REGIONAL DISTRICT
of Fraser-Fort George

INVITATION TO TENDER

ES-26-10
Earthworks Services - Cell One Expansion
Foothills Boulevard Regional Landfill

Date Issued
April 7, 2026

Closing Location
Regional District of Fraser-Fort George
155 George Street, Prince George, BC V2L 1P8
purchasing@rdffg.bc.ca

Mandatory Site Meeting
April 14, 2026 at **1:00 pm PST**
Foothills Boulevard Regional Landfill

Inquiries
Laura Zapotichny at lzapotichny@rdffg.bc.ca or
Spencer Smith at spencer.smith@tetratech.com
Inquiries deadline: April 21, 2026 at 4:00 pm

Closing Date
April 28, 2026 at **2:00 pm PST**
No Public Opening

Late submissions are not considered

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ES-26-10 Earthworks Services – Cell One Expansion - FBRL

PART A – INTRODUCTION

Cell One of the Foothills Boulevard Regional Landfill is nearing the end of its designed site life capacity. The footprint of the existing cell (Cell One) will be expanded laterally to accommodate future waste disposal.

The Regional District of Fraser-Fort George (Regional District) invites tenders to carry out Earth Works in support of the expansion of Cell One at the Foothills Boulevard Regional Landfill. Works will include but not be limited to:

- clearing and grubbing of the proposed Cell 1A area;
- removal or installation of pollution control infrastructure;
- excavation and hauling of soils;
- placement and compaction of soils; and,
- construction of associated site works, including the perimeter road and surface water ditching system.

All work will be done as per the Engineered Design for the site development. The Cell One expansion project encompasses a total of approximately three hectares when completed, of which this project is the initial stage.

The contract term is from June 1, 2026 to December 31, 2026.

TENDER DOCUMENTS

The Invitation to Tender (ITT) documents may be obtained on or after **April 7, 2026.**

(a) in a PDF (Portable Document Format) file format from the Regional District's website at www.rdffg.ca;

(b) on the BCBid® website at www.bcbid.gov.bc.ca.

All subsequent information regarding this ITT, including amendments, Addendum(s) and answers to questions will also be available as above.

It is the sole responsibility of the tenderer to ascertain that they have received a full set of Tender Documents. Upon submission of their bid, the tenderer will be deemed conclusively to have been in possession of a full set of Tender Documents (listed in Part B, Section 2.1).

Tenders not submitted in strict accordance with these instructions or not complying with the requirements in this ITT may be rejected.

To be considered, Tenders must be signed by an authorized signatory of the Tenderer. By signing the Tender, the Tenderer is bound to statements made in response to this ITT. Any Tender received by the Regional District that is unsigned will be rejected.

The lowest of any Tender will not necessarily be accepted. The Regional District of Fraser-Fort George reserves the right to accept or reject any or all Tenders.

TENDER SUBMISSION AND CLOSING LOCATION AND TIME:

The Regional District will accept Tenders submitted either by direct delivery (hand delivery, courier or by post/mail) or electronically to the Closing Location and Time as outlined below.

Tenders will be received by the General Manager of Financial Services at the Regional District of Fraser-Fort George, 155 George Street, Prince George, BC (the "**Closing Location")** not later than 2:00 p.m. local time on **April 28, 2026** (the "**Closing Date**") or by email to purchasing@rdffg.bc.ca. There will not be a public opening for this Tender.

Tenders must be in English and must be submitted using the submission methods below.

Closing Date for tenders is April 28, 2026 at 2:00 p.m. local Prince George time.

For Tenders to be submitted by hard copy direct delivery:

One complete copy of your Tender must be submitted in a sealed envelope with the following information written on the outside of the envelope containing the tender, as well as on the outside of the courier envelope/box (if sending by courier):

1. Attention: General Manager of Financial Services
   Regional District of Fraser-Fort George
   155 George Street
   Prince George, BC V2L 1P8

2. Invitation to Tender, ES-26-10
   Earthworks Services - Cell One Expansion - Foothills Boulevard Regional Landfill

3. Responding Tenderer's name and address

Facsimile Tenders will NOT be accepted.

For Tenders to be submitted Electronically, with Bid Bond:

"Prince George Time" will be conclusively deemed to be the time indicated in the electronic timestamp the Tender receives upon delivery to the email address specified herein.

Other than the Bid Bond, Tenderers must submit all portions of their Tender by email in accordance with the following:

Subject of the file to be: ES-26-10 – Earthworks Services – Cell One Expansion – FBRL – (Insert Responding Tenderer's Name)

All emailed documents must be in PDF format and should be in one combined file. Tenderers should ensure that the files should not collectively exceed 30MB. Zip the files to reduce the size if needed. **Submitting the files via Drop Box, FTP, or similar programs, is not acceptable.**

Tenders must be submitted to purchasing@rdffg.bc.ca. Other than the Security Deposit, do not deliver a physical copy of the tender package to the Regional District of Fraser Fort George.

The Bid Bond must not be sent by email. The Bid Bond must be received by the General Manager of

Financial Services, at the Regional District of Fraser-Fort George, 155 George Street, Prince George, BC on or before the Closing Date. The Bid Bond must be submitted in a sealed envelope with the following information written on the outside of the envelope containing the Bid Bond, as well as on the outside of the Courier envelope if sent by courier.

1. Attention: General Manager of Financial Services
   Regional District of Fraser-Fort George
   155 George Street
   Prince George, BC V2L 1P8

2. Invitation to Tender, ES-26-10
   Earthworks Services - Cell One Expansion - Foothills Boulevard Regional Landfill

3. Responding Tenderer's name and address

The Regional District does not assume any risk or responsibility or liability, including in contract or tort (including negligence), whatsoever to any Tenderer:

1. for ensuring that any electronic email system being operated by or for the Regional District is in good working order, able to receive transmissions, or not engaged in receiving other transmissions such that a Tenderer's electronic transmission, including the transmission of an electronic copy of its Tender, cannot be received;
2. for errors, problems or technical difficulties with respect to a Tenderer's electronic transmission, including the transmission of an electronic copy of its Tender;
3. that a Tenderer's electronic transmission, including the transmission of an electronic copy of its Tender, is received by the Regional District of Fraser-Fort George in its entirety or within any time limit specified by this Tender.

PART B – INSTRUCTIONS TO TENDERERS

The Regional District of Fraser-Fort George, hereinafter referred to as the Regional District, invites Tenders for:

Earthworks Services - Cell One Expansion - Foothills Boulevard Regional Landfill

Instructions regarding obtaining the Tender Documents are contained in Part A: Introduction.

Questions relating to the tender or project must be directed to:

General Inquiries:	Technical Inquiries:
Laura Zapotichny GM of Environmental Services Regional District of Fraser-Fort George Email: lzapotichny@rdffg.bc.ca	Spencer Smith P. Eng. Project Engineer Tetra Tech Canada Inc. Email: spencer.smith@tetratech.com

Deadline for question submissions is 4:00 p.m. (local time) April 21, 2026

Those questions that are determined to be of a common interest to all potential Tenderer's will be summarized and posted as Addendum(s) on the Regional District's website as well as the BCBid® website.

ACKNOWLEDGEMENT LETTER

Upon receipt of this Invitation to Tender, a potential Tenderer should complete and sign the Acknowledgement Letter at Appendix A, and email the signed Acknowledgement Letter to, Project Manager, Laura Zapotichny at environment@rdffg.bc.ca. A Tenderer who signs and returns the Acknowledgement Letter is not obligated to submit a Tender.

Any Tenderer who does not submit the Acknowledgement Letter will not be sent any Addendum(s), or answers to questions and may be disqualified.

MANDATORY SITE MEETING

All prospective Tenderers must attend the mandatory site meeting. The Project Manager or delegate will provide an overview of the Contract expectations and be available for questions pertaining to this ITT. The purpose of the site meeting is for Tenderers to satisfy themselves as to the nature of the work in general, to clarify their understanding of the scope of work, to view the site, to determine specifications, and to have the opportunity to ask questions regarding the project and any other circumstances which may influence their Tender.

Oral questions will be allowed at the Tenderers' meeting. However, questions of a complex nature, or questions where the Tenderer requires anonymity, should be forwarded in writing, prior to the meeting, to the Project Manager.

The Regional District will not, under any circumstances, make accommodations for rescheduling, or holding any additional site meetings or providing individuals access to the sites.

The mandatory site visit will be held at Foothills Boulevard Regional Landfill on April 14, 2026, at 1:00 p.m.

TENDER PROCESS

1.0 Definitions

1.1 "**Addendum(s)**" means all additional information regarding this ITT including amendments to the ITT.

1.2 "**BC Bid**" means the BC Bid website located at www.bcbid.ca.

1.3 "**Board**" means the Board of the Regional District.

1.4 "**Closing Location**" means the location specified in Part A - Introduction.

1.5 "**Closing Time**" means the closing time and date specified in Part A - Introduction.

1.6 "**Contract**" means the contract substantially in the form attached to this ITT.

1.7 "**Contractor**" means the successful Tenderer to the ITT who enters into a Contract with the Regional District.

1.8 **"Equipment"** means anything and everything except persons used by the Contractor in performance of the work.

1.9 **"Facility Property"** means the property owned by the Regional District of Fraser-Fort George operating as the Foothills Boulevard Regional Landfill.

1.10 "**Form of Tender**" means the form of tender attached to this ITT.

1.11 "**ITT**" means the solicitation described in this document, including any attached or referenced appendices, schedules or exhibits and as may be modified in writing from time to time by the Regional District by Addendum(s).

1.12 "**Project Manager**" means the Regional District's representative.

1.13 **"Restricted Party"** means any Tenderer as described as having a Conflict of Interest under Part B, Section 13.
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1.14 **"Subcontractor"** means any person, firm or corporation approved by the Regional District having a contract for the execution or a part of parts of the Work included in this Contract and worked to a special design according to the drawings or specifications but does not include one who merely furnished material not so worked.

1.15 "**Tender**" means a submission in response to this ITT.

1.16 "**Tender Documents**" means the documents listed in Section 2.1.

1.17 "**Tenderer**" means the person submitting a Tender.

1.18 "**Regional District**" means the Regional District of Fraser-Fort George.

1.19 "**Must**" means a requirement that must be met in order for a Tender to receive consideration.

1.20 "**Should**", or "**May**" means a requirement having a significant degree of importance to the objective of the ITT, but which the Regional District would strongly prefer to be fulfilled, and which the Regional District may in its sole discretion elect to treat the failure to fulfill as a grounds for rejection of a Tender.

1.21 "**Work**" means the total construction and related services required by the Tender documents.

2.0 Tender Documents

2.1 The Tender Documents are:

(a) Part A – Introduction;

(b) Part B – Instructions to Tenderers;

(c) Part C – Contract Conditions; and

(d) Appendices:

i. Appendix A – Acknowledgment Letter;

ii. Appendix B – Bidder Checklist;

iii. Appendix C – Tender Form;

iv. Appendix D – Tender Form Summary;

v. Appendix E – Schedule of Prices – Tendered Price;

vi. Appendix F – Schedule of Prices – Force Account Work;

vii. Appendix G – Proposed Construction Schedule;

viii. Appendix H – Experience of Superintendent;

ix. Appendix I – List of Contractor's Personnel;

x. Appendix J – List of Subcontractors;

xi. Appendix K – List of Equipment;

xii. Appendix L – Tenderer's Experience in Similar Work;

xiii. Appendix M – Conflict of Interest Disclosure Statement;

xiv. Appendix N – Goods and Services Tax Information;

xv. Appendix O – Specifications;

xvi. Appendix P – Contract Agreement and General Conditions (Refer to CCDC 4 2023);

xvii. Appendix Q – Drawings;

xviii. Appendix R – Supplemental General Conditions

xix. Appendix S – CCDC 41 Insurance Requirements

2.2 If there is a conflict between or among the Specifications and the other Tender Documents, the other Tender Documents shall prevail over the Specifications.

3.0 Acceptance of Terms and Conditions

Submitting a Tender indicates acceptance of all the terms and conditions set out in the ITT, including those that follow and that are included in all appendices and any Addendum(s).

4.0 Submission Instructions

4.1 Each Tenderer must complete and provide Appendix A and C through N, along with the Bid Bond.

4.2 All prices and notations should be legibly written in a non-erasable pen. Erasures, interlineations, or other corrections should be initialed by an authorized signatory of the Tenderer.

4.3 Subject to any alternatives or options in respect of which the Regional District requests pricing or other information in an Appendix to the ITT, Tenders are to be all inclusive and without qualification or condition.

4.4 The Regional District may, at any time and for any reason, extend the Closing Time by means of a written amendment published on the Regional District's website, at www.rdffg.ca and at BC Bid.

4.5 Each Tender must be signed by an authorized signatory or authorized signatories of the Tenderer, as is necessary for due execution on behalf of the Tenderer. Each Tender by a company or partnership should specify the full name of the legal entity submitting the Tender.

4.6 It is the sole responsibility of the Tenderer to ascertain that they have received a full set of the Tender Documents. Upon submission of their Tender, the Tender will be deemed conclusively to have been in possession of a full set of the Tender Documents.

4.7 If the Regional District, in the Regional District's sole discretion, determines that a clarification, addition, deletion, or revision of the ITT is required then the Regional District will issue an addendum and the addendum will be posted on the Regional District website and BC Bid.

4.8 It is the sole responsibility of the Tenderer to check for Addendum(s). Addendum(s) issued during the time of Tendering must be signed by the Tenderer and included with the Tender and will become a part of the Tender documents.

4.9 The Regional District will not be responsible for any costs incurred by the Tenderer which may result from the preparation or submission of documents pertaining to this Tender. Accuracy and completeness of a Tender is the Tenderer's responsibility.

5.0 Discrepancies or Omissions

5.1 Tenderers finding discrepancies or omissions in the specifications or other documents herein or having doubts on the meaning or intent of any part thereof, should immediately request in written form, either by email or by mail, clarification from the Project Manager. Upon receipt of the written request for clarification, The Project Manager may, in the person's sole discretion, send written instructions or explanations to all parties registered as having returned the acknowledgement letter, and make amendments to this ITT. No responsibility will be accepted for oral instructions.

5.2 It is the responsibility of each Tenderer to thoroughly examine the Tender Documents and satisfy itself as to the full requirements of this ITT and their acceptability to the Tenderer.

6.0 Late Submissions

Tenders will be marked with their receipt time upon receipt. Only complete Tenders received before the Closing Time will be considered to have been received on time. Tenders received late will be marked late and not considered or evaluated. In case of a dispute, the Tender receipt time as recorded by the Regional District will prevail whether accurate or not.

7.0 Changes to Tenders

A Tenderer that has already submitted a Tender may amend its Tender prior to the Closing Time:

(a) For changes to price only, by submitting an amendment via email or mail at the address identified at the beginning of Part B of this Invitation to Tender, identifying a plus or minus variance to the Tenderer's Tender Price; or

(b) In all cases, by delivering a completely new Tender in accordance with Part A to this Invitation to Tender, clearly indicating it replaces the previously submitted Tender.

Any such revision must clearly identify the ITT number and the Closing Time. A Tender revision submitted as aforesaid shall effectively amend the Tender and the Regional District shall only review and evaluate the Tender as amended.

8.0 Tender Prices

8.1 The Tenderer will be deemed to have satisfied themselves as to the sufficiency of the Tender for the work and the price stated in the Schedule of Prices. These prices will cover all their obligations under the Contract, and all matters necessary to the proper completion and maintenance of the work, and will include the supply of all labour, equipment material, supervision, services, taxes and assessments, together with the Tenderer's overhead and profit, except where otherwise provided elsewhere in this ITT.

8.2 Tender prices must remain open for acceptance for a period of 90 days from the Closing Date unless otherwise stated by the Regional District.

9.0 Equipment

A complete list of the equipment, which the Tenderer will make available for the completion of the Contract, will be included with each Tender, (Appendix K).

10.0 Bid Bond:

The tender must be accompanied by a Bid Bond in an amount of ten percent (10%) of the total tendered price.

The Bid Bond must be issued by a Surety Company licensed to conduct business in the Province of British Columbia wherein the work is located.

If the successful bidder fails, for any reason, to execute the Contract, the portion of this Bid Bond will be forfeited to, and retained by, the Regional District of Fraser Fort George, in the amount for which the Regional District may legally contract with another party to perform the work, if the latter amount be in excess of the former.

The Bid Bonds submitted by unsuccessful bidders will be returned to them, without interest, as soon as the successful bidder has delivered, to the Regional District, a fully executed Contract for the work, or the period for which bids are irrevocable has elapsed, whichever shall happen first.

11.0 Subcontractors

11.1 All Subcontractors, including affiliates of the Tenderer, should be clearly identified in the Tender as per the form attached as Appendix J.

11.2 The Contractor is responsible to the Regional District for acts and omissions of their Subcontractors to the same extent that they are responsible for the acts and omissions of persons employed by them. Nothing in the contract documents will create any contractual relation between any Subcontractor and the Regional District. The Contractor will bind every Subcontractor to the terms of the contract documents.

11.3 A Tenderer may not subcontract to a firm or individual whose current or past corporate or other interests, may, in the Regional District's opinion, give rise to an actual, perceived or potential conflict of interest in connection with the services described in the Tender. This includes, but is not limited to, involvement by the firm or individual in the preparation of the Tender or a relationship with any employee, Contractor or representative of the Regional District involved in preparation of the Tender, participating in evaluation or in the administration of the Contract. If a Tenderer is in doubt as to whether a proposed Subcontractor might be in a conflict of interest, the Tenderer should consult with the Project Manager prior to submitting a Tender. By submitting a Tender, the Tenderer represents that it is not aware of any circumstances that would give rise to a conflict of interest that is actual, perceived or potential, in respect of the Tender.

12.0 Rejection of a Tender

12.1 The Regional District may, in its sole discretion, reject any and all Tenders, or accept the Tender deemed most favourable in the interests of the Regional District. The lowest, or any Tender, will not necessarily be awarded.

12.2 Tenders which contain qualifying conditions or otherwise fail to conform to the instructions contained in this ITT may be disqualified or rejected. The Regional District may, however, in its sole discretion, reject or retain for its consideration Tenders which are non-conforming because they do not contain the content or form required by the ITT, or for failure to comply with the process for submission set out in this ITT, whether or not such non-compliance is material.

12.3 The Regional District's intent is to enter into a Contract with the Tenderer who has submitted the best offer. The Regional District reserves the right to accept any or none of the Tenders submitted and will evaluate Tenders based on the best value offered to the Regional District and not necessarily the lowest price. The Regional District reserves the right in its sole unrestricted discretion to:

(a) accept any Tender which the Regional District deems most advantageous to itself;
(b) reject any and/or all irregularities in a Tender submitted;
(c) waive any defect or deficiency in a Tender whether or not that defect or deficiency materially or substantially affects the Tender and accept that Tender;
(d) reject any and/or all Tender for any reason, without discussion with the Tenderer(s);
(e) accept a Tender which is not the lowest Tender; and
(f) cancel or reissue the Tender without any changes.

12.4 Without limiting any other provision of this Tender, the Regional District may, in its sole discretion, reject a Tender submitted by a Tenderer, if the Tenderer or any officer or director of a corporate Tenderer, is, or has been within a period of two years prior to the Closing Time, engaged either directly or indirectly through another corporation or legal entity in a legal proceeding initiated in any court against the Regional District in relation to any Contract with, or works or services provided to the Regional District.

13.0 Conflict of Interest

13.1 When submitting a Tender, the Tenderer must complete, sign and include with their Tender a conflict of interest disclosure statement (Appendix M).

13.2 Without limiting any other provision of this ITT, the Regional District may reject a Tender based on an actual, potential or perceived conflict of interest.

The Regional District may reject any Tender where:

a. one or more of the directors, officers, principals, partners, senior management employees, shareholders or owners of the Tenderer, is an officer, employee or director of the Regional District or a consultant involved in the procurement process, or is a member of the immediate family of an officer, employee or director of the Regional District or a consultant involved in the procurement process; or

b. in the case of a Tender submitted by a Tenderer who is an individual person, where that individual is an officer, employee or director of the Regional District or a consultant involved in the procurement process, or is a member of the immediate family of an officer, employee or director of the Regional District or a consultant involved in the procurement process.

A Tenderer who has any concerns regarding whether a current or prospective employee, advisor or member of that Tenderer is, or may be, a Restricted Party, is encouraged to request an advance decision by submitting to the Project Manager, not less than ten working days prior to the Closing Time, by email, the following information:

a. names and contact information of the Tenderer and the person for which the advance opinion is requested;
b. a description of the relationship that raises the possibility or perception of a conflict of interest or unfair advantage; and

c. copies of any relevant documentation.

The Regional District may make an advance decision regarding whether the person is a Restricted Party, and whether the Regional District will reject a Tender based on the information provided.

14.0 Tender Evaluation

14.1 The purpose of this ITT is to select a Tenderer with the capability and experience to efficiently and cost effectively complete the work described in this ITT.

14.2 Evaluation of tenders will be by an Engineering Consultant in order to provide a recommended award of Contract (the "Contract"). Tenders should be clear, concise, and complete.

The Regional District shall be the sole judge of a Tender and its decision shall be final. The Regional District and the Engineering Consultant shall use the following criteria to evaluate tenders received:

a. proven, successful experience with similar projects;
   The Tenderer must demonstrate proven and recent experience performing construction projects of comparable scope, technical requirements, and site conditions.
   The Tenderer shall submit (Appendix L, detailed descriptions of previous projects completed **within the last five (5) years**, including project objectives, challenges encountered, and methods used to address those challenges. For each project, the Tenderer shall provide:
   - the Contract value,
   - client organization,
   - project manager contact information,
   - and confirmation of successful completion.

   The Regional District reserves the right to assess the Tenderer's past performance and may reject a Tender if references indicate unsatisfactory performance or incomplete work.
b. acceptability of reference checks;
c. construction schedule; and
d. tender price

Price evaluation shall be based solely on the "Schedule of Prices – Tendered Price" as summarized in the "Tender Form Summary". Force Account Work rates provided in the "Schedule of Prices – Force Account Work" are not included in the evaluated price and shall apply only to authorized Force Account Work performed during the Contract.

14.3 The Tenderer acknowledges that the Regional District may rely upon criteria that the Regional District deems relevant even though such criteria may not have been disclosed to the Tenderer. By submitting a Tender, the Tenderer acknowledges the Regional District's right under this clause and absolutely waives any right of action against the Regional District for the Regional District's failure to accept the Tenderer's Tender, whether or not such right of action arises in Contract, negligence, bad faith or any other cause of action.

14.4 Notwithstanding any other provision in this ITT, the award of a Contract by the Regional District may be subject to the availability of funding and the approval of the Board.

15.0 Proof of Ability

The Tenderer will be competent and capable of performing the Work. The Tenderer is required to provide evidence of previous experience and financial responsibility before the Contract is awarded.

16.0 Examination of Contract Documents and Site

16.1 The Tenderer will satisfy themselves as to the practicality of executing the work in accordance with the Contract, and they will be held to have satisfied themselves in every particular before making up their Tender by inquiry, measurement, calculation and inspection of the site.

16.2 The Tenderer will examine the site and its surroundings and, before submitting their Tender will satisfy themselves as to the nature of the site, the quantities and nature of the work and equipment necessary for the completion of the work, and the means to access to the site, the accommodation they may require, and in general, will obtain all relevant information as to risks, contingencies and other circumstances which may influence their Tender.

16.3 Tenders will only have access to the site during the Mandatory site Meeting. No exceptions will be made.

17.0 Site Location and Facility Information

The Site is located in the northwest portion of the City of Prince George, British Columbia at 6595 Foothills Boulevard, northwest of the intersection with West Austin Road.

18.0 Liability for Errors

18.1 The Regional District will not be responsible for any costs incurred by Tenderers as a result of the preparation or submission of a Tender pertaining to this ITT. The accuracy and completeness of the Tender is the Tenderer's responsibility. If errors are discovered, they will be corrected by the Tenderer at their expense.

18.2 Tenderers acknowledge that the Regional District, in the preparation of the ITT supply of oral or written information to Tenderers, review of Tenders or the carrying out the Regional District's responsibilities under this ITT, does not owe a duty of care to Tenderers.

19.0 Limitation of Liability

Except for claims for costs of preparation of its Tender, each Tenderer, by submitting a Tender, irrevocably waives any claim, action, or proceeding against the Regional District including without limitation any judicial review or injunction application or against any of the Regional District's employees, advisors or representatives for damages, expenses or costs including costs of Tender preparation, loss of profits, loss of opportunity or any consequential loss for any reason including: any actual or alleged unfairness on the part of the Regional District at any stage of the Tender process; if the Regional District does not award or execute a Contract; or, if the Regional District is subsequently determined to have accepted a noncompliant Tender or otherwise breached or fundamentally breached the terms of this ITT.

20.0 Ownership of Tenders and Freedom of Information

20.1 Tenders will be received and held in confidence by the Regional District, subject to the provisions of the Freedom of Information and Protection of Privacy Act and this ITT. Each Tender should clearly identify any information that is considered to be confidential or proprietary information.

20.2 As an exception to Tenders being received and held in confidence, Tenderers are advised and acknowledge that any Contract entered into as a result of this Tender may be subject to Board approval, which may be discussed and voted on at a meeting of the Board that is open to the public. If Board approval is required, details of Tenders, including but not limited to proposed or negotiated fees, may be provided to the Board in a publicly available staff report, discussed at a Council meeting that is open to the public, and posted on a publicly available electronic agenda on the Regional District's website.

21.0 Confidentiality

In accordance with the *Freedom of Information and Protection of Privacy Act*, Tenderers will treat as confidential and will not, without prior written consent of the Regional District, publish, release, or disclose, or permit to be published, released, or disclosed, any information supplied to, obtained by, or which comes to the knowledge of a Tenderer as a result of this ITT except insofar as such publication, release or disclosure is required by the laws of British Columbia.

PART C – CONTRACT CONDITIONS

1. Contract

1.1 Form of Contract

The Contract Form and General Conditions which will be utilized will be CCDC 4-2023 Unit Price Contract with Supplemental General Conditions attached as Appendix R to this ITT.

1.2 Award of Contract

A Contract for ES-26-10 – Earthworks Services – Cell One Expansion – FBRL is anticipated to be awarded at Regional Board on May 14, 2026. All tenderers will be advised, in writing, as to the awarding of the Contract after that date.

The Regional District may, in its sole discretion, award Contract ES-26-10 – Earthworks Services – Cell One Expansion – FBRL, or it may delay the date of awarding the Contract or cancel this ITT if deemed appropriate by the Regional District for any reason.

2. Start and Duration of Contract

The term of the Contract will begin on June 1, 2026 at 12:01 a.m., and the Contract will remain in force until midnight on December 31, 2026. A construction start date will be mutually agreed upon by the Regional District and the Contractor. Once construction work begins on-site, the Contractor will continue the works without interruption until project completion, on or before December 31, 2026.

3. Term and Termination

The term of this Contract shall commence as set out in Section 2, Start and Duration of Contract, and shall continue in effect until terminated by either party as provided herein. Either party may terminate this Agreement at any time, with or without cause, by providing not less than 30 business days advance written notice to the other party. The Contractor or the Regional District may terminate this Agreement immediately in writing if either party becomes insolvent, enters bankruptcy, receivership, or other like proceeding (voluntary or involuntary) or makes an assignment for the benefit of creditors.

4. Intent of Contract Documents

This Contract is not an agreement of employment. The Contractor is an independent Contractor, and nothing herein will be construed to create a partnership, joint venture, or agency and neither party will be responsible for the debts or obligations of the other.

5. Assignment of Contract

The Contractor will not sublet, sell, transfer, assign, or otherwise dispose of the Contract or any portions thereof, or their right, title or interest therein, or their obligations thereunder without written consent of the Regional District, except for an assignment to a bank of the payments to be received hereunder.

6. Payment

a. The Contractor shall invoice the Regional District on a monthly basis. Each invoice shall itemize the value of the Work performed during the previous month, based on the actual quantities of each item completed and the corresponding unit rates set out in the Schedule of Prices. The invoice must also quote “Contract ES-26-10”. Force Account Work, if authorized, shall be invoiced separately based on actual hours worked, equipment used, and materials supplied, in accordance with the Force Account rates submitted in the Tender and forming part of the Contract.

b. Each progress payment claim is subject to a 10% hold back. All claims must be accompanied by supporting documentation as to its completion and proof of passing all required inspections.

c. The Regional District will inspect the work before making payment.

d. The Regional District will withhold 10% of the total payment due under the Contract as a performance assurance holdback. The holdback will be released to the Contractor once the following two conditions have been satisfied:

   i. The work has been completed to the satisfaction of the Regional District and Consultant.

   ii. The Regional District has received notification from WorkSafeBC that all required WorkSafeBC assessments have been paid for the period covering the Contract term.

e. No payment will be made for materials supplied by the Regional District.

The Regional District will, by the thirtieth day of the month following that, for which payment is required on receipt of an invoice and on advice from the Manager that the Work has been satisfactorily carried out, pay the Contractor for Work completed in accordance with the Contract in the previous month. No payment will be made for materials supplied by the Regional District.

7. Insurance

The successful Bidder will be required to provide and maintain insurance, with the Regional District of Fraser-Fort George as additional insured, in accordance with project specific Supplemental General Conditions, SGC 7. Performance Security included in Appendix R and with the CCDC 4-2023 Contract General Conditions, CCDC 41 (CCDC Insurance Requirements) included as Appendix S to this ITT.

The successful bidder shall provide the Regional District with evidence of the required insurance and Bond in a form acceptable to the Regional District upon notification of award and prior to the execution and delivery of the Contract.

8. WorkSafeBC

Prior to undertaking any of the work, the Contractor will provide its WorkSafeBC number and will keep current all assessments required by WorkSafeBC in relation to, and for, the duration of the work. The Contractor will provide a clearance letter from WorkSafeBC to the Regional District prior to commencement of the work.

Out of Province Contractors will be compliant with WorkSafeBC's registration requirements pertaining to out-of-province firms. Where WorkSafeBC registration requirements allow for a Contractor to be registered with another Province's Worker's Compensation Board or like organization, the Contractor will provide the Regional District with their registration number and written documentation confirming that the Contractor is in good standing with the appropriate Worker's Compensation Board, or like organization. The Contractor will pay and keep current all assessments required to maintain good standing in relation to the Contract amount.

The Contractor will maintain an Occupational Health and Safety Plan (OHSP) and ensure that their employees and Subcontractors are well trained and aware of OHSP. The OHSP must be submitted with the tender documents and will be approved by the Engineer of Record and the Regional District prior to being discussed during the combined safety and construction kick off meeting. The Contractor shall identify a safety officer for the project duration and include this person by name in the OHSP.

9. Damage to Existing Property

In the event of damage to the Regional District's property arising from actions of the Contractor, the procedure will be as follows:

1. The Contractor will immediately advise the Regional District of any damage to the Regional District's property.
2. Upon investigation, the Regional District will notify the Contractor of damages to be repaired.
3. If the Contractor does not reply within 72 hours, the Regional District will repair, to the appropriate specifications or regulations, and deduct the cost of the repair from payment to the Contractor.

10. Indemnity and Release by Contractor

Notwithstanding the compliance of the Contractor with all the clauses concerning insurance, the Contractor shall indemnify, protect, and save harmless the Regional District, its officials, officers, employees, volunteers, servants, and agents from and against any and all liabilities, damages, losses, claims, costs, expenses of any kind whatsoever (including legal costs), and actions recoverable by any third party from the Regional District, arising from or caused by a negligent act or omission of, or breach of this Agreement on the part of, the Contractor, and shall be paid by the Contractor. If the Regional District pays, or is required to pay, any damages, costs, or fees on account of the actions, claims and demands herein recited, or if the property of the Regional District shall be charged in any way as a result of the aforesaid actions, causes of actions, and claims for demands, then the Regional District shall be entitled to recover from the Contractor all such damages, costs, fees or other charges together with any costs or expenses incurred in so doing. The Contractor covenants and agrees that this clause shall survive the termination of the Contract herein granted.

11. Rights of Waiver

A waiver, or any breach of any provision of this ITT, will not constitute or operate as a waiver, or any other breach, of any other provisions, nor will any failure to enforce any provision herein operate as a waiver of such provisions or of any other provisions.

12. Severability

All paragraphs of the Contract are severable one from the other. Should a court of competent

jurisdiction find that any one or more paragraphs herein are void or unenforceable, the validity of the remaining paragraphs hereof will not be affected.

13. Contractor

The Contractor shall be fully independent and shall not act as an agent or employee of the Regional District. The Contractor shall be solely responsible for its employees, and any subcontracts the Contractor lets, and for their compensation, benefits, contributions, and taxes, if any.

14. Character of Workers

The Contractor and workers must have sufficient knowledge, skill, and experience to perform properly the work assigned to them and to be tactful and courteous in dealing with the public and the Regional District's staff. Any supervisor or worker employed by the Contractor or Subcontractor who, in the opinion of the Owner, does not perform their work in a competent manner, appears to act in a disorderly or intemperate manner, appears to be under the influence of drugs or alcohol, or is negligent, or willfully misconducts themselves will, at the written request of the Owner, be removed from the site of the work immediately and will not be employed again in any portion of the work without the approval of the General Manager of Environmental Services.

15. Assignment and Subcontracting

This Agreement does not create any right or benefit in anyone other than the Regional District and the Contractor and shall not be assigned by either party without the prior written approval of the other party.

16. Regional District's Termination of Contract

In the event of the breach or non-performance by the Contractor of any of the covenants, conditions, and agreements contained in the Contract to be performed, the Regional District reserves the right to terminate this Contract without notice. The Regional District may also deduct from the payments due to the Contractor any payments or expenditures it is required to make to remedy any such non-performance or breach hereof.

17. Contractor's Termination of Contract

The Contractor shall have the right to terminate the Contract in the event the Regional District fails to pay for the Work performed except as provided in the Contract Documents within 30 days from the specified date of payment and fails to remedy such default within ten days of the Contractor's written notice to do so.

18. Regional District's Right to Correct Deficiencies

The Regional District shall have and retain full authority to inspect the work of the Contractor to ensure that the requirements of the Contract are being fulfilled. Upon failure of the Contractor to perform the work in accordance with the Contract Documents, and after five days written notice to the Contractor, or without notice if any emergency or danger to the work or public exists, the Regional District may, without prejudice to any other remedy they may have, correct such deficiencies. The cost of Work performed by the Regional District in correcting deficiencies shall be paid by the Contractor or may be deducted from monies payable to the Contractor.

19. Dispute Resolution

If a claim, dispute, or controversy arises out of or relates to the interpretation, application, enforcement, or performance of Works under this agreement, the Contractor and the Regional District agree first to try in good faith to settle the dispute by negotiations between the Contractor and the Regional District. If such negotiations are unsuccessful, the Contractor and the Regional District agree to attempt to settle the dispute by arbitration if both parties agree. If the dispute cannot be settled through arbitration, the Contractor and the Regional District may agree to attempt to settle the dispute through good faith mediation. If the dispute cannot be resolved through mediation and unless otherwise mutually agreed, the dispute shall be settled by litigation in an appropriate court in the Province of British Columbia.

20. Permit and Regulations

The Contractor will, at their own expense unless pre-approved in writing by the Regional District, procure all other permits, certificates, and licenses required by law for the execution of the work and will comply with all federal, provincial, and local laws and regulations affecting the execution of the work, save in so far as the Contract Documents specifically provide otherwise.

21. Scope of Work

The Contractor will carry out Earth Works in support of the lateral expansion of Cell One at the Foothills Boulevard Regional Landfill. Works will include but not be limited to:

- clearing and grubbing of the proposed Cell 1A area;
- removal or installation of pollution control infrastructure;
- excavation and hauling of soils;
- placement and compaction of soils; and,
- construction of associated site works, including the perimeter road and surface water ditching system.

All work will be done as per the Engineered Design for the site development. The earthworks services for the Cell 1 lateral expansion will generally consist of excavation, hauling, placement and compaction of soils and construction of associated site works, including the perimeter road and surface water ditching system between June 1, 2026 and December 31, 2026. This work generally includes:

1. Mobilization and demobilization of equipment to site, including construction of haul roads from the borrow areas (where required), and any other haul roads required during construction, prime contractor duties, site safety, and all temporary works and facilities necessary to complete the project.
2. Development and implementation of a site-specific health and safety plan and environmental protection plan.
3. Provisional waste excavation and disposal for encountering waste during excavation.
4. Clearing and grubbing (where required) and stripping unsuitable surface material from within Cell 1 lateral expansion work area, and any other area to be disturbed during construction, and hauling of material to the appropriate Cell 1 lateral expansion work areas as shown on the drawings or directed by the Engineer.
5. Excavation and hauling of soils as per the design grades for the site development of the Cell 1 lateral expansion.
6. Placement and compaction of soils as per the design grades for the site development of the Cell 1 lateral expansion.
7. Placement and compaction of aggregate for the perimeter road as per the design grades for the site development of the Cell 1 lateral expansion.

8. Surface finishing of grades.
9. Placement of geomembrane and ballast gravel within the ditches as shown in the drawings.
10. Supply and installation of wellfield pipeworks, fittings, and valves as shown on the drawings.
11. Surveying, as required for the completion of all portions of the Work, which must include a detailed as-built geodetic survey of the entire Work area and all the Work performed. To be provided to and approved by Engineer as construction progresses.

The site is open seven days per week between 7 a.m. and 5 p.m. Monday to Friday and 9 a.m. to 5 p.m. on Saturday and Sunday. The site is closed on statutory holidays. The Foothills Boulevard Regional Landfill will continue to operate throughout the duration of the Contract. The Contractor will minimize disruptions to normal site operation and inform the Regional District of anticipated site interruption with a minimum of 24 hours notice. All Works will be carried out Monday through Friday during the regular operating hours. Any Works to be completed outside of the aforementioned regular operating hours will require written approval from the General Manager of Environmental Services.

The Contractor will carry out the above as per the supplied design drawings found in Appendix Q and explained within Appendix O, the included specifications and/or as directed by the Project Engineer,

The Cell One expansion project encompasses a total of approximately three hectares when completed of which this project is the initial stage.

22. Project Manager's Status

The Project Manager or their delegate will be the Regional District's representative during the period of operation and will observe the Work in progress on behalf of the Regional District for the purpose of ensuring that the Work has been satisfactorily carried out. The Project Manager will have the authority to stop the Work whenever such a stoppage may be necessary, in their opinion, to ensure the proper execution of the Work in accordance with the provisions of the Contract.

If at any time the Project Manager is of the opinion that there exists a danger to life or to property, they may order the Contractor to stop Work or to take such remedial measures as is considered necessary.

The Contractor will comply with such an order immediately. Neither the giving nor the carrying out of such orders thereby entitles the Contractor to any extra payment, and the Regional District will not be held liable for any damages or any breach of laws, bylaws or regulations that may result.

23. Protection of Work and Property

The Contractor shall take all reasonable precautions necessary to protect the Regional District's property from damage during the performance of the Contract and shall make good on any damage to the Regional District's property caused by the Contractor, its Sub-Contractor, employees, or agents during the performance of the Contract.

24. Occupational Health and Safety

The Contractor will ensure that they follow all occupational health and safety policies and procedures established by the Regional District. Contractors, their employees, or agents not complying with the Regional District's health and safety expectations will be required to stop Work. They will not be allowed to resume Work until the safety requirements are met.

The Contractor will use due care and take all necessary precautions to ensure the protection of persons

and property at the Facility, the Landfill, and points in between, and will comply with the Workers' Compensation Act of the Province of British Columbia.

25. Goods and Services Tax (GST)

Federal law states that a 5% tax be paid on all goods and services. If the Contractor does not qualify as a small supplier, then the Contractor is required to identify the tax (GST/PST, as applicable) on all invoices, and the Regional District is liable to pay this amount to the Contractor.

26. Disputed Work

If, in the opinion of the Contractor, they are being required to perform work beyond which the Contract requires them to do, whether at the discretion of the Regional District or otherwise, they will, within five days, deliver to the Project Manager a written notice of protest in the form prescribed herein prior to proceeding with any of the disputed work. The five-day time period commences from the time of direction given by the Manager or the time at which the Contractor determines that they are required to perform such work, whichever occurs first.

The Contractor will keep accurate and detailed cost records that should indicate the cost of the work done under protest. The Contractor will not be entitled to payment if they fail to keep and produce such records.

APPENDIX A - ACKNOWLEDGEMENT LETTER

The undersigned has received the full set of Tender Documents.

_____	_____
Signature	Company
_____	_____
Name (please print)	Address
_____	_____
Title	City
_____	_____
Phone Number	Fax Number
_____	_____
Date	Email Address

We presently intend to _____ provide/_____ not provide a Tender as requested.

Please send any amendments to this Invitation to Tender via: _____ email _____ fax.

Return immediately to:

Laura Zapotichny
environment@rdffg.bc.ca
Regional District of Fraser-Fort George

APPENDIX B - BIDDER CHECKLIST

Before submitting your tender bid, check the following points:

- ❑ Did you attend the Mandatory Site Meeting? _____
- ❑ Have you submitted the Acknowledgement Letter? _____
- ❑ Has the Tender Form been signed and witnessed? _____
- ❑ Has the Bid Bond requirement been met? _____
- ❑ Has the Tender Form Summary & Schedule of Prices been completed? _____
- ❑ Has the Proposed Construction Schedule been completed? _____
- ❑ Has the Experience of Superintendent been completed? _____
- ❑ Has the list of Contractor's Personnel been completed? _____
- ❑ Has the List of Subcontractors been completed? _____
- ❑ Has the Tenderer's Experience in Similar Work been completed? _____
- ❑ Has the Goods and Services Tax Information been completed? _____
- ❑ Has the Conflict of Interest Disclosure Statement been completed? _____
- ❑ Are all amendments and/or addenda, if any, included and signed? _____

Note: Your Tender may be disqualified if ANY of the applicable foregoing points have not been complied with.

