CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

February 2017

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

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AND

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CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

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INVITATION TO TENDER

Sealed Tenders, plainly marked on the envelope "Tender for Hartland Leachate Line Manhole Upgrade, Contract 16-1766" will be received by the General Manager, Parks & Environmental Services of the Capital Regional District at their offices at 625 Fisgard Street, Victoria, British Columbia up to 2:00:00 p.m. local time on March 7, 2017, at which time they will be opened in public.

The works to be constructed under this Contract generally include the following:

Supply and installation of 15 water tight manholes complete with associated works along a nice kilometer roadway.

Construction window is July 1, 2017 to September 15, 2017.

Specifications, Drawings, Contract Documents, and Tender Form may be seen at the offices of the Vancouver Regional Construction Association, 3636 East 4th Avenue, Vancouver, BC; the Southern Vancouver Island Construction Association, 1075 Alston Street, Victoria, BC; and the Capital Regional District, 625 Fisgard Street, Victoria, BC on or after February 7, 2017.

Copies may be obtained from the Capital Regional District, Parks & Environmental Services department, on payment of $100.00 (GST included) for each copy requested, the sum of which is non-refundable. Digital copies may also be downloaded from www.crd.bc.ca/about/contracts-rfps/ and at www.bcbid.gov.bc.ca.

The lowest or any tender will not necessarily be accepted.

A mandatory pre-tender site meeting will be held at Hartland Landfill at 10:30 a.m., on February 14, 2017.

For information and/or enquiries on this project please contact Kyle Teschke at 250-360-3641 or Shane Dunaway at 250-480-8721.

Dan Telford, P. Eng.
Senior Manager, Environmental Planning & Engineering
Capital Regional District

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

INSTRUCTIONS TO TENDERERS

The "Instructions to Tenderers" include the following:

1.0 CONDITIONS OF TENDERING

1.1 A Tenderer not complying with all the requirements of these "Instructions to Tenderers" RISKS having his Tender rejected.

1.2 For the purposes of tendering on this project, the following definitions shall apply.

1.2.1 Whenever the word "Owner" appears in these documents, it shall be taken to mean the Capital Regional District.

1.2.2 Contract Documents mean:

a. Instructions to Tenderers;
b. Tender Form;
c. Agreement Between the Owner and Contractor;
d. General Conditions;
e. Specifications;
f. Drawings;
g. Addenda which may be issued during Tendering period.

1.3 The Tenderer shall be subject to each and every condition, requirement and qualification contained in the Contract Documents and the submission of his tender shall be considered by both the Owner and the Tenderer as conclusive evidence that the Tenderer has carefully read all the Contract Documents, that he has ascertained the provisions and requirements of all the pertinent laws and regulations (local, provincial and federal) relating to labour; the purchase of materials; the payment of taxes and duties; the payment of freight and ferry charges; the carrying out of the work and the necessity for licenses and permits, and that he has thoroughly examined the site and has satisfied

himself as to the physical state of the site and all available public services including access to and from the site and the off-loading and storage of materials.

1.4 In their tendered price (lawful money of Canada), the Tenderer shall include payment of all applicable sales taxes, licences, building permits, and all or any municipal, provincial or federal charges in connection with the contract, including GST. A GST registration number and amount must be included in the tender form. The Owner will obtain the necessary permissions from the provincial government ministries and from the municipalities to construct the works. All other licences and permits shall be obtained and paid for by the Tenderer.

1.5 Tenders are to be subject to all relevant provincial and other legislation.

1.6 The Tenderer is deemed to have satisfied himself before submitting his tender as to the correctness and sufficiency of his tender and the failure or neglect of a Tenderer to receive or examine any form, instrument, or other document or to acquaint himself with existing conditions shall in no way relieve him of his obligation with respect to his tender and to the Contract.

1.7 A tender may only be withdrawn prior to the scheduled time for the opening of tenders.

1.8 Any alteration or interpretation of the Contract will be made in the form of a written Addendum which may be issued by the Owner at any time up to FIVE (5) CALENDAR DAYS prior to the tenders being opened.

1.9 Any Addendum issued by the Owner shall be maintained in the Parks & Environmental Services department of the Capital Regional District and a copy shall be made available to any Tenderer upon request.

1.10 Tenderers are responsible for ascertaining the existence and contents of any Addendum issued by the Owner.

1.11 All Tenderers shall acknowledge receipt and acceptance of each Addendum issued by signing and dating in the spaces provided and submitting the signed Addendum with the Tender. Any Tender submitted without the signed Addenda may be rejected by the Owner as an incomplete Tender.

1.12 Tenderers who have obtained tender documents from sources other than the Capital Regional District Parks & Environmental Services department at 625 Fisgard Street, Victoria, BC, shall register with the Parks & Environmental Services Contracts Coordinator to be included on the Registered Plan Holders' List in order to receive any Addendum issued by the Owner.

1.13 Every item in the Schedule of Prices and Estimated Quantities is to be included and if the Tenderer considers that items have been included in any other rates in the Schedule of Prices and Estimated Quantities, "NIL" is to be entered in the cost column.

1.14 Prior to the award of the Contract, the Owner may require the successful Tenderer to break down a lump sum price into separate items as specified by the Owner to facilitate the making of progress payments.

1.15 Within FOURTEEN (14) CALENDAR DAYS after the award of the Contract, the Tenderer shall provide a detailed work plan and schedule incorporating all material, equipment, and plans of the work. The work plan and schedule shall be continually updated and submitted to the Owner at the Progress Meetings. Progress Meetings will be held at regular intervals at the time and place stipulated by the Owner.

1.16 The Capital Regional District will not assess the suitability of equipment to meet the Specifications prior to tender opening.

1.17 Local bylaws pertaining to noise, particularly from vehicles travelling to and from the job site will be strictly enforced.

1.18 This Contract, as well as any resultant studies and documents received, are under the control of the Capital Regional District, and as such are subject to the *Freedom of Information and Protection of Privacy Act*. This means that they are subject to requests for access, although items may qualify for non-disclosure under Section 21 of the Act - "...Release harmful to the business interests of a third party", or one or more of the other sections limiting access rights of requesters.

1.19 The terms used in these documents are non-gender specific and refer to both the feminine and the masculine.

1.20 Any discharge of waste into storm sewers or watercourses shall, as a minimum, adhere to Schedule "X" of the Capital Regional District Code of Practice for Construction and Development Activities, as it relates to the regulation of discharge of waste into storm sewers or watercourses, or where a local bylaw exists, shall also conform to all additional requirements that relate to the discharge of waste into storm sewers and watercourses.

2.0 BID SECURITY, BONDING, INSURANCE AND LETTER OF CREDIT

2.1 BID SECURITY

2.1.1 Tenders shall be accompanied by a Bid Security in the form of Bid Bond, Letter of Credit, or Tender Deposit issued in the name of the Owner in the amount of not less than TEN PERCENT (10%) of the TOTAL TENDERED AMOUNT. The Bid Bond shall be in the form provided in this document in the Tender Form, or on an acceptable similar form, and be issued by a Surety Company licensed to conduct business in the Province of British Columbia. The Letter of Credit shall be an irrevocable Commercial Letter of Credit in the form provided in this document in the Tender Form, or an acceptable similar form, and be issued by a Victoria branch of a bank licensed to conduct business in the Province of British Columbia. The Tender Deposit shall be in the form of a certified cheque issued by a Victoria branch of a bank licensed to conduct business in the Province of British Columbia. Alternative forms approved by the Canadian Construction Association may be used provided that the alternative forms do not deviate significantly from the forms included herein.

2.1.2 Tenders are irrevocable and no Tenderer shall withdraw a tender for any reason, including error after the opening of tenders. If a Tenderer withdraws a tender prior to the award of the Contract, or in the event of failure on the part of any Tenderer whose tender has been accepted to perform the obligations set out in the Tender Form, including entering into a contract with the Owner, the Bid Security shall be forfeited and may be retained by the Owner as liquidated damages. If the difference between the amount of the defaulting Tenderer's bid and the price for which the Owner contracts with another Contractor to perform the work is lower than the amount of the Bid Security, then the amount of liquidated damages shall be limited to the amount of the difference. If the difference between the amount of the defaulting Tenderer's bid and the price for which the Owner contracts with another Contractor to perform the work is greater than the amount of the Bid Security, then the Owner may retain or draw down on the full amount of the Bid Security without in any way limiting or waiving any other or further remedy it may have in law or equity against the defaulting Tenderer for damages in excess of the amount of the Bid Security.

2.1.3 The Bid Securities submitted by the unsuccessful Tenderers shall lapse TEN (10) CALENDAR DAYS after the Contract Agreement is signed by the Capital Regional District and the successful Tenderer and will be returned to them.

2.1.4 The Bid Security of the successful Tenderer will be returned to him upon the execution of the Contract Documents and the deposit with the Owner of the Performance Bond, Labour and Materials Payment Bond, WCB Certificate and copies of the Insurance Policies.

2.2 PERFORMANCE BOND

Tenders shall be accompanied by the form letter "Undertaking of Surety - Performance Bond" indicating the willingness of the Guarantee Company in question to give such a bond in accordance with Article 34 of the General Conditions.

2.3 LABOUR AND MATERIALS PAYMENT BOND

Tenders shall be accompanied by the form letter "Undertaking of Surety - Labour and Materials Payment Bond" indicating the willingness of the Guarantee Company in question to give such a bond in accordance with Article 34 of the General Conditions.

2.4 INSURANCE

The Tenderer's attention is drawn to the provisions of General Conditions Article 55 in which the details of the insurance required to be carried by the Contractor are specified.

2.5 LETTER OF CREDIT FOR GUARANTEE PERIOD

The Tenderer's attention is drawn to the requirement, outlined in General Conditions Article 30, to provide a standby irrevocable commercial letter of credit to be used if necessary by the Owner to rectify deficiencies during the Guarantee Period.

3.0 SUBMITTING THE TENDER

3.1 The signature of the Tenderer shall be under seal and in his handwriting or, if the Tenderer is a corporation, the tender shall be executed under its corporate seal. Any tender not so executed may be rejected.

3.2 Each Tenderer shall submit, as part of his tender, completed lists provided in the Tender Form Annexures regarding information relating to previous contracts, subcontractors, equipment and material suppliers and supervisory personnel.

Tenders shall be signed, sealed and enclosed in a sealed envelope addressed to:

General Manager, Parks & Environmental Services
Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, British Columbia V8W 2S6

and shall be marked:

Hartland Leachate Line Manhole Upgrade and North Leachate Pump Station Cleanout Extension, Contract 16-1766

and show the name of the Tenderer.

If forwarded by mail, the sealed envelope containing the tender must be enclosed within a mailing envelope.

3.3 Tenders shall be delivered to the above address not later than the time and date stipulated in the "Invitation to Tender" and will be publicly opened at that time in the Capital Regional District offices, 625 Fisgard Street, Victoria, British Columbia.

If the Capital Regional District offices are closed for any reason or access is blocked by a labour union picket line, the tender opening will be rescheduled. An Addendum will be issued by the Owner confirming the new time and location for the tenders to be opened in public.

3.4 Tenders submitted by facsimile communication equipment (FAX) will not be considered. Modifications by FAX of tenders already submitted will be considered if received prior to the time set for closing of tenders, at Capital Regional District ES-3 Fax #250-360-3270. Prior to faxing, the Tenderer is to contact the Parks & Environmental Services Contracts Coordinator personally by telephone at 250-360-3284. Tenderers should <u>not</u> show the total tendered amount in a FAX modification.

4.0 ACCEPTANCE OF TENDER

4.1 Tenders not in the office of the Capital Regional District by the time and date stipulated will be returned to the Tenderer unopened.

4.2 Any tender which is incomplete, conditional, obscure or contains erasures, alterations, escalator clauses or irregularities of any kind may be rejected by the Owner as an irregular tender.

4.3 Any tender which does not include a completed schedule of force account rates and lists of previous contracts, subcontractors, supervisory personnel, equipment, equipment suppliers and major materials suppliers, and WorkSafeBC Occupational Health and Safety Violations History form, as provided in the Tender Form Annexures, may be rejected by the Owner as an incomplete tender.

4.4 Any tender which lists more than one major subcontractor or supplier to provide the same service, equipment or material may be rejected by the Owner as an irregular tender.

4.5 Tenders, in consideration of the Owner considering this tender, shall be open for acceptance by the Owner for SIXTY (60) CALENDAR DAYS after the opening of tenders and may not be withdrawn by the Tenderer during that time. The successful Tenderer will be notified in writing by the Owner of the acceptance of his tender as expeditiously as possible and no other act shall constitute acceptance of a tender.

4.6 The successful Tenderer shall execute a Contract with the Owner within THIRTY (30) CALENDAR DAYS after the date of the written notification of the acceptance of his tender. The form of Contract Agreement shall be as contained herein, with such modifications as are necessary. The Contract Documents shall include any Addenda which may be issued.

4.7 Following the opening of tenders, the Owner may in its discretion require any Tenderer to provide evidence that the Tenderer is a business in good standing in the Province of British Columbia and is capable of performing the Contract.

5.0 QUALIFICATIONS AND EVALUATION CRITERIA

5.1 The Tenderer is required to submit details of his previous experience with the type of work proposed and demonstrate his proven ability to complete the intended works within the scheduled period of time as specified in the Tender Documents. No award will be made to any Contractor who cannot give satisfactory assurance as to his ability to carry out the works both from his financial rating, and by reason of his previous experience as a Contractor on work of a similar nature to that contemplated in the Contract.

5.2 The lowest or any tender will not necessarily be accepted. The Owner reserves the right in its absolute discretion to accept the tender which it deems most advantageous to itself and favourable in its interests and the right to waive informalities in and reject any or all tenders, in each case without giving any notice. In no event will the Owner be responsible for the costs of preparation or submission of a tender.

5.3 Tenders which contain qualifying conditions or otherwise fail to conform to these Instructions to Tenderers may be disqualified or rejected. The Owner, however, may at its sole discretion reject or retain for consideration tenders which are non-conforming because they do not contain the content

or form required by these Instructions to Tenderers or because they have not complied with the process for submission set out in these Instructions to Tenderers.

5.4 Tenderers will be evaluated based on the following criteria:

5.4.1 Qualifications and related experience of the Tenderer and senior personnel and subcontractors to be assigned to this project.

5.4.2 Performance of the Tenderer and subcontractors on similar projects including, without limitation, the Tenderer's history with respect to quality of work, scheduling, changes in the work and force account work.

5.4.3 The Tenderer's compliance with all statutes, regulations, and bylaws affecting the Tenderer's work. The Owner will give particular attention to non-compliance violations of WorkSafeBC Occupational Health and Safety Regulations issued to the Tenderer in the past five (5) years.

5.4.4 Lowest price to the Owner of having the work completed in accordance with the Contract Documents.

5.4.5 The conformity of the tender to the requirements set forth in these Instructions to Tenderers.

5.4.6 Conformance with the timing provided for in the Specifications.

5.4.7 Greatest value based on quality, service and price.

5.5 The evaluation process will be conducted at the sole discretion of the Owner and, in particular, the price to carry out the work is not the only or primary criterion which will be utilized by the Owner. The Owner reserves the right to make inquiries regarding any or all Tenderers.

5.6 The Owner reserves the right, at its discretion, to negotiate with any Tenderer that the Owner believes has the most advantageous tender. In no event will the Owner be required to offer any modified terms to any other Tenderer prior to entering into a contract with the successful Tenderer and the Owner shall incur no liability to any other Tenderer as a result of such negotiations or modifications.

5.7 Tenderers are advised that after receipt of tenders and prior to award of Contract, Tenderers may be required to provide the Owner with additional information concerning the Tenderer or his tender including, but not limited to, a further breakdown of relevant components of the Total Tendered Amount.

5.8 The Total Tendered Amount used in the evaluation of tenders will be corrected for any arithmetic errors. The unit rates quoted will govern and the extensions will be adjusted if there are any inconsistencies between the two amounts.

5.9 The Owner reserves the right to reject any tenders of a company that is, or whose principals are, at the time of tendering engaged in a lawsuit against the Owner in relation to work similar to that being tendered.

5.10 The Owner reserves the right to reject any tenders of a company that owes, or whose principals owe, monies to the Owner at the time of tendering.

5.11 The Owner reserves the right, in its sole discretion, to reject any tenders of a company or individual in relation to which the CRD has received, from a municipal council represented on the CRD Board, correspondence indicating that the company or individual is not suitable to perform the work of the tender contract because of a poor performance or unprofessional conduct in relation to work similar to that being tendered.

6.0 NO CLAIM FOR COMPENSATION

6.1 Except as expressly and specifically permitted in these Instructions to Tenderers, no Tenderer shall have any claim for any compensation of any kind whatsoever, as a result of participating in the Tender, and by submitting a bid each Tenderer shall be deemed to have agreed that it has no claim.

7.0 PRE-TENDER SITE MEETING

7.1 A **mandatory** pre-tender site meeting for general contractors will be held on February 14, 2016 at 10:30 a.m. at Hartland Landfill. Tenders from non-attendees may be rejected by the Owner and returned unopened to the Tenderer.

7.2 The purpose of the site meeting is for a general review of the existing site and proposed work and to respond to questions from Tenderers.

7.3 The site meeting is provided by the Owner for the general convenience of Tenderers and is not intended to be a thorough examination of all existing site and soil conditions. Attendance to the site meeting in no way limits the responsibility of the Tenderers to make their own independent determination of site conditions and any and all other pertinent factors in preparation of this Tender.

TENDER FORM

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

TENDER FORM

NAME AND ADDRESS OF FIRM TENDERING

Sealed Tenders, plainly marked on the envelope

TENDER FOR: Hartland Leachate Line Manhole Upgrade, Contract 16-1766

will be received by: General Manager, Parks & Environmental Services
Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, BC
V8W 2S6

at the time and date stated in the "Invitation to Tender" at which time they will be opened in public.

Complete the following information in PRINTED OR TYPEWRITTEN form. Any future correspondence from the Capital Regional District concerning this Contract will be directed to the address shown below.

NAME OF FIRM TENDERING: _____

CONTACT NAME: _____

MAILING ADDRESS: _____

_____

_____ Postal Code: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

E-MAIL ADDRESS: _____

DATE: _____

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

The Chairman and Members of the Board
Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, British Columbia V8W 2S6

Ladies and Gentlemen:

The undersigned Tenderer, having carefully read and examined the Instructions to Tenderers, Tender Form and Annexures, Contract Agreement, General Conditions, Specifications, Drawings and Addenda hereby agrees to the same, and having carefully examined the locality and the site of the work and having full knowledge of the work required and of the materials to be furnished and used does hereby tender and offer to enter into a Contract to perform and complete the whole of the said works and provide all necessary labour, plant, tools and materials as set forth and in strict accordance with the Specifications, Drawings and other Contract Documents, and to do all therein called for on the terms and conditions and under the provisions therein at the prices which he has entered in the Schedule of Prices and Estimated Quantities at which prices the cost of the works set out therein would amount to a

TOTAL TENDERED AMOUNT of $ _____ (including GST) (lawful money of Canada)

The undersigned Tenderer agrees to complete the whole of the works within a time, measured in CALENDAR DAYS, after the Notice to Proceed of:

_____(CALENDAR DAYS)

(To be filled in by the Tenderer)

The starting date for the commencement of work shall be FOURTEEN (14) CALENDAR DAYS after the date stated in the "Notice to Proceed" letter signed by the General Manager.

The undersigned Tenderer hereby agrees to pay the sum of TWO HUNDRED DOLLARS ($200.00) as liquidated damages to the Capital Regional District for each and every CALENDAR DAY that he the Contractor exceeds the number of CALENDAR DAYS stipulated upon the Tender Form to reach substantial completion for this Contract.

The undersigned Tenderer hereby agrees that the said Schedule of Prices and Estimated Quantities and Total Tendered Amount include and cover all applicable duties, taxes and handling charges incidental to and forming part of this Contract.

The undersigned Tenderer hereby agrees to submit to the Owner certified copies of all LIABILITY INSURANCE and PROPERTY INSURANCE policies and certificates required and specified in the General Conditions of the Contract forming part of the Contract, all within a period of FOURTEEN (14) CALENDAR DAYS after the date of the written notification of the acceptance of his tender and prior to the commencement of work or supply of materials.

The undersigned Tenderer acknowledges that the Owner shall have the right to reject any or all tenders for any reason or to accept any tender which the Owner in its sole unrestricted discretion deems most advantageous to itself. By submitting a tender, the Tenderer acknowledges the Owner's rights under this clause and absolutely waives any right of action against the Owner and its consultants for the Owner's failure to accept the Tenderer's tender.

The undersigned Tenderer hereby agrees that he has made this tender without any connection, knowledge, comparison of figures, or arrangement with any other person or persons submitting tenders for this Contract, and that this tender is without collusion or fraud.

The undersigned Tenderer hereby agrees that once the tenders for this Contract have been opened, this tender and offer constituted hereby shall not be revoked before EITHER acceptance thereof by the owner OR the expiration of SIXTY (60) CALENDAR DAYS after the opening of tenders for this Contract whichever shall first occur.

Dated this _____ day of _____ 20____.

In the case of incorporated company:

SIGNED, SEALED AND DELIVERED)
The Corporate Seal of (Name of Company))
)
)
)
_____)
is hereunto affixed in the presence of)
its duly authorized signing officers:)
) (Seal)
)
_____)
(specify position with Company))
)
)
_____)
(specify position with Company))

OR, in the case of an individual or individuals:

SIGNED, SEALED AND DELIVERED by:) (Seal)
)
)
_____)
)
)
in the presence of:)
)
_____)
(Name of Witness))
)
)
_____)
(Address)) (Seal)
)
)
_____)
(Occupation))

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

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SCHEDULE OF PRICES AND ESTIMATED QUANTITIES

For the purpose of comparison of tenders and for subsequent payment, the Tenderer shall break down his Total Tendered Amount into the following items of work. The cost of work not specifically mentioned in this Schedule but included in the Drawings and/or Specifications, either directly or by implication, are to be included in the item to which it is most applicable. The Tenderer shall refer to the Specifications and Drawings for a description of the work to be involved in each item.

ITEM	DESCRIPTION	UNITS	QTY[(1)]	RATE	AMOUNT
1.	Bonding and Insurance *(not to exceed 1% of total tender amount)*	LS	n/a	n/a	$
2.	Mobilization and Demobilization *(not to exceed 5% of total tender amount)*	LS	n/a	n/a	$
3.	Pressure Test Entire System	LS	n/a	n/a	$
4.	Trench Rock Excavation	m^3	30	$	$
5.	In Ground Concrete Chamber Upgrade	LS	n/a	n/a	$
6.	Air Valve 2001VLV006 - Assembly and Manhole Replacement	LS	n/a	n/a	$
7.	Air Valve 2001VLV005 – Assembly and Manhole Replacement	LS	n/a	n/a	$
8.	Air Valve 2001VLV003 – Assembly and Manhole Replacement	LS	n/a	n/a	$
9.	Air Valve 2001VLV004 – Assembly and Manhole Replacement	LS	n/a	n/a	$
10.	Air Valve 2001VLV010 – Assembly and Manhole Replacement	LS	n/a	n/a	$
11.	Air Valve 2001VLV011 – Assembly and Manhole Replacement	LS	n/a	n/a	$
12.	Air Valve 2001VLV012 – Assembly and Manhole Replacement	LS	n/a	n/a	$
13.	Air Valve 2001VLV007 – Assembly and Manhole Replacement	LS	n/a	n/a	$
14.	Air Valve 2001 VLV008 – Assembly and Manhole Replacement	LS	n/a	n/a	$
15.	Air Valve 2001VLV024 – Assembly and Manhole Replacement	LS	n/a	n/a	$

ITEM	DESCRIPTION	UNITS	QTY(1)	RATE	AMOUNT
16.	Air Valve 2001VLV002 – Assembly and Manhole Replacement	LS	n/a	n/a	$
17.	Drain Valve 2001VLV028 – Assembly and Manhole Replacement	LS	n/a	n/a	$
18.	Drain Valve 2001VLV026 – Assembly and Manhole Replacement	LS	n/a	n/a	$
19.	Drain Valve 2001VLV017 – Assembly and Manhole Replacement	LS	n/a	n/a	$
20.	Drain Valve 2001VLV018 – Assembly and Manhole Replacement	LS	n/a	n/a	$
21.	Drain Valve 2001VLV019 – Assembly and Manhole Replacement	LS	n/a	n/a	$
22.	Drain Valve 2001VLV020 – Assembly and Manhole Replacement	LS	n/a	n/a	$
23.	Drain Valve 2001VLV025 – Assembly and Manhole Replacement	LS	n/a	n/a	$
24.	Drain Valve 2001VLV027 – Assembly and Manhole Replacement	LS	n/a	n/a	$
25.	Drain Valve 2001VLV022 – Assembly and Manhole Replacement	LS	n/a	n/a	$
26.	Drain Valve 2001VLV021 – Assembly and Manhole Replacement	LS	n/a	n/a	$
27.	Line Valve 2001VLV034 – Assembly and Manhole Replacement	LS	n/a	n/a	$
28.	Line Valve 2001VLV032 – Assembly and Manhole Replacement	LS	n/a	n/a	$
29.	Line Valve 2001VLV054 – Assembly and Manhole Replacement	LS	n/a	n/a	$
30.	Line Valve 2001VLV031 – Assembly and Manhole Replacement	LS	n/a	n/a	$
31.	Line Valve 2001VLV030 – Assembly and Manhole Replacement	LS	n/a	n/a	$

<u>Note</u>: The CRD reserves the right to delete any number of manhole upgrades listed in the above schedule of quantities equal to a total value of 25 % of the bid price (excluding taxes).

