Site clearing
3. Excavating
4. Sheathing and shoring
5. Backfilling
6. Restoration

C. Related Work specified elsewhere is as follows -

1. Section 02570 - Watermains

1.02 EXISTING UTILITIES

A. Contact the various utility companies prior to commencing Work and become informed of the exact location of utilities and protect them during construction and assume liability for damage to utilities.

B. Utilities that require relocation will be the responsibility of the Utility Company concerned at no expense to the Contractor. Cooperate with the utility companies and always provide them free access to their plant.

C. Where existing pipes, ducts, or other underground services intersect the pipe trench support the pipe trench to the approval of the Engineer and the Utility Company.

D. Where existing overhead pole lines are adjacent to the excavation, temporarily support them to the approval of the Engineer and the Utility Company concerned.

1.03 EXISTING DRAINAGE

A. Maintain temporary and permanent flow in sewers, drains, gutters, ditches, watercourses, house and inlet connections.

B. Maintain operation of existing septic tank and tile field installations.

1.04 MEASUREMENT FOR PAYMENT

A. The Engineer will -

1. Measure additional bedding over and above bedding specified on a cubic metre basis.
2. Measure rock excavation on a cubic metre basis.

PART 1 GENERAL (Cont'd)

1.05 BASIS FOR PAYMENT

A. Conditions

1. Unless otherwise specified, include temporary access, site clearing, earth excavating, shoring, sheathing, support of existing utilities, dewatering, testing of material, backfilling, removal of surplus excavation, culvert salvage and re-installation, restoration and other labour, equipment and materials necessary for the complete installation of the work, in unit prices for watermains and services.

2. Where additional depth of bedding is ordered by the Engineer, additional payment will be made based on the unit prices in the Schedule of Tender Prices for additional excavation and for the additional bedding material requested. Payments will be based on the actual additional depth requested and the maximum width of trench as specified in PART 3.03 of this Section.

3. Base the volume of rock excavation in trenches on a width equal to the outside diameter of the pipe plus 300 mm with a minimum of 1 m and a depth from the top of the exposed rock to the bottom of the pipe bedding. No allowance will be made for pipe bells. For multiple pipe trenches base payment width on the theoretical overall distance between the outside limits of the outer pipe barrels plus 300 mm, with a minimum payment width of 1 m.

B. Items

1. Check elsewhere in this Section for definition of rock excavation.

(A) Rock excavation will be paid for at the unit price contained in the Form of Tender. Include the disposal of rock in the unit price.

(B) Rock excavation will be paid for in addition to the Contract allowance for earth excavation.

(C) Include the cost of imported granular material necessary to make up shortages in trench backfill material in the unit price bid for rock excavation in trenches.

(D) Include the cost of imported granular material necessary to backfill around blow-off and valve box or other appurtenances to make up shortages in trench backfill material in the unit price bid for rock excavation in trenches.

PART 2 PRODUCTS

2.01 MATERIALS -

- Conform to latest edition of reference standards.

- Where MTC specifications are referred to comply also with supplements to those specifications.

A. Granular Materials

1. Granular 'A' in accordance with MTC Form 1010.

2. Granular Bedding Material - Granular 'A'.

B. Hot Mix Asphalt

1. Hot mix asphaltic concrete - MTC Form 310.

C. Surface Treatment

1. Surface treatment with bituminous materials - MTC Form 304.

D. Topsoil

1. Use existing topsoil wherever suitable and as approved by the Engineer. Before re-using the topsoil clean out foreign matter and stones over 50 mm in size.

2. Imported Topsoil - Medium loam from a meadow or farm area known to be free from weeds.

3. Notify the Engineer at least 3 days before starting topsoil stripping operations. Sources of supply will require the Engineer's approval before being brought on the job.

E. Fertilizer

1. Use complete commercial fertilizers, in compliance with the Canadian Fertilizer Act, not less than 60 percent urea-formaldehyde and the following percentages by weight -

Nitrogen	Phosphoric Acid	Potash
10	10	10 or
0	20	10

2. Superphosphate

Commercial superphosphate finely ground with a minimum analysis of 20 percent P_2O_5.

F. Sod

1. Use No.1 nursery grown, 50 percent Kentucky blue, 50 percent Merion blue sod, fully root permeated in a close mat, uniform in texture.

2. Cut sod by approved methods in accordance with the Nursery Sod Growers Association of Ontario. Cut pieces 1 sq. metre in area with a minimum of 20 mm soil portion.