If submitting by hard copy:

Tenderers should ensure that the Tender is returned in a sealed envelope clearly marked on the outside with:

- ❑ Attention: General Manager of Financial Services
  Regional District of Fraser-Fort George
  155 George Street
  Prince George, BC
  V2L 1P8

- ❑ Invitation To Tender ES-26-10
  Earthworks Services - Cell One Expansion - Foothills Boulevard Regional Landfill

- ❑ Responding Organization's name and address.

If submitting by email:

Tenderers should ensure that the files should not collectively exceed 30MB. Tenders must be submitted to purchasing@rdffg.bc.ca. DO NOT deliver a physical copy of the tender package to the Regional District of Fraser Fort George.

Subject of the file to be:

ES-26-10 Earthworks Services – Cell One Expansion - FBRL (Insert Responding Tenderer's Name)

APPENDIX C - TENDER FORM

Date: _____

Regional District of Fraser-Fort George
155 George Street
Prince George, BC V2L 1P8

ATTENTION: General Manager of Financial Services

Dear Sir/Madam:

Having carefully examined the Instructions to Tenderers, Form of Tender, Contract Agreement, General Conditions of Contract and Operational Specifications and subsequent written Addendum(s) (if any), and having visited the site(s) for purposes of examining site conditions and having satisfied myself/ourselves as to the sufficiency of the ITT, the undersigned agrees to furnish all labour, transportation, equipment, materials, supervision and services and to do all work necessary for and reasonably incidental, as specified in accordance with the ITT, to do the work.

I/We agree that in consideration of having my/our tender submission considered for the Total Contract Price as shown on the Schedule of Prices, this price is open for acceptance for 90 days from the date of the tender opening and will not be withdrawn during that period of time.

It is understood that payment will be made for the work on the basis of the awarded Contract only and that any approved extras or refunds will be made by mutual agreement between the Regional District and me/us.

I/We agree that the Subcontractor(s) employed will be as listed on the List of Subcontractors and further agree that no changes or additions will be made to the list without written approval of the Regional District.

If I am/we are notified in writing of the acceptance of our tender, I/we agree that within 14 days of the date of the acceptance notice I/we will enter into a Contract and execute an agreement for the stated sum in the form of the specimen submitted to guarantee completion of the Contract in accordance with the Contract documents and within the time stated in the Tender documents.

I/We agree that the Regional District reserves the right to waive informalities in tenders, reject any or all tenders, or accept the tender deemed most favourable in the interests of the Regional District.

I/We agree that tenders which contain qualifying conditions or otherwise fail to conform to the instructions contained in this ITT may be disqualified or rejected. I/We agree that the Regional District may, however, in its sole discretion, reject or retain for its consideration tenders which are non-conforming because they do not contain the content or form required by the ITT, or for failure to comply with the process for submission set out in the ITT, whether or not such non-compliance is material.

Accompanying this Tender, please find our bid bond as the security deposit in the amount of ten percent (10%) of the Contract value.

I/We agree that except for a claim for the reasonable cost of preparation of this tender, by submitting a tender, I/We irrevocably waive any claim, action, or proceeding against the Regional District including, without limitation, any judicial review or injunction application, and any claim against the Regional District and its elected officials, officers and employees for damages, expenses or costs, loss of profits, loss of opportunity or any consequential loss for any reason, including any such claim, action or proceeding arising from:

1) any actual or alleged unfairness on the part of the Regional District at any stage of the tender process, including without limitation any alleged unfairness in the evaluation of a tender or award of a Contract;

2) a decision by the Regional District not to award a Contract to that tenderer; or

3) the Regional District's award of a Contract to a tenderer whose tender does not conform to the requirements of this ITT.

I/We hereby acknowledge receipt and inclusion of the following Addendum(s) to the ITT Documents:

Addendum No. _____	dated: _____	Addendum No. _____	dated: _____
Addendum No. _____	dated: _____	Addendum No. _____	dated: _____
Addendum No. _____	dated: _____	Addendum No. _____	dated: _____

Signed and Delivered by:

_____	_____
Signature of Authorized Signatory	Name of Tenderer
_____	_____
Name of Authorized Signatory (Please print)	Address
_____	_____
Title	City, Province, Postal Code

Signed in the presence of:

_____	_____
Signature	Address
_____	_____
Name of Witness (Please print)	City, Province, Postal Code

APPENDIX D - TENDER FORM SUMMARY

TENDER FORM SUMMARY	Price
Schedule of Prices (excluding taxes)	$_____
GST as applicable	$_____
TOTAL TENDER PRICE – INCLUDING TAXES	**$ _____**

APPENDIX E - SCHEDULE OF PRICES – TENDERED PRICE

RDFFG Cell 1 Lateral Expansion – Earthworks – Schedule of Prices

Item No.	Item Description	Estimated Quantity	Unit	Unit Rate	Extension
Schedule of Prices					
01 35 29.06/01	Health and Safety Plan	1	LS		
01 35 43/01	Environmental Protection Plan	1	LS		
01 71 13/01	Mobilization	1	LS		
01 71 13/02	Startup	1	LS		
01 73 00/01	Surveying	1	LS		
01 77 00/01	Demobilization and Closeout	1	LS		
23 05 05/01	Header Pipe (East Wye)	1	LS		
23 05 05/02	Header Pipe (West Wye)	1	LS		
31 11 00/01	Clearing and Grubbing	1	LS		
31 14 13/01	Topsoil Stripping and Stockpiling	3,212	CM		
31 23 33.01/01	Excavation and Disposal of Unsuitable Material	14,434	CM		
31 23 33.01/02	Salvage of Road Base Material	998	CM		
31 23 33.02/01	Engineered Fill (Excavated from Cell 1A Area)	5,878	CM		
31 23 33.02/02	Engineered Fill (From Borrow Area)	97,511	CM		
31 23 33.02/03	Road Surface Aggregate	5,396	SM		
31 23 33.02/04	Ditch Gravel	500	LM		
33 42 13/01	600mm CSP Culverts (3)	1	LS		
33 47 13/01	HDPE Ditch Liner	500	LM		
				TOTAL (Excluding Taxes)	

APPENDIX F - SCHEDULE OF PRICES – FORCE ACCOUNT WORK

The Contractor will supply Force Account hourly rates for equipment that the Contractor may be able to make available for additional work in accordance with the Contract. List type, make, model, year and serial number and hourly rate of equipment to the utilized.

Type, make, model, year and serial number of equipment	Rate Per Hour (Excluding Taxes)

APPENDIX G - PROPOSED CONSTRUCTION SCHEDULE

Indicate Schedule with Bar Chart with Major Item Descriptions and Time.

This page may be replaced with a Schedule conveying the same information in another style. If replacing this page, label the new page "APPENDIX G - PROPOSED CONSTRUCTION SCHEDULE".

The construction schedule, at minimum, should include the following:

Kick off meeting	June 1, 2026
Health and Safety Plan Submission	
Mobilization to site	
Start of Construction	
Construction schedule (preference will be given to tenderers who provide a schedule maximizing seven day a week operation without any additional overtime)	
Estimation of material that can be moved per day with tenderer's proposed equipment	
Substantial completion date	
Close out meeting and inspection	
Demobilization	

The Regional District of Fraser-Fort George intends to award the Contract at the May 14, 2026 Board Meeting.

MILESTONE DATES _____

ACTIVITY	CONSTRUCTION SCHEDULE - WEEKS											
	1	2	3	4	5	6	7	8	9	10	11	12

APPENDIX H - EXPERIENCE OF SUPERINTENDENT

Name: _____

Experience:

Dates: _____

Project Name: _____

Responsibility: _____

_____

_____

References: _____

Dates: _____

Project Name: _____

Responsibility: _____

_____

_____

References: _____

Dates: _____

Project Name: _____

Responsibility: _____

_____

_____

References: _____

APPENDIX I - LIST OF CONTRACTOR'S PERSONNEL

The Contractor agrees that the personnel employed by them will be as listed below and further agrees that any changes or additions made to this list will be made in writing to the Regional District.

Name of Employee	Employee Experience / Qualifications

APPENDIX J - LIST OF SUBCONTRACTORS

The Contractor agrees that the Subcontractors engaged by it will be as listed below and further agrees that any changes or additions made to this list will be made in writing to the Regional District.

Name of Subcontractor	Address of Subcontractor	Work to Be Performed by Subcontractor

APPENDIX K - LIST OF EQUIPMENT

The Tenderer will list size, model, year and operating weight of each piece of equipment they propose to use to complete the work herein. No changes or additions will be made to this list without the written approval of the Regional District.

State standby equipment to be used in the event of breakdown of above, and where it will be drawn from.

Primary Equipment	Size and Weight	Model	Make	Type of Engine	Year	Hours

Secondary Standby Equipment	Size and Weight	Model	Make	Type of Engine	Year	Hours

Other Equipment	Size and Weight	Model	Make	Type of Engine	Year	Hours

APPENDIX L - TENDERER'S EXPERIENCE IN SIMILAR WORK

The Tenderer must demonstrate proven and recent experience performing construction projects of comparable scope, technical requirements, and site conditions.

The Tenderer shall submit detailed descriptions of previous projects completed within the last five years, including project objectives, challenges encountered, and methods used to address those challenges. For each project, the Tenderer shall provide:

- work performed,
- project manager contact information,
- the Contract value,
- and confirmation of successful completion.

The Regional District reserves the right to assess the Tenderer's past performance and may reject a Tender if references indicate unsatisfactory performance or incomplete work.

Year	Work Performed	Reference Contact (name and phone number)	Value

APPENDIX M - CONFLICT OF INTEREST AND DISCLOSURE STATEMENT

ES-26-10
Earthworks Services - Cell One Expansion - Foothills Boulevard Regional Landfill

Bidder Name:_____

The Bidder, including its officers, employees, and any person or other entity working on behalf of or in conjunction with, the Bidder on this Procurement Process:

- ☐ is free of any conflict of interest that could be perceived to improperly influence the outcome of this procurement process.
- ☐ has not, and will not, participate in any improper procurement practices that can provide the Bidder with an unfair competitive advantage including obtaining and using insider type information to prepare a solicitation offer or participating in bid rigging.
- ☐ has an actual, perceived or potential conflict of interest regarding this procurement process as a result of:

State reason(s) for Conflict of Interest:

_____

_____

_____

_____

By signing below I certify that all statements made on this form are true and correct to the best of my knowledge.

_____ _____
Print Name of Person Signing Disclosure Authorized Representative of

_____ _____
Signature of Person Making Disclosure Date Signed

APPENDIX N - GOODS AND SERVICES TAX INFORMATION

Supplier: _____
Name

_____
Address

_____
City Province

_____
Postal Code Phone Number

Are you a GST Registrant? Yes_____ No_____

If YES, please indicate your registration number: _____

If NO, please fill in the following (check appropriate box):

- ❑ Supplier qualifies as a small supplier under s. 148 of the legislation
- ❑ Other: Specify _____

_____ _____
Signature of Authorized Person Print Name

_____ _____
Title Date

APPENDIX O - SPECIFICATIONS

TABLE OF CONTENTS

Div 01 - General Specifications

Div 02 - Civil Specifications

This page intentionally left blank.

PART 1 GENERAL

1.1 SCOPE

.1 Includes general project description, drawing list, project schedule, and date for substantial performance.

1.2 SECTION INCLUDES

.1 Summary of Work.

.2 Drawings.

.3 Project Coordination.

.4 Furnishing of Documents.

.5 Construction Records.

.6 Time.

.7 Completion Date.

.8 Schedule.

.9 Hours of Work.

.10 Conduct of the Work.

.11 Oral Agreements.

.12 Measurement and Payment.

1.3 SUMMARY OF WORK

.1 Title and description of Work:

.1 Earthworks services for the Cell 1 lateral expansion (Cell 1A) at the Foothills Boulevard Regional Landfill, located at 6595 Foothills Boulevard. Prince George, British Columbia. The Landfill is situated approximately 6 km north of Prince George and is accessed via Foothills Blvd from the East side of the site.

.2 The Works of this project include the earthworks services for the Cell 1 lateral expansion at the Foothills Boulevard Regional Landfill, for the Regional District of Fraser-Fort George (Owner).

.3 The earthworks services for the Cell 1 lateral expansion will generally consist of excavation, hauling, placement and compaction of soils and construction of associated site works, including the perimeter road and surface water ditching system.

.4 Work includes:

.1 Mobilization and demobilization of equipment to site, including construction of haul roads from the borrow areas (where required), and any other haul roads required

during construction, site safety, and all temporary works and facilities necessary to complete the project.

.2 Development and implementation of a site-specific health and safety plan and environmental protection plan.

.3 Provisional waste excavation and disposal for encountering waste during excavation.

.4 Clearing and grubbing (where required) and stripping unsuitable surface material from within Cell 1 lateral expansion work area, and any other area to be disturbed during construction, and hauling of material to the appropriate Cell 1 lateral expansion work areas as shown on the drawings or directed by the Engineer.

.5 Excavation and hauling of soils as per the design grades for the site development of the Cell 1 lateral expansion.

.6 Placement and compaction of soils as per the design grades for the site development of the Cell 1 lateral expansion.

.7 Placement and compaction of aggregate for the perimeter road as per the design grades for the site development of the Cell 1 lateral expansion.

.8 Surface finishing of grades.

.9 Placement of geomembrane and gravel within the ditches as shown in the drawings.

.10 Supply and installation of landfill gas pipeworks, fittings, and valves as shown on the drawings.

.11 Surveying, as required for the completion of all portions of the Work, which must include a detailed as-built geodetic survey of the entire Work area and all the Work performed. To be provided to and approved by Engineer as construction progresses.

1.4 Drawings

.1 Drawings issued with and forming part of the contract documents are as follows:

Drawing No.	Revision No.	Date	Title
C101	B	April 2026	Existing Site Plan
C102	B	April 2026	Site Plan – Existing Cell 1A Area
C103	B	April 2026	Site Plan – Cell 1A Earthworks
C201	B	April 2026	Profile – Cell 1A Perimeter Road Centreline
C202	B	April 2026	Cross-Section A and B
C203	B	April 2026	Cross-Section C and D
C301	B	April 2026	Details
C302	B	April 2026	LFG Header Disconnection – Details
C303	B	April 2026	LFG Header Disconnection – Details

1.5 PROJECT COORDINATION

.1 Coordinate progress of the Work, progress schedules, submittals, use of site, temporary utilities and construction facilities and controls.

.2 Maintain at job site, one copy each of the following:
- .1 Contract drawings and specifications.
- .2 Addenda.
- .3 Reviewed shop drawings.
- .4 Change Orders/Instructions.
- .5 Other modifications to Contract.
- .6 Field test reports.
- .7 Approved Work schedule.
- .8 Manufacturer's installation and application instructions.
- .9 Records of site safety meetings in compliance with the Workplace Safety and Health Act.
- .10 Submit weekly safety records to Owner and Engineer.

1.6 FURNISHING OF DOCUMENTS

.1 Upon award of the Contract, the Contractor will be provided with the Conforming Contract Documents in PDF format. Any hard copies will be supplied to him/her at cost.

1.7 CONSTRUCTION RECORDS

.1 Construction records shall be the responsibility of the Engineer whom the Owner comes to agreement with. The agreement will be separate from this Tender.

.2 In addition to requirements in General Conditions, maintain on site one record copy of:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Further to the General Conditions, record actual site conditions on a set of marked up Contract Drawings. Identify the Drawings containing the Contractor’s records of changes as the "Project Record Copy".

.6 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.7 Contract Drawings and shop drawings: accurately and legibly mark each item to record actual construction, including:

.1 All deviations from Contract Documents caused by site conditions

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements

.3 Locations of all pipes, valves and fittings to be buried.

.4 Field changes of dimension and detail.

.5 Changes made by change orders or ordered by the Engineer, including a full description of the change, date of the approved change, and reason for deviation from original design.

.6 Details not on original Contract Drawings.

.7 References to related shop drawings and modifications.

.8 Project Record Copy of Specifications: legibly mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.9 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

.10 Make record documents and Project Record Copies available for inspection on site by the Engineer at all times.

.11 Not less than four (4) weeks prior to application for the Final Certificate of Completion, submit the Project Record Copy of Drawings to the Engineer for review.

1.8 TIME

.1 Time is of the essence for this Work.

1.9 COMPLETION DATE

.1 Complete the Work by **October 31, 2026** (Substantial Performance).

1.10 SCHEDULE

.1 Schedules Required

.1 Construction Progress Schedule will be completed by the Contractor and submitted to the Engineer within five (5) days after Award of Contract.

.2 Schedule shall show dates of commencement and completion of various parts of the Work, ordering and delivery dates of Products, phasing and timing for various subcontracts and all other detailed information to the satisfaction of the Engineer and Owner.

.3 All orders for materials shall be placed in ample time for adherence to the schedule.

.4 Make special note of those times when extra work shifts are required to complete the Work.

.5 Prepare definitive schedules for the following specific items:

.1 Product delivery.

.2 Schedule of all shop drawings required.
.3 Schedule of all samples required.
.4 Schedule of material deliveries.
.5 Schedule of construction phases.
.6 Requirements for special site instructions, etc.

.6 Format
.1 Prepare schedules in form of horizontal bar chart.
.2 Provide separate bar for each trade or operation.
.3 Provide horizontal time scale identifying first work day of each week.
.4 Format for listings: Chronological order of start of each item of Work.
.5 Indicate the following:
.1 Commencement and completion of work of each section of the specification conforming to the Project milestones and daily operation requirements.
.2 The major items of work for this contract are as follows:
1. Award.
2. Shop Drawings.
3. Mobilization.
4. Excavation.
5. Cell 1A subgrade preparation, culvert installation, road/berm installation.
6. Demobilization.
.3 Final completion date within time period required by Contract Documents.

.7 Revise and update schedule and submit to Engineer every two (2) weeks. Updated schedule should also include production rates and showing progress of work.

1.11 HOURS OF WORK

.1 The Contractor shall carryout the Work during the following work hours:

.1 Monday to Friday: 7am to 5pm
.2 Saturday to Sunday: 9am to 5pm
.3 Closed all statutory holidays apart from Labour Day and Thanksgiving (hours are 9am to 5pm)

.2 The Contractor must not create a nuisance or disturb the peace unnecessarily. Permission to work outside of these times must be obtained from the Owner, and be conducted at no additional cost to the Contract.

.3 The Contractor shall obtain the necessary permission and permits from the Owner and any other governing body to work on Sundays, nights, or statutory holidays, when this is necessary.

1.12 CONDUCT OF THE WORK

.1 Protection and Safety Precautions
.1 Comply with all requirements of provincial occupational health and safety regulations.
.2 The Contractor shall provide the necessary precautions to safeguard against any fire or explosion hazards during construction. The Contractor shall further provide

adequate safety protection for personnel engaged on this Work and for all others who are exposed to the Work environment under this Contract.

.3 Adequate and sufficient guards for the prevention of accidents shall be installed and maintained by the Contractor at the construction site. The Contractor shall further provide adequate and sufficient safety lighting at night and during periods of poor visibility.

.4 The Contractor shall assume full responsibility for, and be liable for, any loss, injury or damage incurred to abutting property, structures, vehicles, pedestrians and animals caused through neglect by the Contractor or his employees during construction operations.

.2 Cooperation with Others

.1 The Contractor's attention is directed to the fact that other contractors and landfill personnel may be working in the areas on or adjoining the site.

.2 The activities of these entities may coincide with the Contractor's execution of the Work, and it will be the Contractor's responsibility to cooperate to the fullest extent with personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of this Contract.

.3 The Contractor must be respectful of area residents with respect to not working outside the hours of work and minimizing noise.

.3 Existing Services and Utilities

.1 No responsibility will be assumed by the Owner or the Engineer for correctness or completeness of the Drawings with respect to the existing utilities, pipes or other objects either underground or on the surface, and neither the Owner nor the Engineer shall be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.

.2 The Contractor will arrange for the relocation of existing utilities, poles, traffic signals, signs and lamp posts which interfere with the proposed construction where noted on the construction drawings. The Contractor shall make the necessary arrangements for and pay the cost of all relocations required.

.4 Contractor to Notify Utilities and Other Authorities

.1 Make timely application to authorities for required permits before starting work on a public right-of-way.

.2 Obtain utility clearances for underground plant in the vicinity of the Work before starting construction.

.3 Arrange with utilities to provide Safety Watch where required during construction.

.5 Existing Trees, Shrubbery, Naturalized Plants Etc.

.1 No trees whatsoever shall be cut down without the written permission of the Engineer. Trees, shrubbery, fences, poles and all other private property and surface structures shall be protected unless their removal is shown on the drawings or authorized by the Engineer. When it is necessary to cut roots and tree branches, such cutting shall be done under the supervision and direction of the Engineer.

.6 Damage to Streets and Structures

.1 Other than required to be done by the Contractor under the work of this Contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other

existing facilities and equipment at the site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from and to the satisfaction of the Engineer and the owners thereof, either replace or repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the Engineer and the owners thereof and the costs of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the Owner from all claims made directly or indirectly against it in respect to any such damage.

.2 Damage by the Contractor to existing utilities in the performance of the Work, the owners of the utilities gas pipes, electrical wires, communication cables, conduits will carry out the replacement or repairs owned of the utility. The Contractor shall still be responsible for the costs of the repairs.

.7 Surface Restoration Following Underground Works

.1 Unless otherwise specified, the Contractor shall be responsible for all surface restoration equal to or better than the original condition.

.2 The Contractor shall make himself fully aware of the conditions in the Work area prior to submitting his Tender and no payment will be made for any Work required as per this item.

.3 Arrangements shall be made by the Contractor with the Owner regarding restoration of surfaces, where such surface restoration is not specifically detailed herein. The Contractor shall bear the full expense involved in replacing the surfaces to the satisfaction of the Authority having jurisdiction.

.4 It shall be the Contractor's responsibility to maintain all surfaces over the pipe trench, including pavement, boulevards, curbs, sidewalks, culverts, etc., to the satisfaction of the Authorities until permanent repairs have been made.

.5 All ditches damaged during construction shall be graded and restored upon completion of the installation to conditions equal or better prior to construction. All costs for restoration is incidental to the Works performed.

.6 The Contractor will also be responsible to maintain the drainage of the existing ditches during the construction period. Surface restoration and clean-up shall be done in a timely matter of two weeks behind the installation crews.

.8 Protection of Survey Bars

.1 The Contractor shall not disturb, deface, alter, destroy or remove any survey post, monument or bar and if the same shall occur, then, and in every such case, the Engineer shall have such post, monument or bar replaced at the expense of the Contractor. The Contractor shall pay all costs and expenses incurred in connection therewith.

.2 If the Contractor is in doubt about the location of the bars in the field, he will contact the Engineer before doing any Work in the area. Other survey posts, monuments, or bars may exist and the Contractor shall exercise care at intersections and other places where such survey posts, monuments or bars may exist.

.3 Where a survey bar lies in the line of the proposed work and must be disturbed, the Contractor shall provide the Engineer with seventy-two (72) hours notice to have the survey bar referenced and relocated. The survey bar shall be referenced and replaced at no cost to the Contractor.

.9 Continued Facility Operation

.1 The Foothills Boulevard Regional Landfill shall remain operational throughout the duration of this Contract.

.2 Keep temporary interruptions to roadways and site infrastructure to an absolute minimum. Make such interruptions at the convenience of the occupants and obtain the approval of the Engineer, as to the time and duration.

.3 Any temporary roadway closures shall be coordinated with the Owner and shall not impede access to the Site by the public or operations staff. Any temporary road closures shall be undertaken outside of the landfill's normal operating hours or by providing temporary alternative site access as approved by the Owner.

1.13 ORAL AGREEMENTS

.1 In the case of misunderstandings, disputes, or interpretation of the Contract Documents, oral agreements will not be considered.

1.14 CHANGES TO THE WORK

.1 Addendum: issued prior to Tender closing to provide for certain revisions as noted therein. All such revisions will become part of the Contract and the effects shall be included in the Tender Price. The Work shall be performed in accordance with the Contract Documents.

.2 Bid Revisions: issued after receipt of Tenders but prior to executing the Agreement to provide a detailed description of Contract Document amendments mutually agreed upon between the Owner and the successful Bidder. The Work shall be performed in accordance with the Contract Documents.

.3 Contemplated Change Notice (CCN): issued after award of Contract, does NOT constitute an order to perform the change but is a notice of a proposed change only. Submit to the Owner within fourteen (14) days after receipt of "Contemplated Change Notice", a statement of cost adjustments and effect upon construction schedule required by the proposed change. Itemize statement in accordance with all items separately listed, and provide explanations for the proposed cost adjustments.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section describes the basis of payment that will apply to this contract.

1.2 SECTION INCLUDES

.1 Reference Standards.

.2 Measurement.

.3 Rejected Products.

.4 Application for Progress Payment.

.5 Schedule of Values.

.6 Preparing Schedule of Unit Price Table Items.

.7 Progress Payment.

.8 Substantial Performance of Work.

.9 Payment of Holdback Upon Substantial Performance of Work.

.10 Progressive Release of Holdback.

.11 Final Payment.

.12 Measurement and Payment.

1.3 REFERENCE STANDARDS

.1 Owner/Contractor Agreement.

1.4 MEASUREMENT

.1 Measurement for Unit Price Work: As specified in individual Sections. Quantities indicated in the Schedule of Prices are for bidding and contract purposes only and are approximate. Quantities of material furnished and/or work performed as verified by Engineer determine payment.

1.5 REJECTED PRODUCTS

.1 Non-payment for rejected products: Payment will not be made for any of the following:

- .1 Products determined as unacceptable before or after placement.
- .2 Products not completely unloaded from the transporting vehicle.
- .3 Products placed beyond the lines and levels of the required Works.
- .4 Products remaining after completion of the Works.

.5 Loading, hauling, and disposing of rejected products.

1.6 APPLICATIONS FOR PROGRESS PAYMENT

.1 Make applications for payment on account as monthly as Work progresses.

.2 Date applications for payment last day of agreed monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.

.3 Submit to Engineer, at least 15 calendar days before first application for payment. Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.

1.7 SCHEDULE OF VALUES

.1 Provide schedule of values supported by evidence as Engineer may reasonably direct and when accepted by Engineer, be used as basis for applications for payment.

.2 Include statement based on schedule of values with each application for payment.

.3 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as Engineer may reasonably require to establish value and delivery of products.

1.8 PREPARING SCHEDULE OF UNIT PRICE TABLE ITEMS

.1 Submit separate schedule of unit price items of Work requested in Tender Form.

.2 Make form of submittal parallel to Schedule of Values, with each line item identified same as line item in Schedule of Values. Include in unit prices only:

.1 Cost of material.

.2 Delivery and unloading at site.

.3 Sales taxes.

.4 Installation, overhead and profit.

.3 Ensure unit prices multiplied by quantities given equal material cost of that item in Schedule of Prices.

1.9 PROGRESS PAYMENT

.1 Engineer will issue to Owner, no later than 10 calendar days after receipt of an application for payment, certificate for payment in amount applied for or in such other amount as Engineer determines to be due. If Engineer amends application, Engineer will give notification in writing giving reasons for amendment.

1.10 SUBSTANTIAL PERFORMANCE OF WORK

.1 Prepare and submit to Engineer comprehensive list of items to be completed or corrected and apply for a review by Engineer to establish Substantial Performance of Work or substantial performance of designated portion of Work when Work is substantially performed if permitted by lien legislation applicable to Place of Work designated portion which Owner

agrees to accept separately is substantially performed. Failure to include items on list does not alter responsibility to complete Contract.

.2 No later than 20 calendar days after receipt of list and application, Engineer will review Work to verify validity of application, and no later than 7 calendar days after completing review, will notify Contractor if Work or designated portion of Work is substantially performed.

.3 Engineer: state date of Substantial Performance of Work or designated portion of Work in certificate.

.4 Immediately following issuance of certificate of Substantial Performance of Work, in consultation with Engineer, establish reasonable date for finishing Work.

1.11 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

.1 After issuance of certificate of Substantial Performance of Work:

.2 Submit application for payment of holdback amount.

.3 Submit sworn statement that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work and for which Owner might in be held responsible have been paid in full, except for amounts properly retained as holdback or as identified amount in dispute.

.4 After receipt of application for payment and sworn statement, Engineer will issue certificate for payment of holdback amount.

.5 Where holdback amount has not been placed in a separate holdback account, Owner will, 10 calendar days prior to expiry of holdback period stipulated in lien legislation applicable to Place of Work, place holdback amount in bank account in joint names of Owner and Contractor.

.6 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work. Where lien legislation does not exist or apply, holdback amount is due and payable in accordance with other legislation, industry practice, or provisions which may be agreed to between parties. Owner may retain out of holdback amount sums required by law to satisfy liens against Work or, if permitted by lien legislation applicable to Place of Work, other third party monetary claims against Contractor which are enforceable against Owner.

1.12 PROGRESSIVE RELEASE OF HOLDBACK

.1 Where legislation permits, if Engineer has certified that Work of subcontractor or supplier has been performed prior to Substantial Performance of Work, Owner will pay holdback amount retained for such subcontract Work, or products supplied by such supplier, on day following expiration of holdback period for such Work stipulated in lien legislation applicable to Place of Work.

.2 In addition to provisions of preceding paragraph, and certificate wording, ensure that such subcontract Work or products is protected pending issuance of final certificate for payment and be responsible for correction of defects or Work not performed regardless of whether or not such was apparent when such certificates were issued.

1.13 FINAL PAYMENT

.1 Submit application for final payment when Work is completed.

.2 Engineer will, no later than 10 calendar days after receipt of application for final payment, review Work to verify validity of application. Engineer will give notification that application is valid or give reasons why it is not valid, no later than 7 calendar days after reviewing Work.

.3 Engineer will issue final certificate for payment when application for final payment is found valid.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Arrange and conduct meetings to communicate vital information between Owner, Engineer, Contactor and Major Subcontractors.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Administrative.

.3 Preconstruction Meetings.

.4 Progress Meetings.

.5 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 52 00 - Construction Facilities

.2 Section 01 56 00 - Temporary Barriers and Enclosures

1.4 ADMINISTRATIVE

.1 Schedule and administer project meetings throughout the progress of the work at the call of the Engineer and/or Owner.

.2 Engineer shall prepare agenda for meetings, record the minutes of progress meetings, include significant proceedings and decisions. and identify "action by" parties and date for completion of duty.

.3 Engineer shall distribute written notice of each meeting 5 days in advance of meeting date to Contractor.

.4 The Owner shall provide physical space, table and chairs for all participants.

.5 Representatives of Contractor, Subcontractor and Suppliers attending meetings must be qualified and authorized to act on behalf of the party each represents.

1.5 PRECONSTRUCTION MEETING

.1 Engineer and Owner will schedule and administer a pre-construction meeting at the Site after the date of the Notice to Proceed and prior to start of construction.

.2 Engineer will make arrangements for meeting, prepare agenda with copies for participants, and preside at meeting. Provide data required to Engineer and be prepared to discuss all items on the agenda.

.3 Minimum Attendance Required: Contractor, Contractor’s health and safety officer, and major Subcontractors.

.4 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.5 Agenda will include, but will not necessarily be limited to, the following:

.1 Appointment of official representative of participants in the Work.

.2 Schedule of Work.

.3 Schedule of submission of shop drawings.

.4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

.5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.

.7 Owner provided products.

.8 Monthly progress claims, administrative procedures, photographs, hold backs.

.9 Appointment of inspection and testing agencies or firms.

.10 Insurances, transcript of policies.

.11 Designation of responsible personnel.

.12 Lines of authority and communication.

.13 Health and safety.

.14 Submittal list and schedule.

.15 Use of the Site for storage, vehicle parking, access routes, and other Site requirements.

.16 Coordination with Owner.

.6 Procedures for processing field decisions, submittals, substitutions, applications for payments, proposal requests, Field Orders, Work Change Directives, Change Orders, and closeout procedures

1.6 PROGRESS MEETINGS

.1 Schedule and administer progress meetings throughout the progress of the Work every week.

.2 Contractor, major subcontractors involved in work, Engineer and Owner are to be in progress meetings.

.3 Notify parties minimum 5 days prior to meetings.

.4 Engineer to record minutes of meetings and circulate to attending parties and affects parties not in attendance within 5 days after meeting.

.5 Agenda for progress meetings to include the following:

.1 Review and approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, and conflicts.

.4 Problems which impede construction schedule.

.5 Review of off-site fabrication delivery schedule.

.6 Corrective measures and procedures to regain projected schedule.

.7 Revisions to construction schedule.

.8 Progress, schedule, during succeeding work period.

.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.

.11 Pending changes and substitutions.

.12 Review proposed changes for effect on construction schedule and on completion date.

.13 Other business.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Schedule.

.2 Progress Reports.

.3 Staffing.

1.2 SCHEDULE

.1 Schedules Required

.1 Construction Progress Schedule will be completed by the Contractor and submitted to the Engineer within five (5) days after Award of Contract.

.2 Schedule shall show dates of commencement and completion of various parts of the Work, ordering and delivery dates of Products, phasing and timing for various subcontracts and all other detailed information to the satisfaction of the Engineer and Owner.

.3 All orders for materials shall be placed in ample time for adherence to the schedule.

.4 Make special note of those times when extra work shifts are required to complete the Work.

.5 Prepare definitive schedules for the following specific items:

.1 Product delivery.
.2 Schedule of all shop drawings required.
.3 Schedule of all samples required.
.4 Schedule of material deliveries.
.5 Schedule of construction phases.
.6 Requirements for special site instructions, etc.

.6 Format

.1 Prepare schedules in form of horizontal bar chart.
.2 Provide separate bar for each trade or operation.
.3 Provide horizontal time scale identifying first work day of each week.
.4 Format for listings: Chronological order of start of each item of Work.
.5 Indicate the following:

.1 Commencement and completion of work of each section of the specification conforming to the Project milestones and daily operation requirements.

.2 The major items of work for this contract are as follows:

1. Award.
2. Shop Drawings.
3. Mobilization.
4. Excavation.

5. Cell 1A subgrade preparation, culvert installation, road/berm construction.
6. Demobilization.

.3 Final completion date within time period required by Contract Documents.

.7 Revise and update schedule and submit to Engineer every two (2) weeks. Updated schedule should also include production rates and showing progress of work.

1.3 PROGRESS REPORTS

.1 Maintain an accurate record of the progress of the Work.

.2 Records shall state dates of commencement and percentage of Work completed by trades for the different parts of the Work and include particulars regarding daily weather conditions, number of workers for each trade, percentage of Work completed weekly by trades and shall relate to the Schedule. Make records available to Engineer upon request.

1.4 STAFFING

.1 Should the Work fail to progress according to the approved progress schedule, work such additional time (including weekends and holidays), employ additional workers, or both, as may be required to bring the Work back on schedule, at no additional cost to the Owner.

.2 Night work will be permitted only with written permission of the Engineer and in accordance with existing municipal regulations. Provide sufficient lighting to permit night work to be performed safely and satisfactorily.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers procedures and requirements for submission of documents, data, drawings and samples related to the Works.

1.2 SECTION INCLUDES

.1 Administrative.

.2 Shop Drawings and Product Data.

.3 Samples.

.4 Measurement and Payment.

1.3 ADMINISTRATIVE

.1 Submit to Engineer submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are coordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Engineer’s review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer’s review.

.10 Keep one reviewed copy of each submission on site.

1.4 SHOP DRAWINGS AND PRODUCT DATA

.1 The term shop drawings means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in BC, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow 5 days for Engineer’s review of each submission.

.5 Adjustments made on shop drawings by Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Engineer prior to proceeding with Work.

.6 Make changes in shop drawings as Engineer may require, consistent with Contract Documents. When resubmitting, notify Engineer in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.

.7 Operating weight.

.8 Wiring diagrams.

.9 Single line and schematic diagrams.

.10 Relationship to adjacent work.

.9 After Engineer’s review, distribute copies.

.10 Submit electronic copy or 4 printed copies of shop drawings for each requirement requested in specification Sections and as Engineer may reasonably request.

.11 Submit electronic or 4 printed copies of product data sheets or brochures for requirements requested in specification Sections and as requested Engineer where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit electronic or 4 printed copies of test reports for requirements requested in specification Sections and as requested by Engineer.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 2 years of date of contract award for project.

.13 Submit electronic or 4 printed copies of certificates for requirements requested in specification Sections and as requested by Engineer.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit electronic or 4 printed copies of manufacturer’s instructions for requirements requested in specification Sections and as requested by Engineer.

.1 Pre-printed material describing installation of product, system or material, including special notices and Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit electronic or 4 printed copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Engineer.

.16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.17 Submit electronic or 4 printed copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Engineer.

.18 Delete information not applicable to project.

.19 Supplement standard information to provide details applicable to project.

.1 Shop drawings will be returned to the Contractor with one (1) of the following notations:

.1 When stamped "ACCEPTED", issue construction copies as required for execution of the Work.

.2 When stamped "ACCEPTED AS NOTED" make the necessary revisions consistent with the Contract before issuing for Construction.

.3 When stamped "REVISE AND RE-SUBMIT", make the necessary revisions, consistent with the Contract, and submit again for review.

.4 When stamped "REJECTED", submit other drawings, brochures, etc., for review consistent with the Contract.

.5 Only shop drawings bearing "ACCEPTED" or "ACCCEPTED AS NOTED" and have been stamped "ISSUED FOR CONSTRUCTION" shall be used on the Work and for fabrication of the products unless otherwise authorized by the Engineer.

.2 After submittals are stamped "ACCEPTED" or "ACCEPTED AS NOTED", no further revisions are permitted unless re-submitted to the Engineer for further review.

.3 Any adjustments made on shop drawings by the Engineer are not intended to change the Contract Price. If it is deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of the work.

.4 Fabrication of products shall not commence until shop drawings have been reviewed by the Engineer and found not to require re-submission.

.5 Shop drawings indicating design requirements not included in the Contract Documents require the seal of a Professional Engineer, registered in the province of British Columbia. Engineer calculations must be submitted for review, if requested, and must be signed by a Professional Engineer.

1.5 SAMPLES

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Engineer.

.3 Notify Engineer in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Engineer prior to proceeding with Work.

.6 Make changes in samples which Engineer may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE OF WORK

.1 Develop a written Site Specific Health and Safety Plan (HASP) prior to commencing any on Site work and continue to implement, maintain, and enforce the plan until final demobilization from the Site. Submit HASP to Owner and Engineer for review and acceptance.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Action and Informational Submittals.

.4 Filing of Notice.

.5 Safety Assessment.

.6 Meetings.

.7 General Requirements.

.8 Responsibility.

.9 Compliance Requirements.

.10 Unforeseen Hazards.

.11 Health and Safety Coordinator.

.12 Posting of Documents.

.13 Correction of Non-Compliance.

.14 Work Stoppage.

.15 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittal Procedures

1.4 REFERENCE STANDARDS

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.

.2 Province of BC – Occupational Health and Safety Act.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation.

.3 Engineer and Owner will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within 5 days after receipt of comments from Engineer.

.4 Engineer and Owner’s review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

1.6 FILING OF NOTICE

.1 File notice of project with Provincial authorities prior to beginning of Work.

1.7 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.8 MEETINGS

.1 Schedule and administer Health and Safety meeting with Engineer and Owner prior to commencement of Work.

1.9 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

Engineer may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.10 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan

1.11 COMPLIANCE REQUIREMENTS

.1 Comply with Occupational Health and Safety Act, General Safety Regulation.

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.12 SITE CHARACTERIZATION

.1 Work at the Site may involve contact with solid waste and associated contaminants including but not limited to landfill leachate and landfill gas.

.2 Landfill Gas:

.1 Landfill gas may be present in the landfill and in the soil adjacent to the landfill during excavation.

.2 Landfill gas results from the decomposition of refuse and is primarily composed of approximately 50 percent methane and 50 percent carbon dioxide, with trace gases including mercaptans, hydrocarbons, solvents, water vapor, and hydrogen sulfide.

.3 Methane is explosive in concentrations between 5 and 15 percent by volume in air.

.4 Methane, carbon dioxide, and nitrogen are simple asphyxiants.

.5 Trace gases in landfill gas may be toxic and odorous. Odorous gases cause nausea in some persons. Toxic gases may also be present at concentrations above or below the levels deemed safe for human exposure; there is always a potential for levels to be sufficient to cause permanent and irreversible damage and even death.

.3 Landfill Leachate: Landfill leachate is wastewater containing organic and inorganic compounds that is produced when water and other liquids seep through the landfilled waste. Landfill leachate characteristics and rate of production vary based on waste type and climate. Landfill leachate may be present in all excavations within, and immediately adjacent to, the landfilled waste. General safety considerations used for handling non-hazardous wastes should be used where there is the potential to come into contact with landfill leachate.

.4 Landfill Stability: Landfilled waste must be considered prone to instability that may cause slope or sidewall failure due to the high void ratio, irregularity of material composing the waste, and a typically lesser degree of compaction than soil.

1.13 UNFORESEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of British Columbia and advise Engineer and Owner verbally and in writing.

.2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety Coordinator and follow procedures in accordance with Acts and Regulations of British Columbia and advise Engineer and Owner verbally and in writing.

1.14 HEALTH AND SAFETY COORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have site-related working experience specific to activities associated with building construction and earthworks.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of Work and report directly to and be under direction of the site supervisor.