Total for this page carried forward to Tender Summary (Page 17)

$_____

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

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TENDER SUMMARY

Total from Schedule of Prices and Estimated Quantities[1] (Page 15 & 16)		$ _____
Contingency Allowance[2]		$ 50,00.00
	Subtotal	$ _____
Goods and Services Tax (GST) Registration No.: _____		$ _____
TOTAL TENDERED AMOUNT Carried to Tender Form (Page 12)		$ _____

_____

SIGNATURE OF TENDERER

NOTE: (1) The quantities listed in the Schedule of Prices and Estimated Quantities are approximate only and shall be used for the purpose of obtaining comparable Total Tendered Amounts only.

(2) No payment of the contingency allowance shall be made unless authorized in writing by the Engineer prior to the commencement of such work. The contingency allowance shall be used for such work that is not included in the Contract Documents or Drawings and is deemed as an extra to the Contract. The Contractor shall have no claim for loss of profit or loss of anticipated revenue from this item. The contingency allowance stated in these documents must be included in the Total Tendered Amount.

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

TENDER ANNEXURES

The Tender Form Annexures form part of the tender and comprise:

1. Bid Bond
2. Letter of Credit for Bid Security
3. Undertaking of Surety – Performance Bond
4. Undertaking of Surety – Labour and Materials Payment Bond
5. Schedule of Force Account Rates
6. List of Previous Contracts
7. WorkSafeBC Non-compliance Violations History
8. List of Proposed Subcontractors
9. List of Supervisory Personnel
10. List of Equipment
11. List of Proposed Equipment Suppliers
12. List of Proposed Major Materials Suppliers
13. Sample of System Test Schedule

The form of Bid Bond (if the Tenderer submits a Surety Bond in lieu of a Letter of Credit or Tender Deposit), Performance Bond, and Labour and Materials Payment Bond, shall be completed in accordance with the requirements specified in the Contract Documents on the forms provided herein, or on acceptable similar forms, and shall be attached to the tender.

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT

_____ as Contractor,
(hereinafter called the Contractor), and

_____ as Surety,
(hereinafter called the Surety),

are jointly and severally held and firmly bound unto

THE CAPITAL REGIONAL DISTRICT as Owner, (hereinafter called the Owner), in the penal sum of TEN PER CENT (10%) of the TOTAL TENDERED AMOUNT of lawful money of Canada, for the payment whereof unto the Owner, the Contractor and Surety jointly and severally bind themselves forever firmly by these presents.

WHEREAS, the Contractor is herewith submitting its offer for the fulfilment of:

Hartland Leachate Line Manhole Upgrade, Contract 16-1766

NOW THEREFORE, the condition of this obligation is such that if, before the expiration of SIXTY (60) CALENDAR DAYS from the opening of tenders for the said Contract, the Contractor is awarded the said Contract and if the Contractor within the time specified in the tender for such Contract enters into, executes and delivers to the Owner an agreement in the relative form annexed and if the Contractor and Surety within the time specified in the said tender give a good and sufficient Performance Bond in the relative form annexed for FIFTY PERCENT (50%) of the TOTAL TENDERED AMOUNT to secure the performance of the terms and conditions of the said Contract, and a Labour and Materials Payment Bond in the relative form annexed for FIFTY PERCENT (50%) of the TOTAL TENDERED AMOUNT, then this obligation shall be void; otherwise the Contractor and Surety will pay unto the Owner the difference in money between the amount of tender of the Contractor and the amount for which the Owner legally contracts with another party to perform the work if the latter amount be in excess of the former, but in no event shall the Surety's liability exceed the penal sum hereof.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as fully as if it were the Contractor, and that nothing of any kind or nature whatsoever that will not discharge the Contractor shall operate as a discharge or a release of liability to the Surety, any law, rule of equity or usage relating to the liability of sureties to the contrary notwithstanding.

AND IT IS HEREBY DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Contractor, the Surety and the Owner and upon and to their respective heirs, executors, administrators, successors and assigns, and every of them as if the words "heirs, executors, administrators, successors and assigns" had been inscribed in all necessary places.

Dated this _____day of _____, 20____.

In the case of incorporated company:

SIGNED, SEALED AND DELIVERED)
The Corporate Seal of (Name of Company))
)
)
_____)
is hereunto affixed in the presence of)
its duly authorized signing officers:)
) (Seal)
)
_____)
(Specify position with Company))
)
)
_____)
(Specify position with Company))

OR, in the case of an individual or individuals:

SIGNED, SEALED AND DELIVERED by:) (Seal)
)
_____)
)
)
in the presence of:)
)
_____)
(Name of Witness))
)
_____) (Seal)
(Address))
)
_____)
(Occupation))

SURETY

_____	)	
was hereunto affixed in the presence of	)	
	)	
	)	
_____	)	
(Name and Title)	)	(Seal)
	)	
	)	
_____	)	
(Name and Title)	)	

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LETTER OF CREDIT
[for Bid Security]

Letter of Credit No: _____ Amount: _____
[minimum sum of ten percent (10%) of the Total Tendered Amount]

TO: Capital Regional District

ADDRESS: 625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6

WE HEREBY AUTHORIZE YOU TO DRAW ON THE (name and address of bank) for the account of (name of Contractor) UP TO AN AGGREGATE AMOUNT OF (dollars in writing and in numbers) available on demand.

PURSUANT TO THE REQUEST OF our customer: (name of Contractor) we the (name of bank) hereby establish our Irrevocable Commercial Letter of Credit in your favour in the above amount which may be drawn on by you at any time and from time to time, upon written demand for payment made upon us by you, which demand we shall honour without enquiring whether you have the right as between yourself and the said customer to make such demand, and without recognizing any claim of our said customer, or objection by it to payment by us.

THE LETTER OF CREDIT we understand relates to those services and financial obligations set out in an Agreement between the customer and the Capital Regional District and referred to as (name and number of Contract).

THE AMOUNT of this Letter of Credit may be reduced from time to time as advised by notice in writing to the undersigned from time to time by the Capital Regional District.

THIS LETTER OF CREDIT will continue in force for a period of SIXTY (60) CALENDAR DAYS from the opening of tenders for the said Contract.

DATED at _____, British Columbia, this _____ day of _____, 20____.

COUNTERSIGNED BY:

_____
(Name of bank)
Per:

_____

_____

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

UNDERTAKING OF SURETY - PERFORMANCE BOND
[Undertaking to accompany Tender]

Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, British Columbia
V8W 2S6

Gentlemen:

We, the undersigned

_____

(Insert Bonding Company's Name)

do hereby undertake and agree to become bound to the Capital Regional District for a PERFORMANCE BOND for

_____ DOLLARS ($_____)
(Insert a Sum Equal to 50 Percent of the Total Tendered Amount)

for the fulfilment of the Contract to perform the works and services, all as specified in the attached Tender Form if the Contract is awarded to

_____.
(Insert Tenderer's Name)

Dated at _____, British Columbia, this _____ day of _____, 20 _____.

Yours very truly,

_____

Signature and Corporate Seal of Surety Company Licensed to Conduct Business in the Province of British Columbia

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

UNDERTAKING OF SURETY - LABOUR AND MATERIALS PAYMENT BOND
[Undertaking to accompany Tender]

Capital Regional District
625 Fisgard Street, PO Box 1000
Victoria, British Columbia
V8W 2S6

Gentlemen:

We, the undersigned

_____

(Insert Bonding Company's Name)

do hereby undertake and agree to become bound to the Capital Regional District for a LABOUR AND MATERIALS PAYMENT BOND for

_____ DOLLARS ($_____).
(Insert a Sum Equal to 50 Percent of the Total Tendered Amount)

for all labour and materials used or reasonably required for use in performance of the Contract, all as specified in the attached Tender Form if the Contract is awarded to

_____.
(Insert Tenderer's Name)

Yours very truly,

_____

Signature and Corporate Seal of Surety Company Licensed to Conduct Business in the Province of British Columbia

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

SCHEDULE OF FORCE ACCOUNT RATES

The following personnel and equipment rates will form the basis of payment for force account work carried out in accordance with Article 43 of the General Conditions. The Tenderer should list all anticipated occupations and equipment, including those to be employed on subcontracted work.

PERSONNEL

List by Occupation	Hourly Rate	Overtime Hourly Rate

EQUIPMENT
(Complete with Operator)

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LIST OF PREVIOUS CONTRACTS

The Tenderer shall fill in details below of the most recent contracts he has undertaken with work of a nature similar to this proposed Contract.

It is the intention of the Capital Regional District to use the information given below to assess the experience of the Tenderer in the appropriate fields of work. The Owner may contact the references given below before awarding the Contract.

LOCATION: CLIENT:

ENGINEER: TELEPHONE NUMBER:
FAX NUMBER:

CONTRACT VALUE:

DESCRIPTION OF WORK:

LOCATION: CLIENT:

ENGINEER: TELEPHONE NUMBER:
FAX NUMBER:

CONTRACT VALUE:

DESCRIPTION OF WORK:

LOCATION: CLIENT:

ENGINEER: TELEPHONE NUMBER:
FAX NUMBER:

CONTRACT VALUE:

DESCRIPTION OF WORK:

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

WORKSAFEBC NON-COMPLIANCE VIOLATIONS HISTORY

The Tenderer shall fill in the table below detailing all non-compliance notices he or his company has received from the Workers' Compensation Board for violations under the WorkSafeBC Occupational Health and Safety Regulations and/or Workers' Compensation Act within the last five (5) years.

It is the intention of the Capital Regional District to use the information given below in the assessment of qualifications and evaluation of tenders.

If no notices for violations of the above regulations have been filed against the Tenderer please provide an (X) in the appropriate box and sign the document.

WorkSafeBC Registration #: _____

NO VIOLATIONS IN PAST FIVE (5) YEARS: ( )	SIGNATURE: _____

DATE OF VIOLATION	LOCATION	VIOLATION OF WORKSAFEBC ACT SECTION NUMBER	BRIEF DESCRIPTION

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LIST OF PROPOSED SUBCONTRACTORS

The Tenderer shall provide the names and addresses of those subcontractors that the Tenderer intends to employ on the work specified below.

Any changes or additions to this list must be submitted to the Engineer for approval before subcontracting the work.

ITEM OF WORK TO BE SUBCONTRACTED	NAME, ADDRESS AND TELEPHONE OF PROPOSED SUBCONTRACTOR

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LIST OF SUPERVISORY PERSONNEL

The Tenderer proposes to carry out the work covered by this Contract under the direction of the following supervisory personnel employed by the Tenderer. The Tenderer should indicate whether the supervisory personnel listed are to be employed full time or part time and specify what recent experience they have had supervising work of a nature similar to this proposed Contract.

NAME AND TELEPHONE NUMBER	POSITION TO HOLD ON THIS CONTRACT

(If additional space is required use reverse side of this page.)

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

SAMPLE OF SYSTEM TEST SCHEDULE

The Contractor is requested to supply to the Owner a sample of a constructed civil engineering project systems test schedule, provided as separate attachment, for review as part of the Tender package.

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LIST OF PROPOSED EQUIPMENT SUPPLIERS
(not owned by Tenderer)

ITEM NO.	COMPANY NAME	DESCRIPTION OF EQUIPMENT

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LIST OF PROPOSED MAJOR MATERIALS SUPPLIERS

The Contractor shall list below his proposed suppliers of major materials to be incorporated into the works of this Contract.

DESCRIPTION	PROPOSED SUPPLIERS

AGREEMENT BETWEEN THE OWNER AND CONTRACTOR

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

AGREEMENT BETWEEN THE OWNER AND CONTRACTOR

THIS AGREEMENT made this ____ day of _____ in the year 20___ by and between the Capital Regional District, herein called the "Owner", and _____, herein called the "Contractor".

WITNESSETH: That the Contractor and the Owner undertake and agree as follows:

ARTICLE 1.

The Contractor shall:

i) Be and assume the responsibilities of the Prime Contractor as defined in Part 3 of the Workers' Compensation Act of the Province of British Columbia, and note this fact on the Notice of Project submitted to WorkSafeBC, and comply with the provisions and amendments thereto of the Workers' Compensation Act of the Province of British Columbia, the WorkSafeBC Occupational Health and Safety Regulation and all other applicable federal, provincial, regional, and municipal laws, regulations, ordinances, codes, policies and procedures.

ii) Provide all necessary materials, labour, supervision and equipment and perform all work, and fulfil everything as set forth and in strict accordance with the Contract Documents and # Addenda for the project entitled "Hartland Leachate Line Manhole Upgrade, Contract 16-1766".

iii) Commence to proceed actively with the work of the Contract within a period of FOURTEEN (14) CALENDAR DAYS of receipt of the Notice to Proceed and complete all work under this Contract within a period of ONE HUNDRED (100) CALENDAR DAYS from the date of the Notice to Proceed subject to the provisions herein for the extension of Contract time, and shall guarantee all materials furnished and work performed, for a period of ONE (1) YEAR from the date of substantial completion contained in the Certificate of Completion.

ARTICLE 2.

The Owner will pay to the Contractor as full compensation for the performance and fulfilment of this Contract, the sum or sums of money specified herein in the manner and at the times specified in the Contract Documents.

ARTICLE 3.

The Invitation to Tender, Instructions to Tenderers, executed Tender Form, General Conditions, Specifications, Appendices, Drawings and all Addenda incorporated herein, are annexed hereto and form a part of this Agreement as fully to all intents and purposes as though recited in full herein, and the whole shall constitute the Contract between the parties, and it shall inure to the benefit of and be binding upon them and their successors, executors, administrators, and assigns.

ARTICLE 4.

No implied contract of any kind whatsoever, by or on behalf of the Owner, shall arise or be implied from anything contained in this Contract or from any position or situation of the parties at any time, it being understood and agreed that the express contracts, covenants and agreements contained herein and made by the parties hereto are and shall be the only contracts, covenants and agreements on which any rights against the Owner may be founded.

ARTICLE 5.

Subject to Article 3, this Agreement shall supersede all communications, negotiations and agreements, either written or verbal, made between the parties hereto in respect of matters pertaining to this Agreement prior to the execution and delivery hereof.

ARTICLE 6.

All communication in writing between the parties or between them and the Engineer shall be deemed to have been received by the addressee, or to a member of the firm, or any officer of the corporation for whom they are intended as per the following delivery schedule conditions:

i) By hand – on the date of delivery of the communication
ii) By facsimile – ONE (1) CALENDAR DAY following date of the communication
iii) By registered mail – THREE (3) CALENDAR DAYS following date of the communication
iv) By regular mail – SEVEN (7) CALENDAR DAYS following date of the communication

If, between the time of mailing and the actual receipt of the communication, there occurs a mail strike, slowdown of postal service, or other labour dispute which affects the delivery of such communication, then such communication shall be deemed to be received when actually delivered.

The Contractor at _____
(Address)

_____
(Fax No.)

The Owner at 625 Fisgard Street, PO Box 1000, Victoria, BC, V8W 2S6
(Address)
250-360-3270
(Fax No.)

IN WITNESS WHEREOF the parties hereto have executed this Agreement the day and year above first written.

For Individual or Partnership:

SIGNED, SEALED AND DELIVERED BY

In the presence of: _____ _____
(Contractor - please print) (Signature of Contractor)

_____
(Position)

Name: _____
Address: _____
Occupation: _____

For Limited Company:

The Corporate Seal of

_____ (Seal)
(Contractor - please print full name of Company)

Was hereunto affixed in the presence of:

_____
Authorized Signing Officer and Position (please print)

_____
Signature of Authorized Signing Officer

NOTE: If the Tender is by a joint venture, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

For Owner (the Capital Regional District):

_____
Authorized Signing Officer

_____
Position

_____
Authorized Signing Officer

_____
Position

PERFORMANCE BOND

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT

_____ as Contractor,
(hereinafter called the Contractor), and

_____ as Surety,
(hereinafter called the Surety) are held and firmly bound unto

THE CAPITAL REGIONAL DISTRICT, as Owner, hereinafter called the Owner, in the amount of FIFTY PERCENT (50%) of the TOTAL TENDERED AMOUNT, namely

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

WHEREAS, the Contractor has entered into a written Contract with the Owner, dated the ___ day of _____, 20 _____.

for: Hartland Leachate Line Manhole Upgrade, Contract 16-1766

in accordance with the Drawings and Specifications submitted therefor which Contract, Drawings, Specifications, and all other Contract Documents, and amendments thereto, to the extent herein provided for, 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 Contractor shall promptly and faithfully perform said Contract then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Whenever the Contractor shall be, and declared by the Owner to be, in default under the Contract, the Owner having performed the Owner'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 Owner for completing the Contract in accordance with its terms and conditions, and upon determination by the Owner and Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the Owner 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 Owner to the Contractor under the Contract less the amount paid by the Owner to the Contractor.

Any suit under this Bond must be instituted before the expiration of TWO (2) YEARS from the date on which the Notice of Acceptance is issued.

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 Owner named herein or the heirs, executors, administrators or successors of the Owner.

IN TESTIMONY WHEREOF, the Contractor has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-in-fact, this _____ day of _____ 20____.

In the case of incorporated company:

SIGNED, SEALED AND DELIVERED)
The Corporate Seal of (Name of Company))
)
_____)
is hereunto affixed in the presence of)
its duly authorized signing officers:)
) (Seal)
)
_____)
(Specify position with Company))
)
)
_____)
(Specify position with Company))

OR, in the case of an individual or
individuals:

SIGNED, SEALED AND DELIVERED by:) (Seal)
)
)
_____)
in the presence of:)
)
)
_____)

(Name of Witness))
)
)
_____) (Seal)
(Address))
)
)
_____)
(Occupation))

SURETY

)
)
_____)
was hereunto affixed in the presence of)
)
)
_____) (Seal)
(Name and title))
)
)
_____)
(Name and title))

LABOUR AND MATERIALS PAYMENT BOND

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LABOUR AND MATERIALS PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS THAT:

_____ as Contractor,
(hereinafter called the Contractor), and

_____ as Surety,
(hereinafter called the Surety), are held and firmly bound unto

THE CAPITAL REGIONAL DISTRICT, _____ as Owner, its successors or assigns, as obligee, hereinafter called the Owner, for the use and benefit of claimants as herein below defined, in the amount of FIFTY PERCENT (50%) of the TOTAL TENDERED AMOUNT, namely

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

WHEREAS, the Contractor has entered into a written Contract with the Owner, dated the ____day of _____ , 20 ____.

for: Hartland Leachate Line Manhole Upgrade, Contract 16-1766

in accordance with the Drawings and Specifications submitted therefor which Contract, Drawings, Specifications and all other Contract Documents, and amendments thereto, to the extent herein provided for, 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 Contractor shall promptly make payment to all claimants as hereinafter defined, for all labour and material used or reasonably required for use in the performance of the Contract then this obligation shall be void, otherwise it will remain in full force and effect, subject, however, to the following conditions:

(1) A claimant is defined as one having a direct Contract with the Contractor 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 of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract.

(2) The above-named Contractor and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of NINETY (90) CALENDAR 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 sue on this bond, prosecute the suit to final judgement for such sum or sums as may be justly due the claimant, and have execution thereon.

(3) No suit or action shall be commenced hereunder by any claimant,

(a) Unless the claimant shall have given written notice to the Contractor at: _____ and the Surety at _____ within ONE HUNDRED AND TWENTY (120) CALENDAR DAYS after such claimant did or performed the last of the work or labour, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished or for whom the materials were furnished, or for whom the work or labour was done or performed. Such notice shall be served by mailing the same by REGISTERED MAIL to the Contractor and to the Surety at their address as given herein;

(b) After the expiration of ONE (1) YEAR following the date of which the Contractor ceased work on said 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 in which the project, or any part thereof, is situated and not elsewhere;

(4) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Sureties of builders liens which may be filed on record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond;

(5) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

PROVIDED, HOWEVER, that no variation or alteration of the terms of the said Contract made by agreement between the Owner and Contractor, or in the extent, nature or method of performance of the work to be constructed, maintained, and completed thereunder, and no allowances of time by the Owner or Engineer under the said Contract nor in any waiver, forbearance, or forgiveness in or in respect of any matter or thing concerning the said Contract or the conduct or performance thereof by the Contractor on the part of the Owner or the said Engineer, shall in any way release the Surety from any liability under the above-written bond. Notice to the Surety of any such variation, alteration, allowance of time, waiver, forbearance or forgiveness is hereby waived by the Surety.

IN TESTIMONY WHEREOF, the Contractor has hereto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its Attorney-in-fact, this _____ day of _____, 20 ____.

In the case of incorporated company:

SIGNED, SEALED AND DELIVERED)
The Corporate Seal of (Name of Company))
)
)
_____)
is hereunto affixed in the presence of)
its duly authorized signing officers:)
) (Seal)
_____)
(Specify position with Company))
)
_____)
(Specify position with Company))

OR, in the case of an individual or
individuals:

SIGNED, SEALED AND DELIVERED by:) (Seal)
)
_____)

in the presence of:)
)
_____)
(Name of Witness))
)
_____) (Seal)
(Address))
)
_____)
(Occupation))

SURETY

)
_____)
was hereunto affixed in the presence of:)
)
_____) (Seal)
(Name and title))
)
_____)
(Name and title))

GENERAL CONDITIONS

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

GENERAL CONDITIONS

LIST OF GENERAL CONDITIONS Article #

LIST OF GENERAL CONDITIONS Article #

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

GENERAL CONDITIONS

1. DEFINITIONS

"Calendar Day" shall be defined as 24 hours/day, 365 days of the year, inclusive of all statutory holidays.

"Certificate of Completion" shall have the meaning assigned to it by the *Builders' Lien Act*.

"Contract Documents" or "Contract" shall mean the entire agreement between the Owner and Contractor and shall include all of those documents set out in the Table of Contents including the agreement between the Owner and Contractor, the general conditions, specifications and drawings, and tender documents as well as any addenda incorporated therein.

"Contract Price" shall mean the negotiated value of the work which the Owner requires done as stipulated in the Contract.

"Contractor" shall mean the successful Tenderer and the person who enters into the Contract with the Owner.

"Engineer" shall mean the General Manager of the Parks & Environmental Services department of the Capital Regional District or his authorized representative as designated to the Contractor at the pre-construction meeting.

"Equipment" or "Plant" shall mean anything and everything used by the Contractor in performance of the work, except people, and except material as defined herein.

"Herein" and "Hereof" and similar expressions wherever used in the Contract Document, shall relate to the whole of the Contract Documents, and not to any one paragraph alone, unless the context specifically requires it.

"Material" or "Materials" shall, unless otherwise specified, mean anything and everything other than persons or the Contractor's equipment which is manufactured, processed or transported to the site, or existing on the site, and incorporated into the completed works.

"Mechanics" or "Builders' Lien Act" shall mean 1998 Builders' Lien Act.

"Multi-Employer Site" shall mean location of work which meets the criteria for a multi-employer site as defined by the *Worker's Compensation Act* of the Province of British Columbia.

"Overhead" means the percentage which the Contractor may add to the cost of personnel, equipment and materials supplied on a force account basis and shall include head office overhead, project management, bonding, insurance, site office accommodations, site supervision, clerical and all other expenses incurred by the Contractor in relation to the Work.

"Owner" shall mean the Capital Regional District.

"Payment Certifier" shall mean the person responsible for a payment certification as provided for under the *Builders' Lien Act* and for the purposes of this Contract shall mean the Engineer.

"Place of Work" shall mean the location of work as defined by the Contract and can include any or all of the following: Capital Regional District property, non-Capital Regional District property, private property, public property, public or private road.