3. All disturbed grassed areas are to be sodded.

PART 3 EXECUTION

3.01 SITE CLEARING

A. Remove trees, shrubs, roots, vegetation, loose surface rock, fences, and other obstructions on the line of the Work.

B. Carefully protect trees, fences, shrubs and other vegetation designated by the Engineer and save from injury during the construction operation.

3.02 TOPSOIL

A. If suitable for sodding and seeding, strip the topsoil from within the limits of excavation and from fill areas in advance of construction and stockpile in areas completely separated from subsoil and as designated by the Engineer.

B. Strip topsoil in such a manner as to prevent damage to the roots of trees designated to be saved.

C. Import topsoil to satisfy thickness of topsoil required under Restoration in this Section.

3.03 EXCAVATING

A. Dig the trench to the alignment and depth required and only so far in advance of pipe laying as the Engineer will permit.

B. Minimum and maximum trench widths up to a point 300 mm above top of pipe, for single pipe -

1. Minimum

(A) 300 mm greater than the external diameter of pipe or 750 mm for earth excavation or 1 m for rock excavation whichever is greater, excluding an allowance for shoring.

2. Maximum

(A) Not more than 400 mm greater than the external diameter of pipe or 750 mm whichever is greater for pipe up to and including 850 mm dia., excluding an allowance for shoring.

C. The width of the trench at ground level is not to be less than the width at any depth in the trench. Fill overbreak and slides that have occurred during excavation with approved materials.

D. Where trench excavations are not kept within the design limits of the pipe, the Engineer may order sheathing and shoring, and/or a heavier class of pipe, and/or use of a higher class of bedding.

E. Grade and shape the pipe trench and the specified bedding to give uniform and even bearing for the length of the pipe. Dig bell holes at each joint. Make corrections in the grade with compacted granular material acceptable to the Engineer, or with fill concrete.

F. Where the subgrade in its natural state is inadequate to support the pipe, the Engineer will give instructions as to the proper procedure, and such additional Work as ordered will be paid for as described in the Form of Tender.

G. Remove the subgrade where it has been adversely changed by construction operations and is not adequate to support the pipe. Replace with crushed stone or other approved material as directed by the Engineer.

H. Trench in existing roadways in a manner to prevent overbreak. Saw cut pavement in clean straight lines prior to the start of excavation.

I. Intersecting Services

1. Where two pipes cross and there is more than 1 m (clear) between them, continue the bedding material for the lower pipe upward to form a support for the upper pipe. Extend the bedding material the full width of the trench, 600 mm wider than the outside diameter of the upper pipe at the top and sloped at 1:1 down to the top of the bedding of the lower pipe. In addition, support the upper pipe by timber in accordance with Standard Drawing E-83621-L6M.

2. Where two pipes cross and there is less than 1 m (clear) between them, encase the lower one in 15 MPa concrete, and extend the concrete up to the centreline of the upper pipe and with a length along the lower pipe equal to its outside diameter plus 600 mm. Have the concrete support the upper pipe across the full width of the trench.

3. Include the costs of these supports in the unit prices for the various pipe lines.

3.04 SHEATHING AND SHORING

A. Supply, install and remove temporary sheathing and shoring where directed by the Engineer and in accordance with applicable safety regulations.

B. Drive sheathing to a sufficient penetration to effectively cut off any seepage of water into the base of the excavation which could create an upward flow of water or a 'quick' condition at the base of the excavation. Leave sheathing in place until the trench has been backfilled to a minimum depth of 600 mm above the pipe. If there is danger of cave-in completely backfill the trench before removing sheathing.

C. Take special care to ensure that voids left by the sheathing and shoring are refilled with approved material.

D. Withdraw sheathing and shoring as the trenches are being backfilled, except where the Contractor, at his own request and expense, is permitted to leave the same in place. Sheathing left in place on written order of the Engineer will be an addition to the Contract.

E. Cut off sheathing left in place at least 1 m below the surface of the ground.

3.05 DEWATERING

A. Always maintain the excavation free of water.

B. Do not use sanitary sewers for the discharge of water from the trenches.

3.06 BACKFILLING

A. Backfill trenches from the top of the pipe bedding to the underside of surface restoration with site selected excavated material. Provide backfill free of roots, organic material and stone larger than 250 mm. Place backfill material in lifts not exceeding 150 mm. Compact to 95 percent Standard Proctor Density. Place backfill to 600 mm above top of pipe by hand.