1.15 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of BC, and in consultation with Engineer.

1.16 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Engineer or Owner.

.2 Provide Engineer and Owner with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Engineer and/or Owner may stop Work if non-compliance of health and safety regulations is not corrected.

1.17 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures.

4.2 HEALTH AND SAFETY PLAN

.1 Schedule of Prices Item No. 01 35 29.06/01

.2 Payment Basis: Lump sum price. 50% based on development, submittal, and implementation of Health and Safety Plan. 50% based on enforcement of the plan and successful completion of final demobilization from the Site.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE OF WORK

.1 Be responsible for environmental control requirements for the overall site within the limits of the contract, including monitoring of erosion and sedimentation control and maintenance.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Submittals.

.5 Fires.

.6 Disposal of Waste.

.7 Drainage.

.8 Site Clearing and Plant Protection.

.9 Work Adjacent to Waterways.

.10 Pollution Control.

.11 Notification.

.12 Cleaning.

.13 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 73 00 – Execution

.3 Section 01 77 00 – Closeout Procedures and Submittals

1.4 DEFINITIONS

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.5 SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit Environmental Protection Plan (EPP) for review and approval by Engineer and Owner before delivering materials to site or commencing construction activities.

.3 EPP shall include comprehensive overview of known or potential environmental issues to be addressed on site during construction.

.4 Address topics at level of detail commensurate with environmental issue and required construction tasks

1.6 ENVIRONMENTAL PROTECTION PLAN

.1 Environmental Protection Plan (EPP) shall be developed by the Contractor in accordance with this Specification. This should include, at a minimum, the following elements:

.1 Names of persons responsible for ensuring adherence to EPP.

.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Include the site-specific Erosion and Sediment Control Plan (ESC) identifying the type and location of erosion and sediment control measures to be provided on site.

1.7 FIRES

.1 Fires and burning of rubbish on site is not permitted.

1.8 DISPOSAL OF WASTE

.1 Do not bury waste on-Site unless approved by Engineer or Owner.

.2 Waste to be hauled and disposed of at the active landfill area as directed by Engineer or Owner.

.3 Do not dispose of waste or volatile materials, such as spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.9 DRAINAGE

.1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan.

.2 Provide temporary drainage and pumping required to keep excavations and site free from water.

.3 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.4 Do not pump water containing suspended materials into waterways, sewer or drainage systems

.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

.6 The Contractor shall provide erosion control devices such as silt fences as required to satisfy local authority requirements, or as directed by ENGINEER.

1.10 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties.

.2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 metre minimum.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.

.4 Avoid unnecessary traffic, dumping and storage of materials over root zones.

.5 Minimize stripping of topsoil and vegetation.

.6 Restrict tree removal to areas designated by Engineer.

1.11 WORK ADJACENT TO WATERWAYS

.1 Construction equipment to be operated on land only.

.2 Use waterway beds for borrow material only after written receipt of approval from Engineer.

.3 Waterways to be kept free of excavated fill, waste material and debris.

.4 Design and construct temporary crossings to minimize erosion to waterways.

.5 Do not skid logs or construction materials across waterways.

.6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

1.12 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

.1 Provide temporary enclosures where indicated.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.13 NOISE CONTROL

.1 Abide by all local noise by-laws. Conduct noisy operations in such a manner to cause the least disturbance to neighbouring residences.

1.14 DUST CONTROL

.1 Keep entire work area watered to eliminate dust.

1.15 EROSION CONTROL

.1 Provide temporary measures in the Work Area (including temporary ditching) to reduce erosion.

1.16 SPILL CONTROL

.1 Servicing of machinery in or immediately adjacent to any stream or water body will not be permitted. Servicing of machinery shall be carried out in a manner to avoid pollution; all equipment shall be equipped with automatic shut-off systems to prevent spillage.

.2 Care shall be taken to ensure that all equipment is reasonably clean and that leaks and overflows do not contaminate water or private property during the performance of the Contract.

.3 The contractor shall have suitable spill abatement equipment on the project site, and personal knowledge of its use, satisfactory to the Owner. All spills shall be reported immediately to the Owner and the Engineer and contaminated material shall be cleaned up promptly and disposed of in an appropriate manner at the Contractor's expense.

.4 Storage of servicing materials including fuels, and oils shall be located in special areas that safely contain any materials to prevent contamination of the surrounding area. The storage areas shall not be connected directly or indirectly to any watercourse.

.5 All requirements for environmental protection shall be incidental to the prices bid for the Work under this Contract and no additional compensation will be made.

.6 Submit a spill plan at least 2 weeks prior to construction to be approved by the Owner.

1.17 NOTIFICATION

.1 Engineer will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection Plan.

.2 Contractor: after receipt of such notice, inform Engineer of proposed corrective action and take such action for approval by Engineer.

.1 Take action only after receipt of written approval by Engineer.

.3 Engineer or Owner will issue stop order of work until satisfactory corrective action has been taken.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 CLEANING

.1 Progress Cleaning:

.1 Site cleaning in accordance with Section 01 73 00 – Execution.

.2 Leave Work area clean at end of each day.

.2 Bury rubbish and waste materials on site where directed after receipt of written approval from Engineer.

.3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

.4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 77 00 – Closeout Procedures and Submittals.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 Payment Procedures: Requirements for measurement and payment.

4.2 ENVIRONMENTAL PROTECTION PLAN

.1 Schedule of Prices Item No. 01 35 43/01.

.2 Payment Basis: Lump sum price. Includes development and submission of the Environmental Protection Plan, including the associated Erosion and Sediment Control Plan.

END OF SECTION

PART 1 GENERAL

1.1 LATEST EDITIONS

.1 All references to specifications, standards, or methods of technical associations refer to the latest adopted revision, including all amendments, in effect on the date of submission of bids, except where a date or issue is specifically noted.

1.2 ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWMAC	Architectural Woodworkers Manufacturers Association of Canada
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CAN	Canadian National Standard
CBM	Certified Ballast Manufacturers
CBTIC	Clay Brick and Tile Institute of Canada
CEC	Canadian Electrical Code
CEMA	Canadian Electrical Manufacturers Association
CGA	Canadian Gas Association
CGRA	Canadian Good Roads Association
CGSB	Canadian General Standards Board
CISC	Canadian Institute of Steel Construction
CITC	Canadian Institute of Timber Construction
CLA	Canadian Lumbermen Association
CMAA	Crane Manufacturers Association of America
CMHC	Canada Mortgage and Housing Corporation
CPCA	Canadian Painting Contractors Association
CPCI	Canadian Prestressed Concrete Institute
CRCA	Canadian Roofing Contractors Association

CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSSBI	Canadian Sheet Steel Building Institute
CUA	Canadian Underwriters Association
CWB	Canadian Welding Bureau
CWC	Canadian Wood Council
CSPI	Corrugated Steel Pipe Institute
EEI	Edison Electric Institute
EEMAC	Electrical and Electronic Manufacturers of Canada
FFPC	Federal Fire Prevention Committee
FM	Factory Mutual Engineering Corporation
IAO	Insurers' Advisory Organization
IBRM	Institute of Boiler and Radiator Manufacturers
IEC	International Electrotechnical Commission
IEE	Institution of Electrical Engineers (U.K.)
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IGMAC	Insulated Glass Manufacturers Association of Canada
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Standardization Organization
LEMA	Lighting Equipment Manufacturers Association
LTIC	Laminated Timber Institute of Canada
MMA	Millwork Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NBC	National Building Code of Canada
NEC	National Electrical Code
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NLGA	National Lumber Grade Authority
NSF	National Sanitation Foundation
OECI	Overhead Electrical Crane Institute
OH & S	Occupational Health and Safety
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
RLM	RLM Standards Institute
RTAC	Road and Transportation Association of Canada
SAE	Society of Automotive Engineers
SBI	Steel Boilers Institute
SEA	Saskatchewan Employment Act
SJI	Steel Joist Institute

SSPC	Steel Structures Painting Council
TTMAC	Terrazzo, Tile and Marble Association of Canada
ULC	Underwriters' Laboratories of Canada
USFG	United States Federal Government
WCB	Workers' Compensation Board

1.3 CONFORMANCE

.1 Conform to these standards, in whole or in part as specifically requested in the specifications.

.2 If there is question as to whether any product or system is in conformance with applicable standards, the Engineer reserves the right to have such products or systems tested to prove or disprove conformance.

.3 The Owner will bear testing costs where the results of testing confirm conformance. In the event of determination of non-conformance, the Contractor will be required to bear all costs.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for Work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers the portions of Work that involve Quality Control by Contractor to manage, control, and document activities to ensure compliance with the Contract Documents, including, but not limited to inspections, testing, and administrative requirements.

1.2 SECTION INCLUDES

.1 Inspection.

.2 Independent Inspection Agencies.

.3 Access to Work.

.4 Procedures.

.5 Rejected Work.

.6 Reports.

.7 Test and Mix Design.

.8 Mill Tests.

.9 Equipment and Systems.

.10 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 73 00 – Execution

.3 Section 31 23 33.02 – Fill

1.4 REFERENCE STANDARDS

.1 Abbreviations of standards organizations referenced in this and other sections are as follows:

ACI	American Concrete Institute
CSA	Canadian Standards Association
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials

.2 ASTM International (ASTM)

.1 ASTM C117, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.2 ASTM C127, Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.

.3 ASTM D698, Standard Test M Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3) (600 kN-m/m3).

.4 ASTM D1140, Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing.

.5 ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2,700 kN-m/m3).

.6 ASTM D2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

.7 ASTM D2434, Standard Test Methods for Measurement of Hydraulic Conductivity of Coarse-Grained Soils.

.8 ASTM D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

.9 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.10 ASTM D5084, Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.

.11 ASTM D6913, Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.

.12 ASTM D6938, Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

.13 ASTM D7928, Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2, Sieves, Testing, Woven Wire, Metric.

.4 CSA Group (CSA)

.1 CAN/CSA-A3000, Cementitious Materials Compendium.

.1 CSA-A3001, Cementitious Materials for Use in Concrete.

.2 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

1.5 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor's system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer's system to assure end product quality by monitoring the Contractor's Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 Excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.

.4 Topsoil:

.1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters in any dimension.

.5 Subsoil: materials excavated directly beneath the topsoil layer. Capable of supporting root growth and suitable for use in landscape restoration.

.6 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.7 Borrow material: material obtained from locations outside area to be graded and required for construction of fill areas or for other portions of Work.

.8 Unsuitable materials:

.1 Weak, chemically unstable, and compressible materials.

.2 Frost susceptible materials under excavated areas.

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D7928 and ASTM D6913: Sieve sizes to [CAN/CGSB-8.1].

.2 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

.9 Select Backfill: selected material derived from usable excavation and placed above original ground or stripped surface up to top of berm or dike elevation.

.10 Subgrade: Original ground surface or prepared surface upon which embankments are constructed.

.11 SMDD: Standard Maximum Dry Density in accordance with ASTM D698.

.12 Corrected maximum dry density is defined as (correction applied for plus 20 mm material):

.1 1.4.9.1 D – (F1 x D1) + (0.9 x D2 x F2).

.2 Where: D = corrected maximum dry density kg/m. F1 = fraction (decimal) of total field sample passing 5 mm sieve. F2 = fraction (decimal) of total field sample retained on 5 mm sieve. (equal to 1.00 – F1) D1 = maximum dry density, kg/m of material passing 5 mm sieve determined in accordance with ASTM D698. D2 = bulk density, kg/m, of material retained on 5mm sieve, equal to 1000 G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127.

.3 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253 wet method when directed by the Engineer.

.13 LL: Liquid Limit.

.14 PL: Plastic Limit.

.15 PI: Plasticity Index.

1.6 INSPECTION

.1 Allow Engineer access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Engineer Instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Contractor is responsible for providing all quality assurance submittals, inspections, and testing required.

.5 Owner's Engineer may order any part of the Work to be reviewed or inspected if Work is suspected to be not in accordance with Contract Documents.

.6 If, upon review such work is found not in accordance with Contract Documents, correct such Work and pay cost of additional review and correction.

1.7 INDEPENDENT INSPECTION AGENCIES

.1 Unless otherwise allowed for in the Contract, Independent Inspection/Testing Agencies will be engaged by Contractor for purpose of conducting Quality Control Testing and inspecting the Work. Cost of such services will be borne by Contractor. The testing agency shall report all test results directly to the Engineer with original copies. Photocopies addressed to the Contractor will be unacceptable.

.2 The intention of this Testing is for determination by the Engineer of satisfactory compliance with the Contract Documents, and completed work for progress payment.

.3 It is the Contractor's responsibility to carry out whatever additional testing is required to ensure that the work is in conformance with the Contract Documents.

.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Engineer at no cost to Engineer/Owner. Pay costs for retesting and reinspection.

1.8 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.9 QUALITY ASSURANCE

.1 In addition to Contractor Quality Control, the Engineer may take samples and conduct laboratory tests on materials and the finished product. Such tests are for the purpose of assuring compliance with the Contract Documents. If any test results indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.2 The Engineer may, at their sole discretion, make available test results to the Contractor for information purposes. The Contractor makes use of this information at their own discretion

and cannot rely on the correctness or accuracy of those results as a substitute for a quality control program.

1.10 PROCEDURES

.1 Notify Engineer 72 hours in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.11 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Engineer as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Engineer it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Engineer.

1.12 REPORTS

.1 Submit daily summary report to Engineer. Report to include at minimum date, hours worked, weather, daily observations and highlights / task performed, daily QC testing summary and samples taken, two to three representative photos.

.2 Submit 3 copies of inspection and test reports to Engineer.

1.13 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

1.14 MILL TESTS

.1 Submit mill test certificates as required.

1.15 EQUIPMENT AND SYSTEMS

.1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers Temporary Utilities required in a short-term capacity for construction of the Works.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Submittals.

.4 Installation and Removal.

.5 Dewatering.

.6 Water Supply.

.7 Temporary Heating and Ventilation.

.8 Temporary Power and Light.

.9 Temporary Communication Facilities.

.10 Fire Protection

.11 Temporary Sanitary Facilities.

.12 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 0 71 13 – Mobilization and Startup.

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.5 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.6 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.7 WATER SUPPLY

.1 Water is available for construction use only as coordinated with RDFFG from on-site fire hydrant.

.2 Contractor shall be responsible for suppling all potable water required for constructing the Works, including potable water required to achieve specified compaction density.

1.8 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be flameless (vent free) type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.

.2 Protect Work and products against dampness and cold.

.3 Prevent moisture condensation on surfaces.

.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.

.5 Provide adequate ventilation to meet health regulations for safe working environment.

1.9 TEMPORARY POWER AND LIGHT

.1 Contractor shall provide necessary power service.

.2 Contractor shall arrange with the electrical utility, as needed, for additional power requirements, including power takeoff points, voltage and phasing, transformers, and metering, and shall pay resulting costs and fees.

1.10 TEMPORARY COMMUNICATIONS FACILITY

.1 Contractor shall provide telephone service at the construction site office for Contractor’s own use. Cellular telephone service is acceptable as a substitute for land-line telephone service.

1.11 FIRE PROTECTION

.1 Contractor shall provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on Site.

1.12 TEMPORARY SANITARY FACILITIES

.1 Contractor shall provide on-site toilet and wash-up facilities for the work force that comply with applicable laws, ordinances, and regulations pertaining to the public health and sanitation.

.2 Provide sufficient sanitary facilities for workers in accordance with local health authorities.

.3 Maintain in clean condition.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers Facilities, Infrastructure, Signage, Parking and Traffic Control required in a short-term capacity for the construction of the Works.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Submittals.

.3 Site Office.

.4 Installation and Removal.

.5 Site Storage/Loading.

.6 Construction Parking.

.7 Construction Signage.

.8 Protection and Maintenance of Traffic.

.9 Clean Up.

.10 Temporary Erosion and Sedimentation Control.

.11 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 35 43 – Environmental Procedures

.3 Section 01 55 26 – Traffic Control

.4 Section 0 71 13 – Mobilization and Startup

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.5 SITE OFFICE

.1 The Contractor shall supply a site office meeting the following requirements:

.1 The site office shall be conveniently located near the Work Area.

.2 The building shall have a minimum floor area of 20 square metres.

.3 The building shall be suitable for all-weather use. It shall be capable of maintaining a temperature range between 16°C and 25°C.

.4 The building shall be supplied with lighting and electrical wall outlets.

.5 The building shall be furnished with a meeting table and a minimum of six chairs.

.6 All Contractors' temporary structures located at the site shall be stabilized in a manner sufficient to prevent such temporary structures from being overturned by wind forces as defined in applicable building codes.

.7 Provide adequate first aid facilities.

.2 The Contractor shall maintain copies of Drawings, specifications, material safety data sheets (MSDS) for all products to be used on site, and other Contract documents, available for review and use at all times, at the site office.

1.6 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.7 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

.1 Parking will be permitted on site provided it does not disrupt performance of Work.

.2 Provide and maintain adequate access to project site.

1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.10 CONSTRUCTION SIGNAGE

.1 Provide and erect project sign, within 2 weeks of signing Contract, in a location designated by Engineer.

.2 No other signs or advertisements, other than warning signs, are permitted on site.

1.11 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Traffic Control: Refer to Section 01 55 26 – Traffic Control.

.2 Provide access and temporary relocated roads as necessary to maintain traffic as approved by Engineer and Owner.

.3 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Engineer and/or Owner.

.4 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.

.5 Protect travelling public from damage to person and property.

.6 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.7 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.8 Construct access and haul roads necessary as approved by Engineer and Owner..

.9 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.10 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.11 Dust control: adequate to ensure safe operation at all times.

.12 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Engineer and Owner.

.13 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

.14 Provide snow removal during period of Work.

.15 Remove, upon completion of work, haul roads designated by Engineer and Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion and sediment control (ESC) plan in accordance with Section 01 35 43 – Environmental Procedures.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers traffic control measures to be employed in construction of the Works.

1.2 SECTION INCLUDES

.1 Reference Standards.

.2 Traffic Regulation.

.3 Protection of Public Traffic.

.4 Informational and Warning Devices.

.5 Control of Public Traffic.

.6 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 35 43 – Environmental Procedures

.4 Section 01 52 00 – Construction Facilities

1.4 REFERENCE STANDARDS

.1 Ministry of Transportation and Infrastructure

.1 2020 Traffic Management Manual for Work on Roadways (TMM), 2020 Office Edition.

1.5 TRAFFIC REGULATION

.1 Confine construction traffic to designated haul routes.

.2 Provide all required traffic control permits and signage when construction operations or traffic encroach on public or commercial traffic lanes.

.3 Control construction vehicular parking to prevent interference with access by emergency vehicles, and Owner’s operations.

.4 Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.

.5 Prevent construction parking on or adjacent to access roads or in non-designated areas.

.6 Repair damage caused by installation and removal or contractor and temporary facilities.

1.6 PROTECTION OF PUBLIC TRAFFIC

.1 It will be the responsibility of the Contractor under the Contract to maintain traffic during the entire period of the Contract and to ensure that maximum protection is afforded to the road user and that the Contractor's operations in no way interfere with the safe operation of traffic.

.2 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

.3 When working on travelled way:

.1 Place equipment in position to minimize interference and hazard to travelling public.

.2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.

.3 Do not leave equipment on travelled roadways overnight.

.4 Close lanes of road only after receipt of written approval by Owner and/or Engineer.

.1 Before re-routing traffic erect suitable signs and devices.

.5 Keep travelled way graded, free from pot holes and of sufficient width for required number of lanes of traffic.

.1 Provide 8 m wide minimum temporary roadway for traffic in two-way sections through Work and on detours.

.2 Provide 5 m wide minimum temporary roadway for traffic in one-way sections through Work and on detours.

.6 Provide gravelled detours or temporary roads as indicated by Owner or Engineer to facilitate passage of traffic around restricted construction area.

.7 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Engineer.

1.7 INFORMATIONAL AND WARNING DEVICES

.1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.

.2 Supply and erect signs, delineators, barricades and miscellaneous warning.

.3 Meet with Engineer prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Engineer.

.4 Continually maintain traffic control devices in use:

.1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

.2 Remove or cover signs which do not apply to conditions existing from day to day.

1.8 CONTROL OF PUBLIC TRAFFIC

.1 Provide competent flag personnel, trained in accordance with, and properly equipped for situations as follows:

.1 Regulate traffic during normal landfill operating hours, when construction operations or related traffic encroaches on either on-site and off-site public traffic lanes including site entrance, scale house bypass lane, public tipping area, and perimeter haul road.

.2 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.

.3 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.

.4 When workers' or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.

.5 Where temporary protection is required while other traffic control devices are being erected or taken down.

.6 For emergency protection when other traffic control devices are not readily available.

.7 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

.8 At each end of restricted sections where pilot cars are required.

.9 Delays to public traffic due to contractor's operators:15 minutes maximum.

.2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system.

1.9 CONTROL OF PUBLIC TRAFFIC – TEMPORARY HAUL ROAD

.1 Provide competent flag personnel, trained in accordance with, and properly equipped for as follows:

.1 Regulate traffic during normal landfill operating hours, when construction operations or related traffic encroaches on-site public traffic lanes.

.2 A minimum of two flag personnel shall be deployed to address inbound and outbound public traffic.

.3 Delays to public traffic due to contractor's operators:15 minutes maximum.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers the temporary barriers and enclosures required during construction of the Works to ensure safety for construction personnel and the public, and to reduce potential time losses due to preventable incidences.

1.2 SECTION INCLUDES

.1 Installation and Removal.

.2 Guard Rails and Barricades.

.3 Security Fencing.

.4 Vehicular Access to Site.

.5 Public Traffic Flow.

.6 Fire Routes.

.7 Protection for Off-Site and Public Property.

.8 Protection of Building Finishes.

.9 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 – Submittal Procedures

1.4 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.5 GUARD RAILS AND BARRICADES

.1 Contractor shall provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities from damage during construction operations.

.2 Provide as required by governing authorities and good practice, secure, rigid guard railings and barricades around deep excavations, open shafts.

.3 Signage shall be used to delineate the Work.

1.6 SECURITY FENCING

.1 Contractor shall provide and maintain temporary security fencing where chain link fence is removed to facilitate Work, and along the public tipping area to ensure public cannot access excavation areas.

1.7 VEHICULAR ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

.2 Existing Roads: Reasonable use of existing on-Site roads for construction traffic is permitted subject to the following conditions:

.3 Do not interrupt or interfere with traffic on roads at any time except where open trench crossings are specified on the Drawings and proper notice regarding open trench crossings has been given to Engineer and Owner.

.4 Tracked vehicles are not allowed on paved areas.

1.8 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.9 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.10 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.11 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Engineer locations and installation schedule 5 days prior to installation.

.4 Contractor shall be responsible for damage incurred due to lack of or improper protection.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section covers general procedures and requirements for transportation, storage, handling, protection, installation and execution of common products not covered in the general detailed or manufacturer's specifications.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Quality.

.3 Availability.

.4 Product Substitution.

.5 Storage, Handling and Protection.

.6 Transportation.

.7 Manufacturer's Instruction.

.8 Quality of Work.

.9 Coordination.

.10 Concealment.

.11 Remedial Work.

.12 Location of Fixtures.

.13 Fastenings.

.14 Protection of Work in Progress.

.15 Existing Utilities.

.16 Measurement and Payment.

1.3 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should disputes arise as to quality or fitness of products, decision rests strictly with Engineer based upon requirements of Contract Documents.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout construction of the Works.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Engineer of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Engineer at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Engineer reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 PRODUCT SUBSTITUTION

.1 Document each request with complete data substantiating compliance of proposed substitution with the Contract Documents.

.2 A request for substitution constitutes a representation that Contractor:

.1 Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

.2 Will provide the same warranty for the substitution as for the specified product.

.3 Will coordinate installation and make changes to other Works which may be required for the Works to be complete at Contractor's expense and at no additional cost to Owner.

.4 Waives claims for additional costs or time extension which may subsequently become apparent.

.5 Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals without separate written request.

1.6 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction Engineer.

.9 Touch-up damaged factory finished surfaces to Engineer's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

.10 Contractor shall be fully responsible for loss or damage to stored products, materials, and equipment.

1.7 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.8 MANUFACTURER'S INSTRUCTION

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Engineer in writing, of conflicts between specifications and manufacturer's instructions, so that Engineer will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Engineer to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Engineer if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Engineer reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Engineer, whose decision is final.

1.10 COORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Engineer if there is interference. Install as directed by Engineer.

1.12 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.13 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Engineer of conflicting installation. Install as directed.

1.14 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Engineer.

1.16 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Scope of work includes utility locations, establishing survey control points, and layout.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Qualifications of Surveyor.

.4 Survey Reference Point.

.5 Survey Requirements.

.6 Existing Services.

.7 Location of Equipment and Fixtures.

.8 Records.

.9 Submittals.

.10 Subsurface Conditions.

.11 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 71 13 – Mobilization and Startup

1.4 REFERENCE STANDARDS

.1 Owner's identification of existing survey control points and property limits.

1.5 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practice in British Columbia, acceptable to Owner and Engineer.

1.6 SURVEY REFERENCE POINT

.1 Existing base horizontal and vertical control points are designated on drawings.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Owner and Engineer.

.4 Report to Owner and Engineer when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.7 SURVEY REQUIREMENTS

.1 Setting Out:

.1 The Contractor will give the Engineer a minimum of 48 hours notice in writing before requiring any levels, lines or stakes.

.2 Before commencing Work, the Contractor shall satisfy themselves as the meaning and correctness of all stakes, markers, and grade sheets.

.3 Contractor shall cooperate by making the Work available for such checking at suitable times, as required by the Owner and Engineer. This checking does not relieve the Contractor from his responsibility for the correctness of the layout Work.

.2 The Contractor shall establish two permanent benchmarks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.3 Establish lines and levels, locate and lay out, by instrumentation.

.4 Stake for grading, fill, topsoil placement and landscaping features.

.5 Stake slopes and berms.

.6 Establish pipe invert elevations.

.7 Stake batter boards for foundations.

.8 Establish foundation column locations and floor elevations.

.9 Establish lines and levels for mechanical and electrical work.

.10 Verify layout with Engineer and adjust as required.

.11 Verify material lengths with Engineer prior to ordering materials for construction of the Works.

.12 The Contractor to supply and pay for all stakes, markers, tools, and any help reasonably required in driving in stakes and setting out of work.

.13 The Contractor shall have the same person available when a request for any help is made. This person shall be available from the first day of the start of construction through the Date of Substantial Performance.

1.8 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Engineer of findings.

.2 Remove abandoned service lines within 4 metres of structures. Cap or otherwise seal lines at cut-off points as directed by Engineer.

1.9 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Engineer of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Engineer.

1.10 RECORDS

.1 The Contractor shall record all changes made during construction and provide record drawings to the Owner and Engineer upon completion of the Work.

.2 Maintain a complete, accurate log of control and survey work as it progresses.

.3 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.4 Record locations of maintained, re-routed and abandoned service lines.

1.11 SUBMITTALS

.1 Submit name and address of Surveyor to Owner and Engineer.

.2 On request of Owner or Engineer, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.12 SUBSURFACE CONDITIONS

.1 Promptly notify Engineer in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should Engineer determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

.1 No separate payment will be made for work under this Section. Payment for establishing survey control points, layout, records, and survey requirements included in Payment Item 01 71 13/02.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Contractor shall be responsible for all preparatory work and operations required prior to beginning Work.

1.2 SECTION INCLUDES

.1 Mobilization and Startup.

.2 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 51 00 – Temporary Utilities

.4 Section 01 52 00 – Construction Facilities

.5 Section 01 71 00 – Examination and Preparation

1.4 MOBILIZATION AND STARTUP

.1 Contractor shall not mobilize to the site without the Owner or Engineer’s written authorization.

.2 Mobilization shall include, but not limited to, the following:

- .1 Performance of planning and scheduling activities necessary for the performance of the Works.
- .2 Purchase of materials and mobilize equipment, supplies, and incidentals to the Site.
- .3 Movement of personnel, tools, equipment, materials, supplies, and incidentals to the Project site and all preparatory work
- .4 Establishment of all necessary facilities, including acquisition of easements for the Contractor’s convenience.
- .5 Obtaining permits necessary for the execution of the Work.
- .6 Providing required bonds, workers' compensation board status, and proof of insurance.

.3 Startup shall include, but not limited to the following:

- .1 Establish site access and haul roads necessary to construct the Works and transport materials to and from temporary stockpile locations.
- .2 Establish Site temporary utilities and facilities in areas designated by Engineer.
- .3 Coordinate scheduling, submittals, and work of the various Sections of the Project Specifications.

1.5 TEMPORARY HAUL ROAD PREPARATION

.1 Haul Road Preparation shall include, but not limited to, the following:

- .1 Layout temporary haul road as required to construct the Works, and access stockpile and laydown areas as shown on Drawings.
- .2 Review temporary haul road alignment with Engineer prior to commencing work.
- .3 Engineer to approve final haul road alignment prior to Contractor commencing activities related to temporary haul road preparation.
- .4 Clear and grub vegetation along the temporary haul road. Dispose of shrubs and trees on-site as directed by Engineer.
- .5 Install temporary culverts as required.
- .6 Protect all vegetation and infrastructure adjacent to the road alignment.
- .7 Place, grade and compact road base using Engineered Fill from on-site source.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 Payment Procedures: Requirements for measurement and payment.

4.2 MOBILIZATION AND STARTUP

.1 Mobilization

- .1 Schedule of Prices Item No. 01 71 13/01.
- .2 Payment Basis: Lump sum price. Includes furnishing and maintaining insurance and bonding required by the Contract Documents; mobilization, site safety, any and all associated overhead and administration, temporary utilities and construction facilities; and procuring necessary permits, including necessary wildlife and bird sweeps in accordance with Federal and Provincial regulations. Payment is based on successful completion of mobilization and turnover of Original Ground survey data.

.2 Startup

- .1 Schedule of Prices Item No. 01 71 13/02.
- .2 Payment Basis: Lump sum price. Includes establishing site access, and temporary controls, field engineering, establishing survey control points, surveying and site layout; utility locates, protection of existing utilities and structures, removal of existing structures as shown on the Drawings, and utility hydrovac excavation and removal (if and where required); resource and material procurement activities. Payment is based on turnover of Original Ground survey data.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Scope includes general execution requirements for constructing the Works and survey requirements for unit based payment items.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Submittals.

.3 Materials.

.4 Preparation.

.5 Site Occupancy.

.6 Execution.

.7 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 77 00 – Closeout Procedures and Submittals

1.4 SUBMITTALS

.1 Submittals: In accordance with Section 01 33 00 – Submittal Procedures

.2 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:
- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.

.8 Date and time work will be executed.

1.5 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 – Submittal Procedures.

1.6 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.7 EXECUTION

.1 Survey and excavate the northwest edge of the existing Cell 1.

.2 Remove and replace defective and non-conforming Work.

.3 Remove samples of installed Work for testing.

.4 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.6 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.7 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.8 Restore work with new products in accordance with requirements of Contract Documents.

.9 Fit Work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.10 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.11 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 SURVEY

.1 Reference point for elevations and lines will be provided by the Owner and Engineer. Establish all other required lines and grades from the Engineer's reference points.

.2 Give forty-eight (48) hours' notice of need for reference points, and ensure that line for reference points has been cleared.

.3 Supply all stakes, hubs, pins templates, flagging, spray paint, poles, etc. required for the Work.

.4 Be satisfied as to the correct meaning of all reference points. Discontinue Work and advise Engineer immediately if an error is suspected in drawings, specifications, reference points, grade sheets, etc.

.5 Surveys completed for the purposes of quantity review and as built (record) drawings shall be done at a spacing of 20 m outside of the cell limits, including all major break lines, and 10 m within the cell limits or as determined by the Engineer. Survey data shall be representative of the work done, not uniformly high or low.

.6 Owner may confirm survey data through an independent survey.

.7 Contractor shall submit survey data to the Engineer within 24 hours of the data being collected. The Engineer shall have a minimum of two working days from the time of reception to review and approve the survey data. Approval of survey data shall be granted to the Contractor by the Engineer through the Owner.

.8 Contractor must ensure that duplicate point/shot numbers are not submitted.

.9 Survey files submitted to the Engineer shall contain only one type of data. Separate files must be created and submitted for different types of data, i.e. Original ground, topsoil stripping, and subsoil stripping shall be submitted in three different files.

.10 Survey file names shall contain the date of data collection and a description of the data collected. Points contained within the survey file shall bear descriptions that clearly indicate the data they represent. Point names and file names should be very similar in nature. For example, topsoil stripping data collected on August 2, 2026, shall be submitted in a file named "August 2, 2026 – Topsoil Stripping", and the points contained within the file shall be named "Topsoil Stripping".

.11 Only newly collected survey data shall be submitted. Previously submitted data shall not be included with new data.

.12 Correct earthwork terminologies, consistent with the contract documents, shall be used in descriptions of survey data pertaining to these items.

.13 The following list presents the deliverables for the survey from the Contractor to the Engineer:

Item No.	Survey Submittals	Submittal Requirement	% of Line Item
1	Original ground topography of entire Work area.	To be submitted and approved prior to start of construction.	15
2	Following clearing and grubbing, prior to excavation or backfill activities. Following subsoil stripping, prior to excavation or backfill activities.	Survey items to be submitted and approved prior to any fill being placed in any location.	5
3	Following road base salvage and stockpiling	To be submitted and approved prior to start berm fill.	5
4	Following embankment construction.	Survey items to be submitted and approved prior to placement of road aggregates.	25
	Following access road and other common fill construction.		
5	Following cell excavation to bottom of grades (where required) on a 10 m grid, and including all break lines.	Survey items to be submitted and approved prior to final as-built ground topography.	25
	Following engineered fill placement to top of grades (where required) on a 10 m grid, and including all break lines.		
6	Final As-Built ground topography of entire work area post ALL Work, including any disturbed areas outside of the designated work area. This item WILL include survey for Work completed under force account or extra Work claims. This item will also include any item requested by the Engineer throughout the duration of the contract that is not specifically listed above.	Survey must be submitted and approved prior to payment of Demobilization	25

.15 Payment will be based on the submission of the above survey requirements in an acceptable format to the Engineer for review. Once the survey data submitted by the contractor is reviewed and accepted by the Engineer, payment will be issued based of the percentage of the total cost of the line item allotted to each survey submission as shown in the above table. Unacceptable survey data will result in non-payment of that survey item and will result in non-payment of the pay item requiring the survey data for verification of the quantity. It will be the responsibility of the Contractor to ensure that the survey data provided meets or exceeds the standard expected by the Engineer for review purposes. Work completed without approval of previous survey data will not be paid if the data is found to be incomplete or not of suitable quality to determine quantities as determined by the Engineer.

3.2 CLEAN UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 Payment Procedures: Requirements for measurement and payment.

4.2 SURVEYING

.1 Schedule of Prices Item No. 01 73 00/01.

.2 Payment Basis: Lump sum price. Includes all survey requirements to be paid upon submission and approval of completed survey as per the percentages in this specification.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Scope includes final closeout and submittal requirements including final cleaning and surveying, and warranties.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Administrative Requirements.

.3 Final Cleaning.

.4 Submittals.

.5 Format.

.6 Contents – Project Record Documents.

.7 As-Built Documents.

.8 Recording Information on Project Record Documents.

.9 Final Survey.

.10 Warranties and Bonds.

.11 Equipment and Systems.

.12 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittals

.3 Section 01 73 00 - Execution

1.4 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Engineer in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Engineer’s inspection.

.2 Engineer’s Inspection:

.1 Engineer and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested, balanced, adjusted and fully operational.

.4 Certificates required by regulatory authorities submitted.

.5 Operation of systems: demonstrated to Owner's personnel.

.6 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Engineer, Owner and Contractor.

.2 When Work incomplete according to Engineer and/or Owner, complete outstanding items and request re-inspection.

1.5 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Waste Management: separate waste materials for recycling and/or reuse.

.4 Remove waste materials and debris from site at regularly scheduled times or dispose of on site as directed by Owner and/or Engineer. Do not burn waste materials on site.

.5 When the Work is Substantially Performed, remove surplus products, tools construction machinery and equipment not required for performance of remaining Work.

.6 Clean debris from drainage and storm water management systems.

.7 Repair pavement, roads, sod, and all other areas affected by construction operations and restore them to original condition or to minimum condition specified.

.8 Prior to final review remove surplus products, tools, construction machinery and equipment.

.9 Remove waste materials from site at regularly scheduled times or dispose of as directed by Engineer. Do not burn waste materials on site.

.10 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.11 Sweep paved areas and rake clean landscaped surfaces.

.12 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.13 Remove dirt and other disfiguration from exterior surfaces.

.14 Clean and sweep roofs, gutters, areaways, and sunken wells.

.15 Sweep and wash clean paved areas.

.16 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.

.17 Clean drainage systems.

.18 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

1.6 SUBMITTALS

.1 Provide closeout submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.7 FORMAT

.1 Provide final survey data via email submission or on USB hard drive.

1.8 CONTENTS – PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Engineer and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

1.9 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of drawings provided by Engineer.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Measured depths of elements of foundation in relation to finish first floor datum.

.2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

.3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

.4 Field changes of dimension and detail.

.5 Changes made by change orders.

.6 Details not on original Contract Drawings.

.7 Referenced Standards to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain field test records, inspection certifications and manufacturer's certifications required by individual specifications sections.

.7 Provide digital photos, if requested, for site records.

1.10 FINAL SURVEY

.1 Field survey data, including all installed works, including any disturbed areas outside of the designated work area and any items requested by the Engineer throughout the duration of the contract that is not specifically listed. Pipe installations shall be surveyed, prior to backfilling, at a minimum of one survey point every 10 metres, including all pipe junctions, elbows, and connections.

1.11 WARRANTIES AND BONDS

.1 Provide Warranties and Bonds fully executed and notarized.

.2 Execute transition of Performance and Labour and Materials Payment Bond to Warranty Period requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

4.2 DEMOBILIZATION AND CLOSEOUT

.1 Schedule of Prices Item No. 01 77 00/01.

.2 Payment Basis: Lump sum price. Includes final cleaning of equipment, construction facilities, and materials to be removed from the Site; removal of temporary construction and support facilities provided by Contractor; restoring temporary areas and facilities (laydown area, haul roads, existing site access road, etc.) to their original state; final Site cleanup, final grading, adjusting, field surveying of final works, restoration, record documents, warranties and bonds. Payment is based on turnover and approval of Final As-Built survey data.

END OF SECTION

PART 1 GENERAL

1.1 DESCRIPTION

.1 The Contractor shall furnish all labour, materials, tools, supervision, transportation, and equipment necessary to modify existing well field HDPE pipe, condensate traps, accessories, appurtenances and connections as shown on the Drawings and specified herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Submittals.

.5 Quality Assurance.

.6 Delivery, Storage and Handling.

.7 Subheader Pipe.

.8 Lateral Pipe.

.9 Hydrostatic Pressure Testing.

.10 Warning Tape.

.11 Tracer Wire.

.12 Execution.

.13 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 – Submittal Procedures.

.3 Section 01 42 19 – Reference Standards.

.4 Section 01 45 00 – Quality Control.

.5 Section 01 73 00 – Execution.

.6 Section 23 05 06 – Well Field Isolation Valves.

.7 Section 31 23 10 – Excavation and Trenching.

.8 Section 31 23 33.02 – Fill.

1.4 REFERENCE STANDARDS

.1 Section 01 42 19 – Reference Standards.

.2 American Society for Testing and Materials (ASTM):

.1 ASTM A536 – Standard Specification for Ductile Iron Castings.

.2 ASTM D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.

.3 ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

.4 ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

.5 ASTM D3212 – Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

.6 ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

.7 ASTM D4976-00b – Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.

.8 ASTM D3350-00 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

.9 ASTM F405 – Standard Specification for Corrugated Polyethylene Tubing and Fittings.

.10 ASTM F667 – Standard Specification for Large Diameter Corrugated Polyethylene Tubing and Fittings.

.11 ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (SDRPR) Based on Outside Diameter.

.12 ASTM F2306 – Standard Specification for 12 to 60 in. (300 to 1500 mm) Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.

.3 American National Standards Institute (ANSI):

.1 ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

.2 ANSI B18.2.1 – Square and Hex Bolts, and Lag Screws (Inch Series)

.4 Canadian Standards Association (CSA):

.1 CSA B1373.3 – Rigid Polyvinyl Chloride Pipe.

.2 CSA B182.8-02 – Profile Polyethylene Storm Sewer and Drainage Pipe and Fittings.

.3 CSA G401 – Corrugated Steel Pipe Products.

1.5 DEFINITIONS

.1 CSP: Corrugated Steel Pipe.

.2 DR: Dimension Ratio. Actual outside pipe diameter divided by the wall thickness.

.3 HDPE: High Density Polyethylene.

.4 LFG: Landfill Gas.

.5 PTFE: Polytetrafluoroethylene.

.6 PVC: Polyvinyl Chloride.

.7 SMDD: Standard Maximum Dry Density and in the context of this Contract means maximum dry unit weight determined in accordance with ASTM D698.

1.6 SUBMITTALS

.1 Submit in accordance to Section 01 33 00 – Submittal Procedures.

.2 Product Data: Piping and fitting dimensions including test reports and material property sheets.

.3 Manufacturer's Certificate: Quality control certificates pertaining to each lot of pipe produced.

.4 Manufacturer's Instructions: Indicate special procedures required to install products specified.

1.7 QUALITY ASSURANCE

.1 HDPE Pipe

.1 Pipe Resin: ASTM D1248 for material indicating a Type 3, Category 5, Class C, Grade PE4710 (ASTM D3350 Cell Classification 3453C).