"Subcontractor" shall mean any person engaged by the Contractor or another subcontractor to perform or provide part or parts of the work or to supply material intended to be incorporated into the completed works, but does not include a worker or a person engaged by an architect, engineer or a material supplier.

"Supply" or "Provide" shall mean supply and pay for or provide and pay for.

"Tenderer" shall mean the person or persons who submit a tender for the work to be done and materials to be supplied.

"Total Tendered Amount" shall mean the Contractor's offer to do all the work called for under the Contract at the total tendered amount (including GST) shown in the Tender Form.

"Work" or "Works" shall, unless the context otherwise requires, mean the whole of the work, equipment, materials, labour, matters and things required to be done, furnished, and performed by the Contractor under this Contract.

"Working Days" shall be defined as the normal working hours of the Capital Regional District which is five (5) days/week (7:00 a.m. to 6:00 p.m.) and excludes all legal holidays.

2. INTENT OF CONTRACT

The intent of the Contract is that the Contractor shall provide all materials, supervision, labour, equipment, and all else necessary for the complete performance of the Work. It is not intended, however, that the Contractor shall supply materials, equipment or labour not consistent with, covered by or properly inferable from the Contract Documents.

3. DRAWINGS AND SPECIFICATIONS FURNISHED

Except as provided for otherwise, a maximum of THREE (3) copies of drawings and specifications for the execution of the work shall be furnished to the Contractor without charge. Additional instructions may be issued by the Engineer during the progress of the work by means of drawings or otherwise for clarification of the drawings and specifications, or as may be necessary to explain or illustrate changes in the work to be done. One (1) complete set of all drawings and specifications shall be maintained at the jobsite by the Contractor and shall be available to the Engineer at all times. Additional copies of drawings and specifications may be obtained by the Contractor, on payment of the charge per document set out in the Invitation to Tender.

4. DOCUMENT CONFLICTS AND OMISSIONS

In case of any inconsistency or conflict between the provisions of the Contract Documents, the provisions of such documents and addenda thereto will take precedence and govern in the following order:

(a) Agreement Between the Owner and Contractor
(b) Addenda
(c) Supplementary General Conditions
(d) General Conditions
(e) Specifications and Drawings
(f) Tender Form
(g) Instructions to Tenderers
(h) Invitation to Tender
(i) All other documents

Figured dimensions on a drawing take precedence over measurements scaled from the drawing, and large scale drawings take precedence over those of smaller scale. Supplementary drawings and specifications supersede their antecedents. In case of conflict between figured dimensions on a drawing and the dimensions of a specified product, the dimensions of the specified product will govern. The drawings and specifications complement each other and anything called for by one will be as binding as if called for by both.

Neither party to the Contract shall take advantage of any apparent error or omission in the drawings or specifications, but the Engineer shall be permitted to make such corrections and interpretations as may be necessary for fulfilment of the intent of the drawings and specifications.

5. DISCREPANCIES

Any discrepancies found between the drawings and specifications or any errors or omissions in the drawings or specifications shall immediately be reported to the Engineer, who shall promptly correct such error or omission in writing. Any work done after discovery of such discrepancies, errors or omissions shall be done at the Contractor's risk.

6. CONTRACT INTERPRETATION AND DECISIONS

The Engineer will be, in the first instance, the interpreter of the Contract Documents and the judge of the performance of both parties to the Contract. Interpretations and decisions of the Engineer shall be consistent with the Contract Documents and made in consultation with both parties. In making a decision the Engineer will not show partiality to either the Owner or the Contractor.

Either the Owner or the Contractor may at any time, by written request in sufficient detail and accompanied by sufficient supporting documentation to reasonably describe the matter, refer any question, including claims relating to the performance of the work or the interpretation of the Contract Documents, to the Engineer for an initial decision and the Engineer shall render a written decision within a reasonable time, with copies to both the Owner and the Contractor.

If a party does not agree with an interpretation or decision of the Engineer then resolution of the matter shall be dealt with in accordance with the provisions of Article 58.

7. SHOP DRAWINGS

The Contractor shall furnish to the Engineer, at proper times, all shop drawings including diagrams, illustrations, schedules, performance charts, brochures and other data necessary to clarify the work intended or to show its relation to adjacent work of other trades. The Contractor shall provide such additional drawings and shall make any changes or additions to such drawings or diagrams which the Engineer may require consistent with the Contract and will submit sufficient copies of the revised prints for review, all but three (3) of which shall be returned to the Contractor following review.

Prior to submission to the Engineer the Contractor shall review all shop drawings. By this submission, the Contractor represents that he has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data and that he has checked and coordinated each shop drawing with the requirements of the work and of the Contract Documents.

The Contractor shall submit shop drawings to the Engineer for his review with reasonable promptness and in orderly sequence so as to cause no delay in the work of other contractors. If either the Contractor or the Engineer so requests, they shall jointly prepare a schedule fixing the dates for submission and return of shop drawings. Shop drawings shall be submitted in the form of a reproducible transparency or prints as the Engineer may direct. At the time of submission, the Contractor shall notify the Engineer in writing of any deviations in the shop drawings from the requirements of the Contract Documents.

The Engineer will review and return shop drawings in accordance with any schedule agreed upon, or otherwise with reasonable promptness so as to cause no delay. The Engineer's review shall be for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract Documents unless a deviation on the shop drawings has been specifically approved in writing by the Engineer.

The Contractor shall make any changes in shop drawings which the Engineer may require consistent with the Contract Documents and resubmit unless otherwise directed by the Engineer. When resubmitting, the Contractor shall notify the Engineer in writing of any revisions other than those requested by the Engineer.

8. LOCATION OF THE WORKS

Where location dimensions for the works are not shown on the drawings, the locations are intended as being approximate.

Unless otherwise specified, the Engineer will show the locations of legal survey markers and survey monuments on the drawings and will provide an elevation bench mark. The Contractor shall perform all detailed layout and shall be responsible for all necessary detailed layout dimensions and elevations.

The Contractor shall carefully preserve bench marks, reference points, and stakes. In case of wilful or careless destruction or disturbance of such markers, he shall be charged with the expense of replacing them and shall be responsible for any mistakes that may be caused by their destruction, loss, or disturbance.

Legal survey markers, disturbed or removed by the construction operation, that existed at a horizontal distance of 1.5 metres or more from the work being installed shall be replaced at the Contractor's expense. If it is necessary

to remove or disturb existing legal survey markers that are within 1.5 metres of the work, the Engineer shall be so notified before such removal or disturbance, and replacement will be at the Owner's expense.

9. INVESTIGATION BY CONTRACTOR OF CONDITIONS AFFECTING WORK

The Contract between Owner and Contractor is made and entered into by the Contractor and the Owner on the distinct understanding that the Contractor has, before execution, investigated and satisfied himself of everything and of every condition affecting the work to be executed and the labour and material to be provided, that the execution of this Contract by the Contractor is founded and based upon his examination, knowledge, information and judgement, and not upon any statement, representation or information made or given or upon any information derived from any representative of the Owner; and furthermore, the Contractor shall make no claim against the Owner for any loss or damage sustained in consequence of or by reason of any such statement, representation or information being incorrect or inaccurate.

10. ENGINEER'S STATUS

The Engineer will be the Owner's representative during the construction period and will observe work in progress on behalf of the Owner. The Engineer will have the authority to stop the work whenever such stoppage may be necessary, in his opinion, to ensure the proper execution of the work in accordance with the provisions of the Contract. The Contractor shall obey such order immediately. Neither the giving or carrying out of such orders shall thereby entitle the Contractor to any extra payment.

The Contractor shall obey, perform and comply with the Engineer's orders or instructions with respect to the work or concerning the conduct thereof promptly, efficiently and to the satisfaction of the Engineer. However, if the Contractor is of the opinion that such orders or instructions are not authorized under the provisions of the Contract or involve a change for which a change order should be issued as described in Article 42, he shall so notify the Engineer in writing before proceeding to carry them out and, in any event, within TEN (10) CALENDAR DAYS of the receipt of such orders or instructions. If the Contractor does not so notify the Engineer within the time so limited, he shall not claim at any time thereafter that the orders or instructions were not authorized or should have been subject to a change order. Nevertheless, the giving of such notice to the Engineer shall not relieve the Contractor of his obligations to carry out and obey such orders and instructions.

The Engineer may delegate to other persons such of the powers of the Engineer as the Engineer deems appropriate.

The Engineer or the Owner may appoint any person or company or the employee of any such person or company or of the Engineer to be an Inspector. Such Inspector shall have the authority of the Engineer to reject materials, procedures or workmanship as not complying with provisions of the Contract and to order the Contractor to stop work until the materials, procedures or workmanship comply with such provisions.

11. INSPECTION OF WORK

The Contractor shall allow the Engineer and/or Owner or their duly appointed Inspector access and provide adequate facilities for access to any part of the works at all times. If the specifications, Engineer's instructions, laws, ordinances or any public authority requires any work to be specially tested or approved, the Contractor shall give the Engineer 24 hours minimum notice of his preparedness for such inspection, and if the inspection is by an authority other than the Engineer, of the date fixed for such inspection. The Engineer will inspect the work

promptly and without causing unreasonable delay to the Contractor. Extra payment will not be made to the Contractor for delay occasioned by an inspection, and extension of completion time will not be allowed for delay resulting therefrom.

On request by the Engineer, the Contractor shall open for inspection any part of the work that has been covered up. If the Contractor refuses to comply with such request, the Owner may employ other persons to uncover the work. If the work is found to be in accordance with the Contract requirements then the cost of uncovering and recovering the work shall be borne by the Owner. If any of the work was covered by the Contractor in contravention of the Engineer's instructions, or if the uncovered work is found not to be in accordance with the Contract requirements, then the cost of uncovering and recovering the work shall be charged to the Contractor.

The lack of comment on the part of the Engineer on methods of construction employed by the Contractor shall not relieve the Contractor of his responsibility for any errors therein, and shall not be regarded as an acceptance for work done by the Contractor.

12. SUPERVISION AND LABOUR

The Contractor shall keep on the work at all times during its progress a competent superintendent who is approved by the Engineer, which approval may be withdrawn at any time. The superintendent shall represent the Contractor in his absence and directions given to him shall be held as being given to the Contractor. The superintendent shall give efficient and effective supervision to the work until its completion.

13. LANDS BY OWNER

The Owner will provide the lands upon which the work is to be performed. Where work is to be performed on lands owned by others, the Owner will obtain the necessary easements or rights-of-way. The Owner will endeavour to obtain the necessary easements or rights-of-entry in time to permit construction to proceed as scheduled by the Contractor. When this is not possible, the Contractor shall withhold work on property owned by others until such time as easements or rights-of-entry have been obtained. Delay in providing these lands, or in obtaining easements or rights-of-way which, in the opinion of the Engineer, delays the work or results in extra cost to the Contractor, will be deemed proper cause for adjustment in the time of completion and adjustment of the Contract amount to cover the extra cost to the Contractor.

14. LANDS REQUIRED BY CONTRACTOR

Any lands other than those which are to be provided by the Owner and which may be required by the Contractor for temporary facilities, storage purposes, or access to the work site, shall be obtained by the Contractor at no cost to the Owner.

15. PRIVATE LAND

It shall be the Contractor's responsibility to ascertain the boundaries within which the work must be confined. The Contractor shall not enter lands other than those provided by the Owner for any purpose without obtaining prior written permission of the land owners and occupiers. The Contractor shall not enter upon lands owned by others on which the Owner has easements or rights-of-entry without having received the written authorization of the Owner for such entry. It shall be the Contractor's responsibility to ascertain from the Owner the conditions on which easements or rights-of-entry have been granted on private lands and to abide by these conditions

throughout the course of construction. Any supplementary construction agreements made between the Contractor and the owner of private property in lieu of or in addition to the condition sheets provided by the Owner and forming part of this document shall be signed by the Owner and an authorized representative of the Contractor and a copy forwarded to the Engineer.

The Owner will not be responsible for any supplementary construction agreements other than those to which the Owner is a signed party.

16. ASSIGNMENT OF CONTRACT

Neither party shall sublet, sell, transfer, assign, or otherwise dispose of the Contract or any portions thereof, or his right, title, or interest herein, or his obligations thereunder without written consent of the other party, except for an assignment to a bank of the payments to be received hereunder.

17. SUSPENSION OF WORK BY OWNER

The Owner may at any time suspend the work, or any portion thereof, provided he gives the Contractor FIVE (5) CALENDAR DAYS written notice of suspension. The Contractor shall resume work upon written notice of the Owner within TEN (10) CALENDAR DAYS after the date set forth in such notice, or in a subsequent notice to resume work. The Owner will reimburse the Contractor for costs and expenses incurred by the Contractor necessitated by such suspension of work or portion thereof, but the Contractor shall not recover from the Owner payment for any loss of anticipated profits or damages.

18. OWNER'S TERMINATION OF THE CONTRACTOR'S RIGHTS

The Owner will have the right to terminate the Contractor's right to continue with the work if the Contractor at any time becomes bankrupt, makes an assignment of his property for the benefit of the creditors, or if a receiver or liquidator should be appointed. Such termination shall be effective upon the Owner giving notice thereof.

If at any time the Engineer is of the opinion and so states in writing to the Owner that the Contractor:

(a) Has failed to commence work or to recommence work after a suspension within the time specified in the Contract Documents;

(b) Has failed or is failing to furnish or to maintain a detailed work schedule and plan of operation as required by Article 41 herein;

(c) Has failed or is failing to use diligence or has failed to comply with the instructions of the Engineer to expedite his work or is otherwise failing to make such progress with the work as is necessary to ensure the completion of the work or any part thereof in the time specified in the Contract Documents;

(d) Has failed or is failing to supply enough competent workmen, management, materials or suitable equipment; or

(e) Has become in any way unable to carry on the work or any part thereof;

the Owner may give notice in writing to the Contractor of such opinion and requiring that such default or defaults be remedied forthwith. If, within FIVE (5) CALENDAR DAYS of such notice, such default or defaults are not remedied to the satisfaction of the Engineer, the Owner may terminate the Contractor's right to perform further the work under the Contract. Such termination shall be effective immediately.

Upon such termination, the Owner may employ such means as he sees fit to complete the works. In such cases:

(a) The Contractor shall have no claim for any further payment in respect of work performed, but shall be liable for all damages and expenses which may be suffered by the Owner by reason of such default or delay, or the non-completion by the Contractor of the works;

(b) No objection or claim shall be raised or made by the Contractor by reason of or on account of the ultimate cost of the works so taken over for any reason proving greater than, in the opinion of the Contractor, it should have been;

(c) All materials and all rights, proprietary or otherwise, licences, powers, and privileges, whether relating to or affecting real or personal property, acquired, possessed, or provided by the Contractor for the purposes of the work under the provisions of this Contract will become or remain and be the property of the Owner for all purposes incidental to the completion of the work and may be used, exercised, and enjoyed by the Owner as fully to all intents and purposes connected with the works as they might therefore have been used, exercised and enjoyed by the Contractor; and

(d) The Owner may forthwith enter into possession of all the Contractor's equipment on the site of the work and may use the same in any way it sees fit in order to complete the works without the Owner being in any way liable for damage or any other cost in connection with such use by the Owner. Upon completion of the work, such equipment may be returned to the Contractor or may be sold by the Owner and the net proceeds of such sale credited to the Contractor's account.

If the Contractor's right to perform the work is terminated in accordance with the provisions of this clause, the Contractor shall not be entitled to receive any further payment until the work is completed.

Upon completion of the work the Engineer shall determine:

(a) The amount which would have been due to the Contractor under the Contract if all of the work had been performed by him; and

(b) The costs and expense borne by the Owner in completing the work and damages for delay in completion, if any.

The Contractor shall be entitled to receive the balance of the Contract Price less such costs and expense, or if such costs and expense exceed such price, the Contractor shall pay the amount of such excess to the Owner on demand.

The Owner shall have the option, under the provisions of this Article, to be exercised in its absolute discretion, to terminate the right of the Contractor to perform any part or parts of the work and to permit the Contractor to continue to perform the rest of the work. All the provisions of this Article shall apply to such part or parts with such modifications as the circumstances may require.

19. CONTRACTOR'S TERMINATION OF THE CONTRACT

The Contractor shall have the right to terminate the Contract for any of the following reasons:

(a) In the event of any order of any court or other public authority, other than the Owner, causing the work to be stopped or suspended, and when the period of such stoppage or suspension exceeds NINETY (90) CALENDAR DAYS, and when such stoppage or suspension occurs through no act or fault of the Contractor, his agent, or servants; or

(b) In the event that the Owner fails to pay, except as provided in the Contract Documents, any sum certified by the Engineer within TWENTY (20) CALENDAR DAYS from the due date of payment, and fails to remedy such default within TEN (10) CALENDAR DAYS of the Contractor's written notice to do so.

In either event, the Contractor will receive from the Owner payment for all work performed and losses sustained in respect of any materials. For termination under (a) above, the Owner will not be liable for any such loss of anticipated profits, damages, or expenses incurred by the Contractor as a result of such stoppage or suspension, but under (b) above, the Contractor will be paid for loss of profits, damages and expenses. Such termination shall be effective upon the Contractor giving notice thereof.

The amount due to the Contractor for work performed and losses sustained shall be determined by the Engineer and certified by him to the Contractor and to the Owner.

20. SEPARATE CONTRACTS

The Owner reserves the right to let other contracts in connection with the work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with theirs.

If any of the Contractor's work, as specified herein and shown on the drawings, depends upon the work of any other contractor, the Contractor shall inspect and measure the work in place and determine whether anything in such work renders it unsuitable for proper execution of his work. He shall promptly report the results of such inspection and measurement to the Engineer if anything in such work renders it unsuitable for proper execution of his work. His failure to inspect and report promptly shall constitute an acceptance of the other contractor's work and he shall have no claim against the Owner by reason of anything in such work rendering the same unsuitable for proper execution of his work.

21. SUBCONTRACTS

The subcontractors named in the Tender Form, and others as may be approved by the Engineer following execution of the Contract, shall not be changed nor shall additional subcontractors be employed except with the written approval of the Engineer. The Contractor is responsible to the Owner for the acts and omissions of his subcontractors and of their employees, to the same extent that he is responsible for the acts or omissions of persons employed by himself. Nothing in the Contract Documents shall create any contractual relation between any subcontractor and the Owner. The Contractor shall bind every subcontractor to the terms of the Contract Documents.

The subcontracts shall contain a provision that the Certificate of Completion of the work by the subcontractor shall be binding on the Contractor and the subcontractor.

22. ORAL AGREEMENTS

No oral instruction, objection, claim, or notice by any party to the other shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than by a waiver or modification thereof in writing and agreed to by the parties to the Contract.

23. NON-WAIVER

Any failure by the Owner or the Engineer at any time, or from time to time, to enforce or require the strict keeping and performance of any of the terms or conditions of the Contract will not constitute a waiver of such terms or conditions and will not affect or impair such terms or conditions in any way or the right of the Owner or the Engineer at any time to avail itself or himself of such remedies as it or he may have for any breach of such terms or conditions.

No provision in the Contract which imposes or may be deemed to impose extra or specific responsibilities or liabilities on the Contractor shall restrict the general or other responsibilities or liabilities of the Contractor in any way.

24. MATERIALS BY CONTRACTOR

The Contractor shall supply all materials unless it is expressly specified to the contrary. Materials used in the work shall meet the requirements of the specifications, or where not detailed in the specifications, shall be to the Engineer's satisfaction. Unless otherwise specified, all materials shall be new.

Unless otherwise specified, the Contractor shall provide all water, light, power, heating and equipment necessary for the execution of the work.

All materials provided by the Contractor in order to complete the work shall vest in and become the property of the Owner as soon as the same are delivered to the site of the works, but shall remain in the custody and at the risk of the Contractor.

25. MATERIALS BY OWNER

The Owner will provide only such materials as are specifically listed as being supplied by the Owner.

The materials to be provided by the Owner are as follows:

26. MATERIALS STORAGE

The Contractor, at his own cost, shall store all materials provided for the work either by himself or the Owner until they have been incorporated into the completed works. Materials shall be stored so as to ensure the preservation of their quality and fitness for the work, and shall be protected from vandalism and theft. Stored

materials shall be located so as to facilitate prompt inspection. Faulty materials shall not be stored on the site, and any material in storage found to be faulty shall promptly be removed from the site by the Contractor.

A location on site at Hartland Landfill will be provided to the Contractor for materials storage for this project.

27. TESTING, REJECTED WORK AND MATERIALS

If, in the opinion of the Engineer, testing is required, the Engineer will arrange for a testing firm to carry out tests to determine whether the applicable standards and specifications have been met. Where initial testing indicates inadequacies additional testing may be required by the Engineer.

The Contractor as directed by the Engineer shall supply specimens or samples for testing.

All materials which do not conform to the requirements of the Contract Documents, are not approved by the Engineer, or are in any way unsatisfactory or unsuited to the purpose for which they are intended, will be rejected. Any defective work, whatever the cause thereof, and without limiting the generality of the foregoing, whether the result of poor workmanship or use of defective materials, shall be removed within FIVE (5) CALENDAR DAYS after written notice is given by the Engineer, and the work shall be re-executed by the Contractor. The fact that the Engineer may have previously overlooked such defective work shall not constitute an acceptance. The removal of work and the re-execution thereof shall be at the expense of the Contractor, and he shall pay the cost of replacing the work which shall include materials of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement with acceptable work. The Contractor shall also reimburse the Owner for initial testing and any additional engineering, inspection, testing or other contractor's costs incurred in respect of rejected work or materials, whether such work or materials are replaced or not or are accepted at a lower price.

If, in the opinion of the Engineer, it is not expedient to re-execute defective work the Owner may deduct from the Contract Price, the difference in value between the work as done and that called for by the Contract, the amount of which shall be determined by the Engineer.

28. OWNER'S RIGHT TO CORRECT DEFICIENCIES

Upon failure of the Contractor to perform the work in accordance with the Contract, the Owner may, without notice and without prejudice to any other remedy he may have, correct such deficiencies. The cost of work performed by the Owner in correcting deficiencies shall be paid by the Contractor or may be deducted from monies payable to the Contractor.

29. PERSONNEL

All workers must have sufficient knowledge, skill, and experience to perform properly the work assigned to them. Any foreman or worker employed by the Contractor or subcontractor who, in the opinion of the Engineer, does not perform his work in a skilful manner, or appears to be incompetent or to act in a disorderly or intemperate manner shall, at the written request of the Engineer, be removed from the site of the work immediately and shall not be employed again in any portion of the work without the approval of the Engineer.

30. GUARANTEE PERIOD

Neither the Notice of Acceptance nor a Notice of Partial Acceptance, as described in Articles 50 and 51, nor any payment by the Owner shall relieve the Contractor of responsibility for faulty materials or defective workmanship. The Contractor guarantees to maintain the work against any defects arising from faulty installation, faulty materials supplied under the Contract or faulty workmanship which may appear within ONE (1) YEAR of the date of substantial completion contained in the Certificate of Completion. If a Notice of Partial Acceptance has been issued, the guarantee period shall begin from the date of such certificate except for the work still to be performed and the defects and deficiencies still to be corrected which are listed on such certificate. Faulty materials shall be replaced and defects discovered and failures which occur during the guarantee period shall be rectified to the satisfaction of the Engineer and in accordance with the Contract Documents, including, if deemed necessary by the Engineer, replacement of all or a portion of the work. The same guarantee as is herein provided and for the same period shall attach to such replacement materials or rectified work and the period shall begin on the date the Engineer accepts such replacement material or rectified work.

If the Owner observes through use of the works, or if it is discovered by tests or inspection of the works prior to the end of the guarantee period, that a deficiency or defect exists in the materials or workmanship in respect to the works, the Owner shall immediately notify the Contractor, by whatever means are available, of the defect or deficiency and instruct him to rectify the fault. Such notification shall be confirmed by the Owner in writing to the Contractor. In the event that this work, in the opinion of the Owner, must be done immediately to prevent serious damage, injury, or loss of life, the Owner may perform, or cause to be performed, the necessary work, and shall notify the Contractor accordingly. Work required under guarantee shall, except as otherwise provided herein for emergencies, be carried out by the Contractor or his representative within TEN (10) CALENDAR DAYS of the Owner's written instruction to perform the work. In the event that this work is not done by the Contractor within the TEN (10) CALENDAR DAY period, or such further period as may be approved by the Engineer, the Owner may take whatever action is necessary to have the work done.