B. If the Engineer decides that the site selected excavation material either wholly or partially, is not suitable for backfill, then provide imported material of a type approved by the Engineer. Compact to 95 percent Standard Proctor Density.

3.07 COMPACTION TESTS

A. Where compaction of backfill is called for, the Engineer may order compaction tests by an independent testing company. Tests will be arranged for by the Engineer and paid for by the Owner.

1. Where tests show that the compaction does not meet the specified requirement, carry out further compaction in a manner directed by the Engineer, and pay for further testing to establish proof of the specified compaction.

2. For backfill compaction, tests will be made at various depths. Co-operate with the Engineer and Testing Company by scheduling the placing and compaction of backfill so that tests can be progressively taken.

3.08 RESTORATION

A. Roadways, Driveways and Parking Lots

1. Restore roadways, driveways and parking lots as follows unless shown otherwise on the Drawings -

(A) Paved driveways

(1)	H.L. 2A	50 mm
(2)	Granular 'A'	300 mm

(B) Surface Treated Roadways, Driveways and Parking Lots

(1)	Primer M.C.-0 Grade	1 litre/sq. m. - 1 coat
(2)	Seal R.C.-0Grade	1 litre/sq. m.- 2 coats
(3)	9.5 mm stone	12 kg/sq. m. - 2 coats
(4)	Granular 'A'	375 mm

(C) Gravel Roadways, Driveways and Parking Lots

(1)	Granular 'A'	300 mm

2. Carry out asphalt work in accordance with MTC specification Form 310.

3. Carry out placing of Granular A in accordance with MTC specification Form 314.

4. Carry out surface treatment work in accordance with MTC specification Form 303.

B. Preparation of Subgrade for Sodding

1. Verify the subgrade and if required make adjustments to allow for topsoil and seeding or sodding to finish level with adjacent surfaces.

2. Scarify the backfill and disturbed areas to a minimum depth of 75 mm to produce an even, loose textured surface, free of stones, roots, branches larger than 75 mm in dia., and live weeds.

3. Have the finished subgrade approved by the Engineer prior to placing the topsoil.

C. Preparation of Finish Grade

1. Spread the topsoil evenly over the approved subgrade to a minimum of 100 mm. Compact to 80-85 percent Standard Proctor Density.

2. Work the fertilizer into the top 25 mm of the topsoil by discing, raking or harrowing to provide a smooth, fine textured finish surface, and firm against footprints.

3. Base quantities of fertilizer on the following minimum rates -

(A) 10 - 10 - 10 at 11 kg/100 sq. m. or

0 - 20 - 10 at 6.5 kg/100 sq. m. with

(B) Superphosphate at 13.5 kg/100 sq. m.

4. Lay sod within 48 hours of working the fertilizer into the topsoil.

D. Laying sod

1. Sod all grass areas disturbed by construction.

2. Lay sod as soon as possible after delivery.

3. Lay sods together so that there are no open joints or pieces overlapping. Lay sod smooth and flush with existing grade.

4. Immediately after laying sod spread sufficient water to saturate the sod and the upper 100 mm of topsoil.

5. After sod and soil has dried sufficiently to prevent damage, roll the area with a roller providing 72 kPa pressure to ensure a good bond between sod and soil and to remove minor depressions and irregularities.

6. Water with sufficient amounts to ensure continued healthy and vigorous growth.

SECTION 02570 - WATERMAINS

PART 1 GENERAL

1.01 INTENT

A. This Section covers watermain Work including -

1. Pipe
2. Fittings, specials and joints
3. Valves and valve boxes
4. Service connections
5. Line and grade
6. Bedding
7. Testing
8. Disinfecting

B. Related Work specified elsewhere is as follows -

1. Section 02550 - Site Clearing, Excavating, Backfilling and Restoration of Trenches

1.02 CERTIFICATES OF TESTING

A. Provide test certificates in accordance with the appropriate specification for the following materials -

1. Pipe
2. Fittings, specials and gaskets
3. Valves

1.03 AFFIDAVIT OF COMPLIANCE

A. Provide the Owner with an affidavit stating that the following material is in accordance with the appropriate specification. Provide this affidavit prior to the delivery of the material to the site.

1. Pipe
2. Fittings, specials and gaskets
3. Valves

1.04 DELIVERY, STORAGE AND HANDLING

A. Delivery

1. Replace materials found to be defective in manufacture or damaged in handling after delivery including the furnishing of material and labour required for the replacement of installed material found to be defective.