.2 Raw Material: Containing a minimum 2 percent carbon black, well dispersed by recompounding to protect the pipe from degradation by ultraviolet light.

.3 Pipe shall not contain any recycled compound except that generated in the manufacturer's own plant from resin of the same specification from the same raw material supplier.

.4 Pipe Sizes: ASTM F714. Pipe sizes are specified in metric units; however, equivalent IPS pipe sizes shall be used to avoid fitting problems.

1.8 DELIVERY, STORAGE, AND HANDLING

.1 Deliver and store piping with labeling in place.

.2 Deliver, store, and handle pipe in accordance with applicable requirements of the specified references, the manufacturer's instructions, and as specified herein.

.3 Contractor is responsible for conducting an inspection at the time of delivery to verify that the correct products and the expected quantities are received. Pipes and accessories should be visually inspected for damage such as cuts, gouges, delamination, bulges, flat areas and ovality that may have occurred during shipment.

.4 Use every precaution to prevent damage to the pipe. Do not permit metal tools or heavy objects to unnecessarily come in contact with the pipe.

.5 All pipe shall be lifted off trailer such that any damage while unloading is avoided.

.6 Contractor is responsible for each pipe shipment to ensure that there has been no loss or damage.

.7 Pipe shall be stored on level surfaces to avoid deformation. Supports shall be spaced to prevent bending and deformation to the ends of the pipe. When stacked, the weight of upper units shall not cause deformation to pipe in the lower units.

PART 2 PRODUCTS

2.1 HEADER PIPE

.1 Existing HDPE Pipe: DR 17, 200 mm diameter.

.2 Joints: Thermal butt fusion except flanged and electrofusion connections as shown on Drawings.

.3 Bedding Sand: See Section 31 23 33.02 – Fill.

.4 Accessories:

.1 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.

.2 Gaskets: Neoprene, minimum 3.2 mm thick.

.3 Bolt Sets: Hexagonal type 304 Stainless steel unless otherwise indicated in Drawings.

.4 Fittings: DR 17 Wye connections.

.1 Diameter: As shown on Drawings.

.5 Blind Flanges: SCH 80 PVC.

.6 Electrofusion couplers:

.1 SDR 17.

.7 Butterfly Valve: Refer to Section 23 05 06, Article 2.1.

.8 Warning Tape: See Article 2.5.

.9 Tracer Wire: See Article 2.6.

2.2 CONDENSATE LINE

.1 Existing HDPE Pipe: DR 11, 50 mm diameter.

.2 Joints: Thermal butt fusion except flanged and electrofusion connections as shown on Drawings.

.3 Bedding Sand: See Section 31 23 33.02 – Fill.

.4 Accessories:

.1 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.

.2 Gaskets: Neoprene, minimum 3.2 mm thick.

.3 Bolt Sets: Hexagonal type 304 Stainless steel unless otherwise indicated in Drawings.

.4 Fittings: DR 11 Wye connections and reducers.

.5 Blind Flanges: SCH 80 PVC.

.6 Electrofusion couplers:

.1 SDR 11.

.7 Warning Tape: See Article 2.5.

.8 Tracer Wire: See Article 2.6.

2.3 COMPRESSED AIR LINE

.1 Existing HDPE Pipe: DR 9, 25 mm diameter.

.2 Joints: Thermal butt fusion except flanged and electrofusion connections as shown on Drawings.

.3 Bedding Sand: See Section 31 23 33.02 – Fill.

.4 Accessories:

.1 Flanges: ASTM A536 ductile iron backing flanges with Class 150 ANSI B 16.5 standard drilling and corrosion resistant coatings. Complete with 1-piece molded polyethylene stub ends unless otherwise indicated on drawings. Connections shall have same or greater pressure rating as pipes.

.2 Gaskets: Neoprene, minimum 3.2 mm thick.

.3 Bolt Sets: Hexagonal type 304 Stainless steel unless otherwise indicated in Drawings.

.4 Fittings: DR 9 Wye connections and reducers.

.5 Blind Flanges: SCH 80 PVC.

.6 Electrofusion couplers:

.1 SDR 9.

.7 Warning Tape: See Article 2.5.

.8 Tracer Wire: See Article 2.6.

2.4 HEADER ISOLATION VALVE

.1 Refer to Section 23 05 06.

2.5 WARNING TAPE

.1 Standard, 4-mil polyethylene 76 mm (3 inch) wide tape, detectable type, yellow with black letters, and imprinted with “BURIED GAS LINE BELOW”. Tape shall be installed as shown on Drawings.

2.6 TRACER WIRE

.1 TWU No. 12 Gauge Solid Copper Wire: 3.2 mm diameter.

.2 Minimum Roll Length: 300 m.

.3 Wire Connectors: 3M DBR watertight connectors for No. 12 gauge wire or approved equivalent.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Section 01 73 00 – Execution: Verification of existing conditions before starting work.

.2 Verify that the excavation is ready to receive work and the bedding, slopes, dimensions, and elevations are as shown on the Drawings.

.3 Verify items provided by other Sections are properly sized and located.

3.2 PREPARATION

.1 Excavate to grades as shown on drawings, as per Section 31 23 10 – Excavation and Trenching.

.2 Pipe shall be inspected for cuts, scratches, or other damages prior to installation. Any pipe showing damage which in the opinion of the Engineer will affect the performance of the pipe must be removed from the site. Replace any materials found to be defective.

.3 Hand trim excavations to required elevations and to protect all existing infrastructure.

.4 Ensure that the excavation remains dry and groundwater elevation remains below the base excavation elevation until adequate backfill is placed to ensure that the installed pipe will not be dislodged.

.5 Ensure that excavation foundation is suitable for pipe bedding placement. Excavation foundation should be free of large stones, clumps of soil, frozen soil, refuse protruding into trench, and debris.

.6 Trench width shall be sufficiently wide to allow compaction of pipe bedding in the haunches and adjacent to the sides of the pipe.

.7 Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

.8 Unsuitable materials and waste excavated from trench alignments shall be disposed of on-site as directed by Owner or Engineer.

3.3 PIPE INSTALLATION

.1 Prevent debris and water from entering inside of pipe.

.2 Do not bend in a radius smaller than recommended by Manufacturer when staged on Site or installed in the trench.

.3 Perform thermal fusion in sheltered areas with temperature maintained in accordance with Manufacturer’s instructions.

.4 Avoid excess transportation and possible damage to the pipe.

.5 Prior to thermal fusion in the field on any pipe on a given date, provide a test weld and operating data to Engineer including welding temperature, machine number, date of last service, and clearance certificate.

.6 Install pipe, fittings, and accessories in accordance with Manufacturer's instructions.

.7 Lay pipe to slope gradients as shown on Drawings with maximum variation from true slope of 1 cm in 3 m. Maintain positive drainage for all pipe sections.

.8 Use laser equipment for controlling grade of pipe installation.

.9 Fasten tracer wire to pipe and risers.

.10 Backfill to lines and grades indicated on Drawings.

.11 Place buried pipe tape as shown on Drawings.

.12 The Contractor shall stockpile all excavated materials not used for backfilling or cover soil on site as directed by Engineer.

.13 Soil used for backfill shall be placed in a loose lift that results in a compacted lift thickness of no greater than 100 mm (4 inches). The maximum permissible pre-compaction soil clod size is 100 mm.

.14 Surplus waste excavated from trenches shall be hauled to the landfill active area.

3.4 TRACER WIRE

.1 Install tracer wire as per manufacturer's recommendations using approved connectors.

.2 Tracer wire should not be wrapped around pipe or connectors except at the riser.

.3 The contractor shall install insulated tracer wire, in the trench above the polyethylene pipe.

.4 The tracer wire shall be installed so that electrical continuity is maintained throughout the pipe system.

3.5 THERMAL PIPE WELDING

.1 All pipe fusion shall be performed by a supplier or a factory supplied and/or certified fusion operator.

.2 Join the polyethylene pipe by the method of thermal butt fusion, outlined in ASTM D 2657, or saddle fusion, depending on the type of joint. Of particular importance is the use of proper interface pressures and heater plate temperatures.

.3 Pipe cuts shall be square and perpendicular to the centerline of the pipe for butt fusion joints.

.4 Do not perform pipe fusion in water or when trench conditions are unsuitable for the work. Keep water out of the trench until joining is complete. Secure open ends of pipe and close valves when work is not in progress, so that no trench water, earth, or other substance will enter the pipe or fittings. Plug, cap or valve pipe ends left for future connection.

.5 In order to allow the joining operation to continue in adverse weather conditions, a shelter may be required for the joining machine. Particular caution should be exercised to prevent water from entering the pipe and from coming in contact with the heater plate and electrical connections. All electric lines used in field operations shall be fitted with ground fault current interrupters (GFCI).

.6 Only fully-trained personnel will be allowed to perform the installation, supervision, or inspection of polyethylene-fusion joints.

3.6 FIELD QUALITY CONTROL

.1 Section 01 45 00 – Quality Control: Inspection for field inspection and testing.

.2 Request inspection prior to placing aggregate cover over pipe.

.3 Compaction testing will be performed in accordance with Section 31 23 33.02 – Fill.

.4 If tests indicate that the Works do not meet specified requirements, remove Works, replace, and retest.

3.7 PROTECTION OF FINISHED WORKS

.1 Section 01 73 00 – Execution: Protection of Installed Work.

.2 Protect pipe and cover from damage or displacement prior to and during backfilling operations.

.3 Prevent debris from entering system.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

4.2 HEADER PIPE (EAST WYE)

.1 Schedule of Prices Item No. 23 05 05/01.

.2 Payment Basis: Lump Sum. Incudes excavation, segregation intermediate cover, transporting suitable materials to temporary stockpiles, temporary stockpiling, and hauling and disposal of waste, unsuitable material or excess excavated materials at the active landfill area; supply and install bedding sand, header pipe, condensate line, compressed air line, and accessories, including flanges, gaskets, bolt sets, electrofusion couplers, blind flanges, warning tape, and tracer wire; hauling, placing, compacting of backfill, placement and compaction of intermediate cover, regrading to grades as shown in Drawings, and quality control and pressure testing.

4.3 HEADER PIPE (WEST WYE)

.1 Schedule of Prices Item No. 23 05 05/02.

.2 Payment Basis: Lump. Incudes excavation, segregation intermediate cover, transporting suitable materials to temporary stockpiles, temporary stockpiling, and hauling and disposal of waste, unsuitable material or excess excavated materials at the active landfill area; supply and install bedding sand, header pipe, header isolation valve, flanges, gaskets, bolt sets, electrofusion couplers, blind flange, warning tape, tracer wire, and accessories; hauling,

placing, compacting of backfill, placement and compaction of intermediate cover, regrading to grades as shown in Drawings, and quality control and pressure testing.

END OF SECTION

PART 1 GENERAL

1.1 DESCRIPTION

.1 The Contractor shall furnish all labour, materials, tools, supervision, transportation, and equipment necessary to install new well field isolation valves as shown on Drawings.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Progress Submittals.

.5 Delivery, Storage and Handling.

.6 Header Isolation Valve.

.7 Execution.

.8 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 – Submittal Procedures.

.3 Section 01 42 19 – Reference Standards.

.4 Section 01 45 00 – Quality Control.

.5 Section 01 61 00 – Common Product Requirements.

.6 Section 01 73 00 – Execution.

.7 Section 23 05 05 – Well Field Pipework.

1.4 REFERENCE STANDARDS

.1 Section 01 42 19 – Reference Standards.

.2 American Society of Mechanical Engineers (ASME):

.1 ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard

.2 ASME B18.2 - Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series).

.3 American Society for Testing and Materials (ASTM):

.1 ASTM D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.

.2 ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

.3 ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

.4 ASTM D3212 – Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

.5 ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

.6 ASTM D4976-00b – Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.

.7 ASTM D3350-00 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

.8 ASTM F405 – Standard Specification for Corrugated Polyethylene Tubing and Fittings.

.9 ASTM F667 – Standard Specification for Large Diameter Corrugated Polyethylene Tubing and Fittings.

.10 ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe SDRPR) Based on Outside Diameter.

.11 ASTM F2306 – Standard Specification for 12 to 60 in. (300 to 1500 mm) Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.

.4 American National Standards Institute (ANSI):

.1 ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

.2 ANSI B18.2.1 – Square and Hex Bolts, and Lag Screws (Inch Series)

.5 Canadian Standards Association (CSA):

.1 CSA B1373.3 – Rigid Polyvinyl Chloride Pipe.

.2 CSA B182.8-02 – Profile Polyethylene Storm Sewer and Drainage Pipe and Fittings.

1.5 DEFINITIONS

.1 CSP: Corrugated Steel Pipe.

.2 DR: Dimension Ratio. Actual outside pipe diameter divided by the wall thickness.

.3 HDPE: High Density Polyethylene.

.4 LFG: Landfill Gas.

.5 PE: Polyethylene.

.6 PTFE: Polytetrafluoroethylene.

.7 PVC: Polyvinyl Chloride.

1.6 SUBMITTALS

.1 Section 01 33 00 – Submittal Procedures.

.2 Product Data: Specifications and dimensions including test reports and material property sheets.

.3 Manufacturer's Instructions: Indicate special procedures required to install products specified.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Section 01 61 00 – Common Product Requirements.

.2 Deliver and store products with labeling in place.

.3 Deliver, store, and handle valve assemblies with applicable requirements of the specified references, the Manufacturer’s instructions, and as specified herein.

.4 Use every precaution not to damage products.

PART 2 PRODUCTS

2.1 HEADER ISOLATION VALVE

.1 Product: SDR11 HDPE Poly Ball Valve PE4710 Full Port.

.2 Diameter: 200 mm.

.3 Process Fluid: Landfill Gas.

.4 Body: HDPE.

.5 Connection: Stub End, Butt Fusion.

.6 Body and Stem Seal: Nitrile or Viton.

.7 O-Ring: Nitrile or Viton.

.8 Seat: Nitrile or PTFE.

.9 Accessories:

- .1 Municipal Operating Nut.
- .2 Bolt Set: ASME B 18.2.1, 304 stainless steel unless otherwise indicated on Drawings. Project bolt ends 6 millimeters beyond surface of nuts.
- .3 Gasket: Neoprene, minimum 3.17 millimeters thick, full faced.
- .4 Riser: 150 mm diameter SCH 80 PVC riser.
- .5 Cap: Royer aluminum locking well cap or approved equivalent.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Section 01 73 00 – Execution.

.2 Verify that excavated and prepared area is ready to receive work, and dimensions and elevations are as shown on Drawings.

3.2 INSTALLATION OF HEADER ISOLATION VALVE

.1 Confirm location of isolation valves with Engineer prior to commencement of work.

.2 Install valve as indicated in Drawings.

3.3 CLEANING

.1 If required, clean exposed work face by washing and brushing only. Use potable water, if required, as cleaner to remove debris from valve assembly prior to placing the PVC riser pipe and backfilling. Remove immediately materials that may set up or harden.

3.4 FIELD QUALITY CONTROL

.1 Section 01 45 00 – Quality Control.

3.5 PROTECTION OF FINISHED WORK

.1 Section 01 73 00 – Execution: Requirements for protection of installed work.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

.2 No separate payment made for work in this Section. Included in Schedule of Prices Item no. 23 05 05/02 – Header Pipe (West Wye).

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This Section refers to those portions of the Works that are unique to clearing and grubbing. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Definitions.

.3 Quality Assurance.

.4 Storage and Protection.

.5 Execution.

.6 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 35 29.06 – Health and Safety Requirements

.4 Section 01 35 43 – Environmental Procedures

1.4 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor's system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer's system to assure end product quality by monitoring the Contractor's Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 Clearing consists of cutting of trees and brush vegetative growth to not more than specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris.

.4 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing at, or close to, existing grade and disposing of fallen timber and surface debris.

.5 Clearing isolated trees consists of cutting off to not more than specified height above ground of designated trees and disposing of felled trees and debris.

.6 Underbrush clearing consists of removal from treed areas of undergrowth, deadwood, trees smaller than 50 mm trunk diameter and disposing of fallen timber and surface debris.

.7 Grubbing consists of excavation and disposal of stumps and roots, boulders and rock fragments of specified size to not less than specified depth below existing ground surface.

1.5 STORAGE AND PROTECTION

.1 Prevent damage to landscaping, existing buildings, utility lines, site appurtenances, fencing, trees and shrubs, bench marks, existing pavement, water courses which are to remain.

.1 Repair damaged items to approval of Engineer.

.2 Replace trees designated to remain, if damaged, as directed by Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control drawings.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PREPARATION

.1 Inspect site and verify with Engineer, items designated to remain.

.2 Locate and protect utility lines: preserve in operating condition active utilities traversing site.

.1 Notify Engineer immediately of damage to or when unknown existing utility lines are encountered.

.2 When utility lines which are to be removed are encountered within area of operations, notify Engineer in ample time to minimize interruption of service.

.3 Notify utility authorities before starting clearing and grubbing.

.4 Keep roads and walks free of dirt and debris.

3.3 CLEARING (WHERE APPLICABLE)

.1 Clearing includes felling, trimming and cuttings of trees into sections and satisfactory disposal of trees and other vegetation designated for removal, including downed timber, rubbish, snags and brush occurring within cleared areas.

.2 Clear as indicated by Engineer, by cutting at height of not more than 300 mm above ground.

.3 Cut down trees overhanging area cleared as directed by Engineer. Cut off unsound branches on trees designated to remain as directed by Engineer.

.4 Apply herbicide to top surface of stumps designated not to be removed.

3.4 UNDERBRUSH CLEARING

.1 Clear underbrush from areas at ground level.

3.5 GRUBBING (WHERE APPLICABLE)

.1 Remove and dispose of roots larger than 7.5 cm in diameter, matted roots, and designated stumps from indicated grubbing areas.

.2 Grub out stumps and roots to not less than 200 mm below ground surface. Grub out visible rock fragments and boulders, greater than 300 mm in greatest dimension.

.3 Fill depressions made by grubbing with suitable material and to make new surface conform with existing adjacent surface of ground.

3.6 REMOVAL AND DISPOSAL

.1 Remove cleared materials to disposal area on-site as indicated by Engineer.

3.7 FINISHED SURFACE

.1 Leave ground surface in condition suitable for stripping of topsoil to approval of Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer for Section 01 29 00 – Payment Procedures for requirements on measurement and payment.

4.2 CLEARING AND GRUBBING

.1 Schedule of Prices Item No. 31 11 00/01.

.2 Payment Basis: Lump Sum. Area for pricing to be identified during pre-tender site tour. Includes clearing and disposal of trees around Work area, clearing of underbrush around Work area, grubbing and disposal on site of roots and rocks, filling of depressions, conducting Quality Control at finished surface.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Scope of Work includes the stripping of topsoil within the construction footprint, subgrade preparation, hauling and stockpiling of excess topsoil to on-site stockpile location. This Section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Execution.

.5 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 35 43 – Environmental Procedures.

.4 Section 31 11 00 – Clearing and Grubbing.

.5 Section 31 23 33.01 – Excavating, Embankment, Backfilling and Trenching.

1.4 REFERENCE STANDARDS

.1 U.S. Environmental Protection Agency (EPA)/Office of Water

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.5 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor’s system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer’s system to assure end product quality by monitoring the Contractor’s Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any

test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 Excavation Limits: areal excavation limits shown on the Drawings to specified depth or as directed by Engineer and does not include areas shown as being on hold pending further sampling and analysis by Engineer.

.4 Topsoil Stripping consists of the removal, placement, and stockpiling of materials capable of supporting good vegetative growth suitable for use in top dressing, landscaping, and seeding. Excavation shall be performed to a depth as directed by the Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PREPARATION

.1 Notify Engineer 48 hours prior to start of Work.

.2 Inspect Site and verify with Engineer items designated for removal and items to be preserved.

.3 Locate and protect utility lines. Preserve in operational condition active utilities traversing Site.

.4 Notify utility companies and Engineer before starting Work.

.5 Prepare pads for stockpiled materials as directed by Owner and Engineer.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to Erosion and Sediment Control Plan (ESC) according to Section 01 35 43 – Environmental Procedures, specific to Site, that complies with EPA 832/R-92-005 or requirements of the Owner, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 STOCKPILE CONSTRUCTION

.1 Stockpile locations are determined by the Owner and Engineer.

.2 Excess topsoil should be separated and stockpiled separately.

.3 Excess common excavation shall be stockpiled separately from the topsoil pile.

.4 All stockpiles on Site containing different materials must have a minimum separation of 5 metres at the base of the stockpile and this separation must be maintained at all times.

.5 Stockpiles shall be constructed with two access points, one at each end, and with side slopes no steeper than 3:1 slopes.

.6 All stockpiles must have the topsoil removed from the footprint of the stockpile prior to stockpile construction except for the topsoil stockpile.

.7 Topsoil pile must be free of trees and roots and other clearing and grubbing debris.

.8 Stockpiles containing clearing and grubbing debris will be created separately from all other stockpiles and shall not have topsoil mixed into the stockpiles. Adequate clearing and grubbing piles will be determined by the Engineer on Site.

.9 All disturbed stockpiles and new stockpiles shall be graded before the completion of the Work.

.10 A stabilized stockpile base or compacted sand base not less than 300 millimeters in depth will be provided when specified by the Engineer to prevent contamination of stockpiled materials.

3.4 STRIPPING OF TOPSOIL AND STORAGE

.1 Ensure that procedures are conducted in accordance with applicable Provincial requirements.

.2 Remove topsoil before construction procedures commence to avoid compaction of topsoil.

.3 Handle topsoil only when it is dry and warm.

.4 Remove vegetation from targeted areas by non-chemical means and dispose of stripped vegetation as directed by the Owner.

.5 Strip topsoil to base of topsoil horizon. Salvage topsoil from all areas to be disturbed including landfill cells, berm areas, ditches, roadways, and common excavation stockpile areas.

.6 Store excess topsoil at locations indicated on the construction drawings or as directed by the Engineer. A minimum 5 m separation between the bases of the stockpiles must be maintained at all times to avoid contamination.

.7 Protect topsoil stockpiles from contamination and compaction.

.8 Topsoil salvage and handling should be suspended during high winds if soil erosion is evident or during heavy rains if soils become saturated. Topsoil should not be handled until winds have died down and soils have drained and dried.

3.5 CLEANING

.1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

PART 4 MEASUREMENT AND PAYMENT

4.1 TOPSOIL STRIPPING AND STOCKPILING

.1 Schedule of Prices Item No. 31 14 13/01

.2 Measurement Basis: Per cubic metre of excavated material, measured by surveyed volume.

.3 Payment Basis: Unit Price. Includes the stripping of topsoil as directed by the Engineer and hauling of materials to the appropriate on-site stockpile location, traffic control, material segregation and separation, stockpile shaping and contouring. Payment based on approved surveyed volume of stripped topsoil material to the lines and grades shown in the Drawings.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This section refers to those portions of the Work that are unique to the excavation and disposal of unsuitable materials excavated from within the Cell 1A footprint and disposed of at the active landfill face, and excavate and salvage of road base material.

.2 This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Submittals.

.5 Quality Assurance.

.6 Approvals.

.7 Materials.

.8 Execution.

.9 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 – Submittal Procedures.

.3 Section 01 35 29.06 – Health and Safety Requirements.

.4 Section 01 35 43 – Environmental Procedures.

.5 Section 01 45 00 – Quality Control.

.6 Section 31 14 13 – Soil Stripping and Stockpiling.

.7 Section 31 23 33.02 – Fill.

.8 Section 31 32 19.16 – Non-Woven Geotextile.

1.4 REFERENCE STANDARDS

.1 Abbreviations of standards organizations referenced in this and other sections are as follows:

ACI American Concrete Institute

CSA	Canadian Standards Association
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
AASHTO	American Association of State Highway and Transportation Officials
GRI	Geosynthetic Research Institute

.2 ASTM International (ASTM)

.1 ASTM C117, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.2 ASTM C127, Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.

.3 ASTM D698, Standard Test M Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3) (600 kN-m/m3).

.4 ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2,700 kN-m/m3).

.5 ASTM D2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

.6 ASTM D2434, Standard Test Methods for Measurement of Hydraulic Conductivity of Coarse-Grained Soils.

.7 ASTM D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

.8 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.9 ASTM D5084, Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.

.10 ASTM D6913, Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.

.11 ASTM D6938, Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

.12 ASTM D7928, Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2, Sieves, Testing, Woven Wire, Metric.

1.5 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor's system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer's system to assure end product quality by monitoring the Contractor's Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 Borrow material: material obtained from locations outside area to be graded and required for construction of fill areas or for other portions of Work.

.4 Excavation: removal of materials of whatever nature encountered, whether wet, frozen, or otherwise, including dense tills, hardpan, frozen materials, cemented materials, concrete fragments, asphalt pavement, boulders or rock fragments less than 1 cubic metres in volume, and weathered rock which can be removed by ripping or excavating with heavy duty mechanical construction equipment without drilling and blasting.

.5 Excavation Limits: areal excavation limits shown on the Drawings to specified depth or as directed by Engineer and does not include areas shown as being on hold pending further sampling and analysis by Engineer.

.6 Topsoil:

.1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.2 Material reasonably free from clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters in any dimension.

.7 Engineered Fill: select material used for berms, access roads, ditching, and all other fills or fill items for which separate payment is not elsewhere provided including general subgrade preparation under all engineered fills.

.8 Backfill: original material that was excavated is being placed back in its original location as required and where specified on the Drawings.

.9 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.10 Unsuitable materials:

.1 Weak, chemically unstable, and compressible materials.

.2 Waste materials including municipal solid waste, construction and demolition waste, and yard and garden waste.

.3 Frost susceptible materials under excavated areas.

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D7928 and ASTM D6913: Sieve sizes to [CAN/CGSB-8.2] [CAN/CGSB-8.1].

.2 Coarse grained soils containing more than 20% by mass passing 0.075 mm sieve.

.11 Subgrade: Original ground surface or prepared surface upon which embankments are constructed.

.12 SMDD: Standard Maximum Dry Density in accordance with ASTM D698-2.

.13 Corrected maximum dry density is defined as (correction applied for plus 20 mm material):

.1 D = (F1 x D1) + (0.9 x D2 x F2).

.2 Where:

.1 D = corrected maximum dry density kg/m.

.2 F1 = fraction (decimal) of total field sample passing 5 mm sieve.

.3 F2 = fraction (decimal) of total field sample retained on 5 mm sieve. (equal to 1.00 – F1)

.4 D1 = maximum dry density, kg/m of material passing 5 mm sieve determined in accordance with ASTM D698.

.5 D2 = bulk density, kg/m, of material retained on 5mm sieve, equal to 1000 G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127.

.3 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253 wet method when directed by the Engineer.

1.6 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Quality Control: in accordance with Section 01 45 00 - Quality Control.

.1 Submit to Engineer notice at least 7 days prior to excavation work, to ensure cross sections are taken.

.2 Submit to Engineer written notice when bottom of excavation is reached.

.3 Submit to Engineer Testing results/report as described in PART 3 of this Section.

.3 Preconstruction Submittals:

.1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.

.2 Submit records of underground utility locates, indicating: clearance record from utility authority, location plan of relocated and abandoned services, as required, and location plan of existing utilities as found in field.

1.7 QUALITY CONTROL (CONTRACTOR)

.1 Qualification Statement: submit proof of insurance coverage for professional liability.

.2 Submit design and supporting data at least 2 weeks prior to beginning Work.

.3 Design and supporting data submitted to bear stamp and signature of qualified professional engineer registered or licensed in British Columbia, Canada.

.4 Keep design and supporting data on site.

.5 Do not use soil material until written report of soil test results are approved by Engineer.

.6 Health and Safety Requirements:

.1 Complete construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.8 APPROVALS

.1 If, in opinion of the Engineer, materials from the proposed on-site source do not meet, or cannot reasonably be processed to meet specified requirements, locate alternative source or demonstrate that material from source in question can be processed to meet specified requirements.

.2 Should a change of on-site material source be proposed during Work, advise Engineer two (2) weeks in advance of proposed change to allow sampling and testing.

.3 Acceptance of material does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

PART 2 PRODUCTS

2.1 MATERIALS – GENERAL

.1 Materials to be composed of inert, durable material, reasonably uniform in quality and free from soft or disintegrate particles.

.2 Materials should be free of unsuitable materials including:

.1 Frozen material or material containing snow or ice.

.2 Tree, stumps, branches, roots, or other wood or lumber.

.3 Wire, steel, cast iron, cans, drums, or other foreign material.

.4 Materials containing hazardous or toxic constituents at hazardous or toxic concentrations.

.3 Compactable to specified density.

.4 All proposed materials to meet standards contained in Contaminated Sites Regulations (CSR) applicable to place of work.

PART 3 EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Take appropriate measure to address risks associated with exposure to landfill and leachate identified in Section 01 35 29.06 – Health and Safety.

3.3 PREPARATION/PROTECTION

.1 Keep excavations clean, free of standing water, and loose soil.

.2 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Engineer’s approval.

.3 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

.4 Protect buried services that are required to remain undisturbed.

.5 Protect buried landfill gas well field infrastructure shown on Drawings.

3.4 STRIPPING OF TOPSOIL AND STOCKPILING

.1 Strip and stockpile topsoil material as per Section 31 14 13 – Soil Stripping and Stockpiling.

3.5 SALVAGE ROAD SURFACING AGGREGATE

.1 Excavate, salvage and stockpile road surfacing aggregate from existing haul road alignment as shown on Drawings.

3.6 SITE DRAINAGE/DEWATERING

.1 All drainage and dewatering operations will be in accordance with the approved Environmental Protection Plan as per Section 01 35 43 – Environmental Procedures.

.2 The Contractor will supply and install all equipment (pumps, piping, and facilities) and construct all facilities (water containment facilities, channels, and berms) necessary to control and manage water on the construction site and remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.

.3 Keep excavations free of water while Work is in progress.

.4 Provide for Engineer details of proposed dewatering methods, including dikes, well points, and sheet pile cut-offs.

.5 Avoid excavation below groundwater table if quick condition or heave is likely to occur.

.1 Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.

.6 Protect open excavations against flooding and damage due to surface run-off.

.7 Dispose of water in a manner not detrimental to public and private property, or portion of Work completed or under construction.

.1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.

3.7 GENERAL EXCAVATION

.1 Advise Engineer at least 7 days in advance of excavation operations.

.2 Excavate to lines, grades, elevations and dimensions as indicated in Drawings.

.3 Remove obstructions encountered during excavation and dispose at the site as directed by the Owner or Engineer.

.4 Excavation must not interfere with bearing capacity of adjacent foundations.

.5 Do not disturb soil within branch spread of trees or shrubs that are to remain.

.1 If excavating through roots, excavate by hand and cut roots with sharp axe or saw.

.6 For trench excavation, unless otherwise authorized by Engineer in writing, do not excavate more than 30 m of trench in advance of installation operations and do not leave open more than 15 m at end of day's operation.

.7 Keep excavated and stockpiled materials safe distance away from edge of trench as directed by Engineer.

.8 Restrict vehicle operations directly adjacent to open trenches.

.9 Do not obstruct flow of surface drainage or natural watercourses.

.10 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.11 Notify Engineer when bottom of excavation is reached.

.12 Obtain Engineer approval of completed excavation.

.13 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by Engineer.

.14 Correct unauthorized over-excavation as follows:

.1 Fill under other areas with Granular Base Course compacted to not less than 98 percent of Standard Maximum Dry Density.

.15 Hand trim, make firm and remove loose material and debris from excavations.

.1 Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.

.16 For the Cell 1 Lateral Expansion – Earthworks project:

.1 Clearing and grubbing (where required) in accordance with Section 31 11 00 – Clearing and Grubbing.

.2 Construct Engineered Fill in accordance with Section 31 23 33.02 – Fill.

.3 Backfill in accordance with Section 31 23 33.02 – Fill.

.4 Upon completion of Work, remove waste materials and debris, trim slopes, and correct defects as directed by Engineer.

.5 Reinstate surfaces to elevation which existed before excavation.

.6 Clean and reinstate areas affected by Work as directed by Engineer.

.7 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.

3.8 EXCAVATION OF ZONES

.1 Advise Engineer seven (7) days prior to start of excavation operations.

.2 Strip and stockpile topsoil in designated area as indicated on drawings.

.3 Segregate excavated materials into pitrun gravel material for use as Engineered Fill, and other unsuitable fill material.

.4 Material fitting the specifications of Engineered Fill material will be stockpiled separately for use in berm construction.

.5 Unsuitable soil materials excavated shall be hauled to the active landfill face and stockpiled for use as daily cover.

.6 Dispose of waste material at the active landfill face as directed by Engineer.

.7 Notify Engineer whenever unsuitable materials are encountered and remove unsuitable materials to depth and extent directed.

.8 Maintain crowns and cross-slopes to provide good surface drainage.

.9 Survey to be conducted prior to and after completion of each phase of excavation and construction, to permit determination of quantities.

.10 Unsuitable Materials:

.1 Remove materials unsuitable for subgrade or embankments to lateral limits and depths directed.

.2 Unsuitable materials from the excavation are hauled and disposed of at the landfill active face as directed by Engineer.

.3 Unsuitable soil materials hauled to the active face shall be stockpiled at the active face as directed by Engineer.

.11 Rocks and Boulders:

.1 Rocks and boulders, larger than 300 mm in size, are to be separated from the material intended for use in construction and stockpiled at the temporary stockpile location indicated on the design drawings.

.2 Rocks and boulders to be stored as directed by the Engineer.

3.9 SUBGRADE PREPARATION

.1 Grade the base of all berm areas to limits and grades shown on design drawings.

.2 Unsuitable materials to be excavated as directed by the Engineer.

.3 Low areas to be infilled using unfrozen material, at a moisture content within $\pm$ 2% of optimum moisture content to a minimum density of 98% maximum dry density in accordance with ASTM D698 not exceeding 200 mm loose lift thickness.

.4 Suitable fill for low areas shall be unfrozen, excavated material as directed by the Engineer.

.5 The upper 150 mm of the subgrade must be scarified and compacted to a minimum of 98% of Standard Proctor maximum dry density (SPD) at a moisture content within $\pm$ 2% of optimum moisture content.

.6 Place fill (where applicable) in uniform layers not exceeding 200 mm in thickness prior to compacting (150 mm maximum compacted thickness).

.7 Prepared subgrade is required to be reviewed and approved by the Engineer prior to embankment construction.

3.10 DISPOSAL OF UNSUITABLE OR EXCESS EXCAVATED MATERIAL

.1 Dispose of excavated material determined by Engineer as unsuitable for backfill or excess excavated material, on-site as directed by Engineer.

3.11 OVER EXCAVATION

.1 Notify Engineer when soil at the bottom of the excavation appears unsuitable and proceed as directed by Engineer. Where, in Engineer 's opinion, the undisturbed condition of the soils is inadequate for the support of installations, over excavate to adequate supporting soils as directed by Engineer and refill the excavated space with approved material to the proper elevation in accordance with the procedure specified for backfill. Where so directed by Engineer and except as otherwise specified, the excavation and removal of inadequate material as specified, supply and installation of such material in excess of quantities shown on the Drawings will be paid for under the appropriate item of the Schedule of Prices.

.2 Backfill over excavated areas in accordance with Section 31 23 33.02 – Fill.

.3 Should unauthorized excavation be carried below the lines and grades shown on the Drawings and in excess of specified limits and tolerance because of Contractor's operations including errors, methods of construction, the Contractor shall correct unauthorized excavation as follows:

.1 Fill under unauthorized over excavation areas by extending the indicated bottom elevation of the base of the material specified to be placed to the unauthorized excavation bottom without altering the required top elevation and compact in accordance with Section 31 23 33.02 – Fill unless otherwise directed by Engineer.

.2 Additional excavation to remove weakened or disturbed soil or any additional activity caused by Contractor's error, unsuitable construction methods or procedures, or to suit Contractor's convenience and subsequent additional backfill and compaction to correct deficiencies shall be at no additional cost to Owner.

3.12 TEMPORARY STOCKPILING

.1 Stockpile excavated materials on the Site at locations designated by Engineer.

.2 Construct stockpile sites so that they are well drained, free of foreign materials, and of adequate bearing capacity to support the weight of materials to be placed thereon.

.3 Provide and maintain access to stockpiles.

.4 Separate differing materials with substantial dividers or stockpile apart to prevent mixing.

.5 Prevent contamination or segregation of soil types.

.6 Direct surface water away from stockpile sites to prevent erosion or deterioration of materials.

3.13 TOLERANCES

.1 Excavation Depth: Within +/- 25 mm or less.

.2 Trench Depth: Within +/- 25 mm or less.

.3 Trench Width: Within +/- 100 mm or less.

3.14 RESTORATION

.1 Reinstate surfaces to elevation which existed before excavation.

.2 Clean and reinstate areas affected by Work as directed by Engineer.

.3 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures for requirements on measurement and payment.

4.2 EXCAVATION AND DISPOSAL OF UNSUITABLE MATERIAL

.1 Schedule of Prices Item No. 31 23 33.01/01

.2 Measurement Basis: Per cubic metre of in-place unsuitable material excavated from within the Cell 1A area including waste and/or non-suitable material for engineered fill, measured by surveyed volume. Survey to be completed by the contractor before and after excavation and reviewed and approved by the Engineer.

.3 Payment Basis: Unit Price. Includes excavation from Cell 1A area, hauling of materials to landfill active face and/or daily cover material stockpile, traffic control, coordinating with landfill operations, disposal of waste materials, material segregation and separation of unsuitable soils to be used as daily cover, and stockpile shaping and contouring.

4.3 SALVAGE OF ROAD BASE MATERIAL

.4 Schedule of Prices Item No. 31 23 33.01/02

.5 Measurement Basis: Per cubic metre of in-place road base material excavated from existing road alignment, measured by surveyed volume. Survey to be completed by the contractor before and after excavation and removal, and reviewed and approved by the Engineer.

.6 Payment Basis: Unit Price. Includes excavation existing road alignment, material segregation and separation of unsuitable soils, hauling of materials to temporary stockpiles, and stockpile shaping and contouring.

END OF SECTION

PART 1 GENERAL

.1 Scope of Work includes the supply and placement of fill aggregates. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

.2 South Borrow area is the preferred borrow source for construction of the Works.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Submittals.

.5 Approvals.

.6 Quality Assurance.

.7 Materials.

.8 Execution.

.9 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 – Submittal Procedures.

.3 Section 01 35 29.06 – Health and Safety Requirements.

.4 Section 01 45 00 – Quality Control.

.5 Section 31 23 33.01 – Excavating and Trenching.

1.4 REFERENCE STANDARDS

.1 Abbreviations of standards organizations referenced in this and other sections are as follows:

ACI	American Concrete Institute
CSA	Canadian Standards Association
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials

.2 ASTM International (ASTM)

.1 ASTM C117, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.2 ASTM C127, Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.

.3 ASTM D698, Standard Test M Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3) (600 kN-m/m3).

.4 ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2,700 kN-m/m3).

.5 ASTM D2216, Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.

.6 ASTM D2434, Standard Test Methods for Measurement of Hydraulic Conductivity of Coarse-Grained Soils.

.7 ASTM D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

.8 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.9 ASTM D5084, Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.

.10 ASTM D6913, Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.

.11 ASTM D6938, Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

.12 ASTM D7928, Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2, Sieves, Testing, Woven Wire, Metric.

.4 CSA Group (CSA)

.1 CAN/CSA-A3000, Cementitious Materials Compendium.

.1 CSA-A3001, Cementitious Materials for Use in Concrete.

.2 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

1.5 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor's system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer's system to assure end product quality by monitoring the Contractor's Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.

.4 Topsoil:

.1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters in any dimension.

.5 Engineered Fill: select material used for embankment fill, berms, access roads, ditching, and all other fills or fill items for which separate payment is not elsewhere provided including general subgrade preparation under all engineered fills.

.6 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.7 Borrow material: material obtained from locations outside area to be graded and required for construction of fill areas or for other portions of Work.

.8 Unsuitable materials:

.1 Weak, chemically unstable, and compressible materials.

.2 Frost susceptible materials under excavated areas.

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D7928 and ASTM D6913: Sieve sizes to [CAN/CGSB-8.1].

.2 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

.9 Select Backfill: selected material derived from usable excavation and placed above original ground or stripped surface up to top of berm or dike elevation.

.10 Subgrade: Original ground surface or prepared surface upon which embankments are constructed.

.11 SMDD: Standard Maximum Dry Density in accordance with ASTM D698.

.12 PSI: Pound per square foot.

.13 Corrected maximum dry density is defined as (correction applied for plus 20 mm material):

.1 D = (F1 x D1) + (0.9 x D2 x F2).

.2 Where:

.1 D = corrected maximum dry density kg/m.

.2 F1 = fraction (decimal) of total field sample passing 5 mm sieve.

.3 F2 = fraction (decimal) of total field sample retained on 5 mm sieve. (equal to 1.00 – F1)

.4 D1 = maximum dry density, kg/m of material passing 5 mm sieve determined in accordance with ASTM D698.

.5 D2 = bulk density, kg/m, of material retained on 5mm sieve, equal to 1000 G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127.

.3 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253 wet method when directed by the Engineer.

1.6 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Quality Control: in accordance with Section 01 45 00 - Quality Control.

.1 Submit condition survey of existing conditions.

.2 Submit to Engineer Testing/Inspection results as described in Part 3 of this Section.

.3 Preconstruction Submittals:

.1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.

1.7 APPROVALS

.1 If, in opinion of the Engineer, materials from the proposed on-site source do not meet, or cannot reasonably be processed to meet specified requirements, locate alternative source or demonstrate that material from source in question can be processed to meet specified requirements.

.2 Should a change of on-site material source be proposed during Work, advise Engineer 2 weeks in advance of proposed change to allow sampling and testing.