All costs relating from the necessity to do work under the guarantee requirement, whether it be done by the Contractor, his representative, or the Owner, as provided herein, shall be borne by the Contractor. The Contractor shall, in addition, be liable to the Owner for all expenses, losses, or damages incurred by the Owner as a result of faulty materials and defective workmanship as are referred to in the first paragraph of Article 30, or as a result of the Contractor's failure to meet the guarantee requirements as specified herein, including, but without limiting the generality hereof, all costs of engineering, inspection and testing. All costs may be deducted by the Owner from the guarantee amount as described herein.

In addition to the provisions of the Performance Bond, the Contractor shall, prior to issuance of the Certificate of Completion or the Notice of Partial Acceptance, deposit with the Owner a Standby Irrevocable Commercial Letter of Credit in the amount of $50,000.00, to be drawn on a local bank, that may be used by the Owner for the rectification of defects or deficiencies for TWO (2) YEARS from the Certificate of Completion.

The Form of the Letter of Credit (for Guarantee Period) shall be as laid out herein:

LETTER OF CREDIT
[Applicable to Contract Guarantee Period]

Letter of Credit No: _____ Amount: _____

TO: The Capital Regional District
ADDRESS: 625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6

WE HEREBY AUTHORIZE YOU TO DRAW ON THE (name and address of bank) for the account of (name of Contractor) UP TO AN AGGREGATE AMOUNT OF (Thirty Thousand Dollars ($30,000.00) available on demand.

PURSUANT TO THE REQUEST OF our customer: (name of Contractor) we the (name of bank) hereby establish our Irrevocable Commercial Letter of Credit in your favour in the above amount which may be drawn on by you at any time and from time to time, upon written demand for payment made upon us by you, which demand we shall honour without enquiring whether you have the right as between yourself and the said customer to make such demand, and without recognizing any claim of our said customer, or objection by it to payment by us.

THE LETTER OF CREDIT we understand relates to those services and financial obligations set out in an Agreement between the customer and the Capital Regional District and referred to as (name and number of Contract).

THE AMOUNT of this Letter of Credit may be reduced from time to time as advised by notice in writing to the undersigned from time to time by the Capital Regional District.

THIS LETTER OF CREDIT will continue in force for a period of 1 year.

DATED at _____, British Columbia, this ___ day of_____, 20____.

COUNTERSIGNED BY: _____
(name of bank)
Per:
_____

_____

The issuance of a Certificate of Completion in relation to a subcontract shall not relieve the Contractor of his obligation under this Article 30 - Guarantee Period.

31. WORKERS' COMPENSATION INSURANCE

Prior to commencing the work and prior to receiving payment on completion of the work, the Contractor shall provide evidence of compliance with the requirements of the *Workers' Compensation Act*, including payments due thereunder.

At any time during the term of the Contract, when requested by the Owner, the Contractor shall provide such evidence of compliance by himself and his subcontractors.

32. DAMAGE TO WORK

The Contractor shall be responsible for all loss and damage whatsoever which may occur on or to the works, completed or otherwise, until such time as the entire works have been completed and the Notice of Acceptance has been issued by the Owner. In the event of any loss or damage occurring, the Contractor shall, on notice from the Engineer, immediately put the works into the condition it was immediately prior to such loss or damage all at the Contractor's expense, except where such loss or damage was caused solely by an act of the Owner.

33. INDEMNITY

The Contractor shall release, save harmless and indemnify the Owner and its directors, officers and employees, servants, agents, and the Engineer from and against all claims, actions, costs, expenses, judgements, damages, fines and fees of whatever kind, including solicitors' fees on a solicitor and own client basis, which the Owner or any other person, partnership or corporation may have or incur and which arises out of or in connection with any act or omission or alleged act or omission of the Contractor, his agents, employees or subcontractors in the execution of the Work and otherwise in the performance of or failure to perform the Contract.

34. BONDS

To ensure the faithful execution and proper fulfilment of this Contract, the Contractor shall provide the Owner with the following bonds at the time of his execution of the Contract:

(a) Performance Bond in the amount of fifty percent (50%) of the Total Tendered Amount covering the faithful performance of the Contract and maintenance of the Contract for TWO (2) YEARS after the Notice of Acceptance;

(b) Labour and Materials Payment Bond in the amount of fifty percent (50%) of the Total Tendered Amount; and

the above bonds must be issued by a surety company licensed to conduct business in the Province of British Columbia and shall be provided on the forms contained within the Contract Documents, or on accepted alternative forms.

Notwithstanding anything contained elsewhere in the Contract Documents, the Owner shall not be required to make any payment whatever to the Contractor until the above bonds, duly executed, have been delivered to the Owner.

35. PATENTS AND ROYALTIES

The Contractor shall pay all royalties and licence fees with respect to and shall assume the defence of and indemnify the Owner and the Engineer, their employees, officers and agents from all claims relating to inventions, copyrights, trademarks, or patents used in doing the work and in the subsequent use and operation of the work or any part thereof upon completion. The Contractor shall not be liable hereunder with respect to any claims arising from a construction method, process or equipment specified by the Owner in the documents submitted to the Contractor before he submitted his tender.

36. PERMITS AND REGULATIONS

The Contractor shall, at his own expense, procure all permits, certificates and licences required for the construction of the work and shall comply with all federal, provincial, and local laws, regulations and by-laws affecting the execution of the work, save insofar as the Contract Documents specifically provide otherwise.

The Owner will obtain all necessary governmental approvals for the design of the completed work, and all permits and licences required by law for the completed works.

37. SAFETY REQUIREMENTS

By agreeing to be the designated Prime Contractor, the Contractor agrees to the following:

The Contractor is the Prime Contractor as defined in Part 3 of the *Workers' Compensation Act* of the Province of British Columbia and shall note this fact on the Notice of Project submitted to WorkSafeBC. A copy of the Notice of Project will be posted on site and another delivered to the Engineer.

Notwithstanding the above, the Owner may from time to time assign the responsibilities of Prime Contractor to another contractor in writing. When a contractor has been assigned the obligations of Prime Contractor, the contractor will become the Prime Contractor and will be required to comply with all of the regulatory requirements for Prime Contractor. Compensation for performing the requirements of Prime Contractor will only be considered when the Owner did not previously disclose these obligations.

The Contractor shall comply with the provisions and amendments thereto of the *Workers' Compensation Act* of the Province of British Columbia, the WorkSafeBC Occupational Health and Safety Regulation and all other applicable federal, provincial, regional and municipal laws, Owner's policies and procedures, ordinances, codes and regulations. Where any of these are in conflict the more stringent shall be followed.

The Contractor is responsible to assess the scope of work, project site and surrounding environment and determine if hazards exist.

Refer to Appendix A for Owner's declaration of known hazards associated with the property.

The Contractor is responsible for all functions related to the coordination of the health and safety activities at the job site in accordance with the *Workers' Compensation Act* and WorkSafeBC Occupational Health and Safety Regulation and the amendments thereto. This requirement shall apply during the Contract period and not be limited to normal working hours.

Throughout the duration of the project the Contractor will ensure that all workers on site are complying with *Workers' Compensation Act* and WorkSafeBC Occupational Health and Safety Regulation. This will include periodic inspections of the workplace and follow through with documentation of actions taken.

The Contractor will post at the site the name of the qualified Workplace Safety Coordinator, a site drawing showing the boundaries of the Prime Contractor's area of responsibility, with project layout, first aid location, emergency transportation provisions and the evacuation marshalling points.

The Contractor will ensure a copy of the site-specific safety program, written procedures designed to protect the health and safety of workers at the site and the *Workers' Compensation Act* and WorkSafeBC Occupational Health and Safety Regulation are available on site.

The Contractor will ensure that the person who is appointed as the Workplace Safety Coordinator is qualified, by reason of a combination of training, education and experience to perform the required duties effectively.

When conditions or activities on the site affect the workers of more than one employer, or where there are overlapping or adjoining work activities by two or more employers, the Contractor will ensure that the Workplace Safety Coordinator coordinates the occupational health and safety activities at the site.

The Contractor will alert all workers to all reasonably foreseeable hazards to which they are likely to be exposed.

The Contractor will hold meetings as often as necessary with the other contractors on the site to discuss hazards, overlapping work, scheduling, work sequencing and the controls that are in place to reduce the risk to workers.

The Contractor will also hold weekly "tailgate" meetings with all workers to alert them to the sequence of work and the hazards being created by the work. Accidents and near misses will be discussed as well as the procedures in place to reduce the risk to workers.

The Workplace Safety Coordinator will conduct weekly safety inspections to ensure all contractors are meeting their contractual obligations and not allowing unsafe conditions to develop.

In an emergency affecting the safety of life, or of the works, or of adjoining property, the Contractor, without the necessity of authorization from the Engineer, shall act in a responsible manner to prevent loss or injury.

The Contractor shall satisfy the Engineer that a jobsite specific construction safety program has been developed in accordance with the WorkSafeBC Occupational Health and Safety Regulation, and safe work practices and procedures of WorkSafeBC, and shall incorporate all of the Owner’s site requirements and restrictions.

The Contractor shall provide the Engineer, prior to commencement of the work, the Material Safety Data Sheets and site specific precautions for the application of all controlled chemical products including any products that require local or general ventilation control.

The Contractor shall, without further order, provide and maintain at all times during the progress or suspension of the work, suitable barricades, fences, signs, signal lights and traffic control persons as are necessary to ensure the safety of the public and those engaged in the work. All work shall be carried out in a manner that will cause the least interruption to vehicular and pedestrian traffic and access to commercial and other private property and

the Contractor shall, without further order, provide and maintain at all times during the progress or suspension of work, signs as are necessary to advise the public of access to commercial property.

Where work requiring the use of cranes or large equipment is to be carried out and the limits of approach to power lines could be violated, the Contractor shall prepare and submit to the Engineer, prior to starting the work, a detailed written work procedure prepared in consultation with the site foreman and superintendent.

Work in confined spaces will be performed in accordance with the WorkSafeBC Occupational Health and Safety Regulation. Prior to commencement of work, the Contractor shall submit a copy of their confined space entry program including written confirmation of training and instruction of confined space personnel.

Any notice of violation issued to the Contractor, Sub-contractor, other worksite employer or worker by the Workers' Compensation Board for non-compliance of WorkSafeBC Occupational Health and Safety Regulations shall be considered a breach of Contract and may result in termination or suspension of the Contract and/or any other actions deemed appropriate, all at the discretion of the Owner.

38. EMERGENCIES

The Engineer has authority in an emergency to stop the progress of the work whenever in his opinion such stoppage may be necessary to ensure the safety of life, or the work, or neighbouring property. This includes authority to make changes in the work, and to order, assess and award the cost of such work, extra to the Contract or otherwise, as may in his opinion be necessary. The Engineer shall within TWO (2) WORKING DAYS confirm in writing any such instructions. In such a case if work has been performed under direct order of the Engineer, the Contractor shall keep his right to claim the value of such work.

39. NOTICE TO PROCEED

Following the execution of the Contract by the Contractor and the provisions of the required bonds and insurance policies, a written Notice to Proceed with the work will be given to the Contractor by the Owner. The Contractor shall begin work within FOURTEEN (14) CALENDAR DAYS following receipt of the Notice to Proceed and shall prosecute the work regularly and without interruption thereafter, unless otherwise directed in writing by the Engineer or Owner, in such a manner as to secure completion of the work within the time stated in the Contract. Time shall be of the essence of the Contract.

If, however, when the Notice to Proceed is given, a strike or lockout affecting workers of a classification required to organize or begin performance of the work reasonably prevents the Contractor from beginning work promptly, the completion date stated in the Contract will be extended by the same number of WORKING DAYS as the strike or lockout. If the strike or lockout affects workers of several classifications and such strike or lockout ends on different dates, the end of the strike or lockout will be deemed to occur when all workers of a classification required to organize or begin performance of the work are permitted to work for the Contractor. No extension of time herein provided, shall be grounds for any claim whatsoever by the Contractor for extra payment.

40. FAILURE TO COMPLETE ON TIME

If the Contractor fails to complete the work within the time required by the Contract Documents, the Owner, in addition to any other rights and remedies he may have, shall be entitled to deduct from any payments due to the Contractor the daily amount stipulated in the Tender Form as liquidated damages.

No bonus will be allowed by the Owner for completion of the works in less time than specified in the Contract.

41. SCHEDULE OF COMPLETION

The Contractor shall prepare a detailed work schedule and plan of operation for approval by the Engineer. The work schedule and plan of operation, unless otherwise approved by the Engineer, shall be submitted to the Engineer not later than FOURTEEN (14) CALENDAR DAYS after the date of the Notice of Award and shall be approved by the Engineer prior to the issuance of the Notice to Proceed. Upon receipt and approval of such work schedule and plan of operation by the Engineer, the schedule shall become the approved construction schedule. Neither the plan of operation nor the approved construction schedule shall be changed without the prior written approval of the Engineer.

The work schedule and plan of operation shall describe the proposed labour force and equipment, sequence and methods of operation, restraints, delivery windows, shop drawing submittal and review times, activities on the critical path, project float time, milestones and projected weekly progress to show completion of all work within the Contract time beginning with the date of Notice to Proceed and concluding with the date of Substantial Completion. The schedule shall be based on a standard 5-day, 40-hour work week and shall be provided in bar-chart form, on maximum 11 inch by 17 inch size paper , and in digital form on a floppy disk or CD using an approved project planner software package. The float time shown is a project resource available to both parties to meet milestones and the Contract time for completion. Pursuant to the float-sharing requirement, no time extensions will be granted nor delay damages paid until a delay occurs that (i) impacts the project's critical path, (ii) consumes available float or contingency time, and (iii) extends the work beyond the Contract completion date. The schedule requirement herein is the minimum required. The Contractor may prepare a more sophisticated schedule if such will aid him in the execution and timely completion of the Work.

If the Engineer should be of the opinion, and so state in writing to the Contractor, that the rate of progress of the work is insufficient to enable the whole of the work or any part or parts thereof to be completed within the time specified for such completion in the approved construction schedule, the Contractor shall take whatever steps the Engineer may in his absolute discretion specify in writing to the Contractor to expedite the progress of the work. Such steps may include, but shall not be limited to adoption of shift work and/or the provision of additional men or equipment. The Contractor shall not be entitled to any extra payment by reason of such order of the Engineer.

42. CHANGES IN THE WORK

The Owner, without invalidating the Contract, may make changes by altering, adding to, or deducting from the work. The Contractor shall proceed with the work as changed and the work shall be executed under the provisions of the Contract. No change shall be undertaken by the Contractor, without written order of the Engineer, except in an emergency endangering life or property, as described in Article 38, and no claims for additional compensation shall be valid unless the change was so ordered. No payment for extra work or changes in any contract will be entertained by the Owner unless a "Change Order" form is completed and signed by the Engineer and Contractor.

If, in the opinion of the Engineer, such changes affect the time of Contract completion or the Contract amount, these will be adjusted at the time of ordering the changes. The value of the addition or deduction from the Contract amount, and the method of determining such value, shall be decided by the Engineer. The Engineer will use one (1) or more of the following methods in deciding such value:

(a) By unit prices or combinations of unit prices in the Tender Form;

(b) By unit prices submitted by the Contractor and accepted by the Owner;

(c) By lump sum submitted by the Contractor and accepted by the Owner; or

(d) On a force account basis as specified in Article 43.

If the Contractor and the Owner cannot agree on the method of determining such value, the Engineer shall decide and certify the unit prices or lump sum to be used which are or is in his opinion fair and reasonable to both parties and his decision shall be final, subject only to Article 58.

43. FORCE ACCOUNT WORK

Compensation for work done on a force account basis shall be made as follows:

(a) Force account rates for personnel and equipment as specified in the Tender Form will form the basis of payment to the Contractor. All tendered force account rates shall include a maximum of ten percent (10%) mark-up for all overhead costs incurred in relation to the work and a maximum of ten percent (10%) mark-up for profit.

(b) Materials incorporated into the Work by the Contractor shall be at the Contractor's actual cost, as evidenced by invoice, including all transportation, freight and haulage costs plus a markup of ten percent (10%) on such actual cost to cover all overhead, handling and profit.

(c) Force account work performed by a sub-contractor shall be paid at the force account rates specified in the Tender Form. All material incorporated into the work by the sub-contractor shall be at the sub-contractor's actual cost, as evidenced by invoice, including all transportation, freight and hauling costs plus a ten percent (10%) markup on such actual cost to cover all overhead, handling and profit. The Contractor, upon submission of the sub-contractor's costs, shall be permitted to add five percent (5%) to materials costs submitted by the sub-contractor to cover all overhead, handling and profit.

(d) The cost of the work done each day shall be submitted to the Engineer by the Contractor in a satisfactory form on each succeeding day after force account work is carried out and shall be approved or adjusted by the Engineer. No claim for compensation for extra work or materials shall be considered or allowed unless such report shall have been made or the Engineer shall have extended the time for such reports or released the Contractor therefrom. The submission to, or acceptance or approval by, the Engineer of daily force account cost records shall not at any time be deemed to be an admission that the work is properly chargeable to force account.

44. EXTENSION OF CONTRACT TIME

The time for completion of the work under the Contract may be extended by the Owner in the event of one (1) or more of the following:

(a) Where extra work as herein provided is added to the work under this Contract;

(b) Where the work is suspended as provided for in Article 17;

(c) Where the work is delayed on account of conditions which could not have been foreseen or which were beyond the control of the Contractor and which were not the result of the fault or negligence of the Contractor, his agents, or employees, provided, however, rain, wind, flood, or other natural phenomena of normal intensity for the area shall not be construed as cause for an extension of time for completion of the work;

(d) Where delay occurs in the progress of the work as a result of the act or neglect of the Owner or his employees, or by other contractors employed by the Owner;

(e) Where delay occurs as a result of an act of a public authority;

(f) Where the Engineer causes delay in furnishing of drawings or necessary information;

(g) Where strikes, lockouts, or labour disputes prevent or substantially interfere with the progress of the work; or

(h) Where, in the opinion of the Engineer, the Contractor is entitled to an extension of time.

A claim for extension of Contract time shall only be considered when submitted by the Contractor to the Engineer in writing within SEVEN (7) CALENDAR DAYS of the occurrence of the delay on which the claim is based, provided, however, that in the case of a continuing cause of delay only one (1) claim shall be necessary. Within a reasonable period after the Contractor submits a request for an extension of time, the Engineer will present his written recommendation to the Owner stating his opinion on whether or not the delay justifies an extension of time; and, if so, the number of WORKING DAYS extension due to the Contractor. The Owner will make the final decision on all requests for extension of time.

Granting of additional time to complete the work pursuant to this Article shall not constitute grounds for any claims whatsoever for additional payment, save on the grounds set out in (b) and (d) above.

45. USE OF COMPLETED PORTIONS

The Owner will have the right to take possession of and use any completed or partially completed portions of the work, whether the time for completing the entire work or such portions has or has not expired, but such taking possession and use will not be deemed an acceptance of any work so taken possession of or used. If such prior use increases the cost of, or delays the completion of uncompleted work or causes refinishing of completed work, the Contractor shall be entitled to such extra compensation or extension of time, or both, as the Engineer may determine.

46. PROGRESS PAYMENTS

At the end of each calendar month the Engineer will calculate all progress payments for that month and will prepare certificates for payment by the Owner. Where unit prices apply, payment will be calculated on the basis of the tendered prices and the units of work completed as determined by the Engineer. Where a lump sum price applies, payment will be calculated on the basis of the Engineer's estimate of the percentage of work completed.

The payment certificate shall show as of the end of the last day of each calendar month the value of all labour and materials incorporated into the works, including extras, and all adjustments previously made whether additions or deductions. The certificate shall also show the aggregate of previous payments, the amounts withheld to comply with the builder's lien legislation, and the amount, if any, of the holdback released in respect of completed subcontracts. Except in respect of the final progress payment, the gross amount shown on such certificate, less the aggregate of all previous payments, previous sums withheld, and the amount then required to be withheld to comply with the applicable builder's lien legislation as set out below, shall become due and be payable by the Owner to the Contractor on or before the last day of the next month. In those cases where the work is such that the builder's lien legislation does not apply or does not require the retention of a holdback, the Owner will nevertheless retain holdbacks to the same extent as if such legislation applied to the work.

Ten percent (10%) of each progress payment shall be retained by the Owner to comply with the *Builders' Lien Act* until payment is due in accordance with the provision of Article 54.

The monthly estimates shall not bind the Owner or Engineer in any manner in the preparation of the final estimate of the work done, but shall be construed and held to be approximate only, and shall in no case be taken as an acceptance of the work or as a release of the Contractor from his responsibility therefor.

47. STATUTORY DECLARATION

The Contractor shall, prior to receiving payment on each progress certificate except the first one, provide to the Owner a Statutory Declaration, stating that "all employees, sub-contractors and suppliers used in connection with the work have been fully paid and satisfied by the Contractor, and that all fees and assessments have been paid or are in good standing, and that there is no claim outstanding or pending in respect of the work carried out and that no lien has been filed against the Owner's lands or against any materials or equipment for work done or materials supplied under the Contract."

48. PAYMENT WITHHELD

Upon receipt of a certificate in writing from the Engineer stating that, in his opinion, justification exists and stating the basis and the amount of such deduction, the Owner may withhold or nullify, on written notice to the Contractor specifying the ground or grounds relied on, the whole or part of any progress payment to the extent necessary to protect himself from loss on account of one (1) or more of the following:

(a) That the Contractor is not making satisfactory progress in the opinion of the Engineer;

(b) That defective work is not being remedied at all or in a manner satisfactory to the Engineer;

(c) That a claim or claims of lien has been filed against the lands and premises on which the work is done or is being done, or reasonable evidence of the probable filing of such claims or claims of lien;

(d) That the Contractor is failing to make prompt payments as they become due to subcontractors or for material or labour; or

(e) That there exist unsatisfied claims for damages caused by the Contractor to anyone employed on the site or in connection with the work.

(f) That the Contractor owes a debt to the Owner under a separate contract, agreement or offer between the Owner and the Contractor which remains unpaid for more than THIRTY (30) CALENDAR DAYS from the last day of the month in which the invoice was issued.

Where subcontractors or suppliers of materials are not receiving prompt payment, the Owner may make payment to such subcontractors or suppliers directly and deduct the amount of such payments from amounts otherwise due to the Contractor.

49. BUILDERS' LIENS

The Contractor shall remove or cause to be removed all claim of lien or liens filed or registered against the lands and premises on which the work is being performed which claim of lien or liens arise out of anything done or to be done under the Contract. Such removal shall be effected by the Contractor forthwith upon demand by the Owner or the Engineer.

The Owner shall release a holdback in respect of a completed subcontract if a Certificate of Completion has been issued in respect of that subcontract and the holdback period established under the *Builders' Lien Act* has expired without any claims of a lien being filed that arose under that subcontract.

Notwithstanding anything elsewhere contained in the Contract Documents, the Contractor shall indemnify and hold harmless the Owner from all demands, damages, costs, losses and actions arising in any way out of claims of lien or liens which arise out of anything done or to be done under the Contract whether the lien period binding on the Contractor has expired or not.

The obligations imposed on the Contractor by the provisions of this Article 49 shall not extend to claims of lien or liens properly and lawfully filed by the Contractor himself.

50. COMPLETION AND NOTICE OF ACCEPTANCE

When the Contractor is of the opinion that he has substantially performed the work, he shall inspect the work to ensure that all work has in fact been substantially performed, that it is in a clean and tidy condition and that it is ready for use by the Owner. He should then submit a written request to the Engineer to determine whether the Contract has been substantially performed. The Engineer will make an inspection and if he determines that the Contract has been substantially performed, he shall so advise the Owner and the Contractor, and a Certificate of Completion will be issued in accordance with the *Builders' Lien Act*.

The Engineer will notify the Contractor in writing of any defects or deficiencies which require correction. When the defects or deficiencies have been corrected and the work is ready in all respects for acceptance by the Owner and the Contractor has submitted to the Engineer a written statement that all claims and demands of the Contractor for extra work or otherwise in connection with the Contract have been presented in writing to the Engineer, and after the Letter of Credit has been deposited in accordance with Article 30 and after the statutory declaration required under Article 47 has been provided, the Engineer will recommend to the Owner that a Notice of Acceptance be issued to the Contractor. The Owner, subject to their acceptance of the Engineer's recommendation, will issue the Notice of Acceptance.

51. PARTIAL COMPLETION AND NOTICE OF PARTIAL ACCEPTANCE

If the Contractor considers that, by reason of climatic or similar problems beyond his reasonable control, not all the work can be performed or defects or deficiencies corrected promptly, he may in writing request of the Engineer a Notice of Partial Acceptance and a determination of whether the Contract has been substantially performed to the extent possible. Such request shall be accompanied by a written statement that all claims and demands of the Contractor for extra work or otherwise in connection with the work to be accepted have been presented in writing. If the Engineer considers such request to be reasonable, he will carry out an inspection and will notify the Contractor in writing of any defects or deficiencies which require correction before he will recommend partial acceptance. He will prepare an additional list of defects and deficiencies which in his opinion do not impair the usefulness to the Owner of the whole work and the correction of which may reasonably be deferred. This list shall show the amount which the Engineer considers to be the cost of completing such work and correcting such defects and deficiencies.