B. Handling

1. Load and unload materials so as to avoid shock or damage.

2. Handle pipe and fittings so that the coating and lining will not be damaged. If, however, the coating or lining is damaged, then repair in a satisfactory manner.

C. Storage

1. Place materials in safe storage. Keep interiors of pipes, fittings, and other accessories clean.

1.05 MEASUREMENT FOR PAYMENT

A. The Engineer will -

1. Measure watermains along the centreline of construction, straight-through bends, fittings, specials, valve and valve chambers.

2. Measure water service pipe in the horizontal plane along the centreline of the pipe from the centre of watermains to the street line.

3. Count complete hydrant sets.

4. Count complete valves and valve boxes.

5. Count complete connections to existing mains.

6. Count water service connections including corporation stop, and curb stop and curb box

1.06 BASIS FOR PAYMENT

A. Conditions

1. Unless otherwise specified, include testing of materials, thrust blocks, anchor blocks, bedding, insulation, testing and disinfecting the pipes after installation and the requirements of Section 02550 Site Clearing, Excavating, Backfilling and Restoration of Trenches.

2. The Engineer will measure the Work when completed and the Contract price will be increased or decreased in accordance with the final measurement.

B. Items

1. Include in the unit price per lineal metre for watermains the complete supply and installation of the pipe and necessary fittings.

2. Include in the unit price for each valve and valve box the complete supply and installation of the valve and valve box as shown on Standard Drawing E-83621-L2M.

3. Include in the unit price for water service connection to main the work necessary to supply and install the main stop, curb stop and box as shown on Standard Drawing E-83621-L4M.

Include in the unit price for copper water service pipe, complete supply and installation of the service pipes as specified.

4. Include in the unit price for connection to existing watermains the locating of and connection to the existing watermain.

5. Include in the unit price for the blow-off assembly the complete supply and installation of the blow-off assembly as shown on Standard Drawing E-83621-L5M.

6. Include in the unit price for each hydrant the complete supply and installation of the pipe from the main, connection to the main, secondary valve and valve box, hydrant, crushed stone backfill and blocking of the hydrant as shown on Standard Drawing E-83621-L7M.

PART 2 PRODUCTS

2.01 GENERAL

A. Tender on the basis of the type of pipe specified in the Form of Tender.

2.02 MATERIALS

- Conform to latest edition of reference standards.

A. Conversion Table

Refer to referenced specification for inside dia. and outside dia. actual sizes.

Nominal Imperial Diameter	Actual Conversion to Metric	Nominal Metric Diameter
Inches	mm	mm
4	102	100
6	152	150
8	203	200
10	254	250
12	305	300
14	357	350
15	381	375
16	406	400
18	457	450
20	508	500
21	533	525
24	610	600
27	686	675
30	762	750
33	838	825
36	914	900
39	991	975
42	1067	1050
48	1219	1200
54	1372	1350
60	1524	1500
66	1676	1650
72	1829	1800
78	1981	1950
84	2134	2100
90	2286	2250
96	2438	2400
102	2591	2550
108	2743	2700
114	2896	2850
120	3048	3000
132	3353	3300
144	3660	3600

B. Polyvinyl Chloride Pipe

1. Pipe diameter and series - AWWA C900, Class 150.

2. Joints - 'RING-TITE' or approved equal.

C. Cast Iron Fittings and Specials

1. Cast Iron Fittings - AWWA C110 (ANSI A21.10).

2. Pressure Rating of Fittings - 1.724 MPa

3. Fittings - mechanical joint ends

4. Rubber Gaskets for Mechanical Joints - lead tipped

D. Gate Valves

1. Gate Valves - AWWA C500.

2. Gate Valves - non-rising spindle, double disc parallel seat or solid wedge with mechanical joint ends. Valves - open counter clockwise unless specified otherwise and be equipped with 'O' rings.

E. Valve Boxes

1. Valve Boxes - cast iron, sliding adjustable type, Emco or approved equal.

2. Depth of trench from top of pipe to finish grade - 1.7 m

F. Hydrants

1. Hydrants - AWWA C502 - in accordance with Standard Drawing E-83621-L7M.

2. Hydrants - Crane "McAvity M-67" or Canada Valve 'Century'
3. Bury Depth - 1.8 m

4. Hydrants - slide gate shut off, two piece barrel with flange at ground line, 150 mm main valve, 2 - 66 mm dia. hose nozzles - CSA B89.2 (Ontario thread), inlet connection with mechanical joints, square operating and cap nut. Paint yellow and open counter clockwise.