.3 Acceptance of material does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

1.8 QUALITY CONTROL (CONTRACTOR)

.1 Qualification Statement: submit proof of insurance coverage for professional liability.

.2 Submit design and supporting data at least 2 weeks prior to beginning Work.

.3 Design and supporting data submitted to bear stamp and signature of qualified professional Engineer registered or licensed in British Columbia, Canada.

.4 Keep design and supporting data on site.

.5 Do not use soil or aggregate materials until written report of soil test results are approved by Engineer.

.6 Health and Safety Requirements:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

PART 2 PRODUCTS

2.1 MATERIALS – GENERAL

.1 Materials to be composed of inert, durable material, reasonably uniform in quality and free from soft or disintegrate particles.

.2 Materials should be free of unsuitable materials including:

.1 Frozen material or material containing snow or ice.

.2 Tree, stumps, branches, roots, or other wood or lumber.

.3 Wire, steel, cast iron, cans, drums, or other foreign material.

.4 Materials containing hazardous or toxic constituents at hazardous or toxic concentrations.

.3 Compactable to specified density.

2.2 AGGREGATE MATERIALS – GENERAL

.1 Material to be composed of inert, durable material, reasonably uniform in quality, and free from deleterious materials. In the absence of satisfactory performance records over a five-year period for a particular source of material, soundness to be tested according to Canadian Standards Association (CSA) A23.2-9A. Maximum mass loss for coarse aggregates is to be 30% when magnesium sulphate is used.

.2 Handle aggregates to minimize contamination or degradation.

.3 Do not stockpile aggregates onsite where there is a potential for the aggregate quality to be compromised due to the stockpile location.

.4 Aggregate that does not meet the gradation specification shown below due to the handling of the material once delivered to site will be rejected for use in the access road construction.

2.3 ENGINEERED FILL

.1 Pit run gravel excavated from Borrow Areas on site as shown on Drawings and approved by the Engineer, used for Engineered Fill (such as berms, access roads, ditching, and all other fills or fill items for which separate payment is not elsewhere provided)

.2 Shall be free of unsuitable materials, organic matter, frozen lumps, sod, roots, logs, stumps, garbage or any other objectionable matter.

.3 Order of preference for Borrow Areas (from highest to lowest preference) is as follows:

.1 Cell 1A footprint;

.2 South Borrow Area (primary borrow area); and

.3 North Borrow Area (least preferred borrow area due to potentially high fines content).

2.4 ROAD SURFACING AGGREGATE

.1 Select gravel excavated from the South Borrow Area.

.2 Gravel to be approved for use prior to construction by the Engineer.

.3 Aggregate shall have a 75 mm maximum particle size or as approved by the Engineer.

.4 Aggregate quality: subangular, sound, hard, durable, free from soft, thin, elongated or laminated particles, organic matter, or other deleterious substances.

2.5 DITCH GRAVEL

.1 Gravel to be approved for use prior to construction by the Engineer.

.2 Aggregate shall be screened 100 mm maximum particle size, 10 mm minimum particle size aggregate, or as approved by the Engineer.

.3 Aggregate quality: subangular to subrounded as approved by the Engineer, sound, hard, durable, free-draining material, free from soft, thin, elongated or laminated particles, organic matter, or other deleterious substances. Limestone not suitable material for drainage aggregate.

PART 3 EXECUTION

3.1 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 The Contractor shall prepare the surface to receive all fill material as required.

3.2 PROCESSING

.1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.

.2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by Engineer.

.3 Wash aggregates, if required to meet specifications. Use only equipment approved by Engineer.

.4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.

3.3 STOCKPILING

.1 Stockpile fill materials in areas designated by Engineer.

.2 Stockpile aggregates on site locations as indicated unless directed otherwise by Engineer.

.1 Handle, stockpile and transport aggregates to avoid segregation, contamination, and degradation.

.3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.

.4 Do not used intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Engineer within 48 hours of rejection.

.5 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

.6 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.4 MIXING/DRYING EQUIPMENT

.1 Mixing/drying equipment shall be a 4WD Tractor with a serrated breaking disc capable of performing the following:

.1 Fully penetrating and turning a loose lift of soil to the full depth of that lift.

.2 Pulling the serrated breaking disc during conditions reasonably expected during the project.

.2 Mixing/drying equipment that proves to be ineffective or inefficient shall be removed from site and exchanged with working equipment within two (2) days.

.3 Proposed mixing/drying equipment shall be submitted with the STATEMENT OF EQUIPMENT in the Tender process and shall be approved by the Owner and Engineer prior to delivery to site.

3.5 WATER

.1 If water is required to meet the project specifications, apply water with equipment capable of uniform distribution.

3.6 SUBGRADE PREPARATION

.1 Grade the base of all berm and pond areas to limits and grades shown on design drawings.

.2 Unsuitable materials to be excavated as directed by the Engineer.

.3 Low areas to be infilled using unfrozen material, at a moisture content within $\pm$ 2% of optimum moisture content to a minimum density of 98% maximum dry density in accordance with ASTM D698.

.4 Suitable fill for low areas shall be unfrozen, excavated material as directed by the Engineer.

.5 The upper 150 mm of the subgrade must be scarified and compacted to a minimum of 98% of Standard Proctor maximum dry density (SPD) at a moisture content within $\pm$ 2% of optimum moisture content.

.6 Place fill (where applicable) in uniform layers not exceeding 200 mm in thickness prior to compacting (150 mm maximum compacted thickness).

.7 Prepared subgrade is required to be reviewed and approved by the Engineer prior to embankment construction.

3.7 PLACEMENT OF ENGINEERED FILL – GENERAL

.1 Do not place material unless the applicable surveys on the sub-grade surfaces have been carried out and accepted by the Engineer, and the sub-grade surface has been approved by the Engineer.

.2 Place material in continuous horizontal layers not exceeding 200 mm loose depth (150 mm compacted depth) and compact (as necessary). Place using methods that does not result in segregation or degradation of the material.

.3 Placement of drainage aggregate using low pressure rubber tracked equipment only.

.4 Do not place material in a wet/saturated or frozen condition. Compaction and placement must not be adversely affected by weather conditions including pooling water in placement area.

.5 Place materials on a clean surface, properly shaped and free from debris, to the lines and thickness shown on the contract drawings and maintain free of contamination by other materials throughout the construction process.

.6 Placement shall be scheduled in consideration of water levels. Under no circumstances will material placement be permitted through standing water associated with tidal inundation.

3.8 PLACEMENT OF ROAD SURFACING AGGREGATE – GENERAL

.1 Do not place material unless the applicable surveys on the sub-grade surfaces have been carried out and accepted by the Engineer, and the sub-grade surface has been proof rolled in the presence of the Engineer and approved by the Engineer.

.2 Place material in continuous horizontal layers not exceeding 150 mm loose depth and compact. Place using methods that do not result in segregation or degradation of the material.

.3 Do not place material in a wet or frozen condition. Compaction and placement must not be adversely affected by weather conditions including pooling water in placement area.

.4 Place materials on a clean surface, properly shaped and free from debris, to the lines and thickness shown on the contract drawings and maintain free of contamination by other materials throughout the construction process.

.5 Placement shall be scheduled in consideration of water levels. Under no circumstances will material placement be permitted through standing water or flooded areas.

.6 The finished surface shall be graded with a slope as per the construction drawings.

3.9 PLACEMENT OF ENGINEERED FILL, SURFACING AGGREGATE, AND GRAVEL – TOLERANCE

.1 Finish surfaces of the following layers shall be within the following limits of established grade measured normal to finish grade, but not uniformly high or low.

.1 Engineered Fill: +/- 15mm.

.2 Surfacing Aggregate: +/- 15mm.

.3 Gravel: +/- 25mm.

.2 Correct surface irregularities by adding or removing material until the surface is within the specified tolerances.

3.10 PLACEMENT OF ENGINEERED FILL, SURFACING AGGREGATE, AND GRAVEL – THICKNESS AND COMPACTION

.1 Compaction equipment to be capable of obtaining required material densities.

.2 Apply water as necessary during compaction to obtain specified density.

.3 Place and compact material lifts as specified below. Compact each lift to the minimum SMDD in accordance with ASTM D698, as shown. Process material as required ensuring moisture content as shown below.

.1 Engineered Fill:

.1 98%

.2 ± 2% of optimum moisture content

.3 Not exceeding 200 mm loose depths (150 mm maximum compacted thickness)

.2 Road Surfacing Aggregate:

.1 98%

.2 ± 2% of optimum moisture content

.3 Not exceeding 150 mm loose depth

.3 Ditch Gravel

.1 None

3.11 ENGINEERED FILL

.1 Grade berms, ditching, and all other fills or fill items for which separate payment is not elsewhere provided including general subgrade preparation under all engineered fills shown on design drawings.

.2 Frozen materials shall not be used as fill for embankments.

.3 Material for embankments shall be placed in horizontal layers not exceeding 200 mm in thickness prior to compaction (150 mm maximum compacted thickness).

.4 Embankments shall be compacted to a minimum of 98% of maximum dry density as determined by ASTM D698 (Standard Proctor).

.5 Add water or dry materials, as necessary, to obtain a moisture content to within ± 2% of optimum moisture content, as determined by the Engineer.

.6 Material used for embankment construction are not to contain organic matter, frozen lumps, sod, roots, logs, stumps, garbage or any other objectionable matter.

3.12 COMPACTION TESTING

.1 Compaction testing and quality control as per Section 01 45 00 - Quality Control. Additional tests may be called for by the Owner's Engineer as deemed necessary.

.2 If a density test indicates insufficient compaction at any depth, the backfill shall be re-conditioned and re-compacted to meet the specified density.

.3 This testing in no way relieves the Contractor of their maintenance responsibilities. The Contractor shall repair any settlement, erosion, and damaged which occurs during the construction period.

.4 The cost of all Quality Control testing will be borne by the Contractor. Non-conformity with the specified density or moisture content shall constitute sufficient grounds for rejection of the work. Quality Assurance material testing will be undertaken by Engineer.

3.13 DITCH GRAVEL PLACEMENT

.1 Backfill the ditches with the specified drainage aggregate to the level indicated on the design drawings. Backfilling shall be completed according to the following procedures:

.1 Ensuring that the aggregate is placed under the haunches of the culvert pipe.

.2 No equipment shall be allowed to be in direct contact with the geosynthetic materials. All equipment intended by the Contractor for use in the placing and spreading of the aggregate shall be approved by the Engineer prior to using such equipment.

.3 The contractor shall install the aggregate in a manner that minimizes compaction of the drainage aggregate..

3.14 PROTECTION OF FINISHED WORK

.1 Maintain finished surface in a condition conforming to this section until acceptance.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

4.2 ENGINEERED FILL (EXCAVATED FROM CELL 1A AREA)

.1 Schedule of Prices Item No. 31 23 33.02/01

.2 Measurement Basis: Per cubic metre of compacted Engineered Fill, measured by placed and compacted surveyed volume.

.3 Payment Basis: Unit Price. Includes excavation from Cell 1A footprint, temporary stockpiling within or adjacent to engineered fill areas (embankment fill, berms, access roads, ditching, and all other fills or fill items for which separate payment is not elsewhere provided including general subgrade preparation under all engineered fills), hauling, traffic control, placing, grading, compacting, watering (if necessary to achieve optimum moisture content), disposal of unsuitable or excess materials, and Quality Control. No extra payment for any and all double handling.

4.3 ENGINEERED FILL (FROM BORROW AREA)

.4 Schedule of Prices Item No. 31 23 33.02/02

.5 Measurement Basis: Per cubic metre of compacted Engineered Fill, measured by placed and compacted surveyed volume.

.6 Payment Basis: Unit Price. Includes excavation from borrow area, hauling, temporary stockpiling within or adjacent to engineered fill areas (embankment fill, berms, access roads, ditching, and all other fills or fill items for which separate payment is not elsewhere provided including general subgrade preparation under all engineered fills), hauling, traffic control, placing, grading, compacting, watering (if necessary to achieve optimum moisture content), disposal of unsuitable or excess materials, and Quality Control. No extra payment for any and all double handling.

4.4 ROAD SURFACE AGGREGATE

.1 Schedule of Prices Item No. 31 23 33.02/03

.2 Measurement Basis: Per square metre placed, measured in place.

.3 Payment Basis: Unit Price. Includes full compensation for all labour, Materials and Construction Equipment necessary to place salvaged aggregate from borrow area and stockpiles, and construct the access road surface aggregate layer and supply and placement of the non-woven geotextile for the Access Road. This includes all other works necessary or incidental thereto for which separate payment is not elsewhere provided including conditioning and compaction. Measurement for payment will be calculated based on surveys of the constructed access road and verified thickness of placed surface aggregate to the lines and grades designated in the IFC Drawings. No payment will be made for unnecessary material or work performed beyond the lines and grades in the Drawings.

4.5 DITCH GRAVEL

.1 Schedule of Prices Item No. 31 23 33.02/04

.1 Measurement Basis: Per linear metre of installed ditch gravel, along ditch alignment, measured by surveyed length.

.2 Payment Basis: Unit Price. Includes screening and processing of gravel from on-site borrow area, hauling, placing and grading of ditch gravel to liner and grades as shown on drawings.

END OF SECTION

1.1 GENERAL

1.2 SCOPE

.1 Scope of Work includes the supply and installation of the Non-Woven Geotextile fabric above the compacted fill layer below the access road and under rip rap. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

1.3 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Submittals.

.5 Delivery, Storage and Handling.

.6 Materials.

.7 Examination.

.8 Installation.

.9 Cleaning.

.10 Protection.

.11 Measurement and Payment.

1.4 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 – Submittal Procedures.

.3 Section 01 45 00 – Quality Control.

.4 Section 31 23 33.02 – Fill.

.5 Section 31 37 00 – Rip Rap.

.6 Section 31 23 33.01 – Excavating and Trenching.

.7 Section 33 47 13 – HDPE Geomembrane.

1.5 REFERENCE STANDARDS

.1 Abbreviations of standards organizations referenced in this and other sections are as follows:

CSA	Canadian Standards Association
ASTM	American Society for Testing and Materials
GRI	Geosynthetic Research Institute

.2 ASTM International

.1 ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

.2 ASTM D4595, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.

.3 ASTM D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

.4 ASTM D4716, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.

.5 ASTM D4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

.6 ASTM D5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-4.2 No. 11.2, Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).

.2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.

.1 No.2, Methods of Testing Geosynthetics - Mass per Unit Area.

.2 No.3, Methods of Testing Geosynthetics - Thickness of Geotextiles.

.3 No.6.1, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.

.4 No.7.3, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.

.5 No. 10, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

.4 CSA Group

.1 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

1.6 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor's system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer's system to assure end product quality by monitoring the Contractor's Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

1.7 SUBMITTALS

.1 Provide in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Provide manufacturer's instructions, printed product literature and data sheets for Non-Woven Geotextiles and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Test and Evaluation Reports:

.1 Submit copies of mill test data and certificate prior to ordering material.

.2 Once the approved materials have been ordered, the Contractor shall submit the manufacturer's certification for each roll of material to be delivered to site for the Engineer to review at least 4 weeks prior to the start of installation.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Delivery, store and handle materials in accordance with manufacturer's written instructions.

.2 Storage and Handling Requirements:

.1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well ventilated area.

.2 Store and protect Non-Woven Geotextiles from direct sunlight and UV rays.

.3 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Non-Woven Geotextile for use under this contract shall be a non-woven, needle-punched polypropylene such as GSE NW16, or an approved equivalent, meeting the following minimum requirements:

Tested Property	Test Method	Minimum Value (English)	Minimum Value (Metric)
Unit Weight	ASTM D5261	16 oz/yd^2	540 g/m^2
Tensile Grab Strength	ASTM D4632	390 lbs.	1,735 N
Tensile Elongation	ASTM D4632	50%	50%
Apparent Opening Size	ASTM D4751	100 sieve	0.15 mm

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed are acceptable for Non-Woven Geotextile material installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Engineer.

.2 Inform Engineer of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed with from Engineer.

3.2 INSTALLATION

.1 Notify Engineer at least 24 hours in advance of intention to commence placement of geotextile.

.2 Obtain approval of Engineer prior to installation of geotextile.

.3 Place the geotextile on a prepared base as shown on the Drawings.

.4 Unfold or unroll geotextile in accordance with manufacturer's instructions, directly on the prepared base, in conditions which will prevent damage to both the geotextile and the base grade. Unsuitable conditions include, but are not limited to, moderate to high wind conditions.

.5 The geotextile shall be rolled down the slope in such a manner as to continuously keep the geotextile in tension by self weight. The geotextile shall be securely anchored in an anchor trench where applicable, or by other approved or specified methods.

.6 Place Non-Woven Geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.7 Place Non-Woven Geotextile material on sloping surface in one continuous length from toe of slope to upper extent of Non-Woven Geotextile.

.8 Overlap each successive strip of Non-Woven Geotextile 300 mm over previously laid strip and heat bond 2 seams to prevent displacement.

.9 Protect installed Non-Woven Geotextile material from displacement, damage, or deterioration before, during and after placement of material layers.

.10 After installation, cover with overlying layer within 4 hours of placement.

.11 Replace damaged or deteriorated Non-Woven Geotextile to approval of Engineer.

3.3 PLACEMENT OF PROTECTIVE COVER MATERIAL

.1 Protective cover material shall be end dumped on the ground adjacent to the Non-Woven Geotextile and carefully pushed or spread on the Non-Woven Geotextile by a dozer or other tracked machinery.

.2 A minimum depth of 200 mm shall be maintained at all times between the Non-Woven Geotextile and the construction equipment.

.3 Protective cover material shall be spread in the direction of the Non-Woven Geotextile overlap.

.4 Protective cover material shall be placed if Non-Woven Geotextile will be exposed to ultraviolet radiation, direct sunlight, and other potential damage for more than 4 hours.

3.4 FIELD QUALITY CONTROL

.1 Section 01 45 00 Quality Control: Field inspection and testing.

.2 Engineer will inspect geotextile in place for tears, overlaps, and consistency before placing materials thereon. Damaged sections, as judged by Engineer, will be marked and their removal from the work area recorded. Repair minor damage and minor defects as specified in manufacturer's procedures when approved by Engineer to Engineer's satisfaction.

.3 Engineer will verify that weather conditions are acceptable for panel placement.

3.5 CLEANING

.1 Leave work clean at the end of each day.

.2 Final Cleaning: upon completion, remove surplus materials, rubbish, tools and equipment.

3.6 PROTECTION

.1 Vehicular traffic not permitted directly on Non-Woven Geotextile unless approved by Engineer.

.2 Do no overload soil or aggregate covering on Non-Woven Geotextile.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

4.2 CSP CULVERTS

.1 No separate payment made for Non-Woven Geotextile for CSP Culverts. Included in Schedule of Prices Payment Item 33 42 13/01.

4.3 NON-WOVEN GEOTEXTILE IN DITCHES

.1 No separate payment made for Non-Woven Geotextile installed in ditches. Included in Schedule of Prices Item No. 33 47 13/01.

4.4 NON-WOVEN GEOTEXTILE IN ROAD ALIGNMENT

.1 No separate payment made for Non-Woven Geotextile installed in ditches. Included in Schedule of Prices Item No. 31 23 33/03.

END OF SECTION

PART 1 FGENERAL

1.1 SCOPE

.1 Work covered under this section includes but is not limited to supply and placement of Rip Rap for surface water ditches and culverts. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the work described herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Products.

.4 Execution.

.5 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 31 32 19.16 – Non-Woven Geotextile.

.2 Section 33 42 13 – Pipe Culvert.

1.4 REFERENCE STANDARDS

.1 ASTM International (ASTM)

.1 ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 ASTM D422-6, Standard Test Method for Particle-Size Analysis of Soils.

1.5 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor’s system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer’s system to assure end product quality by monitoring the Contractor’s Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

PART 2 PRODUCTS

2.1 RIP RAP

.1 Rip Rap shall be hard durable angular quarry rock of a quality that will not disintegrate on exposure to water or the atmosphere.

.2 Rocks shall be generally evenly graded.

.3 Rip Rap: Hard, dense, durable angular quarry stone, with relative density not less than 2.65, free from seams, cracks or other structural defects, to meet following size distribution for use intended:

.4 Riprap shall have a gradation that conforms to an equivalent mass of 10 kg (nominal D_{50} size of 200 mm) as per the BC Riprap Standards (BC Ministry of Forests, October 26, 2022).

PART 3 EXECUTION

3.1 PLACING

.1 When Rip Rap is to be placed on slopes, excavate trench at toe of slope to dimensions as indicated in Drawings.

.2 Fine grade area to be Rip Rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.

.3 Place geotextile on prepared surface in accordance with Section 31 32 19.16 – Non-Woven Geotextile as indicated. Avoid puncturing geotextile. Vehicular traffic over geotextile is not permitted.

.4 Place Rip Rap to thickness and details as indicated.

.5 Place stones in manner approved by Engineer to secure surface and create a stable mass. Place larger stones at bottom of slopes.

.6 Hand placing:

.1 Use larger stones for lower courses and as headers for subsequent courses.

.2 Stagger vertical joints and fill voids with rock spalls or cobbles.

.3 Finish surface evenly, free of large openings and neat in appearance.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures: Requirements for measurement and payment.

4.2 RIPRAP FOR 600 MM CSP CULVERTS

.1 No separate payment made for Riprap for CSP Culvert. Included in Schedule of Prices Payment Item 33 42 13/01.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 This section specifies the requirements to supply and install culverts to the lines, grades and dimensions shown on Drawings or as directed by Engineer. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Definitions.

.4 Submittals.

.5 Delivery, Storage and Handling.

.6 Products.

.7 Execution.

.8 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 29 00 – Payment Procedures.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 35 43 – Environmental Procedures.

.4 Section 01 45 00 – Quality Control.

.5 Section 01 61 00 - Common Product Requirements.

.6 Section 31 23 33.01 – Excavating and Trenching.

.7 Section 31 23 33.02 – Fill.

.8 Section 31 32 19.16 – Non-Woven Geotextile.

.9 Section 31 37 00 – Rip Rap.

1.4 REFERENCE STANDARDS

.1 ASTM International

.1 ASTM C14M, Standard Specification for Nonreinforced Concrete Sewer, Storm Drain and Culvert Pipe (Metric).

.2 ASTM F667, Standard Specification for Large Diameter Corrugated Polyethylene Pipe and Fittings.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2, Sieves, Testing, Woven Wire, Metric.

.3 CSA Group (CSA)

.1 CAN/CSA G401, Corrugated Steel Pipe Products.

1.5 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor's system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer's system to assure end product quality by monitoring the Contractor's Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 CSP: Corrugated Steel Pipe.

.4 SMDD: Standard Maximum Dry Density in accordance with ASTM D698.

1.6 SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for pipes and backfill and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Certification: to be marked on pipe.

.4 Test and Evaluation Reports:

.1 Submit manufacturer's test data and certification at least two (2) weeks prior to beginning Work.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions, or in accordance with Section 01 61 00 - Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials in accordance with manufacturer's recommendations.

.2 Store and protect culverts from damage.

.3 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.1 CORRUGATED STEEL PIPE (CSP)

.1 Material: Aluminized Type 2, 2.0 mm wall thickness, 68mm x 13mm corrugations, in accordance with CSA G401.

.2 Size: As shown on Drawings.

.3 Couplers: Aluminized Type 2, Steel coupling bands fitted with gaskets fabricated from neoprene or butyl rubber and assembled in such a manner as to form a sealed joint.

.4 Standard corrugated steel pipe culverts shall not be used. The notations “CSP” used on the drawings, specifications and the provisions contained herein, shall be interpreted as culvert material of the types shown above only.

.5 End Treatment: Bevel cut.

2.2 CULVERT END TREATMENT

.1 Culvert End Treatment shall be Rip Rap armored in accordance with Section 31 37 00 – Rip Rap, as shown on Drawings.

2.3 BACKFILL

.1 Backfill material shall be Granular Base Course as shown in Section 31 23 33.02 – Fill.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for pipe culvert installation in accordance with drawings and manufacturer's written instructions.

.1 Visually inspect substrate in presence of Engineer.

.2 Inform Engineer of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Engineer.

3.2 PREPARATION

.1 Temporary Erosion and Sedimentation Control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to the erosion and sediment control plan.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 DEWATERING

.1 The Contractor is to assume full responsibility for maintaining dry excavation during placement of granular bedding and backfill.

3.4 TRAFFIC CONTROL

.1 Where culvert installation takes place on roadways, which must remain in service during construction, the Contractor shall carry out his installation or removal by either building and maintaining a detour, or by working on one half of the roadway while maintaining flagperson controlled and adequately signed traffic flow on the other half.

3.5 EXCAVATION

.1 Excavate to the width and depth shown on drawings or as directed by the Engineer in accordance with Section 31 23 33.01 - Excavating and Trenching.

.2 Make bottom of completed excavation firm for its full length and width. Where, in opinion of the Engineer, soil bottom elevation is unsuitable for foundation of culverts, excavate to additional width and depth as directed and backfill such additional excavation with granular subbase material compacted to 98% of SMDD.

.3 Obtain Engineer’s approval of trench line and depth prior to placing bedding material or pipe.

.4 Disposal of unsuitable materials encountered at the culvert sites will follow the disposal methods approved by the Engineer.

3.6 GRANULAR BEDDING

.1 Dewater excavation, as necessary, to allow placement of culvert bedding in dry condition.

.2 Place minimum thickness of approved granular material on bottom of excavation and compact to 98 percent minimum SMDD.

.3 Shape bedding to fit lower segment of pipe exterior so that width of at least 50 percent of pipe diameter is in close contact with bedding and to camber as indicated or as directed by Engineer, free from sags or high points.

.4 Place bedding in unfrozen condition.

3.7 LAYING CORRUGATED STEEL PIPE CULVERTS

.1 Begin pipe placing at downstream end.

.2 Ensure bottom of pipe is in contact with shaped bed or compacted fill throughout its length.

.3 Lay pipe with outside circumferential laps facing upstream [and longitudinal laps or seams at side or quarter points].

.4 Lay paved invert or partially lined pipe with longitudinal centre line of paved segment coinciding with flow line.

.5 Do not allow water to flow through pipes during construction except as permitted by Engineer.

3.8 JOINTS: CORRUGATED STEEL PIPE

.1 Match corrugations of coupler with pipe section before tightening.

.2 Tap couplers firmly as they are being tightened, to take up slack and ensuring snug fit.

.3 Insert and tighten bolts.

3.9 REPAIR OF GALVANIZING

.1 Repair spots where damage has occurred to shelter coating or cut ends by applying two coats of approved zinc-rich epoxy paint.

3.10 BACKFILLING

.1 Backfill around and over culverts as indicated or as directed by Engineer.

.2 Backfill under the haunches of the pipe and extending upward immediately adjacent to the pipe shall be placed in layers not exceeding 150 mm in depth, and each layer shall be thoroughly compacted at optimum moisture content by means of pneumatic or other mechanical tamping equipment, taking special care to obtain required density under haunches.

.3 Water jetting is not an approved method for haunch compaction. Do not attempt jetting without permission from the Engineer.

.4 Place backfill material in 150 mm layers to full width, alternately on each side of culvert as not to displace it.

.5 If required, add water or dry material to achieve optimum moisture content.

.6 Compact each layer to a minimum of 98% SMDD.

.7 Compaction equipment shall be operated parallel to the longitudinal axis of the culvert.

.8 Protect installed culvert with a minimum 600 mm cover of compacted embankment material before heavy equipment is permitted to cross.

.9 Install inlet and outlet structures complete with Rip Rap to lines, grades and dimensions indicated in Contract Documents.

3.11 CULVERT CLEANING

.1 Prior to final acceptance of the Project, all culverts installed under the Contract shall be inspected and cleared of any sedimentation or other debris existing inside the pipe.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures for requirements on measurement and payment.

4.2 600 MM CSP CULVERTS

.1 Schedule of Prices Item No. 33 42 13/01

.2 Payment Basis: Lump Sum. Includes excavation, temporary stockpiling, and disposal of unsuitable or excess excavated material on-site, supply and install culverts, couplers, backfill, compaction, and regrading, as shown on Drawings. Also includes providing all labour, materials and equipment for supply and installation of Rip Rap and Non-Woven Geotextile (including anchoring) for culverts inlet and outlet aprons to lines and grades as shown on Drawings.

END OF SECTION

PART 1 GENERAL

1.1 SCOPE

.1 Scope of work includes the supply and installation of the HDPE Geomembrane liner. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the Works described herein.

1.2 SECTION INCLUDES

.1 Related Requirements.

.2 Reference Standards.

.3 Submittals.

.4 Delivery, Storage and Handling.

.5 Materials.

.6 Examination.

.7 Installation.

.8 Cleaning.

.9 Protection.

.10 Measurement and Payment.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 31 23 33.01 – Excavating and Trenching.

.3 Section 31 23 33.02 – Fill.

1.4 DEFINITIONS

.1 Quality Control (QC) refers to the Contractor’s system to manage, control, and document activities to ensure compliance with the Contract Documents, including sampling and laboratory testing, special testing, inspection and approvals completed by Contractor on site, shop drawings, and other submittals from the Contractor for the purpose of ensuring compliance with the Contract Documents.

.2 Quality Assurance (QA) refers to the Engineer’s system to assure end product quality by monitoring the Contractor’s Quality Control activities and performing independent testing and/or inspections of the work, to assure compliance with the Contract Documents. If any test results or inspections indicate non-compliance, the Engineer, at their sole discretion, may instruct the Contractor to cease all Works.

.3 Anchor Trench: An excavated trench, typically with vertical walls, at the top of the side slopes of the cell at which point the geosynthetic materials terminate.

.4 Runout: The portion of geosynthetic material that extends horizontally from the side slope of the inside edge of the cell to the anchor trench.

1.5 REFERENCE STANDARDS

.1 Abbreviations of standards organizations referenced in this and other sections are as follows:

CSA	Canadian Standards Association
ASTM	American Society for Testing and Materials
GRI	Geosynthetic Research Institute

.2 ASTM International

.1 ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

.2 ASTM D4595, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.

.3 ASTM D4716, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.

.4 ASTM D4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-4.2 No. 11.2, Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).

.2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.

.1 No.2, Methods of Testing Geosynthetics - Mass per Unit Area.

.2 No.3, Methods of Testing Geosynthetics - Thickness of Geotextiles.

.3 No.6.1, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.

.4 No.7.3, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.

.5 No. 10, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

1.6 SUBMITTALS

.1 Provide in accordance with Section 01 33 00 - Submittal Procedures.

.2 With the bid the Contractor will identify the material selected for use, the proposed installation supervisor’s credentials, and the details of the proposed Quality Control program.

.3 Guarantee of HDPE Geomembrane Material

.1 The HDPE geomembrane liner material shall be guaranteed, in writing, by the manufacturer or supplier on a pro rata basis for a period of 5 years. The guarantee shall be against manufacturing defects of workmanship and against deterioration due to ozone, ultraviolet, or other normal weather aging.

.4 Experience of Geosynthetics Contractor

.1 The Geosynthetics Contractor shall have demonstrated an ability to perform this work by having previously successfully installed, in landfill or pond structures, a minimum of 465,000 square metres (5,000,000 square feet) of similar type flexible liners and must meet the following Prequalification's. A list of prequalification's shall be submitted to the Owner with the tender package for approval. The list shall include the items listed below:

.1 Corporate Information: Including Full Company Name, Address, Insurance.

.2 Projects with Direct HDPE Liner Experience/Landfill Experience over 20,000 m². Provide project name, project type, liner size, and owner.

.3 References for projects over $800,000 CAD. Provide project name, project type, owner, and reference name and contact.

.4 Supervisors with Landfill experience over 500,000 m². Provide name, project, liner area, owner.

.5 Foreman with Landfill experience over 500,000 m². Provide name, project, liner area, owner.

.6 Provide list of Geomembrane Suppliers.

.7 Provide copy of Geomembrane Manufacturing Quality Control Program.

.8 Provide copy of Geomembrane Installation Quality Control Program.

.2 A list of installations shall be submitted to the Owner with the proposal for approval. The list shall include the client name, date of installation, size, and type of material installed.

.3 The on-site liner supervisor assigned full time to this work shall have directed the installation of a minimum of 93,000 square metres (1,000,000 square feet) of similar type flexible liner in landfill or pond structures.

.4 The Geosynthetics contractor must provide full time on site Quality Control personnel assigned full time to this work and that person or persons shall have performed quality control on the installation of a minimum of 93,000 square metres (1,000,000 square feet) of similar type flexible liner in landfill or pond structures.

.5 A list of certifications shall be submitted to the Owner with the proposal for approval. The list shall include the certificate name and the name of the personnel that have obtained the certifications. Expiry dates and issued dates must also become part of the list of certifications.

.5 Samples and Specifications of Material

.1 The Contractor shall submit the manufacturer's certification stating that the material proposed for use for this project has physical properties equal to the certified values as per Section 01 33 00 – Submittal Procedures.

.2 The Contractor shall submit the manufacturer's certifications for each roll of material to be delivered to site to the Engineer for as per Section 01 33 00 – Submittal Procedures.

.6 Workmanship Guarantee

.1 The Liner Contractor shall guarantee the liner installation to be free of defects in materials and workmanship for a period of 1 year following the date of acceptance by the Owner or its representative.

.2 The Liner Contractor shall agree to make, at his expense, any repairs or replacements made necessary by defects in materials or workmanship in the work that became evident within said guarantee period.

.3 The Liner Contractor shall make repairs and replacements promptly upon receipt of written order from the Owner or its authorized representative. If the Contractor fails to

make repairs and replacements promptly, the Owner may do so and the Contractor shall be liable for the cost of such repairs and replacements.

.7 Product Data:

.1 Provide manufacturer's instructions, printed product literature and data sheets for HDPE Geomembrane and include product characteristics, performance criteria, physical size, finish and limitations.

.8 The Contractor shall provide a written and signed report on the completed installation which shall certify that the HDPE Geomembrane is installed in accordance with the manufacturer's recommendations, is ready for operation, and that the warranty is in effect.

.1 The report is to include all Contractor quality control test records and a record drawing indicating panel and seam numbers.

.2 A draft copy of report is to be submitted for review by the Engineer. A minimum of three (3) copies of the final report will be required no later than 10 days after receipt of comments, if any.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Labelling – Each roll of HDPE Geomembrane delivered to the site shall be labelled by the manufacturer. The label shall clearly state the manufacturer's name, product identification, thickness, length, and width and roll number. The label shall be found on either of the end caps, an inside edge of the core, and outside the core.

.2 Delivery – The rolls of liner shall be packaged and shipped by appropriate means to prevent damage to the material and to facilitate off-loading.

.1 Transport geosynthetic on open trailers and support during transportation to eliminate external mechanical damage.

.2 Care must be taken not to damage material while offloading. Protect HDPE Geomembrane from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris, and rodents.

.3 Storage – The on-site storage location for HDPE Geomembrane material should be level, smooth, elevated and dry (not wooden pallets). The Contractor shall provide a suitable storage site that will protect the HDPE Geomembrane from punctures, abrasions, excessive moisture and dirt. The entire length of the HDPE Geomembrane rolls must be stored a minimum of 200 mm above the ground at all times.

.1 Protect HDPE Geomembrane from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris, and rodents.

.4 Handling – The materials are to be handled carefully to prevent damage. Use equipment that does not contact the material itself when handling. Slings or other lifting devices shall provide adequate support without damaging the material.

1.8 PANEL DEPLOYMENT

.1 Deploy materials using methods that prevent handling damage and contamination during installation.

.1 Sufficient protection should be placed between the ground surface and the underside of the HDPE Geomembrane in order to prevent scoring, scratching or other damage to the underside of the HDPE Geomembrane during deployment.

.2 No equipment or tools shall be allowed to damage the HDPE Geomembrane by handling, trafficking, or other means.

.3 No personnel working on the HDPE Geomembrane shall engage in activities that could potentially damage the HDPE Geomembrane.

.2 Provide sufficient anchorage against uplift due to wind.

.3 Adequate thermal slack will be incorporated in all layers of HDPE Geomembrane, to the approval of the Engineer.

.1 Slack should be relatively evenly distributed across the lined area and kept small enough so that wrinkles will not fold over.

.2 The Contractor shall repair any “bridged” or “trampolined” areas that develop during the installation of the HDPE Geomembrane to the satisfaction of the Engineer.

.3 Welding of tie-in seams in corners, grade breaks from slope to base, pipe penetrations, and cross seams shall be completed during the coolest part of the day.

.4 Information to be documented on the liner throughout the installation, shall be clearly visible to such point that the material is covered or construction is complete, and will include:

.1 On each panel the panel number, material roll number. A panel number will be a simple and logical identifying code. The coding system shall be subject to approval and shall be determined when the panel layout is submitted.

.2 At the beginning of each fusion seam, regardless of length record, the operator, welding machine number, wedge temperature, welding speed and start time using a paint marker or other suitable means.

.3 At the end of each fusion seam record the finish time.

.4 All repairs shall be given an identification number, the welder, welder operator and date of repair shall be recorded with the identification number on or near the repair.

.5 All destructive sample locations will be identified and the identifying number and date removed will be recorded near the sample location.

.6 All non-destructive test data, and date of test.

.5 The Contractor shall deploy the HDPE Geomembrane completely down the side and across the base of the anchor trench as shown on the Drawings.

.6 Do not allow heavy vehicular traffic directly on HDPE Geomembrane. Rubber-tired ATVs and trucks are acceptable if wheel contact is less than 5 psi.

.7 Protect HDPE Geomembrane in areas of heavy traffic by placing protective cover (geotextile) over the HDPE Geomembrane, at no cost to the Owner.

PART 2 PRODUCTS

2.1 GENERAL

.1 All materials arriving on site are subject to inspection. Replacement or repair of damaged material will be at no cost to the Owner.

.2 The HDPE Geomembrane material produced shall be free of blisters, holes, undispersed raw materials, or any sign of contamination by foreign matter. Any such defect shall be repaired using welding techniques in accordance with manufacturer's recommendations. Excessive defects, as determined by the Engineer, may be grounds for rejection of entire rolls of liner.

.1 Any HDPE Geomembrane sheet that contains 10 or more defects per 450 square metres (5,000 square feet) shall be rejected; at the discretion of the Engineer the rejected portion may be limited to the affected area.

.2 Any HDPE Geomembrane sheet with less than 10 defects per 450 square metres (5,000 square feet) shall be replaced, or repaired, at the discretion of the Contractor, repairs will be completed in accordance with this Specification.

2.2 MATERIALS

.1 The HDPE Geomembrane liner material supplied under these Specifications shall be new, first quality products. The liner is specified to be designed and manufactured specifically for the purposes of this work and shall have been satisfactorily demonstrated, by prior use, to be suitable and durable for such purposes.

.2 The HDPE Geomembrane material shall be a black two-sided textured high density polyethylene (HDPE) geomembrane (GSE or equivalent) with smooth edges to accommodate welding.

.3 The HDPE Geomembrane shall meet the specifications listed in GRI-GM13 as published by the Geosynthetics Research Institute (GRI) and summarized below:

40-mil High Density Polyethylene (HDPE) Geomembrane (2 Sided Textured)			
Tested Property	**Test Method**	**Test Value**	
		English	**Metric**
Thickness (min. avg.)	ASTM-D-5994	40 mils (+-5%)	1.0 mm (+-5%)
Asperity Height (min. avg.)	ASTM-D-7466	16 mil	0.40 mm
Density (min avg.)	ASTM-D-1505/D-792	-	0.94 g/cm3
Tensile Properties (min. avg.)			
Yield strength	ASTM-D-6693 Type IV	84 lb/in	15 kN/m
Break strength		60 lb/in	10 kN/m
Yield elongation		12%	12%
Break elongation		100%	100%
Tear Resistance (min. avg.)	ASTM-D-1004	28 lb	125 N
Puncture Resistance (min. avg.)	ASTM-D-4833	60 lb	267 N
Carbon Black Content (range)	ASTM-D-4218	2.0-3.0 %	2.0-3.0 %
Carbon Black Dispersion	ASTM-D-5596	10 different views, 9 in Categories 1 or 2 and 1 in Category 3	10 different views, 9 in Categories 1 or 2 and 1 in Category 3

.4 Extrusion resin used for extrusion joining of sheets and for repairs shall be HDPE from the same resin as the sheet resin. Physical properties shall be the same as the liner sheets.

.5 Extrudate rod shall be solid core rod free of voids and free of contamination by moisture or foreign matter.

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed are acceptable for HDPE Geomembrane material installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Engineer.

.1 Ensure clay liner surface is uniform with no dips which could prevent HDPE Geomembrane from resting on clay surface

.2 Inform Engineer of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed with from Engineer.

.2 During installation of the liner, the Engineer shall have complete authority to order a stop of work due to inclement weather, the use of improper installation procedures, or for any reason that in the Engineer's sole opinion may result in a defective liner.

.3 HDPE Geomembrane shall be free of holes, pinholes, bubbles, blisters, excessive contamination by foreign matter, and nicks and cuts on roll edges.

3.2 INSTALLATION

.1 Maintain area of installation free of water and snow accumulation.

.2 Prepare excessively soft supporting material as directed by Engineer.

.3 Do not proceed with panel placement and seaming when ambient temperatures are below minus 5 degrees C or above 40 degrees C, during precipitation, in presence of excessive moisture (i.e. fog, dew), nor in presence of high winds.

.4 Place and seam panels in accordance with manufacturer's recommendations on graded surface in orientation and locations indicated on Drawings. Minimize wrinkles, avoid scratches and crimps to HDPE Geomembranes and avoid damage to supporting material.