When all work has been performed and defects and deficiencies corrected other than those on this list and after the Engineer determines the Contract to be substantially performed to the extent possible, he shall so advise the Owner and the Contractor, and after the Letter of Credit has been deposited in accordance with Article 30, the Engineer will recommend to the Owner that a Notice of Partial Acceptance be issued to the Contractor. The Owner, subject to their acceptance of the Engineer’s recommendation, will issue the Notice of Partial Acceptance. The Notice of Partial Acceptance shall list the work to be performed and the defects and deficiencies to be corrected and the estimated cost thereof and shall fix a date within which all such works shall be performed and the defects and deficiencies corrected.

In considering the Engineer's recommendation, the Owner will consider the effect of the deferred performance of work on the provisions of the applicable builder's lien legislation and may make his acceptance conditional on the Contractor providing written consents of sureties under any Performance or Labour and Materials Payment Bonds or other evidence that no guarantor or surety will be relieved of his obligations.

When all such work has been performed and the defects and deficiencies corrected, the Contractor shall call for final inspection in accordance with Article 50 - Completion and Notice of Acceptance.

If all work is not performed and all defects and deficiencies are not corrected by the date set out in the Notice of Partial Acceptance, the Owner shall be entitled to deduct from any payments due to the Contractor the daily amount stipulated in the Tender Form as liquidated damages. In addition, the Owner may have the work performed and the defects and deficiencies corrected by any means he thinks suitable, and may recover the costs thereof from any money withheld from the Contractor or from the Contractor if such money is insufficient.

52. FINAL PROGRESS PAYMENT

The final progress payment certificate will be prepared following the issuance of the Notice of Acceptance. The Engineer will review with the Contractor all work quantities and all claims and demands of the Contractor for extra work in connection with the Contract. The final progress payment certificate will show the total amount of the payment due to the Contractor less the amount required to be retained under the applicable lien legislation.

The final progress payment shall be made by the Owner within THIRTY (30) CALENDAR DAYS of the date of the final progress payment certificate.

53. PROGRESS PAYMENT AFTER PARTIAL COMPLETION

If the Owner issues a Notice of Partial Acceptance, the Engineer will prepare a progress payment certificate in the same detail as required for a final progress payment certificate. From the amount shown on such certificate to be due to the Contractor shall be deducted the amount required to be retained under the applicable lien legislation and twice the amount shown on the Notice of Partial Acceptance to be the estimated cost of performing the remaining work and correcting the defects and deficiencies. Payment of the net amount due to the Contractor shall be made by the Owner within THIRTY (30) CALENDAR DAYS of the date of this progress payment certificate.

54. RELEASE OF HOLDBACK

A Certificate of Completion, shall be conclusively deemed between the Owner and the Contractor to start the period within which liens must be filed by the Contractor under the applicable lien legislation, and holdback must be released by the Owner.

The Owner shall pay the holdback to the Contractor within FOURTEEN (14) CALENDAR DAYS of the expiry of the statutory time for release of holdback, provided that:

(a) The Contractor has provided to the Owner a certificate from the proper office to register liens to prove that, as of a date TWO (2) CALENDAR DAYS after the expiry of the statutory period, no notice of lien or liens has been filed or other matters recorded to make effective any lien;

(b) The Contractor has complied with any conditions imposed by the Owner in his acceptance of the recommendation of the Engineer to issue a Notice of Partial Acceptance;

(c) The Workers' Compensation Board has, at the request of the Contractor, filed with the Owner a certificate that all assessments due to the Board by the Contractor have been paid, such certificate being dated after the expiry of the statutory period for filing liens;

(d) If, under the applicable lien legislation, there is no person who can provide the certificate referred to in (a) above, in which case the Contractor shall furnish to the Owner a Statutory Declaration, dated not earlier than SEVEN (7) CALENDAR DAYS after the expiry of the statutory lien period, stating why no certificate as is referred to in (a) above is possible, and stating that all employees, subcontractors and suppliers used in connection with the work have been paid and satisfied by the Contractor and that there is no claim outstanding or pending in respect of the work carried out and no lien has been filed against the Owner's lands against any materials or equipment used in connection with the work;

(e) The Contractor has certified to the Owner that there are no funds owing by the Owner to the Contractor other than those funds held back; and

(f) The Contractor has provided a Standby Irrevocable Letter of Credit as stipulated in Article 30.

The statutory period within which liens must be filed is FORTY-FIVE (45) CALENDAR DAYS after the Certificate of Completion was issued, and the statutory period for the release of holdback is FIFTY-FIVE (55) CALENDAR DAYS after the Certificate of Completion was issued.

55. INSURANCE

Without restricting the generality of Article 33, Indemnity, the Contractor shall, at his own expense, provide and maintain the following insurance coverages listed herein unless otherwise stipulated.

Each policy shall contain a clause stating that: "This policy will not be cancelled or materially changed without the Insurer giving at least THIRTY (30) CALENDAR DAYS' notice by registered mail to the Owner."

Unless specified otherwise the duration of each insurance policy shall be from the date of Notice to Proceed until the date of the Owner's Notice of Acceptance.

Certified copies of these policies shall be filed by the Contractor with the Owner within FOURTEEN (14) CALENDAR DAYS after the date of written notification of the acceptance of his tender, and prior to commencement of the work or the supply of materials. Wherever the word "Owner" or "Engineer" is to appear in these policies, the legal name shall be inserted.

The Contractor shall be responsible for any deductible amounts under the policies. The cost of all insurance required by this Contract shall be included in the Total Tendered Amount.

If the Contractor fails to provide or maintain insurance as required by this Article 55, then the Owner shall have the right to provide and maintain such insurance and give evidence thereof to the Contractor. The cost thereof shall be payable by the Contractor to the Owner on demand or the Owner may deduct the costs thereof from monies which are due or may become due to the Contractor.

Wrap Up Liability Insurance

Wrap Up Liability Insurance acceptable to the Owner with limits of liability of not less than FIVE MILLION DOLLARS ($5,000,000.00) inclusive, for bodily injury and property damage for any one occurrence or series of occurrences arising out of one cause and not less than THREE MILLION DOLLARS ($3,000,000.00) for personal injury.

The insurance shall be in the joint names of the Contractor, the Owner and Kerr Wood Leidal Associates Ltd.

The Wrap Up Liability Insurance shall include but not necessarily be limited to the following coverage:

(a) Premises and operations liability;
(b) Products and completed operations liability;
(c) Blanket contractual liability;
(d) Bodily injury and property damage on an "occurrence" basis;
(e) "Broad Form" property damage including the loss of use of property;
(f) Owner's and Contractor's protective liability;
(g) Elevator and hoist liability;
(h) Contingent employer's liability;
(i) Personal injury liability arising out of false arrest, detention or imprisonment or malicious prosecution; libel, slander or defamation of character; invasion of privacy, wrongful eviction or wrongful entry;
(j) Shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunnelling and grading, as applicable; and

(k) Cross liability or severability of interest clause.

The insurance shall continue for a period of at least ONE (1) YEAR beyond the date of the Owner's Notice of Acceptance for the completed operations hazard.

Automobile Liability Insurance

Automobile Liability insurance in respect of licensed vehicles shall have limits of not less than THREE MILLION DOLLARS ($3,000,000.00) inclusive per occurrence for bodily injury, death, and damage to property, in the following forms:

(a) Standard non-owned automobile policy including standard contractual liability endorsement; and
(b) Standard owner's form automobile policy providing third party liability and accident benefits insurance and covering licensed vehicles owned or operated by or on behalf of the Contractor.

Builder's Risk Course of Construction Insurance

Builder's Risk insurance acceptable to the Owner, insuring the full value of the work in the amount of the Total Tendered Amount, and full value as stated of products, if any, that are specified to be provided by the Owner for incorporation into the work.

The insurance shall be in the joint names of the Contractor, the Owner and Kerr Wood Leidal Associates Ltd., and shall include the interests of the Contractor, the Owner, the subcontractors and all others having an insurable interest in the work.

The policy shall preclude subrogation claims by the insurer against anyone insured thereunder and shall contain the following clause:

> "It is agreed that the right to subrogation against the Owner and the Engineer or any of their parent, subsidiary, or affiliated companies or corporations or any employee thereof is hereby waived."

The policy shall be written to insure the work on an "All Risks" basis granting coverage at least equivalent in scope to that provided by the form known and referred to in the Insurance Industry as IAO Form 507, All Risks Builders Risk - Comprehensive Form, including flood and earthquake, subject to a deductible not exceeding FIVE THOUSAND DOLLARS ($5,000.00) for all losses except TWENTY-FIVE THOUSAND DOLLARS ($25,000.00) flood and TEN PERCENT (10%) earthquake.

The policy shall provide that, in the event of a loss or damage, payment shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of the Owner and himself for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined the Contractor shall proceed to restore the work. Loss or damage shall not affect the rights and obligations of either party under the Contract except that the Contractor shall be entitled to such reasonable extension of Contract time relative to the extent of the loss or damage as the Engineer may decide in consultation with the Contractor.

Contractor's Equipment Insurance

Notwithstanding anything contained elsewhere herein, it is understood and agreed that the Owner and/or Engineer will not be liable for any loss or damage to the Contractor's equipment including loss of use thereof. Each and every policy insuring the Contractor's equipment to be used on this project shall contain the following clause:

"It is agreed that the right to subrogation against the Owner and the Engineer or any of their parent, subsidiary or affiliated companies or corporations or any employee thereof is hereby waived."

56. GOODS AND SERVICES TAX (GST)

Federal law states that a five percent (5%) tax be paid on all goods and services. The Contractor is required to identify this tax on all invoices and the Owner is liable to pay this amount to the Contractor.

57. NORMAL HOURS OF WORK

The normal hours of work shall be a maximum of eight (8) hours per day, between the hours of 7:00 am and 6:00 pm, Monday through Friday. No work shall be done at other times or on legal holidays except to carry out such work as is necessary for the proper care and protection of the work already performed, or in case of emergency, or in special cases that the Contractor has requested in writing and the Engineer has approved in writing. Inspection personnel will be provided by the Owner between the hours of 8:00 am and 4:30 pm, Monday through Friday. If the Contractor elects to work outside these hours he must first make arrangements to do so with the Engineer. The additional cost (if any) of inspection by the Owner outside the hours of 8:00 am to 4:30 pm, Monday through Friday shall be refunded by the Contractor to the Owner.

58. DISPUTE RESOLUTION

If any dispute arises between the Capital Regional District and the Contractor as to their rights and obligations under this Contract, after requesting/obtaining the initial decision from the Engineer under Article 6, either of them may give to the other written notice of such dispute and may request arbitration thereof. The parties may agree to submit the matter in dispute to arbitration and such arbitration shall be carried out in accordance with the provisions of the *Arbitration Act* R.S.B.C. 1979, C18.

59. LETTER AGREEMENT WITH REFEREE
N/A

60. DISPUTE RESOLUTION PROCESS
N/A

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

LIST OF DRAWINGS

DRAWING NO.	TITLE	ISSUE DATE	ISSUE NO.
24-W713-1	Location Plan, Key Plan and Legend	7/2/17	1
24-W713-2	Willis Point/Wallace Dr Site Plan, Existing Manhole/Chamber Attributes & Typical Existing Manhole Detail	7/2/17 7/2/17	1
24-W713-3	Wallace Dr/West Saanich Rd Site Plan & Existing Manhole/Chamber Attributes	7/2/17 7/2/17	1
24-W713-4	Interurban Rd R/W Site Plan & Existing Manhole/Chamber Attributes	7/2/17 7/2/17	1
24-W713-5	Interurban Rd Site Plan & Existing Manhole/Chamber Attributes	7/2/17	1
24-W713-6	West Saanich Rd and Beaver Rd R/W Site Plans, Existing Manhole/Chamber Attributes & Pressure Test Sections	7/2/17	1
24-W713-7	Markham Rd Site Plan, Existing Manhole/Chamber Attributes & General Notes	7/2/17	1
24-W713-8	Leachate Pipeline Manhole Upgrade – Manhole Details	7/2/17	1
24-W713-9	Leachate Pipeline Manhole Upgrade – Manhole Details	7/2/17	1
24-W713-10	Leachate Pipeline Manhole Upgrade - Leachate Valve Chamber, Booster Pump Station & Line Valve 2001VLV054 Manhole Upgrade Detail	7/2/17	1
24-W713-11	Leachate Pipeline Manhole Upgrade – Miscellaneous Details	7/2/17	1

THE SPECIFICATIONS

2017-02-07

CAPITAL REGIONAL DISTRICT

HARTLAND LEACHATE LINE MANHOLE UPGRADE

CONTRACT 16-1766

SPECIFICATIONS

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DIVISION 1 GENERAL REQUIREMENTS

1. GENERAL REQUIREMENTS

1.1 SPECIFICATIONS, STANDARDS OR METHODS

When references to the following capitalized abbreviations are made, they refer to specifications, standards or methods of the respective association. Abbreviations listed herein but not mentioned in the specifications shall be disregarded.

The numbers and letters following the abbreviations denote the association's serial designation for the specifications or standard to which reference is made. All references to these specifications, standards or methods shall, in each instance, be understood to refer to the latest adopted revision including all amendments.

ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
AWS	American Welding Society
CAN	National Standard of Canada
CBMA	Certified Ballast Manufacturers Association
CGA	Canadian Gas Association
CGSB	Canadian General Standards Board
CISC	Canadian Institute of Steel Construction
CPCI	Canadian Pre-stressed Concrete Association
CSA	Canadian Standards Association
CUA	Canadian Underwriters' Association
CWB	Canadian Welding Bureau
CSPI	Corrugated Steel Pipe Institute
ISO	International Organization for Standardization
LTIC	Laminated Timber Institute of Canada
MCA	Millwork Contractors Association
MOTH	Ministry of Transportation and Highways
NBC	National Building Code of Canada
NLGA	National Lumber Grade Authority
PMBC	Plywood Manufacturers Association of British Columbia
RTAC	Road and Transportation Association of Canada
UL	Underwriters Laboratories, Inc.
ULC	Underwriters' Laboratories of Canada
WCB	Workers' Compensation Board
WCLIB	West Coast Lumber Inspection Bureau

1.2 GENERAL

1.2.1 Background

.1 The work under this Contract consists of upgrading existing manholes and fittings on the Hartland leachate pipeline and upgrading the pipe, fittings. The work shall be completed in accordance with the specifications and for the prices tendered in the Schedule of Prices and Estimated Quantities.

.2 Historically the pipeline has leaked in a few locations, and it has been difficult to monitor and diagnose the system to manage any leaks into the surrounding environment. The purpose of the project is to improve leachate leak detection, to reduce environmental risks, and to lower operational costs and logistics.

1.2.2 Scope of Work

.1 The Contractor shall, unless specified otherwise, furnish all materials equipment, tools and labour necessary to do the work required under the Contract and shall load and unload, haul and distribute all pipe, supports, fittings, manholes and accessories. The Contractor shall also establish all layout information and maintain as-built data. The Contractor shall also excavate the trenches or pits to the required dimensions; construct and maintain any necessary bridges for traffic control; sheet, brace and support the adjoining ground or structures where necessary; handle all drainage or groundwater; deal with other intersecting or crossing services; provide barricades, guards and warning lights; test the fittings, manhole structures, and accessories; backfill and consolidate the trenches and pits; restore the ground surface to its original condition or as indicated on the Drawings; remove surplus excavated material and haul to a site acceptable to the Engineer; remove all construction shacks, bridges, barricades and clean up the work site; and maintain other surfaces over the trenches as specified.

1.2.3 Drawings

.1 Details of the work are shown on the separately bound Drawings which accompany and form part of this Contract.

.2 The Contractor shall examine all drawings in advance of construction and shall advise the Engineer of any apparent errors, discrepancies or inconsistencies, in order that the Engineer can provide instructions clarifying the design.

.3 The Contractor shall also advise the Engineer of any discrepancies or apparent inconsistencies between the Drawings and the Specifications, in order that the Engineer may clarify the intent of the Contract.

.4 These Drawings may be supplemented or superseded by such additional general and detail drawings as may be necessary or desirable as the work progresses. Such additional general and detail drawings shall not be considered to involve changes or extras within the meaning of the Contract and these Specifications. The Contractor shall perform the work shown on these Drawings at the applicable unit prices tendered in the Schedule of Quantities and Prices for such work, or work of a similar nature as determined by the Engineer. The Contract shall not take advantage of an error or omission, as the Engineer will furnish full instructions should any errors or omissions be discovered.

1.2.4 Site Maintenance and Cleanup

.1 The working area shall be maintained in an orderly manner and shall not be encumbered with equipment, materials or debris.

.2 Cleanup shall be a continuing process from the start of the work to final acceptance of the project. The Contractor shall, at all times and without further order, keep property on which work is in progress free from accumulations of waste materials or rubbish caused by employees or by the work. Accumulations of waste materials which might constitute a fire hazard will not be permitted. Spillage from the Contractor's hauling vehicles on travelled public or private roads shall be promptly cleaned up. On completion of construction, the Contractor shall remove all temporary structures, rubbish and waste materials resulting from his operation.

1.2.5 Traffic Control and Safety

.1 Unless specifically authorized by the Engineer, construction shall be carried out in a manner that will not prohibit travel along existing roads and paths, or prevent access to property adjacent to the work in progress.

.2 The Contractor shall, at all times during execution of the work, take every reasonable precaution to ensure the safety of the travelling public. This shall include, but is not limited to, providing a minimum of two (2) full time flag persons with 2-way radio communication and appropriate signs warning of construction activity, and adequate barricades, flashers, markers and guard rails as may be required to surround open excavations, material piles and equipment which may serve as obstructions to traffic,

.3 The Contractor shall advise the police, fire and other emergency services and the authority responsible for the road on which construction is to take place, at least forty-eight (48) hours in advance of effecting any traffic restrictions, and of the nature and extent of the restrictions that will be imposed.

.4 The Contractor is advised that he shall be required to abide by WCB and municipal requirements regarding traffic control during the construction period.

.5 The Contractor is advised to become familiar with all WCB Traffic Control Regulations including any recent and proposed changes.

1.2.6 Security

.1 The Contractor shall be responsible for the security of all sites and materials during the course of the work, to the satisfaction of the Engineer. This shall include, as a minimum, retention by the Contractor of a qualified security firm to patrol the site during non-working hours at a minimum frequency of once per night.

.2 The Contractor shall provide temporary padlocks for all chambers, stations, etc. during the course of the work. The Owner will supply permanent locks upon acceptance of the work.

.3 The Contractor shall secure any open excavations, work prone to vandalism, or other hazards at the end of each working day. This shall at least include wood hoarding to a height of 2.4 metres as well as warning signs.

1.2.7 Shop Drawings

.1 Submit six (6) sets of shop drawings for approval for all mechanical or fabricated work to be provided under this Contract. Shop drawings shall be submitted at least fourteen (14) calendar days prior to starting fabrication.

.2 Shop Drawings shall show:

.1 dimensions;

.2 materials of construction; and

.3 notes as necessary to fully detail the work.

.3 Review of shop drawings is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that approvals of the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for quantities and dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

.4 Contractor is to provide detailed shop drawings for each air tight HDPE manhole insert sealed/designed/approved by a professional engineer.

1.2.8 As-Built Drawings and Information

.1 It will be the responsibility of the Contractor to maintain a set of white prints updated to show all changes incorporated in to the work. The prints shall be available for inspection by the engineer at all times and shall be delivered to the Engineer upon completion of the work.

.2 These drawings will contain the following information:

.1 All dimensions shown on the design drawings shall be checked as-built or, if changed, the as-built dimensions shall be written in **RED** in the appropriate locations.

.2 Actual invert elevations for sewers at chambers and at strategic points, e.g. stations on vertical curves.

.3 Actual equipment installed (replace ‘or equal’, ‘or equivalent’ by model number and manufacturer)

.4 Distance to property line of leachate mains

.5 Dimensions of all structures including elevations and size of footings

.6 Location, inverts of drainage pipes to structures

.7 Rock profiles in trenches

.8 Description, elevation and location of other services encountered during construction

.3 Within seven (7) days of completion of the work, the Contractor shall submit to the Owner one complete marked-up set of drawings showing all as-construction information, including changes directed by the Engineer.

1.2.9 Information to Subcontractors and Suppliers

.1 The Contractor shall supply complete information to sub-contractors, designers, and equipment and material suppliers. Where both specifications and drawings are required to provide complete information on any aspect of the work, the Contractor shall supply both to the sub-contractor and/or supplier concerned.

.2 The Contractor is responsible for coordinating all work by the subcontractors and suppliers.

1.2.10 Public Relations and Cooperation

.1 The Contractor shall cooperate to the fullest extent with the Owner, the various utilities companies, suppliers, other contractors, the municipality(s), property owners, and local residents and businesses.

.2 The Contractor shall ensure his staff, subcontractors, suppliers are polite and courteous to other contractors and the general public. The Engineer has the right to eject any worker from the job site that does not behave in this manner.

1.2.11 Site Maintenance and Cleanup

.1 The working area shall be maintained in an orderly manner and shall not be encumbered with equipment, materials or debris.

.2 Cleanup shall be a continuing process from the start of the work to final acceptance of the project. The Contractor shall, at all times and without further order, keep property on which work is in progress free from accumulations of waste materials or rubbish caused by employees or by the work. Accumulations of waste materials which might constitute a fire hazard will not be permitted. Spillage from the Contractor's hauling vehicles on travelled public or private roads shall be promptly cleaned up. On completion of construction, the Contractor shall remove all temporary structures, rubbish and waste materials resulting from his operation.

1.2.12 Contractor's Construction Schedule

.1 The Contractor shall submit a complete construction schedule showing in detail its proposed schedule and sequence of operations. The construction schedule shall include, but not be limited to, the following considerations:

.1 specified completion dates;

.2 allowable working times, limited working space, and traffic control requirements;

.3 ordering and delivery of materials;

.4 coordination and availability of sub-contractors;

.5 notification of, and coordination with, the municipality(s), and all other utility owners;

.6 notification of, and coordination with, medical facilities, BC Transit, local residents, businesses and schools;

.7 soil, groundwater, and inclement weather; and

.8 work of other contractors in the area.

.2 The Contractor shall immediately advise the Engineer of any proposed changes in its submitted construction schedule.

.3 The Contractor shall submit a revised schedule if, in the opinion of the Engineer, any construction schedule is inadequate to ensure the completion of the work within the time limit, is not in accordance with the Specifications, or is not being adequately or properly prosecuted. The revised schedule shall provide for proper and timely completion of the work, and the Contractor shall be entitled to no claim for extension of time on account of such requirement.

1.2.13 Permits, Easements and Working Space

.1 The Contractor shall assume that the Owner has complied with the statutory requirements of all legally constituted agencies from whom permissions are required or to whom notices must be given of intention to proceed with construction work.

.2 The Contractor shall be responsible for complying with all municipal and governmental regulations governing construction work within the working areas, including requirements for weekend, holiday, and night work. No work shall be performed outside of normal working hours as specified by the municipality without their prior written approval.

.3 The Contractor shall be responsible for the security of all sites and materials during the course of the work, to the satisfaction of the Engineer. This shall include, as a minimum, retention by the Contractor of a qualified security firm to patrol the site during non-working hours at a minimum frequency of once per night (should by-pass pumping be required during non-working hours, the Contractor must employ a qualified person to ensure that the pumping system(s) do not fail or are not vandalized).

.4 The Contractor shall provide temporary padlocks for all chambers, stations, etc. during the course of the work. The Owner will supply permanent locks upon acceptance of the work.

.5 The Contractor shall secure any open excavations, work prone to vandalism, or other hazards at the end of each working day. This shall at least include wood hoarding to a height of 2.4 metres as well as warning signs.

1.2.14 Construction Signs

.1 The Contractor shall supply and erect, at locations selected by the Engineer, two construction signs showing the following information:

.1 project name

.2 brief description

.3 Owner's name and phone number

.4 Contractor's name and phone number

.5 sub-contractor's names, if desired

.6 The signs shall be a maximum of 1200 x 2400 mm in size.

.7 The Engineer will provide the Contractor with the colour information for construction of the signs, which shall be constructed by a qualified sign builder in strict accordance with the design.