5. Provide chain for nozzle, tap and plug drain hole, 'O' ring seal and non-rising spindle.

G. Blow-Off Assembly

1. Blow-off assembly - as indicated on Standard Drawing E-83621-L5M.

H. Corporation Service Fittings

1. Corporation Main Stops, Curb Stops, and Curb Boxes - AWWA C800.

2. Service Connections - in accordance with Standard Drawing E-83621-L4M

3. Corporation Main Stops -

(A) 18 mm water service -

(1) Canadian Brass cc 102 or

(2) Emco series 15960

(B) 25 mm water service -

(1) Emco 56-73850-1 or

(2) Canadian Brass cc 102

PART 2 PRODUCTS (Cont'd)
2.02 MATERIALS (Cont'd)
C. (Cont'd)

4. Curb stops -

(A) 18 mm -

(1) Canadian Brass cc 128 or

(2) Emco 15710

(B) 25 mm -

(1) Ford B44 Series

5. Curb Boxes - minimum and maximum extension of the curb box is 1.5 m to 1.8 m

6. Copper Pipe - seamless soft coppper water tube - ASTM B-88, type 'K'.

7. Service Boxes - to suit valve or curb stop, with No.304 stainless steel rod and 6 mm x 63 mm cotter pins.

PART 3 EXECUTION

3.01 LINE AND GRADE

A. Supply, erect and maintain batter boards and site rails to ensure accurate line and grade of pipes. Always have at least 3 batter boards in use, placed not more than 15 m apart. Obtain Engineer's approval for alternative methods.

B. On straight lines, lateral deviation in excess of 150 mm will not be tolerated. On straight grades, grade deviation in excess of 80 mm will not be tolerated.

C. For vertical or horizontal bends do not deviate the pipe lines more than 300 mm from line or more than 150 mm from grade as the case may be.

3.02 FROZEN GROUND

A. Do not place work on frozen ground. Should the bottom of the trench become frozen, remove and replace the frozen material with bedding material compacted to 95 percent Standard Proctor Density.

3.03 BEDDING

A. Watermain Bedding - as specified on Standard Drawing E-83621-L1M

B. Granular Material - Granular "A". Conform to Section 02550.

C. Compact granular bedding material to 95 percent Standard Proctor Density.

D. Compact the material around the pipe with hand tampers properly shaped to ensure full compaction below the haunches. Do not use mechanical tampers over the top of the pipe where cover is less than 300 mm.

E. Do not use crushed slag produced from iron blast furnace slag for cast iron pipe fittings or valves.

3.04 CONNECTION TO EXISTING WATERMAINS

A. Connect new mains to existing mains as shown on the Drawings.

B. Obtain permission from the Engineer and the authority responsible for the existing mains prior to making connections to an existing main. Valves on the existing system will be operated only by the watermain authority. Notify affected water users in advance of interruption of service.

C. Provide temporary water service for interruptions longer than 3 hr.

3.05 PIPE LAYING

A. Lay, joint and test pipes and accessories in accordance with the manufacturers instructions and in the manner hereinafter specified, in the presence of and subject to the Engineer's approval.

B. Use temporary water tight bulkheads to prevent the flow of trench water, storm water, silt and sand within the pipe.

C. Carefully lower pipe into the trench. Before lowering and while suspended, inspect the pipe for defects. Remove foreign material from the inside of the pipe.

D. Support bends, tees and dead ends by 20 MPa concrete thrust blocks to undisturbed ground as detailed on Standard Drawing E-83621-L3M. Arrange thrust blocks to transfer the full thrust of the deflection at test pressure without exceeding the bearing capacity of the ground.

E. Construct anchor blocks of 20 MPa concrete as shown on the Drawings.

3.06 VALVE AND VALVE BOXES

A. Install valves and valve boxes plumb, centered over the operating nut and supported in place during backfilling with the cover flush with the finished grade.

B. Do not backfill until valves or valve boxes have been inspected by the Engineer, or the inspector of the authority having jurisdiction.