.1 The HDPE Geomembrane liners shall be installed in accordance with a panel layout plan recommended by the Contractor and approved by the Engineer.

.2 Horizontal seams on slopes shall not be permitted, unless no other option is available and only as approved by the Engineer.

.5 Protect installed membrane from displacement, damage or deterioration before, during and after placement of material layers.

.6 Replace damaged, torn or permanently twisted panels to approval of Engineer. Remove rejected damaged panels from site.

.7 Keep field seaming to minimum. Locate field seams up and down slopes, with no horizontal field seam less than 1.5 m beyond toe of slope on the landfill base and at a minimum of 1.5 m from collection trenches that they run near parallel to.

.1 Keep seam area clean and free of moisture, dust, dirt, debris and foreign material.

.2 Make field seam samples in accordance with requirements described in PART 2 of this Section on fragment pieces of HDPE Geomembrane and test to verify that seaming conditions are adequate.

.3 Test field seams as seaming work progresses by non-destructive methods over their full length. Repair seams which do not pass non-destructive test. Reconstruct seam between failed location and any passed test location, until non-destructive testing is successful.

.8 Repair minor tears and pinholes by patching until non-destructive testing is successful. Patches to be round or oval in shape, made of same HDPE Geomembrane material, and extend minimum of [75] mm beyond edge of defect.

3.3 SEAMS AND JOINTS

.1 Joints between HDPE Geomembrane panels shall be field welded using the manufacturer's recommended procedures and equipment. Only repairs and detail welds shall be extrusion welded.

.1 The weld area shall be free of all dirt, dust, moisture, or other foreign material. Surfaces to be welded shall be wiped with oil free rags when required to remove any contamination by oil, grease, or excessive dirt.

.2 If necessary, grinding of the liner material prior to welding shall be per manufacturer's recommendations. The weld shall be made immediately after preparation and cleaning is complete. The temperature of the welding apparatus shall be checked a minimum of once every hour during welding.

.3 The liner panels shall be wedge welded together through the anchor trench. Wooden planks or similar materials will be used to bridge the trench and allow the full welding of the seam to the back of the anchor trench, at the end of the panels, as shown on the drawings.

.2 An overlap line a minimum of 150 mm from the edge of the underlying sheet shall be clearly identified on the underlying panel of every fusion seam. The underlying HDPE Geomembrane sheet shall be closest to the lowest area of the cell.

.3 The overlap shall be sufficient to leave a loose flap of HDPE Geomembrane at least 25 mm wide adjacent to both sides of the seam.

.4 Cross and toe seams shall be staggered a minimum of one (1) metre.

.5 The completed field seams shall meet the specifications summarized in GRI GM19 as published by the Geosynthetic Research Institute (GRI) and as summarized as follows:

60-mil HDPE Geomembrane (2 Sided Textured)			
Seam Type	**Tested Parameter**	**English Value**	**Metric Value**
Hot Wedge Seams	Peel Strength	60 lb/in	263 N/25 mm
	Peel Separation	< 25%	< 25%
	Shear Strength	80 lb/in	350 N/25 mm
	Shear Elongation at Break	> 50%	> 50%
Extrusion Fill Seams	Peel Strength	52 lb/in	225 N/25 mm
	Peel Separation	< 25%	< 25%
	Shear Strength	80 lb/in	350 N/25 mm
	Shear Elongation at Break	> 50%	> 50%

.6 Seaming shall not proceed, if in the opinion of the Engineer, ambient air temperature or adverse weather conditions jeopardize the integrity of the HDPE Geomembrane installation.

The installer shall demonstrate that acceptable seaming can be performed by completing acceptable trial welds.

3.4 REPAIRING SEAMS AND JOINTS

.1 Examine all seams and non-seam areas of the HDPE Geomembrane for defects, holes, blister, undispersed raw materials, and any sign of contamination by foreign matter.

.2 Repair and non-destructively test each suspect location in both seam and non-seam areas. Do not cover HDPE Geomembrane at locations that have been repaired until test results with passing values have been achieved.

.3 Seaming and repairs will not be completed without the presence of the Engineer.

3.5 WELDING

.1 All welds will be completed according to the Contractor's appropriate welding procedure.

.1 Deviation from the written weld procedures in any manner may be cause for rejection of the affected welds by the Engineer.

.2 Any welds that have been rejected shall be remedied to the satisfaction of the Engineer, at no additional cost to the Owner.

.2 Welding equipment and accessories shall meet the following requirements.

.1 Gauges showing operating temperatures and travel speed of the specific equipment shall be operational and clearly visible. Preheat and barrel temperature gauges required on extrusion welders and wedge temperature and travel speed on double wedge fusion welders.

.2 An adequate number of operating welding machines shall be made available to prevent work delays. For each piece of welding equipment there must be one spare, operable welding unit on site to facilitate continuous seams should a piece of welding equipment become inoperable.

.3 A power source (portable generator) capable of providing constant voltage under combined line load shall be used.

.3 The Contractor shall supply a copy of the proposed welding procedure a minimum of 2 weeks prior to beginning welding.

3.6 REQUIREMENTS FOR PRODUCTION OF TRIAL WELDS

.1 Perform trial, or qualification welds, in the presence of the Engineer, on HDPE Geomembrane samples to verify welding equipment is operating properly.

.2 No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed a trial weld.

.3 Trial welds shall be performed and tested for each machine and/or operator as follows:

.1 At the start of each shift of production seaming;

.2 When a new operator or new machine starts welding;

.3 When any welding equipment settings are changed or maintenance is required other than routine cleaning;

.4 When welding operations have stopped for two (2) hours or more; and

.5 When there is a meaningful change in ambient conditions including a temperature change of 10˚C or greater, any precipitation, wind speed greater than 30 kph.

.6 Trial welds shall be performed and tested at no additional cost including for any time, materials, or labour.

3.7 TRIAL WELD PROCEDURE

.1 Make trial welds under the same surface and environmental conditions as the production welds, i.e., in contact with subgrade and similar ambient temperature.

.2 Trial welds of existing material from representative locations, to new material will be required as directed by the Engineer.

.3 Each trial weld shall be a minimum of 1.5 m in length.

.4 Cut seven, one-inch wide by approximately six-inch long test coupons from the trial weld, using a purpose-built coupon cutter. Quantitatively test five (5) specimens for peel adhesion (both tracks), and then two (2) for bonded seam strength (shear).

.5 Repeat the trial weld (for wedge welds), in its entirety, when any of the trial weld samples fail in either peel or shear. A trial seam is considered to have failed if the amount of seam separation exceeds 25% of the welded area or the force exerted is below the values specified.

3.8 HOT WEDGE WELDING

.1 Welding apparatus shall be a self-propelled device equipped with an electronic controller that displays applicable temperatures.

.2 Protect against moisture build-up between sheets.

.3 Continuously clean seam area of dust, mud, moisture, and debris immediately ahead of the hot wedge welder.

.4 Welding operations will be ceased if there is any indication that a mechanical or setup problem exists with a wedge welder. The Engineer has the right to stop welding operations if in his or her opinion a problem exists with a piece of welding equipment.

3.9 EXTRUSION WELDING

.1 Hot-air bond (leister) adjacent pieces of HDPE Geomembrane material together using procedures that do not damage the HDPE Geomembrane, or underlying material.

.2 Scuff the surface of the HDPE Geomembrane at the locations to be covered by the extrusion bead, using and appropriate sanding disk. Care must be taken during the sanding operation to scuff the full width of the extrusion bead while preventing excessive damage to the HDPE Geomembrane material. Do not use a coarse grit for scuffing.

.3 Purge welding apparatus of heat-degraded extrudate before welding.

.4 Purged extrudate rod shall not be discarded on any geosynthetic surface while still hot, and shall not be left discarded on or below the liner.

.5 Clean HDPE Geomembrane surfaces according to the appropriate manufacturer approved procedures before welding, and weld shortly after.

3.10 GEOMEMBRANE REPAIR PROCEDURES

.1 Any HDPE Geomembrane area showing injury due to excessive scuffing, puncture, or distress from any cause, shall, as directed by the Engineer, be replaced or repaired with an additional piece of HDPE Geomembrane liner welded over the defective area at Contractor's expense. All patches shall extend a minimum of 100 mm from the affected area.

.2 Remove damaged HDPE geomembrane and replace with acceptable HDPE Geomembrane materials if damage cannot be satisfactorily repaired.

.3 All repairs shall be completed within 24 hours from when they are identified, except by approval of the Engineer.

.4 Repair any portion of unsatisfactory HDPE Geomembrane or seam area failing a destructive or non-destructive test. Installer shall be responsible for repair of damaged or defective areas. Agreement upon the appropriate repair method shall be decided between the Engineer and the Installer. Procedures available include the following:

- .1 Patching - Used to repair large holes, tears, undispersed raw materials, and contamination by foreign matter.
- .2 Abrading and Re-welding - Used to repair small seam sections.
- .3 Spot Welding - Used to repair pinholes or other minor, localized flaws or where HDPE Geomembrane thickness has been reduced.
- .4 Capping - Used to repair large lengths of failed seams.
- .5 Flap Welding - Used to extrusion weld the flap (excess outer portion) of a fusion weld in lieu of a full cap.
- .6 Removing the unacceptable seam and replace with new material.
- .7 In addition, the following procedures shall be observed:
  - .1 Areas to be covered with a patch shall be prepared by rounding the corners of the damaged area to remove all damage to the liner, to the satisfaction of the Engineer.
  - .2 Surfaces of the HDPE Geomembrane that are to be repaired by extrusion welds shall be lightly abraded according to the appropriate manufacturer approved procedures, to assure cleanliness.
  - .3 All HDPE Geomembrane surfaces shall be clean and dry at the time of repair.
  - .4 Extend patches or caps at least 100 mm for extrusion welds and 150 mm for wedge welds beyond the edge of the defect, and round all corners of the patch material.

.5 Repair Verification:

- .1 Number and log each patch repair.
- .2 Non-destructively test each repair using methods identified in this Specification.

3.11 CONTRACTOR QUALITY CONTROL

.1 The Construction Quality Assurance Monitor (Engineer) will act independently from the Quality Control (QC) provided by the Contractor and shall in no way relieve the Contractor of any obligation to complete the required Quality Control testing in accordance with the specifications.

.2 The Contractor shall coordinate their activities with the Engineer and shall provide access to all construction and quality control procedures and results.

.3 The Contractor shall test all joints and repairs in the Geomembrane liner by vacuum testing or pressurized dual seams testing (for double hot wedge welds only). All testing shall be done in the presence of or with knowledge of the Engineer. All defective areas detected shall be repaired to the satisfaction of the Engineer.

3.12 VACUUM TESTING QUALITY CONTROL PROCEDURE

.1 The Contractor shall perform a vacuum test on all extrusion welded seams and repairs, in the following manner:

.1 The area to be tested shall be cleaned of all dirt, debris, and other foreign matter and then a soap and water solution shall be applied.

.2 A gasket vacuum box (American Parts and Service Company, Alhambra, California, Series #A100 or approved equal) assembly consisting of a rigid housing, a clean transparent viewing window, and a vacuum gauge shall be immediately placed, in a manner to ensure a seal over the area of the liner to be tested.

.3 A vacuum of 20.68 to 41.37 kPa (3 to 6 psi) shall be induced and held for a minimum of 5 seconds or long enough for the area to be thoroughly examined.

.4 Examine the HDPE Geomembrane through the viewing window for the presence of soap bubbling, all areas where leaks are identified shall be marked and repaired.

.5 Any portion of an extrusion seam or repair that cannot be vacuum tested, must be pick tested.

3.13 AIR PRESSURE TESTING QUALITY CONTROL PROCEDURE

.1 The Contractor shall perform pressurized testing of all double wedge weld seams, regardless of length, in the following manner:

.1 Both ends of the seam to be tested shall be sealed.

.2 A needle with pressure gauge, or other approved pressure feed device equipped with a pressure gauge, shall then be inserted into the channel produced in the middle of the double wedge weld.

.3 The channel shall be pressurized to 275.79 kPa (40 psi) to allow the seam to stretch and stabilize before beginning the test.

.4 The pressure is to be held for a period of no shorter than five (5) minutes.

.5 If the loss of pressure exceeds three 20.68 kPa (3) psi or does not stabilize, then the seam will either be repaired entirely or the faulty area will be located and marked for repair.

.6 If blockage is present, locate and test seam on both sides of blockage.

.7 Engineer shall be present during the testing and witness the pressure gauge readings.

.8 To ensure that the air has travelled full length of the seam, the air shall be released from the other end of the seam while the Engineer watches the pressure gauge.

.9 Repair the holes caused by the pressure gauge needle.

3.14 DESTRUCTIVE SEAM TESTING PROCEDURE

.1 All destructive tests will be done within 24 hours. The Contractor will be responsible for manual tests at the end of each seam:

.1 Each Seam:

.1 For each piece of welding equipment in use, the Contractor will cut-out a single coupon from the end of each completed seam and test it, as described below, prior to starting the next seam.

.2 The Contractor will perform a manual peel test on both tracks of the weld using two vice-grip hand clamps. This test is to be completed in the presence of the Engineer.

.3 Welding of the next seam will only continue if a passing result is achieved. A Film Tear bond with less than 25% peel incursion is considered a pass for this manual test.

.4 The test coupon is to be left beside the cut-out for further examination if required.

.2 Every 150 m of Seam:

.1 A sample for full destructive testing is to be collected on a frequency of no less than one (1) per 150 m of completed seam. More frequent samples may be required if problems are encountered during seaming operations or if welding is conducted during adverse weather conditions.

.2 The location of each sample is to be determined by the Engineer in consultation with the Contractor as the installation progresses.

.3 Samples shall be a minimum of 200 mm in width and a minimum of 500 mm in length, with the seam centred lengthwise. The sample shall be cut in two pieces with a minimum 400 mm long piece going to the Engineer and the remaining piece to be tested by the Contractor, as described below.

.4 Number each seam sample and mark the sample number on the HDPE Geomembrane adjacent to the sample cut-out location.

.5 Where possible destructive seam samples will be taken from locations that will not affect the integrity of the liner, for example, at the end of seams in the anchor trench or at tie-in locations where excess material is to be trimmed off.

.6 A total of three (3) coupons are to be cut out of the Contractor's piece of the sample for testing on the Contractor's field tensiometer. The three (3) coupons are to be tested for peel adhesion (both tracks). The testing is to be completed by the Contractor and observed by the Engineer.

.7 The sampling and testing is to be completed immediately following the completion of the subject seam. Welding can continue while the testing is being completed. Authorization to delay this testing may be approved by the Engineer if special circumstances are encountered.

3.15 FAILED SEAM PROCEDURE

.1 The following procedure shall be used when there is a destructive test failure on either the Contractor's or the Engineer test samples.

.1 Reconstruct the seam, or seams between any two passed test locations; or

.2 Track the poor weld by extracting additional samples from either side of the failed sample. These samples must be taken a minimum of three (3) metres from the failed sample in both directions from the location of the failed test.

.2 Check the next seam welded using same welding device if the subject seam is less than three (3) metres long.

.3 If any subsequent sample fails, the process shall be repeated to establish the zone in which the seam shall be reconstructed.

.4 Acceptable seams shall be bounded by two locations from which samples have passed destructive tests.

PART 4 MEASUREMENT AND PAYMENT

4.1 GENERAL

.1 Refer to Section 01 29 00 – Payment Procedures for requirements on measurement and payment.

4.2 HDPE DITCH LINER

.1 Schedule of Prices Item No. 33 47 13/01.

.2 Measurement Basis: Per linear metre of installed HDPE Geomembrane along ditch alignment, measured by surveyed length.

.3 Payment Basis: Unit Price, Includes excavation and grading of anchor trenches; supply and placement of HDPE Geomembrane, and underlying non-woven geotextile; welding joints and seam of geomembrane material, repairing or replacing any damaged geomembrane section, and conducting Quality Control on installed and uninstalled HDPE Geomembrane; backfill of anchor trenches, compaction and grading to lines and grades shown on drawings.

END OF SECTION

APPENDIX P - CONTRACT AGREEMENT AND GENERAL CONDITIONS

(Refer to CCDC 4 2023)

CCDC
Canadian Construction Documents Committee

Unit Price Contract

CCDC 4 — 2023

Name of the Work

Apply a CCDC 4 copyright seal here.
The application of the seal demonstrates the intention of the party proposing the use of this document that it be an accurate and unamended form of CCDC 4 - 2023 except to the extent that any alterations, additions or modifications are set forth in supplementary conditions.

CCDC 4 UNIT PRICE CONTRACT

TABLE OF CONTENTS

AGREEMENT BETWEEN OWNER AND CONTRACTOR

For use when unit prices are the primary basis of payment.

This Agreement made on day of in the year .
by and between the parties

hereinafter called the "*Owner*"

and

hereinafter called the "*Contractor*"

The *Owner* and the *Contractor* agree as follows:

ARTICLE A-1 THE WORK

The *Contractor* shall:

1.1 perform the *Work* required by the *Contract Documents* for *(insert below the description or title of the Work)*

located at *(insert below the Place of the Work)*

for which the Agreement has been signed by the parties, and for which *(insert below the name of the Consultant)*

is acting as and is hereinafter called the "*Consultant*" and

1.2 do and fulfill everything indicated by the *Contract Documents*, and

1.3 commence the *Work* by the day of in the year and, subject to adjustment in *Contract Time* as provided for in the *Contract Documents*, attain *Ready-for-Takeover*, by the day of in the year .

ARTICLE A-2 AGREEMENTS AND AMENDMENTS

2.1 The *Contract* supersedes all prior negotiations, representations or agreements, either written or oral, relating in any manner to the *Work*, including the bid documents that are not expressly listed in Article A-3 of the Agreement – CONTRACT DOCUMENTS.

2.2 The *Contract* may be amended only as provided in the *Contract Documents*.

ARTICLE A-3 CONTRACT DOCUMENTS

3.1 The following are the *Contract Documents* referred to in Article A-1 of the Agreement – THE WORK:

- Agreement between *Owner* and *Contractor*
- Definitions
- General Conditions
- *

* *(Insert here, attaching additional pages if required, a list identifying all other Contract Documents e.g. supplementary conditions; Schedule of Prices; Division 01 of the Specifications – GENERAL REQUIREMENTS; Project information that the Contractor may rely upon; technical Specifications, giving a list of contents with section numbers and titles, number of pages and date; material finishing schedules; Drawings, giving drawing number, title, date, revision date or mark; addenda, giving title, number, date; time schedule)*

ARTICLE A-4 CONTRACT PRICE

4.1 *Unit Prices* form the basis for payment of the *Contract Price*. Quantities in the *Schedule of Prices* are estimated. The estimated *Contract Price*, which is the total extended amount indicated in the *Schedule of Prices*, is:

/100 dollars $

4.2 These amounts shall be subject to adjustments as provided in the *Contract Documents*.

4.3 All amounts are in Canadian funds and exclude *Value Added Taxes*.

ARTICLE A-5 PAYMENT

5.1 Subject to the provisions of the *Contract Documents* and *Payment Legislation*, and in accordance with legislation and statutory regulations respecting holdback percentages, the *Owner* shall:

.1 make progress payments to the *Contractor* on account of the *Contract Price* when due in the amount certified by the *Consultant* unless otherwise prescribed by *Payment Legislation* together with such *Value Added Taxes* as may be applicable to such payments,

.2 upon *Substantial Performance of the Work*, pay to the *Contractor* the unpaid balance of the holdback amount when due together with such *Value Added Taxes* as may be applicable to such payment, and

.3 upon the issuance of the final certificate for payment, pay to the *Contractor* the unpaid balance of the *Contract Price* when due together with such *Value Added Taxes* as may be applicable to such payment.

5.2 Interest

.1 Should either party fail to make payments as they become due under the terms of the *Contract* or in an award by adjudication, arbitration or court, interest at the following rates on such unpaid amounts shall also become due and payable until payment:

(1) 2% per annum above the prime rate for the first 60 days.

(2) 4% per annum above the prime rate after the first 60 days.

Such interest shall be compounded on a monthly basis. The prime rate shall be the rate of interest quoted by

(Insert name of chartered lending institution whose prime rate is to be used)

for prime business loans as it may change from time to time.

.2 Interest shall apply at the rate and in the manner prescribed by paragraph 5.2.1 of this Article on the settlement amount of any claim in dispute that is resolved either pursuant to Part 8 of the General Conditions – DISPUTE RESOLUTION or otherwise, from the date the amount would have been due and payable under the *Contract*, had it not been in dispute, until the date it is paid.

ARTICLE A-6 RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING

6.1 *Notices in Writing* will be addressed to the recipient at the address set out below.

6.2 The delivery of a *Notice in Writing* will be by hand, by courier, by prepaid first class mail, or by other form of electronic communication during the transmission of which no indication of failure of receipt is communicated to the sender.

6.3 A *Notice in Writing* delivered by one party in accordance with this *Contract* will be deemed to have been received by the other party on the date of delivery if delivered by hand or courier, or if sent by mail it will be deemed to have been received five calendar days after the date on which it was mailed, provided that if either such day is not a *Working Day*, then the *Notice in Writing* will be deemed to have been received on the *Working Day* next following such day.

6.4 A *Notice in Writing* sent by any form of electronic communication will be deemed to have been received on the date of its transmission provided that if such day is not a *Working Day* or if it is received after the end of normal business hours on the date of its transmission at the place of receipt, then it will be deemed to have been received at the opening of business at the place of receipt on the first *Working Day* next following the transmission thereof.

6.5 An address for a party may be changed by *Notice in Writing* to the other party setting out the new address in accordance with this Article.

Owner

*name of Owner**

address

email address

Contractor

*name of Contractor**

address

email address

Consultant

*name of Consultant**

address

email address

** If it is intended that a specific individual must receive the notice, that individual's name shall be indicated.*

ARTICLE A-7 LANGUAGE OF THE CONTRACT

7.1 When the *Contract Documents* are prepared in both the English and French languages, it is agreed that in the event of any apparent discrepancy between the English and French versions, the English / French # language shall prevail.
 # Complete this statement by striking out inapplicable term.

7.2 This Agreement is drawn in English at the request of the parties hereto. La présente convention est rédigée en anglais à la demande des parties.

ARTICLE A-8 SUCCESSION

8.1 The *Contract* shall enure to the benefit of and be binding upon the parties hereto, their respective heirs, legal representatives, successors, and assigns.

In witness whereof the parties hereto have executed this Agreement by the hands of their duly authorized representatives.

SIGNED AND DELIVERED
in the presence of:

WITNESS

OWNER

name of Owner

signature

signature

name of person signing

name and title of person signing

WITNESS

CONTRACTOR

name of Contractor

signature

signature

name of person signing

name and title of person signing

N.B. *Where legal jurisdiction, local practice or Owner or Contractor requirement calls for:*

(a) proof of authority to execute this document, attach such proof of authority in the form of a certified copy of a resolution naming the representative(s) authorized to sign the Agreement for and on behalf of the corporation or partnership; or

(b) the affixing of a corporate seal, this Agreement should be properly sealed.

DEFINITIONS

The following Definitions shall apply to all *Contract Documents*.

Change Directive

A *Change Directive* is a written instruction prepared by the *Consultant* and signed by the *Owner* directing the *Contractor* to proceed with a change in the *Work* within the general scope of the *Contract Documents* prior to the *Owner* and the *Contractor* agreeing upon adjustments in the *Contract Price* and the *Contract Time*.

Change Order

A *Change Order* is a written amendment to the *Contract* prepared by the *Consultant* and signed by the *Owner* and the *Contractor* stating their agreement upon:

- a change in the *Work*;
- the method of adjustment or the amount of the adjustment in the *Contract Price*, if any; and
- the extent of the adjustment in the *Contract Time*, if any.

Construction Equipment

Construction Equipment means all machinery and equipment, either operated or not operated, that is required for preparing, fabricating, conveying, erecting, or otherwise performing the *Work* but is not incorporated into the *Work*.

Consultant

The *Consultant* is the person or entity engaged by the *Owner* and identified as such in the Agreement. The *Consultant* is the Architect, the Engineer or entity licensed to practise in the province or territory of the *Place of the Work*.

Contract

The *Contract* is the undertaking by the parties to perform their respective duties, responsibilities and obligations as prescribed in the *Contract Documents* and represents the entire agreement between the parties.

Contract Documents

The *Contract Documents* consist of those documents listed in Article A-3 of the Agreement – CONTRACT DOCUMENTS and amendments agreed upon between the parties.

Contract Price

The *Contract Price* is the sum of the products of the actual final quantities that are incorporated in or made necessary by the *Work*, multiplied by the appropriate *Unit Prices* stated in the *Schedule of Prices*, plus lump sums and allowances, if any.

Contract Time

The *Contract Time* is the time from commencement of the *Work* to the date of *Ready-for-Takeover* as stipulated in paragraph 1.3 of Article A-1 of the Agreement – THE WORK .

Contractor

The *Contractor* is the person or entity identified as such in the Agreement.

Drawings

The *Drawings* are the graphic and pictorial portions of the *Contract Documents*, wherever located and whenever issued, showing the design, location and dimensions of the *Work*, generally including plans, elevations, sections, details, and diagrams.

Notice in Writing

A *Notice in Writing*, where identified in the *Contract Documents*, is a written communication between the parties or between them and the *Consultant* that is transmitted in accordance with the provisions of Article A-6 of the Agreement – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING.

Owner

The *Owner* is the person or entity identified as such in the Agreement.

Other Contractor

Other Contractor means a contractor, other than the *Contractor* or a *Subcontractor*, engaged by the *Owner* for the *Project*.

Payment Legislation

Payment Legislation means such legislation, if any, in effect at the *Place of the Work* which governs payment under construction contracts.

Place of the Work

The *Place of the Work* is the designated site or location of the *Work* identified in the *Contract Documents*.

Product

Product or *Products* means material, machinery, equipment, and fixtures forming part of the *Work*, but does not include *Construction Equipment.*

Project

The *Project* means the total construction contemplated of which the *Work* may be the whole or a part.

Ready-for-Takeover

Ready-for-Takeover shall have been attained when the conditions set out in paragraph 12.1.1 of GC 12.1 – READY-FOR-TAKEOVER have been met, as verified by the *Consultant* pursuant to paragraph 12.1.4.2 of GC 12.1 – READY-FOR-TAKEOVER.

Schedule of Prices

The *Schedule of Prices* is the schedule listed in Article A-3 – CONTRACT DOCUMENTS identifying items of work, units of measure, estimated quantities, and *Unit Prices*.

Shop Drawings

Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, *Product* data, and other data which the *Contractor* provides to illustrate details of portions of the *Work.*

Specifications

The *Specifications* are that portion of the *Contract Documents*, wherever located and whenever issued, consisting of the written requirements and standards for *Products*, systems, workmanship, quality, and the services necessary for the performance of the *Work.*

Subcontractor

A *Subcontractor* is a person or entity having a direct contract with the *Contractor* to perform a part or parts of the *Work* at the *Place of the Work.*

Substantial Performance of the Work

Substantial Performance of the Work is as defined in the lien legislation applicable to the *Place of the Work.*

Supplemental Instruction

A *Supplemental Instruction* is an instruction, not involving adjustment in the *Contract Price* or *Contract Time*, in the form of *Specifications*, *Drawings*, schedules, samples, models, or written instructions, consistent with the intent of the *Contract Documents*. It is to be issued by the *Consultant* to supplement the *Contract Documents* as required for the performance of the *Work.*

Supplier

A *Supplier* is a person or entity having a direct contract with the *Contractor* to supply *Products*.

Temporary Work

Temporary Work means temporary supports, structures, facilities, services, and other temporary items, excluding *Construction Equipment*, required for the execution of the *Work* but not incorporated into the *Work.*

Unit Price

A *Unit Price* is the amount payable for a single unit of *Work* as stated in the *Schedule of Prices*.

Value Added Taxes

Value Added Taxes means such sum as shall be levied upon the *Contract Price* by the Federal or any Provincial or Territorial Government and is computed as a percentage of the *Contract Price* and includes the Goods and Services Tax, the Quebec Sales Tax, the Harmonized Sales Tax, and any similar tax, the collection and payment of which have been imposed on the *Contractor* by tax legislation.

Work

The *Work* means the total construction and related services required by the *Contract Documents*.

Working Day

Working Day means a day other than a Saturday, Sunday, statutory holiday, or statutory vacation day that is observed by the construction industry in the area of the *Place of the Work.*

GENERAL CONDITIONS

PART 1 GENERAL PROVISIONS

GC 1.1 CONTRACT DOCUMENTS

1.1.1 The intent of the *Contract Documents* is to include the labour, *Products* and services necessary for the performance of the *Work* by the *Contractor* in accordance with these documents. It is not intended, however, that the *Contractor* shall supply products or perform work not consistent with, not covered by, or not properly inferable from the *Contract Documents*.

1.1.2 The *Contract Documents* are complementary, and what is required by one shall be as binding as if required by all. Performance by the *Contractor* shall be required only to the extent consistent with the *Contract Documents*.

1.1.3 The *Contractor* shall review the *Contract Documents* for the purpose of facilitating co-ordination and execution of the *Work* by the *Contractor*.

1.1.4 The *Contractor* is not responsible for errors, omissions or inconsistencies in the *Contract Documents*. If there are perceived errors, omissions or inconsistencies discovered by or made known to the *Contractor*, the *Contractor* shall promptly report to the *Consultant* and shall not proceed with the work affected until the *Contractor* has received corrected or additional information from the *Consultant*.

1.1.5 If there is a conflict within the *Contract Documents*:

.1 the order of priority of documents, from highest to lowest, shall be

- the Agreement between *Owner* and *Contractor*,
- the Definitions,
- Supplementary Conditions,
- the General Conditions,
- Division 01 of the *Specifications*,
- technical *Specifications*,
- material and finishing schedules,
- the *Drawings*.

.2 *Drawings* of larger scale shall govern over those of smaller scale of the same date.

.3 dimensions shown on *Drawings* shall govern over dimensions scaled from *Drawings*.

.4 amended or later dated documents shall govern over earlier documents of the same type.

.5 noted materials and annotations shall govern over graphic indications.

1.1.6 Nothing contained in the *Contract Documents* shall create any contractual relationship between:

.1 the *Owner* and a *Subcontractor*, a *Supplier*, or their agent, employee, or other person performing any portion of the *Work*.

.2 the *Consultant* and the *Contractor*, a *Subcontractor*, a *Supplier*, or their agent, employee, or other person performing any portion of the *Work*.

1.1.7 Words and abbreviations which have well known technical or trade meanings are used in the *Contract Documents* in accordance with such recognized meanings.

1.1.8 References in the *Contract Documents* to the singular shall be considered to include the plural as the context requires.

1.1.9 Neither the organization of the *Specifications* nor the arrangement of *Drawings* shall control the *Contractor* in dividing the work among *Subcontractors* and *Suppliers*.

1.1.10 *Specifications*, *Drawings*, models, and copies thereof furnished by the *Consultant* are and shall remain the *Consultant*'s property, with the exception of the signed *Contract* sets, which shall belong to each party to the *Contract*. All *Specifications*, *Drawings* and models furnished by the *Consultant* are to be used only with respect to the *Work* and are not to be used on other work. These *Specifications*, *Drawings* and models are not to be copied or altered in any manner without the written authorization of the *Consultant*.

1.1.11 Physical models furnished by the *Contractor* at the *Owner*'s expense are the property of the *Owner*.

GC 1.2 LAW OF THE CONTRACT

1.2.1 The law of the *Place of the Work* shall govern the interpretation of the *Contract*.

GC 1.3 RIGHTS AND REMEDIES

1.3.1 Except as expressly provided in the *Contract Documents*, the duties and obligations imposed by the *Contract Documents* and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law.

1.3.2 No action or failure to act by the *Owner*, the *Consultant* or the *Contractor* shall constitute a waiver of any right or duty afforded any of them under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

GC 1.4 ASSIGNMENT

1.4.1 Neither party to the *Contract* shall assign the *Contract* or a portion thereof without the written consent of the other, which consent shall not be unreasonably withheld.

PART 2 ADMINISTRATION OF THE CONTRACT

GC 2.1 AUTHORITY OF THE CONSULTANT

2.1.1 The *Consultant* will have authority to act on behalf of the *Owner* only to the extent provided in the *Contract Documents*, unless otherwise modified by written agreement as provided in paragraph 2.1.2.

2.1.2 The duties, responsibilities and limitations of authority of the *Consultant* as set forth in the *Contract Documents* shall be modified or extended only with the written consent of the *Owner*, the *Consultant* and the *Contractor*.

GC 2.2 ROLE OF THE CONSULTANT

2.2.1 The *Consultant* will provide administration of the *Contract* as described in the *Contract Documents*.

2.2.2 The *Consultant* will visit the *Place of the Work* at intervals appropriate to the progress of construction to:
.1 become familiar with the progress and quality of the *Work*,
.2 determine if the *Work* is proceeding in general conformity with the *Contract Documents*, and
.3 verify quantities of *Work* performed under a *Schedule of Prices* where *Unit Prices* form the basis for payment.

2.2.3 If the *Owner* and the *Consultant* agree, the *Consultant* will provide at the *Place of the Work*, one or more project representatives to assist in carrying out the *Consultant*'s responsibilities. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in writing to the *Contractor*.

2.2.4 Based on the *Consultant*'s observations and evaluation of the *Contractor*'s applications for payment, the *Consultant* will determine the amounts owing to the *Contractor* under the *Contract* and will issue certificates for payment as provided in Article A-5 of the Agreement – PAYMENT, GC 5.3 – PAYMENT and GC 5.5 – FINAL PAYMENT.

2.2.5 The *Consultant* will not be responsible for and will not have control, charge or supervision of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs required in connection with the *Work* in accordance with the applicable construction safety legislation, other regulations or general construction practice. The *Consultant* will not be responsible for the *Contractor*'s failure to perform the *Work* in accordance with the *Contract Documents*.

2.2.6 Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER, the *Consultant* will be, in the first instance, the interpreter of the requirements of the *Contract Documents*.

2.2.7 Matters in question relating to the performance of the *Work* or the interpretation of the *Contract Documents* shall be initially referred in writing to the *Consultant* by the party raising the question for interpretations and findings and copied to the other party.

2.2.8 Interpretations and findings of the *Consultant* shall be consistent with the intent of the *Contract Documents*. In making such interpretations and findings the *Consultant* will not show partiality to either the *Owner* or the *Contractor*.

2.2.9 The *Consultant*'s interpretations and findings will be given in writing to the parties within a reasonable time.

2.2.10 With respect to claims for a change in *Contract Price*, the *Consultant* will make findings as set out in GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

2.2.11 The *Consultant* will have authority to reject work which in the *Consultant*'s opinion does not conform to the requirements of the *Contract Documents*. Whenever the *Consultant* considers it necessary or advisable, the *Consultant* will have authority to require inspection or testing of work, whether or not such work is fabricated, installed or completed. However, neither the authority of the *Consultant* to act nor any decision either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the *Consultant* to the *Contractor*, *Subcontractors*, *Suppliers*, or their agents, employees, or other persons performing any of the *Work*.

2.2.12 During the progress of the *Work* the *Consultant* will furnish *Supplemental Instructions* to the *Contractor* with reasonable promptness or in accordance with a schedule for such instructions agreed to by the *Consultant* and the *Contractor*.

2.2.13 The *Consultant* will review and take appropriate action upon *Shop Drawings*, samples and other submittals by the *Contractor*, in accordance with the *Contract Documents*.

2.2.14 The *Consultant* will prepare *Change Orders* and *Change Directives* as provided in GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

2.2.15 The *Consultant* will conduct reviews of the *Work* to determine the date of *Substantial Performance of the Work* and verify that *Ready-for-Takeover* has been attained.

2.2.16 All certificates issued by the *Consultant* will be to the best of the *Consultant*'s knowledge, information and belief. By issuing any certificate, the *Consultant* does not guarantee the *Work* is correct or complete.

2.2.17 The *Consultant* will receive and review written warranties and related documents required by the *Contract* and provided by the *Contractor* and will forward such warranties and documents to the *Owner* for the *Owner*'s acceptance.

2.2.18 If the *Consultant*'s engagement is terminated, the *Owner* shall immediately engage a *Consultant* against whom the *Contractor* makes no reasonable objection and whose duties and responsibilities under the *Contract Documents* will be that of the former *Consultant*.

GC 2.3 REVIEW AND INSPECTION OF THE WORK

2.3.1 The *Owner* and the *Consultant* shall have access to the *Work* at all times. The *Contractor* shall provide sufficient, safe and proper facilities at all times for the review of the *Work* by the *Consultant* and the inspection of the *Work* by authorized agencies. If parts of the *Work* are in preparation at locations other than the *Place of the Work*, the *Owner* and the *Consultant* shall be given access to such work whenever it is in progress.

2.3.2 If work is designated for measurement for payment, tests, inspections, or approvals in the *Contract Documents*, by the *Consultant*'s instructions, or by the laws or ordinances of the *Place of the Work*, the *Contractor* shall give the *Consultant* reasonable notification of when the work will be ready for measurements, tests, inspections, and approvals. The *Contractor* shall arrange for and shall give the *Consultant* reasonable notification of the date and time of inspections by other authorities.

2.3.3 The *Contractor* shall furnish promptly to the *Consultant* two copies of certificates and inspection reports relating to the *Work*.

2.3.4 If the *Contractor* covers, or permits to be covered, work that has been designated for measurement for payment, special tests, inspections, or approvals before such measurements, special tests, inspections, or approvals are made, given or completed, the *Contractor* shall, if so directed, uncover such work, have the measurements, special tests, inspections, and approvals satisfactorily completed, and make good covering work at the *Contractor*'s expense.

2.3.5 The *Consultant* may order any portion or portions of the *Work* to be examined to confirm that such work is in accordance with the requirements of the *Contract Documents*. If the work is not in accordance with the requirements of the *Contract Documents*, the *Contractor* shall correct the work and pay the cost of examination and correction. If the work is in accordance with the requirements of the *Contract Documents*, the *Owner* shall pay the cost of examination and restoration.

2.3.6 The *Contractor* shall pay the cost of making any test or inspection, including the cost of samples required for such test or inspection, if such test or inspection is designated in the *Contract Documents* to be performed by the *Contractor* or is required by the laws or ordinances applicable to the *Place of the Work*.

2.3.7 The *Contractor* shall pay the cost of samples required for any test or inspection to be performed by others if such test or inspection is designated in the *Contract Documents*.

GC 2.4 DEFECTIVE WORK

2.4.1 The *Contractor* shall promptly correct defective work that has been rejected by the *Consultant* as failing to conform to the *Contract Documents* whether or not the defective work was incorporated in the *Work* or the defect is the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the *Contractor*.

2.4.2 The *Contractor* shall make good promptly *Other Contractors*' work destroyed or damaged by such corrections at the *Contractor*'s expense.

2.4.3 If in the opinion of the *Consultant* it is not expedient to correct defective work or work not performed as provided in the *Contract Documents*, the *Owner* may deduct from the amount otherwise due to the *Contractor* the difference in value between the work as performed and that called for by the *Contract Documents*. If the *Owner* and the *Contractor* do not agree on the difference in value, they shall refer the matter to the *Consultant* for a finding.

PART 3 EXECUTION OF THE WORK

GC 3.1 CONTROL OF THE WORK

3.1.1 The *Contractor* shall have total control of the *Work* and shall effectively direct and supervise the *Work* so as to ensure conformity with the *Contract Documents*.

3.1.2 The *Contractor* shall be solely responsible for construction means, methods, techniques, sequences, and procedures and for co-ordinating the various parts of the *Work* under the *Contract*.

GC 3.2 CONSTRUCTION BY THE OWNER OR OTHER CONTRACTORS

3.2.1 The *Owner* reserves the right to award separate contracts in connection with other parts of the *Project* to *Other Contractors* and to perform work with own forces.

3.2.2 When separate contracts are awarded for other parts of the *Project*, or when work is performed by the *Owner*'s own forces, the *Owner* shall:

.1 provide for the co-ordination of the activities and work of *Other Contractors* and the *Owner*'s own forces with the *Work* of the *Contract*;

.2 enter into separate contracts with *Other Contractors* under conditions of contract which are compatible with the conditions of the *Contract*;

.3 ensure that insurance coverage is provided to the same requirements as are called for in GC 11.1 – INSURANCE and co-ordinate such insurance with the insurance coverage of the *Contractor* as it affects the *Work*; and

.4 take all reasonable precautions to avoid labour disputes or other disputes on the *Project* arising from the work of *Other Contractors* or the *Owner*'s own forces.

3.2.3 When separate contracts are awarded for other parts of the *Project*, or when work is performed by the *Owner*'s own forces, the *Contractor* shall:

.1 afford the *Owner* and *Other Contractors* reasonable opportunity to store their products and execute their work;

.2 co-ordinate and schedule the *Work* with the work of *Other Contractors* or the *Owner*'s own forces that are identified in the *Contract Documents*;

.3 participate with *Other Contractors* and the *Owner* in reviewing their construction schedules when directed to do so; and

.4 report promptly to the *Consultant* in writing any apparent deficiencies in the work of *Other Contractors* or of the *Owner*'s own forces, where such work affects the proper execution of any portion of the *Work*, prior to proceeding with that portion of the *Work*.