.8 These signs shall be in addition to those signs and signage to be provided in accordance with the Traffic Management Plan.

1.2.15 Environmental Protection

.1 Scope

This section covers performance-based environmental standards to be met by the Contractor during the construction of the work.

.2 Submittals

Five (5) days prior to the commencement of construction activities, the Contractor shall prepare and submit to the Engineer an Environmental Management Plan. The plan shall include, where appropriate, site specific strategies to deal with the following matters:

.1 storm water drainage and sediment control

.2 construction procedures within the riparian zone of a watercourse

.3 plans, procedures and methods to meet permit requirements

.4 waste management

.5 spill prevention and emergency response planning

.6 plans showing the proposed location and types of construction facilities

.7 emergency response plan

The Owner reserves the right to require the Contractor to revise, and resubmit its Environmental Management Plan prior to the commencement of construction activities if, in the opinion of the Engineer, the plan as submitted is inadequate to ensure compliance with the requirements in the Contract Documents.

By reviewing the Contractor's Environmental Management Plan, the Owner shall in no way assume responsibility or liability for the plan. Further, the Owner shall in no way assume responsibility or

liability for the Contractor's compliance with the requirements of applicable legislation and regulations.

.3 Permits

Where applicable, the Owner has made application to the following authorities to complete the work:

.1 Governing municipalities

.4 Contractor's Responsibility

The Contractor shall undertake the work in strict compliance with the conditions contained in the appropriate authorization permits, licenses, and approvals. The Contractor shall not do, omit, or permit any act or thing which contravenes these Specifications, or contravenes applicable legislation, regulations and bylaws, or which cause, or have the potential to cause, environmental damage.

In the event of a discrepancy between any of the clauses of these Specifications and the provisions of any legislation, regulations, or municipal bylaws, the provisions of existing laws, regulations, and bylaws shall prevail.

Should the Contractor's activities contravene these Specifications, the Engineer may issue a stop work order directing the immediate cessation of any activities. The Owner may itself undertake remedial measures, or may order the Contractor to do so, as deemed necessary. The costs of any work stopages, and/or remedial works undertaken, shall be for the account of the Contractor.

The Contractor shall immediately notify the Engineer, in writing, upon the discovery of any hazardous conditions within or immediately adjacent to, the work site. The Contractor shall take suitable precautions to prevent injury to persons, and damage to the environment or property, until the hazardous conditions are remedied or removed by the responsible party.

.5 Air Quality and Dust Control

The Contractor shall control fugitive dust and other airborne emissions from the operation and movement of vehicles and machinery, and from the handling and stockpiling of soils and other construction materials.

Application of chemical dust suppressants to control fugitive dust and other airborne emissions is prohibited.

.6 Sediment and Erosion Control

The Environmental Management Plan shall indicate how discharges from the work site and related work areas, including access roads, excavations and soil fill areas, will be managed to comply with the provisions of the permits.

Care shall be exercised during all phases of the work to minimize sedimentation of watercourses, and to eliminate the release of raw concrete, concrete leachate, concrete wash water and any other debris or deleterious substances into any watercourses.

Construction and excavation wastes, overburden, soil, or other substances deleterious to aquatic life, shall be handled or disposed in such a manner so as to prevent their entry into any watercourses.

No fill shall be either placed or stockpiled within 15 metres from the top of bank of any watercourse unless the watercourse is protected by sediment control measures.

Total suspended solids in runoff water shall not exceed 10 mg/litre when background suspended solid concentrations (as measured at representative locations upstream of the discharge source) are equal to or less than 100 mg/litre. Suspended solids should not exceed 10 percent of background concentrations when background concentrations are greater than 100 mg/litre.

The Contractor shall regularly monitor, maintain and repair the various components of the sediment control plan, as necessary, to ensure they are working effectively to control discharges from the work site. These facilities shall be maintained until the affected areas are sufficiently stabilized and until there is no longer a risk of the delivery of sediments to aquatic habitats.

The Owner may require the Contractor to suspend its operations if the quality of the discharge leaving the work site exceeds levels prescribed by the relevant guidelines or prescribed in the permit or approval. The Contractor shall make the necessary modifications to its sediment and erosion control measures to ensure compliance with the above prescribed levels.

The Contractor shall regularly monitor the quality of water discharges from the work site, and shall maintain records of the results. When water discharges exceed prescribed levels, the Contractor shall immediately put in place a plan to comply with the required levels or suspend operations until the discharge can meet the prescribed levels.

.7 Deleterious Products

Fuels, oils, bitumens, cement, paints, solvents, cleaners, dust suppressants, used fuel and oil filters, and other construction materials shall be stored and handled in a way to minimize leakage and spillage, and to allow containment and recovery in the event of a spill in accordance with applicable legislation and regulations.

The Contractor shall ensure that applicable personnel are adequately trained in the safe storage, handling and use of controlled products and in the transportation of dangerous goods. The Contractor shall maintain a current inventory of all controlled products stored, handled or used on the work site.

The Contractor shall receive from suppliers, and keep in appropriate locations, current Material Safety Data Sheets (MSDS) for all controlled products which may be stored, handled or used on the work site.

The Contractor shall include in its Environmental Management Plan details of its proposed plant and equipment maintenance facilities, and their location. Such facilities shall be confined to a

specific area of the work site that poses no risk of contamination to soils, and is more than fifty (50) metres away from the nearest watercourse. Details of containment facilities for fuels, oils, antifreeze, and other deleterious products, shall be shown in the plan. These shall be designed so that spills can be contained and collected before causing contamination to soils or groundwater.
Wood preservatives, paints, stains, or other similar chemicals, applied to components destined for burial underground, shall be applied on the ground surface and be allowed to dry completely before burial, thus reducing the possibility of leaching into any groundwater.

The Contractor shall designate and use specific areas for the transfer and limited temporary storage of hazardous materials and wastes. These areas shall be clearly labelled and be appropriately controlled in accordance with the Workplace Hazardous Material Information System (WHIMS) and the Transportation of Dangerous Goods Regulation.

Deleterious products not in use, nor earmarked for use, and/or hazardous wastes, shall be removed promptly by the Contractor.

The Contractor is not permitted to place or use underground or above ground petroleum storage tanks on the work site.

.8 Spill Prevention and Emergency Response Planning

The Contractor shall undertake regular scheduled inspections of all deleterious materials and equipment for signs of leakage. Regular visual inspections shall include, among other things, ensuring that all personal protective equipment, and other emergency response equipment, are in place.

The Contractor shall ensure that applicable personnel are appropriately trained in the handling of controlled products, and in the handling of dangerous goods, when preparing goods for shipment and/or receiving dangerous goods.
The Contractor shall include in its Environmental Management Plan, a written site-specific emergency response plan appropriate to the scale of the proposed construction activities. Typical requirements of a plan include:

.1 the probability and severity of an adverse effect to health, property, or the environment of a spill of sewage, chlorinated water, or hazardous materials used, handled, or stored;

.2 spill/release notification and alerting procedures;

.3 containment, recovery, and cleanup procedures;

.4 on-site spill/release cleanup materials, equipment, and locations; and

.5 names and telephone numbers of persons and organizations that may be contacted in the event of a potential environmental incident.

The plan shall be available for inspection by the Owner and regulatory agency personnel.

The Contractor shall maintain a readily available supply of spill prevention and emergency response equipment on the work site at all times in effective working condition, and shall ensure that its personnel are sufficiently trained in its use to deal with environmental emergency situations.

In the event of an environmental emergency, the Contractor shall immediately notify the Owner. If the environmental emergency is a spill to land of a hazardous material in quantities equal to or greater than those listed in the Spill Reporting Regulation under the Waste Management Act, the Contractor shall immediately notify the Provincial Emergency Response Program (PEP) at 1-800-663-3456. Spills of any hazardous material, or any other material, which could be deleterious to fish, shall be reported to Environment Canada at (604) 666-6100.

The Contractor shall submit written incident reports to the Owner within 24 hours of any environmental incident or spill-release. The incident report shall identify the reporting organization, date, time, location, hazardous materials involved, source and persons or organizations notified. In addition, the report shall describe how the spill or release occurred, remedial action taken or planned, and actions necessary to prevent recurrence.

.9 Training and Orientation

The Contractor shall conduct environmental awareness training for all staff prior to commencement of construction activities. The training will include the following:

.1 overview of all the significant environmental issues;

.2 requirements of all permits, approvals, and licenses;

.3 overview of emergency response plan and location and use of emergency response equipment.

.4 detailed briefings shall be held with all staff immediately before commencing work in or about watercourses, or other potentially sensitive areas including environmental protection zones and restricted activity zones such as may be identified in the Owner's environmental assessment documentation.

1.2.16 Operation and Maintenance (O&M) Manuals

.1 Where specific O&M manual requirements are included in the subsequent sections of this Specification, they shall take precedence over the requirements of this section.

.2 The Contractor shall furnish three (3) copies of a complete instruction manual for installation, operation, maintenance, and lubrication requirements for each component of structural, mechanical and electrical equipment or systems.

.3 O&M manuals shall be organized in a clear and logical format and include the following information:

.1 a list identifying the General Contractor, subcontractors, the Consultant, sub-consultants, and suppliers (include addresses, phone numbers, and FAX numbers);

.2 test reports;

.3 warranties;

.4 equipment schedule showing service, unit number, location, make, model, and supplier; and

.5 approved shop drawings.

1.3 TEMPORARY CONSTRUCTION FACILITIES

1.3.1 Access Roads

.1 Temporary roads shall be constructed as required for access to the working areas. Adequate drainage facilities in the form of ditches, culverts or other conduits shall be installed as necessary to maintain these roads. In the construction of access roads, existing drainage facilities, natural or otherwise, shall not be disturbed to the detriment of properties outside the working area and such facilities shall, unless otherwise provided elsewhere in the Specifications, be restored to their original condition on completion of the work.

1.3.2 Sanitary Facilities

.1 Clean, sanitary, latrine accommodations shall be provided and shall be located and maintained such that they are not offensive to any property owner or member of the public. The facilities shall meet with the requirements of the Health Inspector.

1.4. PAYMENT

1.4.1. General

.1 The work to be completed under this Contract will be paid for at the lump sum and/or unit prices set out in the Schedule of Prices and Estimated Quantities.

.2 All costs associated with finding and supplying all material and performing all work specified herein shall be incorporated in the prices set out in the Schedule; these prices shall allow for the Contractor's overhead and profit.

.3 No claim by the Contractor for extra payment on the grounds that work performed or materials supplied in accordance with the Drawings and/or Specifications could not be properly charged to items listed in the Schedule will be considered by the Owner.

.4 Costs for work and material not expressly listed in the Schedule, but included in the Drawings and/or Specifications by either direct mention or implication, shall be included in the items to which they pertain most closely.

.5 The CRD reserves the right to delete any number of manhole upgrades listed in the Schedule of Quantities equal to a total of 25% of the bid price (excluding taxes).

1.4.2. Progress Payments

.1 The Engineer will prepare monthly progress payment certificates in accordance with the General Conditions of the Contract.

.2 The Owner will pay the Contractor on or before the last day of the next month following the period covered by the certificate.

.3 The Owner will hold back ten (10) percent of the amount of each certificate in accordance with the Builders' Lien Act.

.4 The Owner will, where reasonably justified, make special payment holdbacks as provided for in the General Conditions of the Contract.

.5 The Contractor shall provide a Statutory Declaration in accordance with the General Conditions of the Contract for all progress payment certificates except the first one.

1.4.3. Force Account Work

.1 Work may be required which is not covered by the Contract items.

.2 All Force Account work shall be carried out in accordance with the General Conditions of the Contract.

.3 All Force Account work carried out must have prior written approval from the Owner. All hours of work carried out under this item must be approved on the day the work is carried out. It is the Contractor's responsibility to obtain approval each and every day that work is carried out under this item. If these approvals are not received prior to commencement of the work and at the end of each day as the work is carried out, payment may not be considered.

1.4.4. Description of Payment Items

PART 1 - GENERAL

Work shall include, but not necessarily be limited by, the following brief description of payment items in the Schedule of Prices and Estimated Quantities:

Item 1 - Bonding and Insurance

This item shall cover all costs for bonding and security as required by the Instructions to Tenderers, General Conditions and the detailed Specifications.

The lump sum bid under this item may not exceed 1% of the Total Tendered Amount.

Payment will be made at the lump sum price quoted in the Schedule upon receipt and approval by the Owner of the required bonding and security documents.

Item 2 - Mobilization and Demobilization

This item shall include all costs for mobilization and demobilization associated with the Contractor's equipment, site facilities and services.

Payment for mobilization and demobilization will be made at the lump sum price shown in the Schedule. Fifty percent (50%) of the lump sum price will be paid on the first progress payment certificate due after the Contractor has established the operation and facilities specified. The remaining 50% will be paid upon completion of the Contract and removal of equipment and cleanup of the work areas to the satisfaction of the Engineer.

The lump sum bid under this item may not exceed 5% of the Total Tendered Amount.

Should the Tender show a sum in excess of 5% of the Total Tendered Amount, the amount will be reduced to the maximum allowable and the new figure shall prevail both for the purpose of determining low Tender and for payment to the Contractor.

PART 2 – SITEWORK

Item 3 – Pressure Test Entire System

This item shall include all materials and equipment required to hydrostatic test the system in sections and to pressures as shown on the drawings and as specified here in. This may be done in sections between each line valve as construction moves forward.

This item requires the Contractor to provide a sample pipe system test schedule in the Tender process.

Payment will be made at the lump sum rate as quoted in the Schedule.

Item 4 – Trench Rock Excavation

This item shall cover payment for rock excavation in trenches. Payment will be made for excavation of single boulders, pieces of concrete or masonry exceeding one cubic metre in volume. Where solid ledge rock is excavated, the volume of rock for payment will be calculated on the basis of the nominal trench width shown on the Drawings and the depth from rock surface to trench bottom as measured vertically at 3-metre intervals along the center line of the trench over the trench length of rock. This price shall include excavation and disposal of rock, replacement of excavated rock volume with approved backfill material and all work incidental thereto.

There is no guarantee of the quantity for this item.

Payment will be made at the unit rate quoted in the Schedule.

Item 5 – In Ground Concrete Chamber Upgrade

This item shall include: the fabricating supply of materials; storing; placement; removal of excavated/dismantled materials, restoration and cleanup; and installation and testing of all components incidental thereto to complete the works.

Traffic control, which consists of, but not limited to, minimum of two full-time flag persons with 2-way radio communications, signs, including any detour signs required, flashers, markers, signage, guardrails and any other precautions to ensure safety during the construction of this item.

Dismantle existing works as required.

Install as per drawing detail F and associated typical details.

Payment will be made at the lump sum rate as quoted in the Schedule.

Item 6 to 16 - Air Valve Assembly and Manhole Replacement

This item shall include: the fabricating supply of materials; storing; placement; removal of excavated/dismantled materials; and installation and testing of all components incidental thereto to complete each air valve unit's works.

Traffic control shall be included in each air valve unit, which consists of, but not limited to, minimum of two full-time flag persons with 2-way radio communications, signs, including any detour signs required, flashers, markers, signage, guardrails and any other precautions to ensure safety during the construction of each unit.

Dismantle existing works as required.

Restoration and cleanup shall be included in each air valve unit and shall include the supply of materials, placement, compaction and maintenance of roadways, shoulders, sidewalks, pathways, grassed areas and other surfaces that were removed and/or disturbed during construction. Sidewalk, roads, and grass restoration will be per the District of Saanich's final approval.

Install as per drawing detail A and associated typical details.

Payment will be made at the lump sum rate per each individual air valve as quoted in the Schedule.

Item 17 to 26 – Drain Valve Assembly and Manhole Replacement

This item shall include: engineered shop drawings; the fabricating, supply of materials; storing; placement; removal of excavated/dismantled materials; and installation and testing of all components incidental thereto to complete each drain valve unit's works.

Traffic control shall be included in each drain valve unit, which consists of, but not limited to, minimum of two full-time flag persons with 2-way radio communications, signs, including any detour signs required, flashers, markers, signage, guardrails and any other precautions to ensure safety during the construction of each unit.

Dismantle existing works as required.

Restoration and cleanup shall be included in each drain valve unit and shall include the supply of materials, placement, compaction and maintenance of roadways, shoulders, sidewalks, pathways, grassed areas and other surfaces that were removed and/or disturbed during construction. Sidewalk, roads, and grass restoration will be per the District of Saanich's final approval.

Install as per drawing detail E and C along with all associated typical details.

Payment will be made at the lump sum rate per each individual drain valve as quoted in the Schedule.

Item 27 to 31 – Line Valve Assembly and Manhole Replacement

This item shall include: engineered shop drawings; the fabricating, supply of materials; storing; placement; removal of excavated/dismantled materials; and installation and testing of all components incidental thereto to complete each line valve unit's works.

Traffic control shall be included in each line valve unit, which consists of, but not limited to, minimum of two full-time flag persons with 2-way radio communications, signs, including any detour signs required, flashers, markers, signage, guardrails and any other precautions to ensure safety during the construction of each unit.

Dismantle existing works as required.

Restoration and cleanup shall be included in each line valve unit and shall include the supply of materials, placement, compaction and maintenance of roadways, shoulders, sidewalks, pathways, grassed areas and other surfaces that were removed and/or disturbed during construction. Sidewalk, roads, and grass restoration will be per the District of Saanich's final approval.

Install as per drawing details B and E, along with all associated typical details (line valve 2001VLV054 to be installed as per drawing detail 'D' as well).

Payment will be made at the lump sum rate per each individual line valve as quoted in the Schedule.

2. SITEWORK

2.1 EXISTING STRUCTURES AND UTILITY WORKS

2.1.1 Scope

.1 This section refers to the location, protection, removal and replacement of existing structures and utility works.

.2 Existing structures shall mean all existing pipes, creek bridge, creek wall or other works forming a part of sewerage, drainage, water, telephone, electrical, gas, or other utility systems as well as roads, poles, fences, buildings, and other man-made items that may be encountered during construction.

2.1.1 Supply of Materials

.1 The Contractor shall supply all materials required for the works to be constructed under this Contract and for the specified location, protection, removal, and replacement of existing structures.

.2 Unless specified otherwise, materials supplied for replacement of existing structures shall be at least equal to those being replaced.

2.1.2 Location of Structures

.1 The Contractor shall be responsible for locating existing surface and underground structures that may affect the work or may be damaged during construction.

.2 Drawings or descriptions, verbal or otherwise, of existing structures or their location that are given to the Contractor are intended only as an aid to his location of these structures. Measurements and location of the existing underground structures shown on the Drawings are not guaranteed to be accurate, and must be verified by the Contractor prior to proceeding with construction.

.3 The Contractor shall excavate and uncover underground structures for the purpose of establishing line or grade for proposed installation of piping or other works.

2.1.3 Protection of Structures

.1 Unless authorization from the Engineer is received for their removal, underground and surface structures encountered during construction shall be protected from damage. In the event of damage resulting from the construction operation, they shall be repaired or replaced at the Contractor’s sole expense to a condition which is at least the equivalent of that which existed prior to construction.

2.1.4 Protection of Public Utilities

.1 All public utilities shall be protected at all times. In the event that individual utilities require temporary or permanent re-location, the Contractor shall notify the proper authority to obtain permission to work on that utility.

.2 Utilities such as municipal water, underground telephone or hydro, and underground gas shall not be worked on by the Contractor. The proper authority shall be notified as early as possible if work is required to re-locate or repair the utilities.

2.1.5 Emergency Situations

.1 In emergency situations resulting from the construction operation, where life or property are endangered, the Contractor shall immediately take whatever action is possible to eliminate the danger and shall also notify the appropriate authorities of the situation.

2.1.6 Access Maintained

.1 Existing hydrants, valves or control pit covers, valve boxes, curb stop boxes, fire or police call boxes, and all other utility controls, warning systems, and appurtenances thereof shall not be obstructed or made inaccessible at any time by the construction work. Bridges, walks, or other temporary facilities shall be provided as may be necessary to ensure that these controls or warning systems are free for use in their normal manner at all times during construction.

2.1.7 Collection and Disposal of Leachate Residue

.1 Included in this Contract is the provision of containing and collecting residual leachate at each work site for disposal at Hartland Landfill as directed by the Engineer. Any spill of leachate will be cleaned up immediately upon incident and the Engineer notified.

2.1.8 Support of Structures

.1 Existing structures which shall be undermined by the excavation shall be protected against damage from settlement by means of temporary support as required. Where possible, temporary support shall be removed following backfill of excavations to avoid stress concentrations in the existing structures, if damage to the structure could result.

.2 Backfill which is placed under or adjacent to existing structures which have been undermined during excavation shall be compacted in a manner which will prevent damage of the structure from settlement. Such backfill shall be of approved granular material suitable for compaction.

.3 On existing piping, this material shall extend horizontally a minimum distance of 600mm on both sides of pipe at a level 300mm above the pipe and shall slope down from this point at $1^1/_2$ horizontal to one vertical to meet the bottom of the excavation.

2.1.9 Drainage Facilities

.1 Existing culverts, enclosed drains, flumes and ditches, and other drainage structures affected by the work but left in place, shall be kept clear of excavated material at all times during construction. When it is necessary to temporarily remove an existing drainage structure, the Contractor shall provide suitable temporary ditches or other approved means of handling the drainage during construction.

.2 Culverts and drain pipe temporarily removed shall be replaced on line and grade at the time of trench backfilling.

2.1.10 Work in Vicinity of Overhead Power Lines

.1 Equipment shall not be operated where it is possible to bring such equipment or any part of the equipment within 3 metres of any energized electrical conductor unless one of the following safety precautions has been taken:

.1 The utility company has been notified.

.2 the line de-energized, or effectively guarded against contact, or displaced or re-routed from the work area.

.2 For high-voltage transmission lines, a greater clearance shall be provided as determined by the utility company.

2.2 EXCAVATION AND BACKFILL FOR STRUCTURES

2.2.1 Scope of Work

.1 Include all labour, equipment and materials required to excavate, backfill and grade for the construction of all structures and embankment graded areas.

2.2.2 General Requirements

.1 Control of Water – General

Keep all excavated areas free from water during construction. Execute excavation and filling in a manner and sequence that will provide drainage at all times. Remove water in such a manner that it will not be a source of annoyance or damage to adjacent areas.

.2 Run-off Silt Control

The Contractor shall maintain silt retention basins as necessary and shall direct runoff from the construction site to the basins. The Contractor shall remove accumulations of silt throughout the construction period.

The silt retention basins discharge shall be directed to storm sewers.

.3 Excavated Material

All excavated material shall be removed from the site at the time of excavation, except for broken rock which may be used to construct subbase as approved by the Engineer.

.4 Removal of Obstructions

Remove all obstructions, whether natural or artificial, encountered in construction of the work.

.5 Fill Material

Provide all imported fill material required under the Contract.

.6 Disposal of Surplus Excavation Material

Dispose of all excess excavated material at sites obtained by the Contractor. Waste material shall not be dumped on private property without the written permission of the owner of the property.

2.2.3 Safety Requirements

.1 Adhere to local and provincial requirements relating to safety of trenching work.

.2 Adhere to local, provincial and national codes where blasting is required.

.3 Comply with the "Accident Prevention Regulations" of the WorkSafeBC Occupational Health and Safety Regulation in the design, installation, and maintenance of shoring.

2.2.4 Materials

.1 20mm Minus Select Gravel Subbase Material

Provide 20mm minus free draining granular material:

.1 20mm minus road base material.
.2 Having sufficiently few fines so as to be free draining, will be acceptable as select gravel subbase material.
.3 Submit samples to the Engineer for approval prior to construction.

.2 80mm Minus Pit Run Backfill

This material shall be well graded clean gravel constituted of clean, hard, durable uncoated particles, free from clay lumps, cementation, organic and other objectionable material, meeting the following gradation limits:

SIEVE DESIGNATION	**%PASSING**
80.0m	100
25.0mm	70 - 90
0.5mm	50 - 70
[No. 200] 0.075mm	0 - 4

Submit samples to the Engineer for approval prior to construction.

2.2.5 Shoring and Excavated Slopes

.1 Where shoring is not required and not used the sides of the excavation shall be sloped to a safe angle in accordance with the "Accident Prevention Regulations" of the Workers' Compensation Board in

order to provide a stable face. The safe angle of the slope will depend upon local soil conditions, but in no case shall such a slope be steeper than three-quarters horizontal to one vertical.

.2 Design of excavation and shoring may be required to be completed by an independent professional engineering consultant paid for by the Contractor if required by WCB.

2.2.6 Excavation, Restoration of Subgrade and Backfilling

.1 Excavation

.1 Excavate to lines and grades shown on the Drawings.