3.07 HYDRANTS

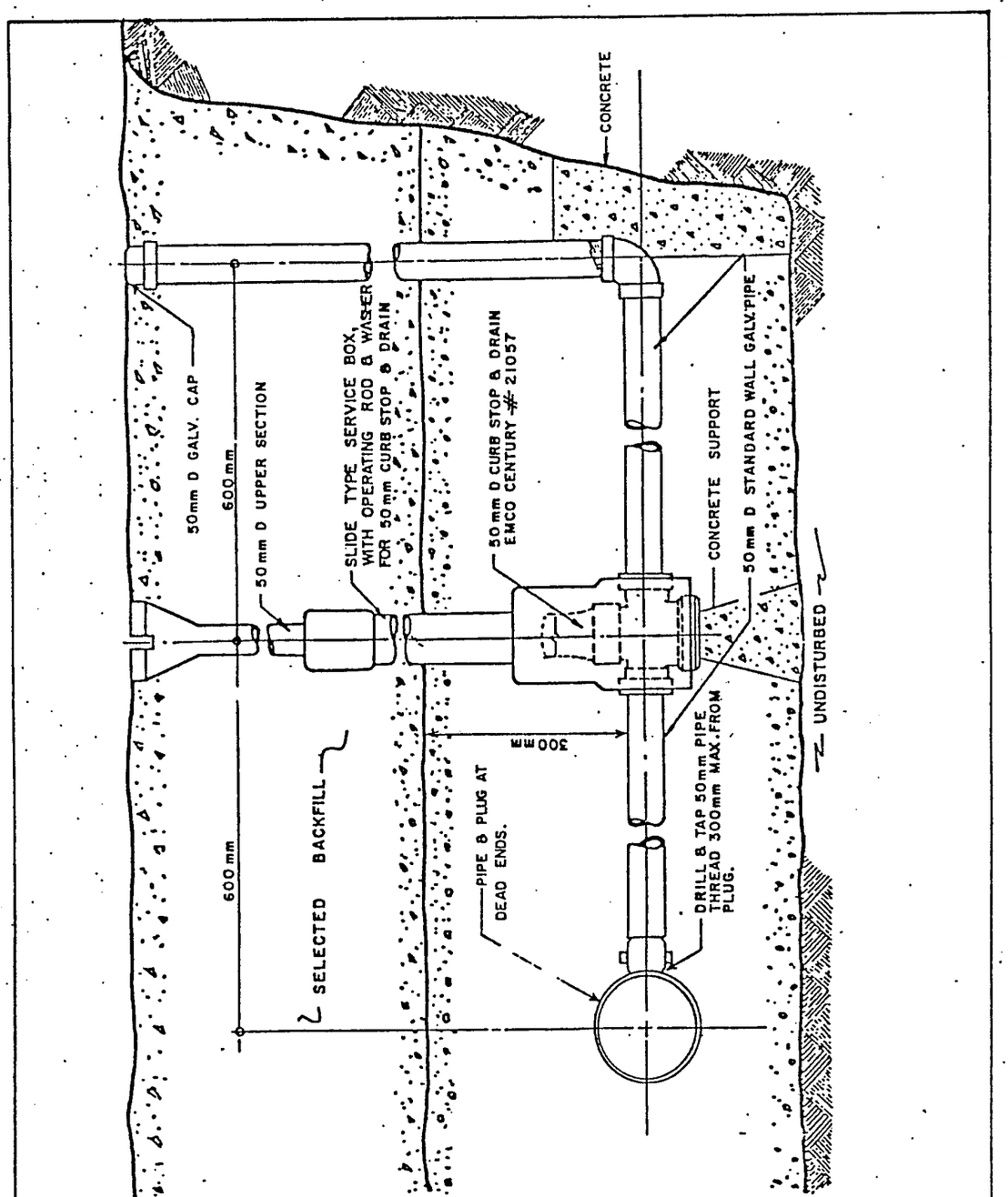
A. Install hydrants plumb with the nozzles parallel with the watermains, and with the pumper nozzles (if any) facing the road. Ensure that no portion of the hydrant or nozzle cap is within 150 mm of the shoulder of the road.

B. Set hydrants to the established grade with nozzles at least 150 mm above the ground.

C. Do not backfill until hydrants have been inspected by the Engineer.

3.08 WATER SERVICE CONNECTION

A. Use standard waterworks equipment for installing corporation main stops. Do not cross threads of corporation main stops during insertion and apply a maximum torsion as recommended by the pipe manufacturer. Leave corporation main stops in the open position. On thinner wall pipe use full circle saddle. Use a cutting and tapping tool of a type recommended by the pipe manufacturer and insert the stop. Take care that no undue stress is applied to the pipe when tapping the main and inserting the main stop, that may later result in a fracture. Tap for service connection while the main is under pressure using the procedure recommended by the pipe manufacturer.



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