3.2.4 Where a change in the *Work* is required as a result of the co-ordination and integration of the work of *Other Contractors* or *Owner*'s own forces with the *Work*, the changes shall be authorized and valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

3.2.5 Disputes and other matters in question between the *Contractor* and *Other Contractors* shall be dealt with as provided in Part 8 of the General Conditions – DISPUTE RESOLUTION provided the *Other Contractors* have reciprocal obligations. The *Contractor* shall be deemed to have consented to arbitration of any dispute with any *Other Contractor* whose contract with the *Owner* contains a similar agreement to arbitrate. In the absence of *Other Contractors* having reciprocal obligations, disputes and other matters in question initiated by the *Contractor* against *Other Contractors* will be considered disputes and other matters in question between the *Contractor* and the *Owner*.

3.2.6 Should the *Owner*, the *Consultant*, *Other Contractors*, or anyone employed by them directly or indirectly be responsible for ill-timed work necessitating cutting or remedial work to be performed, the cost of such cutting or remedial work shall be valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

GC 3.3 TEMPORARY WORK

3.3.1 The *Contractor* shall have the sole responsibility for the design, erection, operation, maintenance, and removal of *Temporary Work* unless otherwise specified in the *Contract Documents*.

3.3.2 The *Contractor* shall engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform those functions referred to in paragraph 3.3.1 where required by law or by the *Contract Documents* and in all cases where such *Temporary Work* is of such a nature that professional engineering skill is required to produce safe and satisfactory results.

3.3.3 Notwithstanding the provisions of GC 3.1 – CONTROL OF THE WORK, paragraphs 3.3.1 and 3.3.2 or provisions to the contrary elsewhere in the *Contract Documents* where such *Contract Documents* include designs for *Temporary Work* or specify a method of construction in whole or in part, such designs or methods of construction shall be considered to be part of the design of the *Work* and the *Contractor* shall not be held responsible for that part of the design or the specified method of construction. The *Contractor* shall, however, be responsible for the execution of such design or specified method of construction in the same manner as for the execution of the *Work*.

GC 3.4 CONSTRUCTION SCHEDULE

3.4.1 The *Contractor* shall:

.1 prepare and submit to the *Owner* and the *Consultant* prior to the first application for payment, a construction schedule that indicates the timing of the major activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship to demonstrate the *Work* will be performed in conformity with the *Contract Time*;

.2 monitor the progress of the *Work* relative to the construction schedule and update the schedule on a monthly basis or as stipulated by the *Contract Documents*; and

.3 advise the *Consultant* of any revisions required to the schedule as the result of extensions of the *Contract Time* as provided in Part 6 of the General Conditions – CHANGES IN THE WORK.

GC 3.5 SUPERVISION

3.5.1 The *Contractor* shall provide all necessary supervision and appoint a competent representative who shall be in attendance at the *Place of the Work* while the *Work* is being performed. The appointed representative shall not be changed except for valid reason.

3.5.2 The appointed representative shall represent the *Contractor* at the *Place of the Work*. Information and instructions provided by the *Consultant* to the *Contractor*'s appointed representative shall be deemed to have been received by the *Contractor*, except with respect to Article A-6 of the Agreement – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING.

GC 3.6 SUBCONTRACTORS AND SUPPLIERS

3.6.1 The *Contractor* shall preserve and protect the rights of the parties under the *Contract* with respect to work to be performed under subcontract, and shall:

.1 enter into contracts or written agreements with *Subcontractors* and *Suppliers* to require them to perform their work as provided in the *Contract Documents*;

.2 incorporate the applicable terms and conditions of the *Contract Documents* into all contracts or written agreements with *Subcontractors* and *Suppliers*; and

.3 be as fully responsible to the *Owner* for acts and omissions of *Subcontractors*, *Suppliers* and any persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the *Contractor*.

3.6.2 The *Contractor* shall indicate in writing, if requested by the *Owner*, those *Subcontractors* or *Suppliers* whose bids have been received by the *Contractor* which the *Contractor* would be prepared to accept for the performance of a portion of the *Work*. Should the *Owner* not object before signing the *Contract*, the *Contractor* shall employ those *Subcontractors* or *Suppliers* so identified by the *Contractor* in writing for the performance of that portion of the *Work* to which their bid applies.

3.6.3 The *Owner* may, for reasonable cause, at any time before the *Owner* has signed the *Contract*, object to the use of a proposed *Subcontractor* or *Supplier* and require the *Contractor* to employ one of the other subcontract bidders.

3.6.4 If the *Owner* requires the *Contractor* to change a proposed *Subcontractor* or *Supplier*, the *Contract Price* and *Contract Time* shall be adjusted by the difference occasioned by such required change.

3.6.5 The *Contractor* shall not be required to employ as a *Subcontractor* or *Supplier*, a person or firm to which the *Contractor* may reasonably object.

3.6.6 The *Owner*, through the *Consultant*, may provide to a *Subcontractor* or *Supplier* information as to the percentage of the *Subcontractor*'s or *Supplier*'s work which has been certified for payment.

GC 3.7 LABOUR AND PRODUCTS

3.7.1 The *Contractor* shall maintain good order and discipline among the *Contractor*'s employees engaged on the *Work* and employ only workers that are skilled in the tasks assigned.

3.7.2 The *Contractor* shall provide and pay for labour, *Products*, tools, *Construction Equipment*, water, heat, light, power, transportation, and other facilities and services necessary for the performance of the *Work* in accordance with the *Contract*.

3.7.3 Unless otherwise specified in the *Contract Documents*, *Products* provided shall be new. *Products* which are not specified shall be of a quality consistent with those specified and their use acceptable to the *Consultant*.

GC 3.8 SHOP DRAWINGS

3.8.1 The *Contractor* shall provide *Shop Drawings* as required in the *Contract Documents*.

3.8.2 The *Contractor* shall provide *Shop Drawings* to the *Consultant* to review in accordance with an agreed schedule, or in the absence of an agreed schedule, in orderly sequence and sufficiently in advance so as to cause no delay in the *Work* or in the work of *Other Contractors* or the *Owner*'s own forces.

3.8.3 The *Contractor* shall review all *Shop Drawings* before providing them to the *Consultant*. The *Contractor* represents by this review that:

.1 the *Contractor* has determined and verified all applicable field measurements, field construction conditions, *Product* requirements, catalogue numbers and similar data, or will do so, and

.2 the *Contractor* has checked and co-ordinated each *Shop Drawing* with the requirements of the *Work* and of the *Contract Documents*.

3.8.4 The *Consultant*'s review is for conformity to the design concept and for general arrangement only.

3.8.5 At the time of providing *Shop Drawings*, the *Contractor* shall expressly advise the *Consultant* in writing of any deviations in a *Shop Drawing* from the requirements of the *Contract Documents*. The *Consultant* shall indicate the acceptance or rejection of such deviation expressly in writing.

3.8.6 The *Consultant*'s review shall not relieve the *Contractor* of responsibility for errors or omissions in the *Shop Drawings* or for meeting all requirements of the *Contract Documents*.

3.8.7 The *Consultant* will review and return *Shop Drawings* in accordance with the schedule agreed upon, or, in the absence of such schedule, with reasonable promptness so as to cause no delay in the performance of the *Work*.

PART 4 ALLOWANCES

GC 4.1 CASH ALLOWANCES

4.1.1 The *Contract Price* includes the cash allowances, if any, stated in the *Contract Documents*. The scope of the *Work* or costs included in such cash allowances shall be as described in the *Contract Documents*.

4.1.2 The *Contract Price*, and not the cash allowances, includes the *Contractor*'s overhead and profit in connection with such cash allowances.

4.1.3 Expenditures under cash allowances shall be authorized by the *Owner* through the *Consultant*.

4.1.4 Where the actual cost of the *Work* under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, at the *Consultant*'s direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the *Contract Price* for overhead and profit. Only where the actual cost of the *Work* under all cash allowances exceeds the total amount of all cash allowances shall the *Contractor* be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the *Contract Documents*.

4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the *Contract Price* by *Change Order* without any adjustment for the *Contractor*'s overhead and profit on such amount.

4.1.6 The value of the *Work* performed under a cash allowance is eligible to be included in progress payments.

4.1.7 The *Contractor* and the *Consultant* shall jointly prepare a schedule that shows when the items called for under cash allowances must be ordered to avoid delaying the progress of the *Work*.

GC 4.2 CONTINGENCY ALLOWANCE

4.2.1 The *Contract Price* includes the contingency allowance, if any, stated in the *Contract Documents*.

4.2.2 The contingency allowance includes the *Contractor*'s overhead and profit in connection with such contingency allowance.

4.2.3 Expenditures under the contingency allowance shall be authorized and valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

4.2.4 The *Contract Price* shall be adjusted by *Change Order* to provide for any difference between the expenditures authorized under paragraph 4.2.3 and the contingency allowance.

PART 5 PAYMENT

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

5.1.1 The *Owner* shall, at the request of the *Contractor*, before signing the *Contract*, and promptly from time to time thereafter, furnish to the *Contractor* reasonable evidence that financial arrangements have been made to fulfill the *Owner*'s obligations under the *Contract*.

5.1.2 The *Owner* shall give the *Contractor Notice in Writing* of any material change in the *Owner*'s financial arrangements to fulfil the *Owner*'s obligations under the *Contract* during the performance of the *Contract*.

GC 5.2 APPLICATIONS FOR PAYMENT

5.2.1 Applications for payment on account as provided in Article A-5 of the Agreement – PAYMENT shall be submitted monthly to the *Owner* and the *Consultant* simultaneously as the *Work* progresses.

5.2.2 Applications for payment shall be dated the last day of each payment period, which is the last day of the month or an alternative day of the month agreed in writing by the parties.

5.2.3 As of the last day of the payment period, the amount claimed shall be:

.1 the value of *Unit Price Work* performed, being the sum of the products of the actual quantities that are incorporated in or made necessary by the *Work*, multiplied by the appropriate *Unit Prices* stated in the *Schedule of Values*; plus

.2 the value of lump sum *Work* performed, proportionate to the amount of the lump sum item; plus

.3 the value of *Products* delivered to the *Place of the Work*.

5.2.4 The *Contractor* shall submit to the *Consultant*, at least 15 calendar days before the first application for payment, a schedule of values for the lump sum items of *Work*, aggregating the total amount of each lump sum item, so as to facilitate evaluation of applications for payment.

5.2.5 The schedule of values for lump sum items of *Work* shall be made out in such form and supported by such evidence as the *Consultant* may reasonably require and when accepted by the *Consultant*, shall be used as the basis for applications for payment for lump sum items, unless it is found to be in error.

5.2.6 The *Contractor* shall include with each application for payment:

.1 a statement based on the schedule of values for the lump sum items of *Work*; and

.2 quantity measurements and other evidence as requested by the *Consultant* for each *Unit Price* item.

5.2.7 Applications for payment shall comply with the provisions of *Payment Legislation*.

5.2.8 Each application for payment shall include evidence of compliance with workers' compensation legislation at the *Place of the Work* and after the first payment, a declaration by the *Contractor* as to the distribution made of the amounts previously received using document CCDC 9A 'Statutory Declaration'.

5.2.9 Applications for payment for *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall be supported by such evidence as the *Consultant* may reasonably require to establish the value and delivery of the *Products*.

GC 5.3 PAYMENT

5.3.1 After receipt by the *Consultant* and the *Owner* of an application for payment submitted by the *Contractor* in accordance with GC 5.2 – APPLICATIONS FOR PAYMENT:

.1 The *Consultant* will issue to the *Owner* and copy to the *Contractor*, no later than 10 calendar days after the receipt of the application for payment, a certificate for payment in the amount applied for, or in such other amount as the *Consultant* determines to be properly due. If the *Consultant* certifies a different amount, or rejects the application or part thereof, the *Owner* shall promptly issue a written notice to the *Contractor* giving reasons for the revision or rejection, such written notice to be in compliance with *Payment Legislation*,

.2 The *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement – PAYMENT on or before 28 calendar days after the receipt by the *Owner* and the *Consultant* of the application for payment, and in any event, in compliance with *Payment Legislation*.

5.3.2 Where the basis of payment for an item is by *Unit Price*, quantities in progress payments shall be considered estimate until all *Work* required by that *Unit Price* item is complete.

GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

5.4.1 The *Consultant* will review the *Work* to certify or verify the validity of the application for *Substantial Performance of the Work* and will promptly, and in any event, no later than 20 calendar days after receipt of the *Contractor*'s application:

.1 advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or

.2 state the date of *Substantial Performance of the Work* or a designated portion of the *Work* in a certificate and issue a copy of that certificate to each of the *Owner* and the *Contractor*.

5.4.2 Where the holdback amount required by the applicable lien legislation has not been placed in a separate lien holdback account, the *Owner* shall, no later than 10 calendar days prior to the expiry of the holdback period stipulated in the lien legislation applicable to the *Place of the Work*, place the holdback amount in a bank account in the joint names of the *Owner* and the *Contractor*.

5.4.3 Subject to the requirements of any *Payment Legislation*, all holdback amount prescribed by the applicable lien legislation for the *Work* shall become due and payable to the *Contractor* no later than 10 *Working Days* following the expiration of the holdback period stipulated in the lien legislation applicable to the *Place of the Work*.

5.4.4 The *Contractor* shall submit an application for payment of the lien holdback amount in accordance with GC 5.3 –PAYMENT.

5.4.5 Where legislation permits progressive release of the holdback for a portion of the *Work* and the *Consultant* has certified or verified that the part of the *Work* has been performed prior to *Substantial Performance of the Work*, the *Owner* hereby agrees to release, and shall release, such portion to the *Contractor* in accordance with such legislation.

5.4.6 Notwithstanding any progressive release of the holdback, the *Contractor* shall ensure that such parts of the *Work* are protected pending the issuance of a final certificate for payment and be responsible for the correction of defects or work not performed regardless of whether or not such was apparent when the holdback was released.

GC 5.5 FINAL PAYMENT

5.5.1 When the *Contractor* considers that the *Work* is completed, the *Contractor* shall submit an application for final payment.

5.5.2 The *Consultant* will, no later than 10 calendar days after the receipt of an application from the *Contractor* for final payment, review the *Work* to verify the validity of the application and when the *Consultant* finds the *Contractor*'s application for final payment valid, the *Consultant* will promptly issue a final certificate for payment to the *Owner*, with a copy to the *Contractor*.

5.5.3 If the *Consultant* rejects the application or part thereof, the *Owner* will promptly issue a written notice to the *Contractor* giving reasons for the revision or rejection, such written notice to be in compliance with *Payment Legislation*.

5.5.4 Subject to the provision of paragraph 10.4.1 of GC 10.4 – WORKERS' COMPENSATION, and any legislation applicable to the *Place of the Work*, the *Owner* shall, no later than 5 calendar days after the issuance of a final certificate for payment, pay the *Contractor* as provided in Article A-5 of the Agreement – PAYMENT and in any event, in compliance with *Payment Legislation*.

GC 5.6 DEFERRED WORK

5.6.1 If because of climatic or other conditions reasonably beyond the control of the *Contractor*, or if the *Owner* and the *Contractor* agree that, there are items of work that must be deferred, payment in full for that portion of the *Work* which has been performed as certified by the *Consultant* shall not be withheld or delayed by the *Owner* on account thereof, but the *Owner* may withhold, until the remaining portion of the *Work* is finished, only such an amount that the *Consultant* determines is sufficient and reasonable to cover the cost of performing such deferred *Work*.

GC 5.7 NON-CONFORMING WORK

5.7.1 No payment by the *Owner* under the *Contract* nor partial or entire use or occupancy of the *Work* by the *Owner* shall constitute an acceptance of any portion of the *Work* or *Products* which are not in accordance with the requirements of the *Contract Documents*.

PART 6 CHANGES IN THE WORK

GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

6.1.1 The *Owner*, through the *Consultant*, without invalidating the *Contract*, may make:

.1 changes in the *Work* consisting of additions, deletions or other revisions to the *Work* by *Change Order* or *Change Directive*, and

.2 changes to the *Contract Time* for the *Work*, or any part thereof, by *Change Order*.

6.1.2 The *Contractor* shall not perform a change in the *Work* without a *Change Order* or a *Change Directive*.

GC 6.2 CHANGE ORDER

6.2.1 When a change in the *Work* is proposed or required, the *Consultant* will provide the *Contractor* with a written description of the proposed change in the *Work*. The *Contractor* shall promptly present to the *Consultant*, in a form that can be reasonably evaluated, a method of adjustment or an amount of adjustment for the *Contract Price*, if any, and the adjustment in the *Contract Time*, if any, for the proposed change in the *Work*.

6.2.2 The method of adjustment of the *Contract Price* presented by the *Contractor* may be:

.1 *Unit Prices* listed in the *Schedule of Prices* that are applicable to the change in the *Work* or, if *Unit Prices* listed in the *Schedule of Prices* are not directly applicable, by unit prices deduced or extrapolated from such *Unit Prices*,

.2 a lump sum or unit price quotation, or

.3 the cost plus method.

6.2.3 When the *Owner* and the *Contractor* agree to the adjustments in the *Contract Price* and *Contract Time* or to the method to be used to determine the adjustments, such agreement shall be effective immediately and shall be recorded in a *Change Order*. The value of the work performed as the result of a *Change Order* shall be included in the applications for progress payment.

GC 6.3 CHANGE DIRECTIVE

6.3.1 If the *Owner* requires the *Contractor* to proceed with a change in the *Work* prior to the *Owner* and the *Contractor* agreeing upon the corresponding adjustment in *Contract Price* and *Contract Time*, the *Owner*, through the *Consultant*, shall issue a *Change Directive*.

6.3.2 A *Change Directive* shall only be used to direct a change in the *Work* which is within the general scope of the *Contract Documents*.

6.3.3 A *Change Directive* shall not be used to direct a change in the *Contract Time* only.

6.3.4 Upon receipt of a *Change Directive*, the *Contractor* shall proceed promptly with the change in the *Work*.

6.3.5 For the purpose of valuing *Change Directives*, changes in the *Work* that are not substitutions or otherwise related to each other shall not be grouped together in the same *Change Directive*.

6.3.6 The adjustment in the *Contract Price* for a change carried out by way of a *Change Directive* shall be determined on the basis of the cost of the *Contractor*'s actual expenditures and savings attributable to the *Change Directive*, valued in accordance with paragraph 6.3.7 and as follows:

.1 If the change results in a net increase in the *Contractor*'s cost, the *Contract Price* shall be increased by the amount of the net increase in the *Contractor*'s cost, plus the *Contractor*'s percentage fee on such net increase.

.2 If the change results in a net decrease in the *Contractor*'s cost, the *Contract Price* shall be decreased by the amount of the net decrease in the *Contractor*'s cost, without adjustment for the *Contractor*'s percentage fee.

.3 The *Contractor*'s fee shall be as specified in the *Contract Documents* or as otherwise agreed by the parties.

6.3.7 The cost of performing the work attributable to the *Change Directive* shall be limited to the actual cost of the following in as much as it contributes directly to the implementation of the *Change Directive*:

Labour

.1 rates that are listed in the schedule or as agreed by the *Owner* and the *Contractor* including wages, benefits, compensation, contributions, assessments, or taxes incurred for such items as employment insurance, provincial or territorial health insurance, workers' compensation, and Canada or Quebec Pension Plan for:

(1) trade labour in the direct employ of the *Contractor*;

(2) the *Contractor*'s personnel when stationed at the field office;

(3) the *Contractor*'s personnel engaged at shops or on the road, in expediting the production or transportation of materials or equipment; and

(4) the *Contractor*'s office personnel engaged in a technical capacity, or other personnel identified in Article A-3 of the Agreement – CONTRACT DOCUMENTS for the time spent in the performance of the *Work*.

Products, Construction Equipment and Temporary Work

.2 cost of all *Products* including cost of transportation thereof;

.3 in the absence of agreed rates, cost less salvage value of *Construction Equipment*, *Temporary Work* and tools, exclusive of hand tools under $1,000 owned by the *Contractor*;

.4 rental cost of *Construction Equipment*, *Temporary Work* and tools, exclusive of hand tools under $1,000;

.5 cost of all equipment and services required for the *Contractor*'s field office;

Subcontract

.6 subcontract amounts of *Subcontractor* with pricing mechanism approved by the *Owner*;

Others

.7 travel and subsistence expenses of the *Contractor*'s personnel described in paragraph 6.3.7.1;

.8 deposits lost provided that they are not caused by negligent acts or omissions of the *Contractor*;

.9 cost of quality assurance such as independent inspection and testing services;

.10 charges levied by authorities having jurisdiction at the *Place of the Work*;

.11 royalties, patent license fees, and damages for infringement of patents and cost of defending suits therefor subject always to the *Contractor*'s obligations to indemnify the *Owner* as provided in paragraph 10.3.1 of GC 10.3 – PATENT FEES;

.12 premium for all contract securities and insurance for which the *Contractor* is required, by the *Contract Documents*, to provide, maintain and pay in relation to the performance of the *Work*;

.13 losses and expenses sustained by the *Contractor* for matters which are the subject of insurance under the policies prescribed in GC 11.1 – INSURANCE when such losses and expenses are not recoverable because the amounts are in excess of collectible amounts or within the deductible amounts;

.14 taxes and duties, other than *Value Added Taxes*, income, capital, or property taxes, relating to the *Work* for which the *Contractor* is liable;

.15 charges for voice and data communications, courier services, expressage, transmittal and reproduction of documents, and petty cash items;

.16 cost for removal and disposal of waste products and debris;

.17 legal costs, incurred by the *Contractor*, in relation to the performance of the *Work* provided that they are not:

(1) relating to a dispute between the *Owner* and the *Contractor* unless such costs are part of a settlement or awarded by arbitration or court,

(2) the result of the negligent acts or omissions of the *Contractor*, or

(3) the result of a breach of this *Contract* by the *Contractor*;

.18 cost of auditing when requested by the *Owner*; and

.19 cost of *Project* specific information technology in accordance with the method determined by the parties.

6.3.8 Notwithstanding any other provisions contained in the General Conditions of the *Contract*, it is the intention of the parties that the cost of any item under any cost element referred to in paragraph 6.3.7 shall cover and include any and all costs or liabilities attributable to the *Change Directive* other than those which are the result of or occasioned by any failure on the part of the *Contractor* to exercise reasonable care and diligence in the *Contractor*'s attention to the *Work*. Any cost due to failure on the part of the *Contractor* to exercise reasonable care and diligence in the *Contractor*'s performance of the *Work* attributable to the *Change Directive* shall be borne by the *Contractor*.

6.3.9 The *Contractor* shall keep full and detailed accounts and records necessary for the documentation of the cost of performing the *Work* attributable to the *Change Directive* and shall provide the *Consultant* with copies thereof.

6.3.10 For the purpose of valuing *Change Directives*, the *Owner* shall be afforded reasonable access to all of the *Contractor*'s pertinent documents related to the cost of performing the *Work* attributable to the *Change Directive*.

6.3.11 Pending determination of the final amount of a *Change Directive*, the undisputed value of the *Work* performed as the result of a *Change Directive* is eligible to be included in progress payments.

6.3.12 If the *Owner* and the *Contractor* do not agree on the proposed adjustment in the *Contract Time* attributable to the change in the *Work*, or the method of determining it, the adjustment shall be referred to the *Consultant* for a finding.

6.3.13 When the *Owner* and the *Contractor* reach agreement on the adjustment to the *Contract Price* and to the *Contract Time*, this agreement shall be recorded in a *Change Order*.

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

6.4.1 If the *Owner* or the *Contractor* discover conditions at the *Place of the Work* which are:

.1 subsurface or otherwise concealed physical conditions which existed before the commencement of the *Work* and differ materially from those indicated in the *Contract Documents*; or

.2 physical conditions, other than conditions due to weather, that are of a nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the *Contract Documents*,

then the observing party shall give *Notice in Writing* to the other party of such conditions before they are disturbed and in no event later than 5 *Working Days* after first observance of the conditions.

6.4.2 The *Consultant* will promptly investigate such conditions and make a finding. If the finding is that the conditions differ materially and this would cause an increase or decrease in the *Contractor*'s cost or time to perform the *Work*, the *Owner*, through the *Consultant*, shall issue appropriate instructions for a change in the *Work* as provided in GC 6.2 – CHANGE ORDER or GC 6.3 – CHANGE DIRECTIVE.

6.4.3 If the *Consultant* finds that the conditions at the *Place of the Work* are not materially different or that no change in the *Contract Price* or the *Contract Time* is justified, the *Consultant* will promptly inform the *Owner* and the *Contractor* in writing.

6.4.4 The *Contractor* shall not be entitled to an adjustment in the *Contract Price* or the *Contract Time* if such conditions were reasonably apparent prior to the time of bid closing.

GC 6.5 DELAYS

6.5.1 If the *Contractor* is delayed in the performance of the *Work* by the *Owner*, the *Consultant*, or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the *Contract Documents*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.

6.5.2 If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or any person employed or engaged by the *Contractor* directly or indirectly, resulting in the failure of the *Contractor* to attain *Ready-for-Takeover* by the date stipulated in Article A-1 of the Agreement – THE WORK, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.

6.5.3 If the *Contractor* is delayed in the performance of the *Work* by:

.1 labour disputes, strikes, lock-outs (including lock-outs decreed or recommended for its members by a recognized contractors' association, of which the *Contractor* is a member or to which the *Contractor* is otherwise bound),

.2 fire, unusual delay by common carriers or unavoidable casualties,

.3 abnormally adverse weather conditions, or

.4 any cause beyond the *Contractor*'s control other than one resulting from a default or breach of *Contract* by the *Contractor*,

then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The extension of time shall not be less than the time lost as the result of the event causing the delay, unless the *Contractor* agrees to a shorter extension. The *Contractor* shall not be entitled to payment for costs incurred by such delays unless such delays result from actions by the *Owner*, the *Consultant* or anyone employed or engaged by them directly or indirectly.

6.5.4 No extension shall be made for delay unless *Notice in Writing* of the cause of delay is given to the *Consultant* not later than 10 *Working Days* after the commencement of the delay. In the case of a continuing cause of delay only one *Notice in Writing* shall be necessary.

6.5.5 If no schedule is made under paragraph 2.2.12 of GC 2.2 – ROLE OF THE CONSULTANT, then no request for extension shall be made because of failure of the *Consultant* to furnish instructions until 10 *Working Days* after demand for such instructions has been made.

GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

6.6.1 If the *Contractor* intends to make a claim for an increase to the *Contract Price*, or if the *Owner* intends to make a claim against the *Contractor* for a credit to the *Contract Price*, the party that intends to make the claim shall give timely *Notice in Writing* of intent to claim to the other party and to the *Consultant*.

6.6.2 Upon commencement of the event or series of events giving rise to a claim, the party intending to make the claim shall:
.1 take all reasonable measures to mitigate any loss or expense which may be incurred as a result of such event or series of events, and
.2 keep such records as may be necessary to support the claim.

6.6.3 Within 30 *Working Days* after commencement of the event or series of events giving rise to the claim, or such other reasonable time as may be agreed by the *Consultant*, the party making the claim shall submit to the *Consultant* a detailed account of the amount claimed and the grounds upon which the claim is based and the *Consultant* will make a finding upon such claim.

6.6.4 Where the event or series of events giving rise to the claim has a continuing effect, the detailed account submitted under paragraph 6.6.3 shall be considered to be an interim account and the party making the claim shall, at such intervals as the *Consultant* may reasonably require, submit further interim accounts giving the accumulated amount of the claim and any further grounds upon which it is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.

6.6.5 The *Consultant*'s findings, with respect to a claim made by either party, will be given by *Notice in Writing* to both parties within 30 *Working Days* after receipt of the claim by the *Consultant*, or within such other time period as may be agreed by the parties.

6.6.6 If such finding is not acceptable to either party, the claim shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION.

GC 6.7 QUANTITY VARIATIONS

6.7.1 The *Owner* or the *Contractor* may request an adjustment to a *Unit Price* contained in the *Schedule of Prices* provided that the actual quantity of the item in the *Schedule of Prices* exceeds or falls short of the estimated quantity by more than 15%.

6.7.2 Where the actual quantity exceeds the estimated quantity by more than 15%, a *Unit Price* adjusted pursuant to paragraph 6.7.1 shall apply only to the quantity that exceeds 115% of the estimated quantity.

6.7.3 Where the actual quantity falls short of the estimated quantity by more than 15%, a *Unit Price* adjusted pursuant to paragraph 6.7.1 shall not exceed the *Unit Price* that would cause the extended amount to equal the original extended amount derived from the original *Unit Price* and estimated quantity.

6.7.4 If either party requests adjustment of a *Unit Price*, both parties shall make all reasonable efforts to agree on a revised *Unit Price*. The agreed revised *Unit Price* shall be recorded in a *Change Order*.

6.7.5 If agreement on a revised *Unit Price* is not reached, the matter shall be subject to final determination in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION. Pending determination of the revised *Unit Price*, payment for the *Work* performed shall be included in progress payments based on the unrevised *Unit Price*.

PART 7 DEFAULT NOTICE

GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

7.1.1 If the *Contractor* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Contractor*'s insolvency, or if a receiver is appointed because of the *Contractor*'s insolvency, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, terminate the *Contractor*'s right to continue with the *Work*, by giving the *Contractor* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.

7.1.2 If the *Contractor* neglects to perform the *Work* properly or otherwise fails to comply with the requirements of the *Contract* to a substantial degree and if the *Consultant* has given a written statement to the *Owner* and *Contractor* which provides the detail of such neglect to perform the *Work* properly or such failure to comply with the requirements of the *Contract* to a substantial degree, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, give the *Contractor Notice in Writing*, containing particulars of the default including references to applicable provisions of the *Contract*, that the *Contractor* is in default of the *Contractor*'s contractual obligations and instruct the *Contractor* to correct the default in the 5 *Working Days* immediately following the receipt of such *Notice in Writing*.

7.1.3 If the default cannot be corrected in the 5 *Working Days* specified or in such other time period as may be subsequently agreed in writing by the parties, the *Contractor* shall be in compliance with the *Owner*'s instructions if the *Contractor*:
.1 commences the correction of the default within the specified time,
.2 provides the *Owner* with an acceptable schedule for such correction, and
.3 corrects the default in accordance with the *Contract* terms and with such schedule.

7.1.4 If the *Contractor* fails to correct the default in the time specified or in such other time period as may be subsequently agreed in writing by the parties, without prejudice to any other right or remedy the *Owner* may have, the *Owner* may by giving *Notice in Writing*:

.1 correct such default and deduct the cost thereof from any payment then or thereafter due the *Contractor* for the *Work* provided the *Consultant* has certified such cost to the *Owner* and the *Contractor*, or

.2 terminate the *Contractor*'s right to continue with the *Work* in whole or in part or terminate the *Contract*.

7.1.5 If the *Owner* terminates the *Contractor*'s right to continue with the *Work* as provided in paragraphs 7.1.1 and 7.1.4, the *Owner* shall be entitled to:

.1 take possession of the *Work* and *Products* at the *Place of the Work*; subject to the rights of third parties, utilize the *Construction Equipment* at the *Place of the Work*; finish the *Work* by whatever method the *Owner* may consider expedient, but without undue delay or expense,

.2 withhold further payment to the *Contractor* until a final certificate for payment is issued,

.3 charge the *Contractor* the amount by which the full cost of finishing the *Work* as certified by the *Consultant*, including compensation to the *Consultant* for the *Consultant*'s additional services and a reasonable allowance as determined by the *Consultant* to cover the cost of corrections to work performed by the *Contractor* that may be required under GC 12.3 – WARRANTY, exceeds the unpaid balance of the *Contract Price*; however, if such cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* the difference, and

.4 on expiry of the warranty period, charge the *Contractor* the amount by which the cost of corrections to the *Contractor*'s work under GC 12.3 – WARRANTY exceeds the allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the *Contractor* the difference.

7.1.6 The *Contractor*'s obligation under the *Contract* as to quality, correction and warranty of the work performed by the *Contractor* up to the time of termination shall continue in force after such termination of the *Contract*.

GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

7.2.1 If the *Owner* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Owner*'s insolvency, or if a receiver is appointed because of the *Owner*'s insolvency, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.

7.2.2 If the *Work* is suspended or otherwise delayed for a period of 20 *Working Days* or more under an order of a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or of anyone directly or indirectly employed or engaged by the *Contractor*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner Notice in Writing* to that effect.

7.2.3 The *Contractor* may give *Notice in Writing* to the *Owner*, with a copy to the *Consultant*, that the *Owner* is in default of the *Owner*'s contractual obligations if:

.1 the *Owner* fails to furnish, when so requested by the *Contractor*, reasonable evidence that financial arrangements have been made to fulfill the *Owner*'s obligations under the *Contract*,

.2 the *Consultant* fails to issue a certificate as provided in Part 5 of the General Conditions – PAYMENT,

.3 the *Owner* fails to pay the *Contractor* when due the amounts certified by the *Consultant* or awarded by adjudication, arbitration or court, or

.4 the *Owner* fails to comply with the requirements of the *Contract* to a substantial degree and the *Consultant*, except for GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER, gives a written statement to the *Owner* and the *Contractor* that provides detail of such failure to comply with the requirements of the *Contract* to a substantial degree.

7.2.4 The *Contractor*'s *Notice in Writing* to the *Owner* provided under paragraph 7.2.3 shall advise that if the default is not corrected within 5 *Working Days* following the receipt of the *Notice in Writing*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, suspend the *Work* or terminate the *Contract*.

7.2.5 If the *Contractor* terminates the *Contract* by giving a *Notice in Writing* to the *Owner* under the conditions set out above, the *Contractor* shall be entitled to be paid for all work performed including reasonable profit, for loss sustained upon *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the termination of the *Contract*.

PART 8 DISPUTE RESOLUTION

GC 8.1 AUTHORITY OF THE CONSULTANT

8.1.1 Differences between the parties to the *Contract* as to the interpretation, application or administration of the *Contract* or any failure to agree where agreement between the parties is called for, herein collectively called disputes, which are not resolved in the first instance by findings of the *Consultant* as provided in GC 2.2 – ROLE OF THE CONSULTANT, shall be settled in accordance with the requirements of Part 8 of the General Conditions – DISPUTE RESOLUTION.

8.1.2 If a dispute arises under the *Contract* in respect of a matter in which the *Consultant* has no authority under the *Contract* to make a finding, the procedures set out in paragraph 8.1.3 and paragraphs 8.3.3 to 8.3.8 of GC 8.3 – NEGOTIATION, MEDIATION AND ARBITRATION, and in GC 8.4 – RETENTION OF RIGHTS apply to that dispute with the necessary changes to detail as may be required.

8.1.3 If a dispute is not resolved promptly, the *Consultant* will give such instructions as in the *Consultant*'s opinion are necessary for the proper performance of the *Work* and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by so doing neither party will jeopardize any claim the party may have. If it is subsequently determined that such instructions were in error or at variance with the *Contract Documents*, the *Owner* shall pay the *Contractor* costs incurred by the *Contractor* in carrying out such instructions which the *Contractor* was required to do beyond what the *Contract Documents* correctly understood and interpreted would have required, including costs resulting from interruption of the *Work*.

GC 8.2 ADJUDICATION

8.2.1 Nothing in this *Contract* shall be deemed to affect the rights of the parties to resolve any dispute by adjudication as may be prescribed by applicable legislation.

GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

8.3.1 In accordance with the rules for mediation as provided in CCDC 40 'Rules for Mediation and Arbitration of Construction Industry Disputes' in effect at the time of bid closing, the parties shall appoint a Project Mediator

.1 within 20 *Working Days* after the *Contract* was awarded, or

.2 if the parties neglected to make an appointment within the 20 *Working Days*, within 10 *Working Days* after either party by *Notice in Writing* requests that the Project Mediator be appointed.

8.3.2 A party shall be conclusively deemed to have accepted a finding of the *Consultant* under GC 2.2 – ROLE OF THE CONSULTANT and to have expressly waived and released the other party from any claims in respect of the particular matter dealt with in that finding unless, within 15 *Working Days* after receipt of that finding, the party sends a *Notice in Writing* of dispute to the other party and to the *Consultant*, which contains the particulars of the matter in dispute and the relevant provisions of the *Contract Documents*. The responding party shall send a *Notice in Writing* of reply to the dispute within 10 *Working Days* after receipt of such *Notice in Writing* setting out particulars of this response and any relevant provisions of the *Contract Documents*.

8.3.3 The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, frank, candid and timely disclosure of relevant facts, information and documents to facilitate these negotiations.

8.3.4 After a period of 10 *Working Days* following receipt of a responding party's *Notice in Writing* of reply under paragraph 8.3.2, the parties shall request the Project Mediator to assist the parties to reach agreement on any unresolved dispute. The mediated negotiations shall be conducted in accordance with the rules for mediation as provided in CCDC 40 in effect at the time of bid closing.

8.3.5 If the dispute has not been resolved at the mediation or within such further period as is agreed by the parties, the Project Mediator will terminate the mediated negotiations by giving *Notice in Writing* to the *Owner*, the *Contractor* and the *Consultant*.

8.3.6 By giving a *Notice in Writing* to the other party and the *Consultant*, not later than 10 *Working Days* after the date of termination of the mediated negotiations under paragraph 8.3.5, either party may refer the dispute to be finally resolved by arbitration under the rules of arbitration as provided in CCDC 40 in effect at the time of bid closing. The arbitration shall be conducted in the jurisdiction of the *Place of the Work*.

8.3.7 On expiration of the 10 *Working Days*, the arbitration agreement under paragraph 8.3.6 is not binding on the parties and, if a *Notice in Writing* is not given under paragraph 8.3.6 within the required time, the parties may refer the unresolved dispute to the courts or to any other form of dispute resolution, including arbitration, which they have agreed to use.

8.3.8 If neither party, by *Notice in Writing*, given within 10 *Working Days* of the date of *Notice in Writing* requesting arbitration in paragraph 8.3.6, requires that a dispute be arbitrated immediately, all disputes referred to arbitration as provided in paragraph 8.3.6 shall be:

.1 held in abeyance until:

(1) *Ready-for-Takeover*,

(2) the *Contract* has been terminated, or

(3) the *Contractor* has abandoned the *Work*,

whichever is earlier; and

.2 consolidated into a single arbitration under the rules governing the arbitration under paragraph 8.3.6.

GC 8.4 RETENTION OF RIGHTS

8.4.1 It is agreed that no act by either party shall be construed as a renunciation or waiver of any rights or recourses, provided the party has given the *Notice in Writing* required under Part 8 of the General Conditions – DISPUTE RESOLUTION and has carried out the instructions as provided in paragraph 8.1.3 of GC 8.1 – AUTHORITY OF THE CONSULTANT.

8.4.2 Nothing in Part 8 of the General Conditions – DISPUTE RESOLUTION shall be construed in any way to limit a party from asserting any statutory right to a lien under applicable lien legislation of the jurisdiction of the *Place of the Work* and the assertion of such right by initiating judicial proceedings is not to be construed as a waiver of any right that party may have under paragraph 8.3.6 of GC 8.3 – NEGOTIATION, MEDIATION AND ARBITRATION to proceed by way of arbitration to adjudicate the merits of the claim upon which such a lien is based.

PART 9 PROTECTION OF PERSONS AND PROPERTY

GC 9.1 PROTECTION OF WORK AND PROPERTY

9.1.1 The *Contractor* shall protect the *Work*, the *Owner*'s property and property adjacent to the *Place of the Work* from damage which may arise as the result of the *Contractor*'s operations under the *Contract*, and shall be responsible for such damage, except damage which occurs as the result of:

.1 errors or omissions in the *Contract Documents*; or

.2 acts or omissions by the *Owner*, the *Consultant*, *Other Contractors*, or their agents and employees.

9.1.2 Before commencing any work, the *Contractor* shall determine the location of all underground utilities and structures indicated in the *Contract Documents* or that are reasonably apparent in an inspection of the *Place of the Work*.

9.1.3 Should the *Contractor* in the performance of the *Contract* damage the *Work*, the *Owner*'s property or property adjacent to the *Place of the Work*, the *Contractor* shall be responsible for making good such damage at the *Contractor*'s expense.

9.1.4 Should damage occur to the *Work* or the *Owner*'s property for which the *Contractor* is not responsible, as provided in paragraph 9.1.1, the *Contractor* shall make good such damage to the *Work* and, if the *Owner* so directs, to the *Owner*'s property. The *Contract Price* and *Contract Time* shall be adjusted as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

9.2.1 For the purposes of applicable legislation related to toxic and hazardous substances, the *Owner* shall be deemed to have control and management of the *Place of the Work* with respect to existing conditions.

9.2.2 Prior to the *Contractor* commencing the *Work*, the *Owner* shall,

.1 take all reasonable steps to determine whether any toxic or hazardous substances are present at the *Place of the Work*, and

.2 provide the *Consultant* and the *Contractor* with a written list of any such substances that are known to exist and their locations.

9.2.3 The *Owner* shall take all reasonable steps to ensure that no person's exposure to any toxic or hazardous substance exceeds the time weighted levels prescribed by applicable legislation at the *Place of the Work* and that no property is damaged or destroyed as a result of exposure to, or the presence of, toxic or hazardous substances which were at the *Place of the Work* prior to the *Contractor* commencing the *Work*.

9.2.4 Unless the *Contract* expressly provides otherwise, the *Owner* shall be responsible for taking all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to dispose of, store or otherwise render harmless any toxic or hazardous substance which was present at the *Place of the Work* prior to the *Contractor* commencing the *Work*.

9.2.5 If the *Contractor*

.1 encounters toxic or hazardous substances at the *Place of the Work*, or

.2 has reasonable grounds to believe that toxic or hazardous substances are present at the *Place of the Work*, which were not brought to the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible and which were not disclosed by the *Owner* or which were disclosed but have not been dealt with as required under paragraph 9.2.4, the *Contractor* shall

.3 take all reasonable steps, including stopping the *Work*, to ensure that no person's exposure to any toxic or hazardous substance exceeds any applicable time weighted levels prescribed by applicable legislation at the *Place of the Work*, and

.4 immediately report the circumstances to the *Consultant* and the *Owner* in writing.