2.2.7 Backfilling

.1 Prior to backfilling, remove all forms and clean excavation of all debris.

.2 Backfill chambers with 80mm pit run backfill compacted in 300mm lifts to 90% of maximum Standard Proctor density.

.3 Backfill to level shown on the Drawings.

.4 Restore sidewalk to existing conditions.

2.2.8 Measurement and Payment for Additional Work

.1 Extra payment will not be made to the Contractor for expense incurred as a result of the presence of existing structures except as follows:

.1 Location of Existing Structures

Where he is specifically instructed by the Engineer, on site, to locate, by excavating underground structures for the purpose of establishing line or grade, the Contractor will be paid on the basis of the force account rates of the Tender Form. Instructions shown on the Drawings will not be paid under force account but will be included in tender rates.

.2 Relocation of Existing Piping

Where an existing pipe parallels the center line of the trench and lies within 1.5 metres of trench center line, or where an existing pipe crosses the trench and intersects the pipe to be installed and must, in either case, be relocated, the Contractor will, unless otherwise specified elsewhere herein, be reimbursed his cost or costs of others invoiced to him, for the actual relocation work. No payment will be made for delays, standby, or any claims of the Contractor other than that for the actual cost of relocating the existing pipe, and no payment will be made for tunneling under the existing pipe.

2.3 TRENCH EXCAVATION AND BACKFILL

2.3.1 Scope

.1 This Specification refers to trench excavation and backfill. Backfill within the pipe zone is specified under a section in clause 15.1.10.

2.3.2 Trench Excavation

.1 Trench excavation shall be classified as common or rock excavation.

.2 Common excavation is defined as the removal of all material encountered which is not classified as rock excavation.

.3 Rock excavation is the removal of single boulders, pieces of concrete or masonry exceeding one cubic metre in volume, or solid ledge rock which requires drilling and blasting or breaking with a power-operated hand tool for its removal. Removal of soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, or previously blasted or broken stone in rock fills or elsewhere which is less than one cubic metre in volume, or boulders or pieces of fractured rock which do not occur naturally within the excavated volume but fall into the excavation from the adjacent area, shall not be classified as rock excavation. Hard pan (glacial till) shall not be classified as rock.

2.3.3 Base Gravel

.1 Material for stabilization of trench bottom shall be 20mm minus crushed gravel or crushed rock, unless otherwise specified elsewhere herein.

2.3.4 Pea Gravel

.1 Material for stabilization of trench bottom to be used in conjunction with a geotextile material only shall be 10mm x 5mm clean pea gravel. The use of pea gravel elsewhere is prohibited without the prior approval of the Engineer.

2.3.5 Road Mulch

.1 Road mulch shall normally be used for road base. The material shall be evenly graded and shall meet the gradation limits on the gradation chart. Submit samples for approval prior to, and during construction.

2.3.6 Native Backfill Material

.1 Native backfill material shall be material excavated from the trench from which all boulders larger than 100mm in maximum dimension, large roots, stumps, or other debris that would prevent consolidation of the backfill have been removed. Native backfill material shall only be used if approved by the Engineer.

2.3.7 Imported Backfill Material

.1 Imported backfill material shall be pit run, granular, well graded, free-draining, mineral soil free from stones greater than 80mm in maximum dimension and from organics or other material that

would prevent compaction or result in future settlement of the backfill. The Contractor shall submit samples of material prior to commencement of work.

2.3.8 Geofabric

.1 Non-woven geofabric for buried application shall be non-woven needle punched polyester meeting the following requirements:

PROPERTY	MINIMUM REQUIREMENT
Thickness	1.7 – 2.0mm
Mullen Bursting to ASTM D-3786	1500 – 1800 kPa
UV Resistance to ASTM D-4355	85%
Puncture to ASTM D-4833	356
Equivalent opening size	70 – 100 microns
Unit weight	.175 kg/m^2
Permeability to ASTM D-4491	2.5 sec^{-1}

.2 Standard of Acceptance:

Amoco 4545 (Nilex C14) Nonwoven Geotextile available from Nilex at (604) – 420-6433
Trevira type 1114, as available from Armtec Inc. or approved equal.

2.3.9 Trench Alignment and Depth

.1 Following clearing and prior to excavation of the trench, the Contractor will establish the location at which the existing pipe is located.

.2 The trench shall be excavated so that the pipe can be re-laid to the established alignment and depth with allowance made for specified trench wall clearances and bedding as required.

2.3.10 Trenching and Backfilling Equipment

.1 Mechanical trenching and backfilling equipment may be used except where by so doing damage to trees, buildings, sidewalks, curbs, piping, or other existing structures or man-made obstacles above or below ground cannot be avoided. Trenches shall be hand excavated and backfilled where such obstacles prevent the use of mechanical equipment.

2.3.11 Caution in Excavation

.1 Trenches shall be excavated only as far in advance of the pipeline and manhole removal and re-installation operation as safety, traffic, and weather conditions permit. Caution shall be exercised with respect to structures, piping, or other man-made obstacles that may exist within the working area and due consideration given to the protection and support of such properties and structures.

2.3.12 Excavated Trench Material

.1 Excavated trench material may be piled alongside the trench provided the working space is adequate for this purpose and provided that by so doing the backfill material does not spill onto private properties adjacent to line of trench thereby disturbing fences, buildings, shrubs, lawns, or other items of value. Excavated trench material shall not be piled alongside the trench if such stockpiling jeopardizes the stability of the excavation or the safety of the workmen within it.

.2 Piling of excavated material along the trench shall not unduly restrict cross traffic at road intersections. Material shall be cleared from road intersections and provision made for use of the cross road by traffic as soon as possible after excavation has taken place. Pedestrian traffic to individual properties shall be maintained at all times and timber bridges shall be provided where it is necessary to cross open trenches. Roadways, driveways, and drainage facilities shall not be blocked unnecessarily. The spoil pile shall be located such that hindrance to local traffic is minimal.

.3 In order that excavated material may be piled along the trench, roads may be temporarily closed off to traffic provided that adequate detour traffic routes can be established to move traffic around the construction area, and provided also that street entrances to driveways are not blocked from vehicular traffic for periods in excess of one day.

2.3.13 Trench Widths

.1 Trenches shall be excavated such that the existing trench line wall is maintained wherever possible. The existing leachate line is to be protected at all times.

.2 Ledge rock, boulders and large stones shall be removed to provide a clearance of at least 150mm below and on all sides of pipe and fittings.

2.3.14 Bracing and Sheeting

.1 Trenches shall be sheeted and braced in accordance with the requirements of the WCB or as may be necessary to protect life, property and structures adjacent to the work, the work itself, or to maintain trench widths within the specified limits. Trench sheeting and bracing shall be located no closer than 150mm to the widest section of any installed pipe.

.2 Whenever possible, vertical trench timber or sheeting shall be placed so that it does not extend below the springline of the pipe being installed. When it is necessary to place sheeting or timber below the pipe springline, as in the case of over excavation for trench bottom stabilization, sheeting shall be raised in 600mm lifts and all backfill placed below the level of the pipe springline shall be thoroughly compacted on each lift to fill the void left by the raised sheeting.

.3 Trench sheeting and bracing shall be removed where its removal will not result in damage to adjacent structures, otherwise it shall be left in place. When sheeting and bracing is left in place, it shall be cut so that no sheeting remains closer than 900mm to existing ground surface.

.4 Where sheeting or timber is removed from a trench in which backfill is to be compacted, it shall be removed in a manner which permits compaction of the backfill in the manner specified.

2.3.15 Dewatering

.1 Ground and surface water shall be controlled to the extent that excavation and pipe installation can proceed in the specified manner and such that the trench bottom is not disturbed to the detriment of the pipe installation. Trench water shall not be permitted to enter the pipe being installed unless approval is received from the Engineer.

.2 Pumps, well points or other necessary equipment shall be employed to keep excavations free of water. Caution shall be exercised to make sure that foundation problems with existing structures and works under construction do not result from the selected method of dewatering excavations. Discharge from pumps, well points, or other dewatering equipment shall be located and controlled such that loss, damage, nuisance, or injury to the public does not result.

2.3.16 Trench Bottom Conditions

.1 Trenches shall be maintained such that pipe and manhole structures can be installed without getting water, muck, silt, gravel, or other foreign material into the structures. Material remaining in the trench bottom on completion of machine excavating which has been disturbed or softened by workmen or trench water shall be removed before bedding material is placed. The trench bottom shall be firm and capable of supporting the pipe to be installed, otherwise the bottom shall be stabilized by means of over excavation or special foundation designed to support the pipe as hereinafter described.

.2 When the material in the trench bottom is found to be unstable or otherwise unsuitable for pipe support or the support of appurtenant structures:

.1 The trench shall be over excavated to the level at which stable material is encountered and the excavation backfilled to the level of normal bedding with base gravel material. This material shall be compacted with approved mechanical compactors in lifts having a maximum loose thickness of 300mm to provide a thoroughly consolidated pipe base. Bedding material, as specified for normal pipe bedding, may be employed for this purpose to a maximum depth of 300mm below the normal depth of bedding.

.2 If the unstable material extends to a depth at which it is, on the basis of the Contractor’s prices, uneconomical to over excavate as in 2.3.16.2 above, then an approved geotextile filter cloth shall be installed in accordance with the Engineers requirements.

2.3.17 Backfill Within Pipe Zone

.1 The pipe zone is defined as that portion of the trench between the bottom level of the pipe bedding and a level 300mm above the top of the installed pipe. Bedding of the pipe and backfill of the trench within the pipe zone shall be carried out as specified under a section in Division 15 entitled "Leachate Pipe".

2.3.18 Concrete Fill

.1 Concrete to be used for pipe base, encasement, or backfill shall be as directed by the Engineer. Concrete shall have adequate time to set before backfill material is placed.

2.3.19 Placing Backfill

.1 In order that consolidation of backfill is not hampered, trench water, if present, shall be removed prior to commencement of backfilling. To prevent damage to the installed pipe, backfill shall be placed in the trench by rolling down a slope and not by pushing it over the edge of the trench and allowing it to drop vertically. Every effort shall be made to plan the backfilling operation such that exposure of backfill material to wet weather is kept to a minimum. The trench shall be backfilled as close to the pipe laying operation as conditions permit and trench excavations shall not be left open overnight without the written permission of the Engineer.

2.3.20 Backfill Above Pipe Zone

.1 Materials and methods employed in backfilling trenches above the pipe zone shall depend on the location of the trench with respect to travelled and untravelled surfaces, and in particular on the type of material existing on the surface in which the trench is excavated.

.2 Travelled surfaces are graveled or paved roadways, lanes, driveways, parking areas, road shoulders, walkways, or other graveled or paved surfaces over which vehicular or pedestrian traffic normally travels.

.3 Subject to provisions contained elsewhere herein, backfill above the pipe zone and surface restoration of trenches shall be carried out in accordance with the following paragraphs:

.1 Untravelled Surfaces

In untravelled surfaces, unless otherwise specified, trench backfill above the pipe zone shall be select native backfill material as approved by the Engineer. Backfill may initially be built up to a height above original ground level equal to 10% of the trench depth and allowed to settle. Prior to acceptance, however, the trench surface shall be restored to its original level and to a condition which at least is equivalent to that which existed prior to construction unless the approval of the Engineer is given to leaving trench surfaces in a bermed condition.

.2 Paved Travelled Surfaces

In travelled surfaces which exist as paved surfaces, trench backfill above the pipe zone shall be imported backfill material. The top surface of these sections of trench will have their surface restored with a minimum of 300mm of 20mm road mulch.

2.3.21 Imported Backfill Material

.1 Where excavated trench material is not suitable for backfill, in the opinion of the Engineer, it shall be hauled out and disposed of and imported backfill material shall be provided and placed.

2.3.22 Compaction of Backfill

.1 Subject to the provision contained elsewhere herein, compaction of backfill in and above the pipe zone shall be obtained by using approved mechanical, power-driven compactors. Compaction shall be carried out with the soil at optimum moisture content such that compaction to 95% of Standard

Proctor Density (ASTM D698) is obtained. Backfill shall be compacted in lifts of not greater than 300mm uncompacted thickness. The upper 300mm of trench shall be compacted to 100% of Standard Proctor.

2.3.23 Deficiency of Backfill Material

.1 Deficiencies in the quantity of material available for backfilling which result from the construction operation or removal and disposal of rock, boulders, or other material shall be provided and placed by the Contractor at his own expense. The Contractor shall haul suitable material from elsewhere on the project site or, where this is not possible, provide material from other sources obtained by himself to make up such deficiencies in backfill material.

2.3.24 Disposal of Waste Excavated Material

.1 Surplus excavated material shall be removed from the trench area at the time of backfilling and shall not be left along the trench following completion of the backfilling operation.

.2 Waste material which is not required for the works, as shown on the Drawings or specified elsewhere herein, shall be disposed of at sites obtained by the Contractor. Waste material shall not be dumped on private property without the written permission of the owner of the property and the local municipality, if necessary.

.3 Excavated waste material that is contaminated shall be disposed of in accordance with the B.C. Ministry of Environment current disposal regulations for contaminated wastes. All costs for disposal of contaminated wastes only will be considered additional to the Contract and paid for out of the contingency. The Contractor shall check excavated material in areas indicated on the Drawings to ensure compliance and safe disposal at an approved/permitted facility. Invoices for testing/disposal purposes shall be given to the Engineer for payment.

2.3.25 Restoration of Working Areas

.1 Working areas are those areas which are affected by the construction operation but which lie outside the specified limits of trench excavation. Working areas shall be restored in the following manner:

.1 Untravelled Surfaces

Working areas in untravelled surfaces shall be restored to their original condition.

.1 Gravelled Surfaces

Working areas in gravelled surfaces shall be restored by scarifying and regrading the surface or, if necessary, by regravelling the surface with material which is equivalent to that which existed prior to commencement of construction.

2.3.26 Surface Maintenance During Construction

.1 The Contractor shall maintain all trench surfaces and working surfaces affected by his operation throughout the construction period and until such time as the project is accepted by the Owner. Maintenance during this period shall be as follows:

.1 Untravelled Trench Surfaces

Surfaces of backfilled trenches which have been temporarily bermed shall be maintained at, or above, the level of the original ground during construction and shall be finished as specified prior to acceptance. Material shall be provided and placed to fill depressions resulting from settlement of backfill.

Gravelled surfaces of backfilled trenches shall be maintained at the original ground level and free of pot holes and washboard conditions. Additional surfacing gravel shall be provided and placed to fill any surface depressions resulting from settlement of the trench backfill and surfaces shall be graded to eliminate depressions, pot holes, and washboard conditions as often and as soon as they occur.

Bumps or other road hazards shall be adequately marked with lanterns, flashers, and suitable signs until such time as road defects are rectified.

.2 Working Surfaces

In addition to maintenance of backfilled trench surfaces, working surfaces which have been disturbed during construction shall be maintained in the specific finished condition.

2.3.27 Construction Loads

.1 During grading operations it may be necessary for heavy construction equipment to travel over an installed pipe. Unless adequate protection is provided, the pipe may be subjected to load concentrations in excess of the design loads. Before heavy construction equipment is permitted to cross over a pipe, a temporary earth fill should be constructed to an elevation of at least 1 metre over the top of the pipe. The fill shall be of sufficient width to prevent possible lateral displacement of the pipe.

2.3.28 Temporary Trench Bridging

.1 The excavated trench at the daily (or nightly) end point of construction may be bridged with suitably sized steel plates providing that the excavation is completely shored from the bottom of the excavation up to within 300 millimetres of the ground surface. If the required shoring cannot be provided, the trench must be backfilled and the surface must be temporarily restored commensurate with other pertinent sections of these Specifications. The excavation for structures must be fully shored as above with steel plate bridging installed outside of working hours.

.2 All steel plate bridging shall be designed to accept H-20 highway traffic loads.

2.3.29 Blasting

.1 Blasting will be permitted only after securing the approval of the Engineer, and a blasting permit from the local municipality is obtained. Damage caused by blasting shall be repaired by the Contractor at his expense. The method and procedure employed for blasting shall be in accordance with provincial and municipal ordinances. The Contractor shall not do any blasting without first verifying that his insurance covers any loss of life or damage that may result from this work. The Engineer, in granting approval for blasting, does not in any way assume responsibility for injury, loss of life, or damage that may result therefrom, and such approval shall not be construed as approval of the methods employed by the Contractor in blasting, the sole responsibility therefor being that of the Contractor.

.2 **Trench rock is to be drilled and blasted in lifts not exceeding one metre.**

.3 If blasting is necessary, submit a blasting plan for approval prior to any blasting.

2.4 CONSTRUCTION SEQUENCE

2.4.1 Construction Window

.1 Construction may occur between July 1, 2107 and September 15, 2017, however the maximum shut down period for the pipeline is 50 calendar days from the date the pipeline is drained. The 50 day period is based on available storage and typical runoff estimates to the leachate storage ponds during July to September. This shall be referred to as the Construction Window.

.2 The CRD will shut down operation of the leachate pipeline to allow the construction works to proceed. During construction, leachate will be stored at the upstream end of the pipeline in the CRD's existing storage ponds at the Hartland Landfill site.

.3 The CRD will be responsible for ensuring proper lockout procedures are adhered to ensure the pipeline remains inactive during the construction works. The CRD will coordinate a site visit should the Contractor request inspection of the leachate ponds and lockout mechanisms in place.

.4 The leachate pipeline will be drained by CRD personnel. The Contractor shall provide a minimum of 5 working day notice to the CRD to allow for coordinating, shutting down, and draining the pipeline before commencing work on the pipeline.

.5 Once the pipeline is fully drained, the CRD will notify the Contractor and the Construction Window will commence.

.6 The Contractor is solely responsible for project scheduling and ensuring all works are completed within the Construction Window.

2.4.2 General Requirements

.1 The Contractor shall adhere to CRD and local municipality noise bylaws including allowed hours and days of work.

.2 A maximum of 4 excavations, at line valve and/or drain valve replacement locations, are permitted to be open at the same time (this is so that in the event that the leachate lagoons fill unexpectedly

and the CRD has to shut the project down to drain the lagoons there would be limited effort to get a pipeline operational).

2.4.3 Construction Sequence

.1 The following general sequence of works is provided for information only, the Contractor shall provide a detailed construction sequencing plan and schedule to the CRD for approval prior to commencing works.

.1 Submit a traffic management plan to the CRD for approval a minimum of 10 working days in advance of works

.2 Obtain required permits from the CRD and the District of Saanich.

.3 The Contractor shall coordinate a meeting with CRD within 10 working days of contract award to review a draft construction sequence and schedule prior to setting a construction start date.

.4 Conduct Base Leakage Rate tests.

.5 Provide minimum 5 days' notice to CRD of start date to allow for pipeline lockout and draining.

.6 Erect signage and fencing as required by traffic management plan.

.7 Excavate existing chambers and manholes, install new appurtenances, test, backfill, and complete surface restoration works.

.8 Complete post-construction pressure tests.

.9 Commission pipeline

2.4.4 Leachate Storage

.1 The CRD will continually monitor levels in the leachate storage ponds during the Construction Window. In the event the CRD determines pond storage will be insufficient to provide the full 50 day Construction Window, the CRD will notify the Contractor immediately. All works will be stopped. The CRD will request the Contractor re-connect the pipeline to operational condition within 5 working days. This work shall be completed on a time and materials basis.

.2 Once the Contractor has temporarily re-established the pipeline, CRD personnel will operate the pipeline and drain the storage ponds sufficiently to allow construction to continue. Discharge from the pond will continue until the ponds are drained to a suitable level, up to a maximum of 5 working days. After draining the ponds to either a suitable level or at the end of 5 working days the CRD will lockout and re-drain the pipeline at which the Contractor can recommence works.

.3 The Contractor shall make all efforts possible to continue with contract work during the time the CRD is draining the ponds and readying the pipeline for works to continue.

.4 The Contractor shall coordinate a meeting with the CRD on the 40th day of the Construction Window to review project schedule. The Contractor shall present an updated schedule and confirm if works will be completed within the Construction Window. The CRD will review levels in the

leachate storage ponds and provide an update on the Construction Window. If feasible, the CRD may extend the Construction Window at this time.

.5 In the event the Contractor is unable to complete the works within the Construction Window and storage capacities do not allow a time extension, the Contractor shall stop work and re-connect the pipeline to operational condition within 5 working days. At this time CRD personnel will drain the storage ponds sufficiently to allow construction to continue. Discharge from the pond will continue until the ponds are drained to a suitable level, up to a maximum of 5 working days. After draining the ponds to either a suitable level or at the end of 5 working days the CRD will lockout and re-drain the pipeline at which the Contractor can recommence works. The Contractor will be responsible for all costs during this period including costs for CRD personnel.

15 MECHANICAL

15.1 LEACHATE PIPE

15.1.1 Scope

.1 This section refers to pressure pipe and appurtenant fittings for leachate mains.

15.1.2 PVC Pipe

.1 Where specified on the drawings supply and install PVC pipe.

.2 .2 Provide PVC (polyvinyl chloride) pressure pipe to AWWA C900 and CSA B137.3, Class 150, gasket bell end, cast iron outside diameter, up to 300 mm diameter.

.3 .3 Laying lengths shall be 6.1 m.

.4 .4 Joints shall be push-in integrally thickened bell and spigot type to ASTM D3139, Section 6.2.

.5 .5 All gaskets to be Nitrile.

15.1.3 PVC Fittings for Pressure Pipe

.1 Moulded PVC fittings to AWWA C-907, Class 150 and CSA B137.3., nitrile gaskets, fabricated fittings over 200 mm dia.

.2 All gaskets to be Nitrile.

15.1.4 HDPE Pipe

.1 This section specifies high density polyethylene pipe (HDPE) and fittings for use as indicated on the Drawings and as specified herein.

.2 The primary installation method is burial. The means and methods, including the testing for acceptance shall confirm to all applicable standards as noted herein with the intention of providing a leak-free system to the owner.

.3 The design working pressure of the system is as specified on the Drawings.

.4 Materials

.1 The pipe shall be made from a HDPE material having a minimum material designation code of PE4710. The material shall have a minimum cell classification of *445484C1 for PE4710* as defined in ASTM D3350-14. PE4710 resins shall have a minimum PENT value of 2,000 hours and PE3608 resins shall have a minimum PENT value per ASTM F1473 of 100 hours. The Hydrostatic Design Stress (HDS) at 23°C (73.4°F) shall be 1,000 psi for resin designated by PE4710 and 800 psi for resin designated by

PE3608, and shall be listed in the name of pipe manufacturer in PPI TR-4. In addition, the material shall be listed as meeting NSF/ANSI 61.

.5 Pipe

.1 The pipe shall be manufactured in accordance with:

- AWWA C901 or ASTM D3035 for sizes 13 mm thru 75 mm (1/2" thru 3") IPS.
- AWWA C906 or ASTM F714 or ASTM D3035 for size 100 mm (4") and above IPS or DIPS.

.2 Wall thicknesses shall be as designated on the design drawings and based on outside diameter.

.3 To be compatible with specified mechanical joint fittings and valves without special adaptors.

.4 The pipe shall contain no recycled compound except that which is generated in the manufacturer's own plant, from resin of the same specification and from the same raw material supplier.

.5 Table 1 gives the Pressure Class or Pressure Rating and Total Allowable Pressure during surge events for pipe made with PE4710. The design pressure rating shall be derived using an HDS of 1,000 psi at 23°C (73.4°F) for a PE4710 designation .

Table 1: Pressure Class or Pressure Rating and Total Allowable Pressure during surge events for pipe made with PE4710 materials

Pipe Standard Dimension Ratio (DR)	Pressure Rating (PR) or, Pressure Class (PC) for water @ 73°F, psig	Allowable Total Pressure during Recurring Surge, psi	Allowable Total Pressure during Occasional Surge, psi
32.5	63	95	126
26	80	120	160
21	100	150	200
17	125	188	250
13.5	160	240	320
11	200	300	400
9	250	375	500
7.3	320	480	640

.6 For identification purposes, the pipe shall be made with green stripes to identify piping service in accordance with the APWA Uniform Color Code.

.6 Joints:

.1 Joints shall be heat butt fusion joined to ASTM D2657 and in accordance with the manufacturer's recommendations.

.2 De-burr on the inside all butt-fused joints, including all stub-end joints.

.7 Flanged Connections:

.1 HDPE pipe flange assemblies shall meet the following requirements unless otherwise specified by the engineer:

- Solid HDPE stub ends or flange adapters shall be made from PE4710 and shall be formed using extrusion or molding methods. PE4710 stub ends and flange when used with PE3608 pipe shall have the same DR as the pipe. These components shall meet the requirements of ASTM F2880.

- Flange rings shall have bolt-holes and bolt-circles conforming to be Class 150, *ANSI B16.*

- Flange rings shall be ductile iron (ASTM A536-84). They shall be protected from corrosion by galvanization.

- Methods for flange assembly, gasket selection, bolt and washer selection, and bolt torque application shall be as outlined in PPI Technical Note TN-38.

.8 Fittings:

.1 Butt Fusion Fittings: Fabricated HDPE mitred fittings shall be made of PE4710 and a pressure rating equivalent to the pipe pressure rating unless noted specified otherwise on the drawings. All fittings 100 mm and larger shall meet the requirements of AWWA C906. Markings for molded fittings shall comply with the requirements of ASTM D 3261. Fabricated fittings shall be marked in accordance with ASTM F 2206. Socket fittings shall meet ASTM D 2683.

.2 Electrofusion Fittings - Fittings shall be PE4710 with a minimum Cell Classification as noted in 2A.01A. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All electrofusion fittings 100 mm and larger shall be suitable for use as pressure conduits and have nominal burst values of four time the Working Pressure Rating (WPR) of the fitting. Markings shall be according to ASTM F 1055.

.3 Blind flanges to be 25 mm thick HDPE sections, drilling to ANSI B16.1 and ANSI B16.5.

.4 Flange adaptors to be Victaulic Style 994 HDP Class 150 Flange c/w 304 SS bolts and nuts - only to be used specifically where approved by the Owner or Engineer in writing.

.5 Couplings to be Victaulic Style 995 c/w 316 SS bolts, nuts, and washers - only to be used specifically where approved by the Owner or Engineer in writing.

.6 All changes in pipe wall thickness (DR rating) shall be made with shop machined transition spools. Changes in the wall thickness shall be made over a minimum distance of 10 horizontal to 1 vertical.

.9 Gaskets

.1 Gasket selection shall be as outlined in PPI Technical Note TN-38.

.2 Gaskets to be Nitrile suitable for high pressure applications and in accordance with the manufacturer's recommendations for the intended use of the pipeline.

.3 No lubricants, "dopes", or sealants shall be applied to the flange faces or gasket.

15.1.5 HDPE Pipe Installation

.1 Inspection of Materials

.1 The Contractor shall inspect all pipe and accessories for shortages, loss or damage upon receipt of the shipped material at the time of unloading, recording this information directly on the waybill received from the carrier.

.2 Acceptable limits for cuts, gouges or scratches are 10% of the pipe minimum wall thickness. Replace any kinked or out of round pipe, and sections where gouges or scratches are deeper than 10% of the wall thickness.

.2 Handling

.1 Handling of polyethylene pipe shall be carried out in accordance with the manufacturer's recommendations and in accordance with the PPI Handbook of Polyethylene Pipe 2nd Edition.

.3 Pipe Joining

.1 The high density polyethylene pipe shall be installed in strict accordance with the manufacturer's written standard instructions and specifications.

.2 The pipe shall be joined by the method of thermal butt fusion, as outlined in ASTM F 2620, "Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings" or PPI TR-33. Butt fusion joining of pipe and fittings shall be performed in accordance with the procedures recommended by the pipe manufacturer. The temperature of the heater plate should not exceed 210 deg. C (410 deg. F.) and the joining pressure shall not exceed 25 pounds per square inch of projected end area, excluding an allowance for friction.

.3 The Contractor shall use butt fusion equipment approved for use with the pipe supplied. The butt fusion equipment shall be operated by skilled and qualified personnel. Generally joints will be made above ground prior to lowering pipe into trench.

.4 After the pipe has been butt fused into a section, the internal fusion bead shall be removed in accordance with the manufacturer's recommendations. It is imperative that the pipe be cleaned of all polyethylene cuttings and shavings, bead residue and all other waste material prior to lowering into trench.

.5 The critical parameters of each fusion joint, as required by the manufacturer and these specifications, shall be recorded either manually or by an electronic data logging device. All fusion joint data shall be included in the Fusion Technician's joint report.

.6 Mechanical connection of HDPE to auxiliary equipment such as valves, pumps, and fittings shall use mechanical joint adapters and other devices as outlined in the PPI Handbook of Polyethylene Pipe (2nd Edition), Chapter 9 and AWWA Manual of Practice M55, Chapter 6.

.7 Saddle fusion: not permitted.

.8 Socket Fusion: not permitted.

.9 Electrofusion: Electrofusion joining shall be done in accordance with the manufacturers recommended procedure. Other sources of electrofusion joining information are ASTM F 1290 and PPI TN 34. The process of electrofusion requires an electric source , a transformer, commonly called an electrofusion box that has wire leads, a method to read electronically (by laser) or otherwise input the barcode of the fitting, and a fitting that is compatible with the type of electrofusion box used. The electrofusion box must be capable of reading and storing the input parameters and the fusion results for later download to a record file. Qualification of the fusion technician shall be demonstrated by evidence of electrofusion training within the past year on the equipment to be utilized for this project.

.4 Installation – General

.1 Buried HDPE pressure pipe and fittings shall be installed in accordance with ASTM D2774 or AWWA M55.

.2 Buried HDPE non-pressure pipe and fittings shall be installed in accordance with ASTM D2321.

.3 Minimum bend radius shall be in accordance with the PPI Handbook of Polyethylene Pipe (2nd Edition), Chapter 7.

15.1.6 Pre-Cast Manhole Barrels and Lids

.1 Precast manhole barrels and lids supplied shall be manufactured to ASTM C478 standards using the dry-cast method. The concrete used in manufacture of the manhole components shall have the following properties:

.1	28 day compressive strength	min 30 Mpa
.2	maximum aggregate size	12 mm

.3	maximum water/ cementitious materials ratio	0.40
.4	maximum slump	zero
.5	cement	Type 10/20
.6	silica fume admixture content	7% to 10% of cementitious material

.2 Manhole rungs shall be aluminum, grouted into the manhole barrel wall with epoxy.

.3 Manhole barrels and lids shall incorporate 'O' ring joints

.4 All air valve manhole structures are to have poly coating applied to the entire inside surface.

15.1.7 Manhole Bases

.1 Concrete materials for other than the manhole barrel component shall have the following properties as governed by exposure:

.2 Concrete in contact with soil but NOT in contact with leachate:

.1	28 day compressive strength	30 Mpa
.2	maximum aggregate size	12 mm
.3	maximum water/cement ratio	0.50
.4	maximum slump	20 mm
.5	cement	Type 10/20

.3 Concrete in contact with leachate:

.1	28 day compressive strength	30 Mpa
.2	maximum aggregate size	12 mm
.3	maximum water/ cementitious materials ratio	0.40
.4	cement	Type 10/20
.5	silica fume admixture content	7% to 10% of total cementitious materials

.4 The Contractor shall submit the material suppliers mix design for the concrete manhole base materials to the Engineer for approval at least 3 weeks prior to manufacture.

.1 Reinforcing steel used shall be grade 400 deformed steel bars conforming to the National Standard of Canada G30.12M.

.2 PVC pipe to be cast into concrete shall be solvent softened and coated with sand at least 24 hours prior to installation.

15.1.8 Manhole Frames and Covers

.1 Manhole frames and covers supplied shall be heavy duty type for H-20 loading. The cast iron used shall conform with A.S.T.M. A-48 Class 35.

.2 All castings shall comply with section 206-3 of the Standard Specifications for Public Works Construction latest edition.

.3 All manhole covers shall be clearly marked 'CRD LEACHATE'.

15.1.9 Mechanical Couplings

.1 Mechanical couplings shall be as shown on the drawings.

.2 All coupling/flange adaptors to be fully restrained.

.3 All gaskets and o-rings to be Nitrile unless specified or otherwise approved by the Owner.

.4 All mechanical couplings are to be supplied with stainless steel inserts with the correct inside diameter to suit the application.

15.1.10 Bedding and Backfill Within Pipe Zone

.1 Granular material for pipe bedding and initial backfill up to 300mm above top of pipe shall be clean fill sand and shall fall within the following gradational limits:

100%	passing a 10mm sieve
85% to 100%	passing a 5mm sieve
25% to 85%	passing a 0.630mm sieve
5% to 40%	passing a 0.160mm sieve
0% to 5%	passing a 0.080mm sieve

15.1.11 Bedding

.1 Prior to installing pipe, a cushion of bedding material shall be placed in the trench bottom and compacted to grade by approved hand tampers or mechanical means to form a firm pipe base. This cushion shall cover the full width of the trench bottom and have a minimum depth of 100mm on completion of compaction. In rock excavation, the minimum depth of bedding below the pipe shall be 150mm. Bell or coupling holes shall be dug such that the full barrel of the pipe is in position and bedding material shall be placed around the pipe to the limits shown on the Drawings. This material shall be compacted in lifts, each having a maximum compacted depth of 150mm.

.2 In unstable trench bottom conditions, thickness of bedding shall vary as further specified and as indicated on the Drawings.

15.1.12 Pipe Alignment Grade

.1 The Contractor shall confirm that the actual layout alignment agrees with design coordinates. Any discrepancy discovered shall immediately be brought to the attention of the Engineer in order that final adjustments can be made prior to excavation of trenches.

.2 The pipe shall be re-laid on line and grade in accordance with the existing alignment.

15.1.13 Pipe Installation

.1 Pipe shall be checked before being lowered into the trench to ensure that no foreign material, manufacturer's defects, or cracks exist that might prevent proper jointing of the pipe or its operation as a sewer. Pipe and fittings shall be carefully lowered into the trench by means of derricks, ropes, or other approved tools or equipment in a manner that will prevent damage to the pipe and injury of workmen.

.2 Pipe shall be jointed in strict accordance with the manufacturer's recommended practice. Sufficient pressure shall be applied in making the joint to assure that the distance between the end of the pipe installed and the pipe in place is within the tolerances recommended by the pipe manufacturer. Once the joint is home, restraint shall be applied to the pipe by tamping of backfill or placement of temporary blocking to assure that the pipe does not creep and dislodge the joint. At the end of the day's work, or if the work is shut down for an extended period throughout the day, the last pipe shall be blocked to prevent creep in the pipeline and plugged to prevent entry of foreign material.

15.1.14 Connection to Existing Leachate Infrastructure

.1 Connections shall be made to existing leachate lines at locations shown on the Drawings and shall meet local municipal specifications. Caution shall be exercised in uncovering existing pipe to ensure that no damage occurs.

15.1.15 Backfill Above Pipe Zone

.1 Backfill above the pipe zone shall be as specified under a section in Division 2 entitled Trench Excavation and Backfill.

15.1.16 Cleaning and Flushing

.1 On completion, leachate pipe shall be cleaned by flushing or, if necessary in the opinion of the Engineer, proper mechanical cleaning equipment shall be used as necessary to remove foreign material from the pipe.

.2 Leachate mains shall be checked with an instrument to confirm alignment and grade. Variation in line or grade of pipe from that established by the Engineer prior to installation, and any jointing, pipe cleaning, or other deficiencies discovered during the inspection, shall be rectified. During this test, manhole construction and invert elevations shall be checked, and any variations from the established grade, Drawings, or Specifications shall be rectified.

15.2 HDPE MANHOLES

15.2.1 Materials

The pipe for the manholes shall be made from high-density polyethylene (HDPE) resins meeting the following requirements:

.1 HDPE Material Specifications

.1 HDPE Material - The HDPE material be made from a HDPE material having a minimum material designation code of PE4710. The material shall have a minimum cell classification of 445484C1 for PE4710 as defined in ASTM D3350-14. Earlier versions of this specification will not be accepted.

.2 Physical Properties of HDPE Compound

.1 Density - the density shall be no less than 0.955 gms/ccm as referenced in ASTM D 1505.

.2 Melt Index - the melt index shall be no greater than 0.15 gms/10 minutes when tested in accordance with ASTM D 1238 - Condition 3.2.3.

.3 Flex Modulus - flexural modulus shall be 110,000 to less than 160,000 psi as referenced in ASTM D 790.

.4 Tensile Strength at Yield - tensile strength shall be 3,200 to less than 3500 psi in accordance with ASTM D 638.

.5 Slow Crack Growth Resistance shall be per ASTM F 1473 (PENT Test). The results shall be greater than 100 hours.

.6 Hydrostatic Design Basis shall be 1,600 psi at 23 degrees C when tested in accordance with ASTM D 2837.

15.2.2 Submittals and Quality Assurance

.1 QA/QC Certification

.1 The manhole supplier shall submit certification that the HDPE material meets the above specifications.

.2 The fabricator of the manholes shall submit drawings showing the position of the inlets, outlets and overall dimensions along with any other special features such as manways, ladders, etc.

.3 The fabricator shall submit data indicating that the manholes meet the requirements of ASTM F 1759, “Design of High Density Polyethylene (HDPE) Manholes for Subsurface Applications”. The manhole should be proven to have acceptable design for the following areas:

.1 Ring Compressive Strain

.2 Combined Ring Compressive and Ring Bending Strain

.3 Ring Buckling

.4 Axial Strain

.5 Axial Buckling

.6 Thickness of the bottom based on depth and groundwater. Thickness should be based on acceptable stress and deflection amounts.

.7 Calculations supporting these requirements will be part of the submittal package.

.2 The fabrication technician shall perform work in accordance to butt fusion of high-density polyethylene per ASTM D 2657 and for extrusion and hot air welding per ASTM C 1147. The fabricator shall submit the written quality assurance program used during fabrication of the manholes. The fabricator may be required to submit their overall QA/QC program for fabricating thermoplastic structures, the welding certification program for the fabrication technician per ASTM C 1147 and the facility safety program.

.3 The structure shall be determined to be leak free before shipping. A written certification shall be sent to the engineer certifying the manholes are leak free. The test results shall become part of the submittals. An identification plate indicating the job number, testing data, when built and by whom shall be attached to the inside of the manhole.

15.2.3 HDPE Manhole Construction

.1 The HDPE manholes shall be constructed of HDPE pipe with a nominal OD and a DR rating as specified on the design drawings. For sizes above 63", a profile wall pipe can be used. The service conditions will determine the class of pipe. The supplier shall provide calculations to verify the wall thickness to be used.

.2 The bottom thickness of the manholes will be determined in accordance with ASTM F 1759. The supplier shall provide calculations to justify the thickness of the bottom.

.3 The inlets and outlets shall be extrusion welded on the inside and outside of the structure using good welding practice. Gussets shall be attached at 90 degrees, 180 degrees, 270 degrees, and 360 degrees around the inlets and outlets unless impractical.

.4 All manhole connections larger than 4" nominal OD pipe shall be butt fusion welded or flanged connections.

.5 The ladders in the manholes, if specified, shall conform to Work Safe BC and CRD requirements.

.6 Top of the manholes shall be built to the requirements of the drawings. Flanged tops or manways will be required as shown on the design drawings.

.7 When large changes in temperature are expected restraints shall be designed as an integral part of the manhole by the fabricator/manufacturer to prevent strain at the inlets or outlets. These restraints shall be cast into a concrete collar around the pipe. Anti-flotation and/or anti-settling anchor collars, if required, shall be designed as an integral part of the manhole by the fabrication/manufacturer of the manhole. Shop drawings, approved by the specifying engineer shall be required for restraints, anchors, collars, etc. that are designed by the manhole fabricator/manufacturer prior to acceptance of the HDPE structures.

15.2.4 Construction Practices

.1 Handling of Manholes. HDPE manholes shall be stored on clean, level, and dry ground to prevent undue scratching or gouging of the pipe. The handling of HDPE manholes shall be done in such a manner that there is no damage.

.2 Flanged Connections. Flange adapters (where shown in the drawings) shall be attached to HDPE manhole inlets and outlets stubs during fabrication by butt fusion welding per ASTM D 2657. A ductile iron back up ring will be used with each flanged connection. The rings will use a standard ANSI CL 150 bolt pattern. Check the drawings for materials required for corrosive conditions.

.1 Bolts shall be tightened in a “star pattern” to recommended torque values.

.2 Bolts must be tightened a second time after 24 hours to insure a positive seal.

.3 Pipe Joining. HDPE pipe shall be joined using butt fusion. All butt fusion welds should be made as described in ASTM D 2657. Electrofusion welding can be used for making pipe welds. Hot air and extrusion welding are not permitted for pipe joining. All pipes and fittings welds should be made using a McElroy Manufacturing DataLogger. A record of the temperature, pressure and graph of the fusion cycle shall be maintained by the contractor.

.4 Handling of Fused Pipe - Fused segments of pipe shall be handled so as to avoid damage to the pipe. Limit bending of the pipe welded to fittings or manholes. Nylon slings are preferred.

.5 Equipment Mounting - Special provisions must be made when mounting pumps or other equipment in an HDPE manhole. Bolting directly to the wall of the HDPE structure is not approved.

15.2.5 HDPE Manhole’s Factory Test

.1 Manholes shall be factory tested with water or with air. The hydrostatic test shall be conducted by filling the structure with water and checking for leaks. Minimum test duration will be one hour. If air is used, 2 to 5 psi shall be used for 30 minutes. Data showing the structure to be leak-free will be supplied. The owner or his representative may request to observe the test.

15.2.6 Variation From Permissible Leakage

.1 Should any test of pipe laid disclose leakage greater than that specified, the Contractor shall, at his own expense, locate and repair the defective joints or pipes until the leakage is within the specified allowance.

15.2.7 Repairs and Alterations

.1 All repairs shall be inspected by the Engineer before backfilling, otherwise re-excavation at the Contractor's expense shall be required.

15.2.8 Measurement and Leakage

.1 The cost of performing the pressure and leakage tests, supplying necessary main cocks, and of making any necessary repairs and cleanup shall be included in the lump sum price. No extra payment will be made for additional repetitive testing as a result of failure of previous tests.

15.3 TESTING OF NEWLY INSTALLED PIPING

.1 This section describes the requirements to hydrostatically test newly installed piping and appurtenances at each new manhole, from the upstream coupling to the downstream coupling for each manhole. The test sections consist of both HDPE and PVC piping.

.2 This tests will be conducted in isolation of the existing leachate pipeline.

.3 Notify the Engineer at least 24 hours in advance of all proposed tests. Perform tests in presence and under direction of the Engineer.

.4 Do not conduct tests until at least 5 days after placing concrete or 2 days if high early strength concrete is used.

.5 Strut and brace caps, bends, tees, and valves, to prevent movement when test pressure is applied.

.6 Open valves.

.7 Expel air from main by slowly filling main with water.

.8 Thoroughly examine exposed parts and correct for leakage as necessary.

.9 Apply hydrostatic test pressure of 1550 kPa (225 psi) for a period of maximum two (2) hours, or shorter if at the discretion of the engineer the pressure has stabilized to steady state, This is called the ‘expansion phase’.

.10 Examine exposed pipe, joints, fittings and appurtenances while system is under pressure.

.11 Remove joints, fittings, appurtenances found defective and replace with new sound material and make watertight in an approved manner.

.12 Measure make up water required to maintain the test pressure following the ‘expansion phase’. Compare relative to allowable leakage in Table 8 of the Sclair Pipe Installation Manual.

.13 Following the expansion phase, the second phase of the test shall be of 2 hour duration at 1,550 kPa (225 psi).

.14 Repeat hydrostatic test until defects have been corrected.

.15 In no case shall the total of the expansion phase and pressure test be greater than 8 hours.

15.4 HYDROSTATIC PRESSURE TEST

The Contractor shall conduct hydrostatic pressure tests on the existing pipeline in five (5) sections as laid out in the schedule below. Testing shall be to AWWA C605. The pressure tests shall be at the test pressures noted, for 2 hour durations.

The Contractor shall notify the Engineer at least 24 hours prior to conducting any pressure tests.

A base leakage rate test shall be conducted to determine any existing leakage in the system.

.1 The base leakage rate test shall be completed PRIOR to any installation work is completed and PRIOR to draining the system.

.2 Base leakage rate tests shall be completed by section and at the test points noted in the schedule below.

.3 Test pressures can be achieved by adding water as required.

.4 The Contractor shall report the base leakage rate per test section to the CRD.

Once the manhole upgrade work is completed on each section, a final pressure test can be completed per section.

.1 Water shall be used as the test fluid for final pressure tests.

.2 The Contractor shall coordinate with the local municipality and fire department if hydrants will be used as the water source.

The Contractor shall report the leakage rate measured at each test location. If the leakage rate is greater than the base rate by more than 5% then the Contractor shall be responsible for showing that the leakage is not occurring in the sections of new pipe and manholes.

Pressure Test Schedule:

Section	Start	End	Test Pressure	Measurement Location
1	Flow Meter Chamber at Landfill	Line Valve VLV034	70 psi	VLV028
2	Line Valve VLV034	Booster Pump Station	100 psi	Air Valve VLV004
3	Booster Pump Station	Line Valve VLV031	70 psi	Air Valve VLV011
4	Line Valve VLV031	Line Valve VLV030	70 psi	Air Valve VLV007
5	Line Valve VLV030	Control Valve at Markham Rd	70 psi	Air Valve VLV002

** See drawing number 24-W713-6 for hydraulic profile.

17. TRAFFIC MANAGEMENT PLAN

17.1 INTRODUCTION

A properly implemented Traffic Management Plan will:

.1 formulate specific plans to maintain traffic through and around the construction work site, with minimal traffic disruptions and provisions for customer access.

.2 protect the general public from inadvertent harm arising from activities during construction

.3 maintain mobility of construction equipment, material and workers in and out of the work zones

The Contractor's Traffic Management Plan for the Hartland Upgrade 2008 Project shall provide guidelines that must be followed to minimize traffic disruptions and ensure the safety of workers and the facility's customers and ensure the protection of the Work Site.

The Contractor will be responsible for all costs related to implementation of the Traffic Management Plan unless otherwise identified.

The Contractor may make changes to their Traffic Management Plan, however, the changes must be approved by the CRD Representative or designate. The Contractor will be responsible for the costs of any changes to the Traffic Management Plan.

17.2 PROJECT DESCRIPTION

The project includes, but is not limited to, upgrade of the residential customer disposal area.

17.3 PROJECT LOCATION

The work zone is located at Hartland Landfill, 1 Hartland Avenue. The work zone is located within the District of Saanich.

17.4 ROAD CLASSIFICATION

The CRD classifies all roads in the Hartland Landfill front end public disposal area as local public roads.

17.5 TYPE OF TRAFFIC

The majority of the customer traffic is highest on Mondays and Saturdays. Traffic data on the facility indicates the daily traffic volume to be 150 vehicles to Recycle only and 250 vehicles to Refuse and/or Recycle combined for a total of 400 vehicles.

17.6 SPEED LIMITS

The existing speed limit through the work zone is 15 km/h.

17.7 HOURS OF WORK

Hours of work will conform to the District of Saanich noise bylaw requirements and the landfill site regulations. The Contractor shall be responsible for obtaining all necessary variances required to undertake the work. The regular hours of operation at the residential customer facility are Monday to Friday, 9 a.m. – 5 p.m. and Saturday 7 a.m.-2 p.m.

17.8 WORK COORDINATION

The Contractor is to liaise with the landfill staff in developing the Traffic Management Plan. All facilities must remain open and accessible during regular hours of operation.

APPENDIX A

OWNER'S NOTIFICATION OF HAZARD

Making a difference...together

OWNER'S NOTIFICATION OF HAZARD

DISTRICT OF SAANICH

Contract #: 16-1766	Location: District of Saanich Multiple roads (from Willis Pt Rd through W.Saanich Rd to Markham Rd)	Date: February 2017
Contractor:		Phone: ( )
Contractor Representative:		Phone: ( )
Prime Contractor:		
CRD Representative: Kyle Teshcke/Shane Dunaway		Phone: (250) 360-3641 / (250) 480-8721

Listed below are pre-existing known hazards identified by the District of Saanich which are relevant to the project. The list may not be all-inclusive. The Contractor must assess the work area to determine if other hazards exist. If the Contractor identifies additional hazards, the Contractor must notify the CRD project manager or designate.

The Contractor is responsible for addressing these hazards and other hazards identified during the course of the project.

Hazard:	Details:
Traffic	Busy vehicular, pedestrian and cycling traffic on multiple streets.
Overhead Utilities	Overhead power and communication lines on multiple streets.
Leachate Sewer	Leachate residual control at tie-ins require exposure to leachate. Containment pumping required.
Underground Utilities	Gas, power, communications and water main/services crossing on multiple streets.
Site Specific Traffic Management Plan	The Contractor is required to provide a CRD accepted and approved site specific traffic management plan developed by a qualified traffic engineer before commencement of construction.

Date:	Signature:

THE DRAWINGS

(Bound Separately)