9.2.6 If the *Owner* and the *Contractor* do not agree on the existence, significance of, or whether the toxic or hazardous substances were brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and the *Contractor*.

9.2.7 If the *Owner* and the *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were not brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall promptly at the *Owner*'s own expense:

.1 take all steps as required under paragraph 9.2.4;

.2 reimburse the *Contractor* for the costs of all steps taken pursuant to paragraph 9.2.5;

.3 extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.2.6 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay; and

.4 indemnify the *Contractor* as required by GC 13.1 – INDEMNIFICATION.

9.2.8 If the *Owner* and the *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Contractor* shall promptly at the *Contractor*'s own expense:

.1 take all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to safely remove and dispose the toxic or hazardous substances;

.2 make good any damage to the *Work*, the *Owner*'s property or property adjacent to the *Place of the Work* as provided in paragraph 9.1.3 of GC 9.1 – PROTECTION OF WORK AND PROPERTY;

.3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.2.6; and

.4 indemnify the *Owner* as required by GC 13.1 – INDEMNIFICATION.

9.2.9 If either party does not accept the expert's findings under paragraph 9.2.6, the disagreement shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraph 9.2.7 or 9.2.8 it being understood that by so doing, neither party will jeopardize any claim that party may have to be reimbursed as provided by GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.

GC 9.3 ARTIFACTS AND FOSSILS

9.3.1 Fossils, coins, articles of value or antiquity, structures and other remains or things of scientific or historic interest discovered at the *Place of the Work* shall, as between the *Owner* and the *Contractor*, be deemed to be the absolute property of the *Owner*.

9.3.2 The *Contractor* shall take all reasonable precautions to prevent removal or damage to discoveries as identified in paragraph 9.3.1, and shall advise the *Consultant* upon discovery of such items.

9.3.3 The *Consultant* will investigate the impact on the *Work* of the discoveries identified in paragraph 9.3.1. If conditions are found that would cause an increase or decrease in the *Contractor*'s cost or time to perform the *Work*, the *Owner*, through the *Consultant*, shall issue appropriate instructions for a change in the *Work* as provided in GC 6.2 – CHANGE ORDER or GC 6.3 – CHANGE DIRECTIVE.

GC 9.4 CONSTRUCTION SAFETY

9.4.1 The *Contractor* shall be responsible for establishing, initiating, maintaining, and supervising all health and safety precautions and programs in connection with the performance of the *Work* in accordance with the applicable health and safety legislation.

9.4.2 The *Owner* and the *Contractor* shall comply with all health and safety precautions and programs established at the *Place of the Work*.

9.4.3 The *Owner* and the *Contractor* shall comply with the rules, regulations and practices required by the applicable health and safety legislation.

9.4.4 The *Owner* shall cause the *Consultant*, *Other Contractors* and the *Owner*'s own forces to comply with all health and safety precautions and programs established by the *Contractor* at the *Place of the Work*.

9.4.5 Nothing in this Contract shall affect the determination of liability under the applicable health and safety legislation.

GC 9.5 MOULD

9.5.1 If the *Contractor* or the *Owner* observes or reasonably suspects the presence of mould at the *Place of the Work*, the remediation of which is not expressly part of the *Work*,

.1 the observing party shall promptly report the circumstances to the other party in writing,

.2 the *Contractor* shall promptly take all reasonable steps, including stopping the *Work* if necessary, to ensure that no person suffers injury, sickness or death and that no property is damaged as a result of exposure to or the presence of the mould, and

.3 if the *Owner* and the *Contractor* do not agree on the existence, significance or cause of the mould or as to what steps need be taken to deal with it, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and the *Contractor*.

9.5.2 If the *Owner* and the *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was caused by the *Contractor*'s operations under the *Contract*, the *Contractor* shall promptly, at the *Contractor*'s own expense:

.1 take all reasonable and necessary steps to safely remediate or dispose of the mould,

.2 make good any damage to the *Work*, the *Owner*'s property or property adjacent to the *Place of the Work* as provided in paragraph 9.1.3 of GC 9.1 – PROTECTION OF WORK AND PROPERTY,

.3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.5.1.3, and

.4 indemnify the *Owner* as required by GC 13.1 – INDEMNIFICATION.

9.5.3 If the *Owner* and the *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was not caused by the *Contractor*'s operations under the *Contract*, the *Owner* shall promptly, at the *Owner*'s own expense:

.1 take all reasonable and necessary steps to safely remediate or dispose of the mould,

.2 reimburse the *Contractor* for the cost of taking the steps under paragraph 9.5.1.2 and making good any damage to the *Work* as provided in paragraph 9.1.4 of GC 9.1 – PROTECTION OF WORK AND PROPERTY,

.3 extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.5.1.3 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay, and

.4 indemnify the *Contractor* as required by GC 13.1 – INDEMNIFICATION.

9.5.4 If either party does not accept the expert's finding under paragraph 9.5.1.3, the disagreement shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraphs 9.5.2 or 9.5.3, it being understood that by so doing neither party will jeopardize any claim the party may have to be reimbursed as provided by GC 9.5 – MOULD.

PART 10 GOVERNING REGULATIONS

GC 10.1 TAXES AND DUTIES

10.1.1 The *Contract Price* shall include all taxes and customs duties in effect at the time of the bid closing except for *Value Added Taxes* payable by the *Owner* to the *Contractor* as stipulated in Article A-4 of the Agreement – CONTRACT PRICE.

10.1.2 Any increase or decrease in costs to the *Contractor* due to changes in taxes and duties after the time of the bid closing shall increase or decrease the *Contract Price* accordingly.

GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

10.2.1 The laws of the *Place of the Work* shall govern the *Work*.

10.2.2 The *Owner* shall obtain and pay for development approvals, building permit, permanent easements, rights of servitude, and all other necessary approvals and permits, except for the permits and fees referred to in paragraph 10.2.3 or for which the *Contract Documents* specify as the responsibility of the *Contractor*.

10.2.3 The *Contractor* shall be responsible for the procurement of permits, licences, inspections, and certificates, which are necessary for the performance of the *Work* and customarily obtained by contractors in the jurisdiction of the *Place of the Work* after the issuance of the building permit. The *Contract Price* includes the cost of these permits, licences, inspections, and certificates, and their procurement.

10.2.4 The *Contractor* shall give the required notices and comply with the laws, ordinances, rules, regulations, or codes which are or become in force during the performance of the *Work* and which relate to the *Work*, to the preservation of the public health, and to construction safety.

10.2.5 The *Contractor* shall not be responsible for verifying that the *Contract Documents* are in compliance with the applicable laws, ordinances, rules, regulations, or codes relating to the *Work*. If the *Contract Documents* are at variance therewith, or if, subsequent to the time of bid closing, changes are made to the applicable laws, ordinances, rules, regulations, or codes which require modification to the *Contract Documents*, the *Contractor* shall advise the *Consultant* in writing requesting direction immediately upon such variance or change becoming known. The *Consultant* will issue the changes required to the *Contract Documents* as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

10.2.6 If the *Contractor* fails to advise the *Consultant* in writing; fails to obtain direction as required in paragraph 10.2.5; and performs work knowing it to be contrary to any laws, ordinances, rules, regulations, or codes; the *Contractor* shall be responsible for and shall correct the violations thereof; and shall bear the costs, expenses and damages attributable to the failure to comply with the provisions of such laws, ordinances, rules, regulations, or codes.

10.2.7 If, subsequent to the time of bid closing, changes are made to applicable laws, ordinances, rules, regulations, or codes of authorities having jurisdiction which affect the cost of the *Work*, either party may submit a claim in accordance with the requirements of GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

GC 10.3 PATENT FEES

10.3.1 The *Contractor* shall pay the royalties and patent licence fees required for the performance of the *Contract*. The *Contractor* shall hold the *Owner* harmless from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of the *Contractor*'s performance of the *Contract* which are attributable to an infringement or an alleged infringement of a patent of invention by the *Contractor* or anyone for whose acts the *Contractor* may be liable.

10.3.2 The *Owner* shall hold the *Contractor* harmless against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of the *Contractor*'s performance of the *Contract* which are attributable to an infringement or an alleged infringement of a patent of invention in executing anything for the purpose of the *Contract*, the physical model, plan or design of which was supplied to the *Contractor* as part of the *Contract*.

GC 10.4 WORKERS' COMPENSATION

10.4.1 Prior to commencing the *Work*, and again with the *Contractor*'s applications for payment, the *Contractor* shall provide evidence of compliance with workers' compensation legislation at the *Place of the Work*.

PART 11 INSURANCE

GC 11.1 INSURANCE

11.1.1 Without restricting the generality of GC 13.1 – INDEMNIFICATION, the *Contractor* shall provide, maintain and pay for the following insurance coverages, the requirements of which are specified in CCDC 41 'CCDC Insurance Requirements' in effect at the time of bid closing except as hereinafter provided:

.1 General liability insurance in the name of the *Contractor* and include, or in the case of a single, blanket policy, be endorsed to name, the *Owner* and the *Consultant* as insureds but only with respect to liability, other than legal liability arising out of their sole negligence, arising out of the operations of the *Contractor* with regard to the *Work*. General liability insurance shall be maintained from the date of commencement of the *Work* until one year from the date of *Ready-for-Takeover*. Liability coverage shall be provided for completed operations hazards from the date of *Ready-for-Takeover*, as set out in the certificate of *Ready-for-Takeover*, on an ongoing basis for a period of 6 years following *Ready-for-Takeover*.

.2 Automobile Liability Insurance from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.

.3 Unmanned aerial vehicle aircraft, manned aircraft or watercraft Liability Insurance when owned or non-owned manned or unmanned aircraft or watercraft are used directly or indirectly in the performance of the *Work*.

.4 "Broad form" property insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors*. The "Broad form" property insurance shall be provided from the date of commencement of the *Work* until the earliest of:

(1) 10 calendar days after the date of *Ready-for-Takeover*;

(2) on the commencement of use or occupancy of any part or section of the *Work* unless such use or occupancy is for construction purposes, habitational, office, banking, convenience store under 465 square metres in area, or parking purposes, or for the installation, testing and commissioning of equipment forming part of the *Work*; and

(3) when left unattended for more than 30 consecutive calendar days or when construction activity has ceased for more than 30 consecutive calendar days.

.5 Boiler and machinery insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors*. The coverage shall be maintained continuously from commencement of use or operation of the boiler and machinery objects insured by the policy and until 10 calendar days after the date of *Ready-for-Takeover*.

.6 The "Broad form" property and boiler and machinery policies shall provide that, in the case of a loss or damage, payment shall be made to the *Owner* and the *Contractor* as their respective interests may appear. In the event of loss or damage:

(1) the *Contractor* shall act on behalf of the *Owner* 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 *Consultant* may recommend in consultation with the *Contractor*;

(2) the *Contractor* shall be entitled to receive from the *Owner*, in addition to the amount due under the *Contract*, the amount which the *Owner*'s interest in restoration of the *Work* has been appraised, such amount to be paid as the restoration of the *Work* proceeds in accordance with the progress payment provisions. In addition the *Contractor* shall be entitled to receive from the payments made by the insurer the amount of the *Contractor*'s interest in the restoration of the *Work*; and

(3) to the *Work* arising from the work of the *Owner*, the *Owner*'s own forces or *Other Contractors*, the *Owner* shall, in accordance with the *Owner*'s obligations under the provisions relating to construction by the *Owner* or *Other Contractors*, pay the *Contractor* the cost of restoring the *Work* as the restoration of the *Work* proceeds and as in accordance with the progress payment provisions.

.7 Contractors' Equipment Insurance from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.

.8 Contractors' Pollution Liability Insurance from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.

11.1.2 Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Contractor* shall promptly provide the *Owner* with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements applicable to the *Work*.

11.1.3 The parties shall pay their share of the deductible amounts in direct proportion to their responsibility in regards to any loss for which the above policies are required to pay, except where such amounts may be excluded by the terms of the *Contract*.

11.1.4 If the *Contractor* fails to provide or maintain insurance as required by the *Contract Documents*, then the *Owner* shall have the right to provide and maintain such insurance and give evidence to the *Contractor* and the *Consultant*. The *Contractor* shall pay the cost thereof to the *Owner* on demand or the *Owner* may deduct the cost from the amount which is due or may become due to the *Contractor*.

11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the *Place of the Work*.

11.1.6 If a revised version of CCDC 41 is published, which specifies reduced insurance requirements, the parties shall address such reduction, prior to the *Contractor*'s insurance policy becoming due for renewal, and record any agreement in a *Change Order*.

11.1.7 If a revised version of CCDC 41 is published, which specifies increased insurance requirements, the *Owner* may request the increased coverage from the Contractor by way of a *Change Order*.

11.1.8 A *Change Directive* shall not be used to direct a change in the insurance requirements in response to the revision of CCDC 41.

PART 12 OWNER TAKEOVER

GC 12.1 READY-FOR-TAKEOVER

12.1.1 The prerequisites to attaining *Ready-for-Takeover* of the *Work* are limited to the following:

.1 The *Consultant* has certified or verified the *Substantial Performance of the Work*.

.2 Evidence of compliance with the requirements for occupancy or occupancy permit as prescribed by the authorities having jurisdiction.

.3 Final cleaning and waste removal at the time of applying for *Ready-for-Takeover*, as required by the *Contract Documents*.

.4 The delivery to the *Owner* of such operations and maintenance documents reasonably necessary for immediate operation and maintenance, as required by the *Contract Documents*.

.5 Make available a copy of the as-built drawings completed to date on site.

.6 Startup, testing required for immediate occupancy, as required by the *Contract Documents*.

.7 Ability to secure access to the *Work* has been provided to the *Owner*, if required by the *Contract Documents*.
.8 Demonstration and training, as required by the *Contract Documents*, is scheduled by the *Contractor* acting reasonably.

12.1.2 If any prerequisites set forth in paragraphs 12.1.1.3 to 12.1.1.6 must be deferred because of conditions reasonably beyond the control of the *Contractor*, or by agreement between the *Owner* and the *Contractor* to do so, *Ready-for-Takeover* shall not be delayed.

12.1.3 When the *Contractor* considers that the *Work* is *Ready-for-Takeover*, the *Contractor* shall deliver to the *Consultant* and to the *Owner* a comprehensive list of items to be completed or corrected, together with a written application for *Ready-for-Takeover* for review. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*.

12.1.4 The *Consultant* will review the *Work* to verify the validity of the application and will promptly, and in any event, no later than 10 calendar days after receipt of the *Contractor*'s list and application:
.1 advise the *Contractor* in writing that the *Work* is not *Ready-for-Takeover* and give reasons why, or
.2 confirm the date of *Ready-for-Takeover* in writing to each of the *Owner* and the *Contractor*.

12.1.5 Immediately following the confirmation of the date of *Ready-for-Takeover*, the *Contractor*, in consultation with the *Consultant*, shall establish a reasonable date for finishing the *Work*.

12.1.6 The provision of GC 12.1 – READY-FOR-TAKEOVER shall be subject to GC 12.2 – EARLY OCCUPANCY BY THE OWNER.

GC 12.2 EARLY OCCUPANCY BY THE OWNER

12.2.1 The *Owner* may take occupancy of a part or the entirety of the *Work* before *Ready-for-Takeover* has been attained only as agreed by the *Contractor* which agreement shall not be unreasonably withheld.

12.2.2 The *Owner* shall not occupy a part or the entirety of the *Work* without prior approval by authorities having jurisdiction.

12.2.3 If the *Owner* takes occupancy of a part of the *Work* before *Ready-for-Takeover* has been attained:
.1 The part of the *Work* which is occupied shall be deemed to have been taken over by the *Owner* as from the date on which it is occupied.
.2 The *Contractor* shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the *Owner*.
.3 The warranty period specified in paragraph 12.3.1 of GC 12.3 – WARRANTY for that part of the *Work* shall start from the date on which it is occupied.

12.2.4 If the *Owner* takes occupancy of the entirety of the *Work* before all the prerequisites are met as described in paragraph 12.1.1 of GC 12.1 – READY-FOR-TAKEOVER, the *Work* shall, subject to the requirements of the applicable lien legislation, be deemed to achieve *Ready-for-Takeover*. This shall not relieve the *Contractor*'s responsibility to complete the *Work* in a timely manner.

GC 12.3 WARRANTY

12.3.1 Except for extended warranties as described in paragraph 12.3.6, the warranty period under the *Contract* is one year from the date when *Ready-for-Takeover* has been attained.

12.3.2 The *Contractor* shall be responsible for the proper performance of the *Work* to the extent that the design and *Contract Documents* permit such performance.

12.3.3 The *Owner*, through the *Consultant*, shall promptly give the *Contractor Notice in Writing* of observed defects and deficiencies which occur during the one year warranty period.

12.3.4 Subject to paragraph 12.3.2, the *Contractor* shall correct promptly, at the *Contractor*'s expense, defects or deficiencies in the *Work* which appear prior to and during the one year warranty period.

12.3.5 The *Contractor* shall correct or pay for damage resulting from corrections made under the requirements of paragraph 12.3.4.

12.3.6 Any extended warranties required beyond the one year warranty period as described in paragraph 12.3.1, shall be as specified in the *Contract Documents*. Extended warranties shall be issued by the warrantor to the benefit of the *Owner*. The *Contractor*'s responsibility with respect to extended warranties shall be limited to obtaining any such extended warranties from the warrantor. The obligations under such extended warranties are solely the responsibilities of the warrantor.

PART 13 INDEMNIFICATION AND WAIVER

GC 13.1 INDEMNIFICATION

13.1.1 Without restricting the parties' obligation to indemnify respecting toxic and hazardous substances, patent fees and defect in title claims all as described in paragraphs 13.1.4 and 13.1.5, the *Owner* and the *Contractor* shall each indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by them or in respect to claims by third parties that arise out of, or are attributable in any respect to their involvement as parties to this *Contract*, provided such claims are:

.1 caused by:

(1) the negligent acts or omissions of the party from whom indemnification is sought or anyone for whose negligent acts or omissions that party is liable, or

(2) a failure of the party to the *Contract* from whom indemnification is sought to fulfill its terms or conditions; and

.2 made by *Notice in Writing* within a period of 6 years from the *Ready-for-Takeover* date or within such shorter period as may be prescribed by any limitation statute of the Province or Territory of the *Place of the Work*.

The parties expressly waive the right to indemnity for claims other than those provided for in this *Contract*.

13.1.2 The obligation of either party to indemnify as set forth in paragraph 13.1.1 shall be limited as follows:

.1 In respect to losses suffered by the *Owner* and the *Contractor* for which insurance is to be provided by either party pursuant to GC 11.1 – INSURANCE, the minimum liability insurance limit for one occurrence, of the applicable insurance policy, as referred to in CCDC 41 in effect at the time of bid closing.

.2 In respect to losses suffered by the *Owner* and the *Contractor* for which insurance is not required to be provided by either party in accordance with GC 11.1 – INSURANCE, the greater of the *Contract Price* as recorded in Article A-4 – CONTRACT PRICE or $2,000,000, but in no event shall the sum be greater than $20,000,000.

.3 In respect to indemnification by a party against the other with respect to losses suffered by them, such obligation shall be restricted to direct loss and damage, and neither party shall have any liability to the other for indirect, consequential, punitive or exemplary damages.

.4 In respect to indemnification respecting claims by third parties, the obligation to indemnify is without limit.

13.1.3 The obligation of either party to indemnify the other as set forth in paragraphs 13.1.1 and 13.1.2 shall be inclusive of interest and all legal costs.

13.1.4 The *Owner* and the *Contractor* shall indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of their obligations described in GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.

13.1.5 The *Owner* shall indemnify and hold harmless the *Contractor* from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings:

.1 as described in paragraph 10.3.2 of GC 10.3 – PATENT FEES, and

.2 arising out of the *Contractor*'s performance of the *Contract* which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the *Place of the Work*.

13.1.6 In respect to any claim for indemnity or to be held harmless by the *Owner* or the *Contractor*:

.1 *Notice in Writing* of such claim shall be given within a reasonable time after the facts upon which such claim is based become known; and

.2 should any party be required as a result of its obligation to indemnify another to pay or satisfy a final order, judgment or award made against the party entitled by this contract to be indemnified, then the indemnifying party upon assuming all liability for any costs that might result shall have the right to appeal in the name of the party against whom such final order or judgment has been made until such rights of appeal have been exhausted.

GC 13.2 WAIVER OF CLAIMS

13.2.1 Subject to any lien legislation applicable to the *Place of the Work*, the *Contractor* waives and releases the *Owner* from all claims which the *Contractor* has or reasonably ought to have knowledge of that could be advanced by the *Contractor* against the *Owner* under the *Contract*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the *Ready-for-Takeover* date, except as follows:

.1 claims arising prior to or on the *Ready-for-Takeover* date for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* no later than 5 calendar days before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work* or 20 calendar days following the *Ready-for-Takeover* date, whichever is later;

.2 indemnification for claims advanced against the *Contractor* by third parties for which a right of indemnification may be asserted by the *Contractor* against the *Owner* pursuant to the provisions of this *Contract*;

.3 claims respecting toxic and hazardous substances, patent fees and defect in title matters for which a right of indemnity could be asserted by the *Contractor* pursuant to the provisions of paragraphs 13.1.4 or 13.1.5 of GC 13.1 – INDEMNIFICATION; and

.4 claims resulting from acts or omissions which occur after the *Ready-for-Takeover* date.

13.2.2 The *Contractor* waives and releases the *Owner* from all claims resulting from acts or omissions which occurred after the *Ready-for-Takeover* date except for:

.1 indemnification respecting third party claims, and claims respecting toxic and hazardous substances, patent fees and defect in title matters, all as referred in paragraphs 13.2.1.2 and 13.2.1.3; and

.2 claims for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* within 395 calendar days following the *Ready-for-Takeover* date.

13.2.3 Subject to any lien legislation applicable to the *Place of the Work*, the *Owner* waives and releases the *Contractor* from all claims which the *Owner* has or reasonably ought to have knowledge of that could be advanced by the *Owner* against the *Contractor* under the *Contract*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the *Ready-for-Takeover* date, except as follows:

.1 claims arising prior to or on the *Ready-for-Takeover* date for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* no later than 20 calendar days following the *Ready-for-Takeover* date;

.2 indemnification for claims advanced against the *Owner* by third parties for which a right of indemnification may be asserted by the *Owner* against the *Contractor* pursuant to the provisions of this *Contract*;

.3 claims respecting toxic and hazardous substances for which a right of indemnity could be asserted by the *Owner* against the *Contractor* pursuant to the provisions of paragraph 13.1.4 of GC 13.1 – INDEMNIFICATION;

.4 damages arising from the *Contractor*'s actions which result in substantial defects or deficiencies in the *Work*. "Substantial defects or deficiencies" mean those defects or deficiencies in the *Work* which affect the *Work* to such an extent or in such a manner that a significant part or the whole of the *Work* is unfit for the purpose intended by the *Contract Documents*;

.5 claims arising pursuant to GC 12.3 – WARRANTY; and

.6 claims arising from acts or omissions which occur after the *Ready-for-Takeover* date.

13.2.4 Respecting claims arising upon substantial defects and deficiencies in the *Work*, as referenced in paragraph 13.2.3.4, and notwithstanding paragraph 13.2.3.5, the *Owner* waives and releases the *Contractor* from all claims except claims for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* within a period of six years from the *Ready-for-Takeover* date, provided that any limitation statute of the Province or Territory of the *Place of the Work* permit such agreement. If the applicable limitation statute does not permit such agreement, the time within which any such claim may be brought shall be such shorter period as may be prescribed by any limitation statute of the Province or Territory of the *Place of the Work*.

13.2.5 The *Owner* waives and releases the *Contractor* from all claims arising from acts or omissions which occur after the *Ready-for-Takeover* date, except for:

.1 indemnification for claims advanced against the *Owner* by third parties, as referenced in paragraph 13.2.3.2;

.2 claims respecting toxic and hazardous substances for which a right of indemnity could be asserted by the *Owner* against the *Contractor*, as referenced in paragraph 13.2.3.3;

.3 claims arising under GC 12.3 – WARRANTY; and

.4 claims for which *Notice is Writing* has been received by the *Contractor* from the *Owner* within 395 calendar days following the *Ready-for-Takeover* date.

13.2.6 "*Notice in Writing* of claim" as provided for in GC 13.2 – WAIVER OF CLAIMS to preserve a claim or right of action which would otherwise, by the provisions of GC 13.2 – WAIVER OF CLAIMS, be deemed to be waived, must include the following:

.1 a clear and unequivocal statement of an intention to claim;

.2 a statement as to the nature of the claim and the grounds upon which the claim is based; and

.3 a statement of the estimated quantum of the claim.

13.2.7 A claim for lien asserted under the lien legislation prevailing at the *Place of the Work* shall qualify as notice of claim for the purposes of this *Contract*.

13.2.8 The party giving the *Notice in Writing* of claim as provided for in GC 13.2 – WAIVER OF CLAIMS shall submit within a reasonable time a detailed account of the amount claimed.

13.2.9 Where the event or series of events giving rise to a claim made under paragraphs 13.2.1 or 13.2.3 has a continuing effect, the detailed account submitted under paragraph 13.2.8 shall be considered to be an interim account and the party making the claim shall submit further interim accounts, at reasonable intervals, giving the accumulated amount of the claim and any further grounds upon which such claim is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.

13.2.10 Nothing in GC 13.2 – WAIVER OF CLAIMS shall be deemed to affect the rights of the parties under any lien legislation or limitations legislation prevailing at the *Place of the Work*.

APPENDIX Q - DRAWINGS

APRIL 2026

FOOTHILLS BOULEVARD REGIONAL LANDFILL
2026 CELL 1A EARTHWORKS - ISSUED FOR TENDER

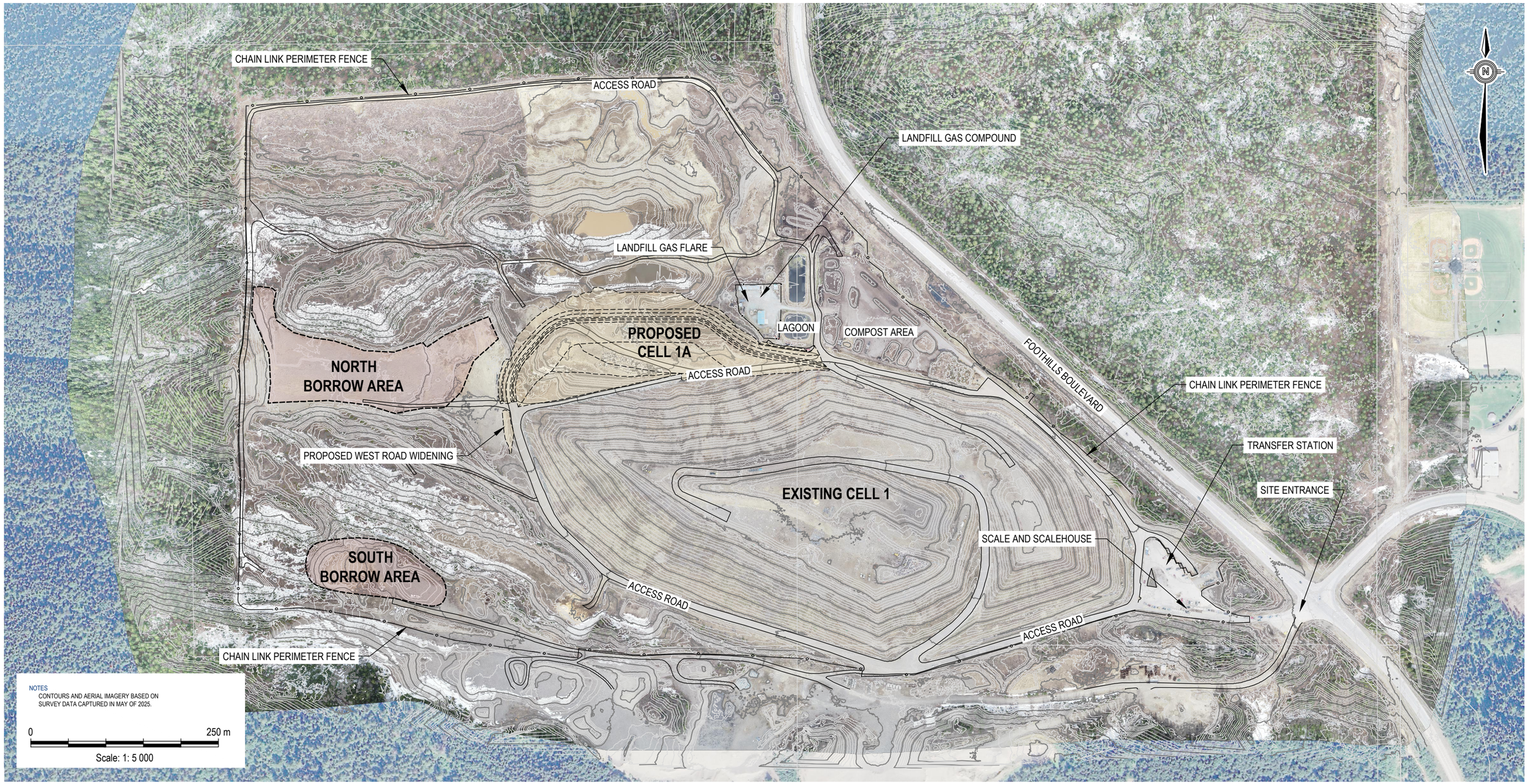
SHEET LIST INDEX

SHEET NUMBER	SHEET TITLE
C101	EXISTING SITE PLAN
C102	SITE PLAN - EXISTING CELL 1A AREA
C103	SITE PLAN - CELL 1A EARTHWORKS
C201	PROFILE - CELL 1A PERIMETER ROAD CENTRELINE
C202	CROSS-SECTION A AND B
C203	CROSS-SECTION C AND D
C301	DETAILS
C302	LFG HEADER DISCONNECTION - DETAILS 1
C303	LFG HEADER DISCONNECTION - DETAILS 2

Prince George, British Columbia

REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH



NUM	DATE	APR	DESCRIPTION
			REVISIONS
B	APR 2/26	ML	ISSUED FOR TENDER
A	JAN 22/26	ML	ISSUED FOR REVIEW
NUM	DATE	APR	DESCRIPTION
			DRAWING STATUS

PERMIT TO PRACTICE
TETRA TECH CANADA INC.

PERMIT NUMBER: 1001972

PERMIT

2026-04-01

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M.E. LEFEBVRE
#26071

FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN FOOTHILLS BOULEVARD REGIONAL LANDFILL

EXISTING SITE PLAN

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
SWM.SWOP04864-01	EDM	ML/DRG	SS	-	C101
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	

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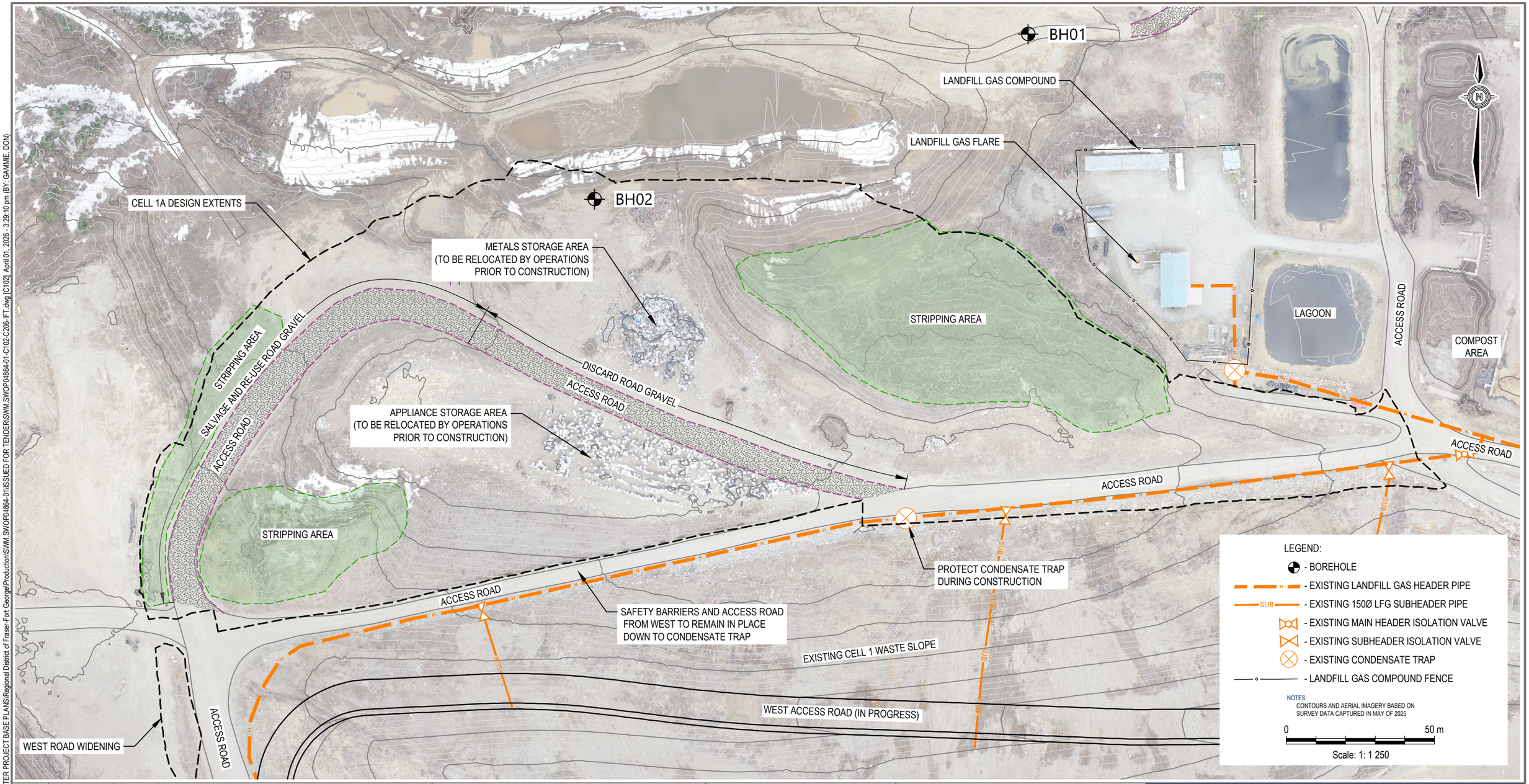

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REVISIONS			
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PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT
of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

SITE PLAN
EXISTING CELL 1A AREA

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
SWM.SWOP04864-01	EDM	ML/DRG	SS	-	C102
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	

RIP-RAP SPILLWAY
TOP WIDTH: 5m
BOTTOM WIDTH: 13m

2/301 3-600 Ø CSP CULVERTS

A 202 | B 202 | C 203 | D 203

ACCESS ROAD

BH01

BH02

BERM, SURFACE WATER DITCH AND ACCESS ROAD 1/301

763.078 769.448 777.562 780.639 774.240 777.573 778.290 779.236 780.000 778.462 780.708 778.844 768.338 769.578 771.030 781.461 781.105 781.437 782.000 769.335 769.128 769.110 769.377 769.803 772.800 782.605 772.400 770.000 783.996 779.000 783.486 784.600 784.844 784.280

0+000 0+020 0+040 0+060 0+080 0+100 0+120 0+140 0+160 0+180 0+200 0+220 0+240 0+260 0+280 0+300 0+320 0+340 0+360 0+380 0+400 0+420 0+440 0+460 0+480 0+500 0+515

2:1 3:1 10m 3m

-1.82% -1.86% -2.56% -3.97% -5.94% -1.05% -2.00% -1.00% -2.91%

TOP OF BERM

LAGOON

COMPOST AREA

ACCESS ROAD

ACCESS ROAD

SUB

5 & 6/302 HEADER WYE INSTALLATION-EAST

PROTECT CONDENSATE TRAP DURING CONSTRUCTION

EXISTING CELL 1 WASTE SLOPE

HEADER WYE INSTALLATION-WEST

3 & 4/302 7/303

WEST ACCESS ROAD (IN PROGRESS)

WEST ROAD WIDENING

ACCESS ROAD

LEGEND:

- BOREHOLE
- EXISTING LANDFILL GAS HEADER PIPE
- EXISTING 150Ø LFG SUBHEADER PIPE
- LANDFILL GAS COMPOUND FENCE
- EXISTING MAIN HEADER ISOLATION VALVE
- EXISTING SUBHEADER ISOLATION VALVE
- EXISTING CONDENSATE TRAP

NOTES
CONTOURS AND AERIAL IMAGERY BASED ON SURVEY DATA CAPTURED IN MAY OF 2025

0 50 m
Scale: 1: 1 250

NUM	DATE	APR	DESCRIPTION
REVISIONS			
B	APR 2/26	ML	ISSUED FOR TENDER
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DRAWING STATUS			

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PERMIT NUMBER: 1001972

PERMIT

2026-04-01
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M.E. LEFEBVRE
#26071
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FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT of Fraser-Fort George

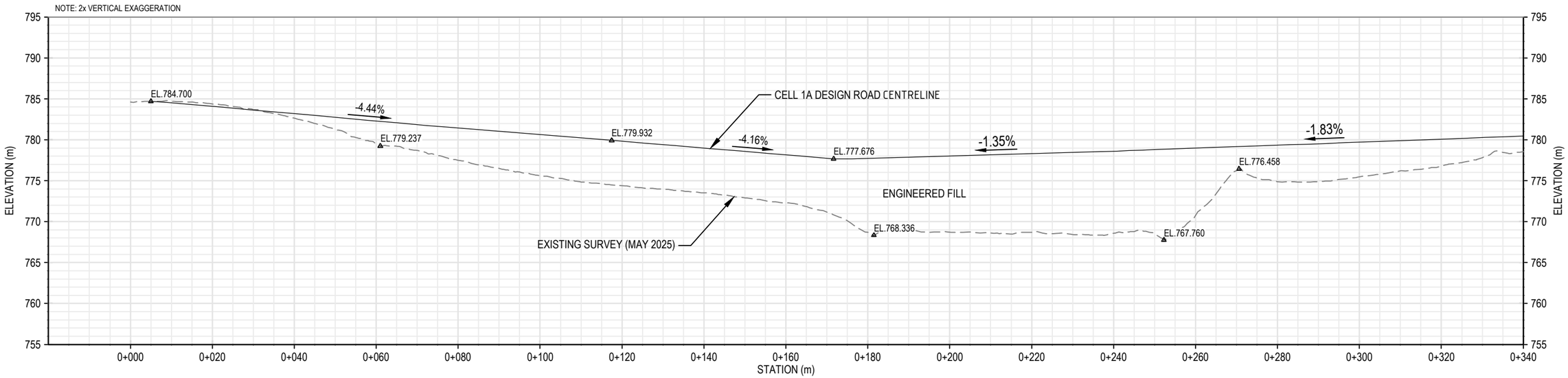
TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

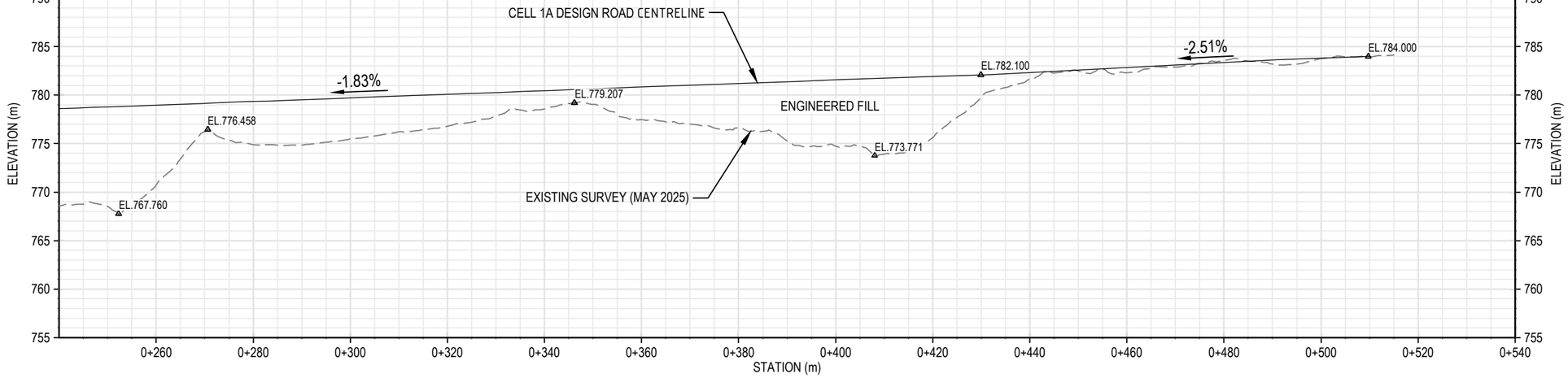
SITE PLAN
CELL 1A EARTHWORKS

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
SWM.SWOP04864-01	EDM	ML/DRG	SS	-	C103
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	

\\tts337nf1\CAV\Volume1\Legacy\tts337\c3\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\Regional District of Fraser-Fort George\Production\SWM.SWOP04864-01\ISSUED FOR TENDER\SWM.SWOP04864-01-C102-C206-IFT.dwg [C103] April 01, 2026 - 3:29:45 pm (BY: GAMMIE, DON)



CELL 1A PERIMETER ROAD CENTRELINE



CELL 1A PERIMETER ROAD CENTRELINE

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PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

PROFILE
CELL 1A PERIMETER ROAD CENTRELINE

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
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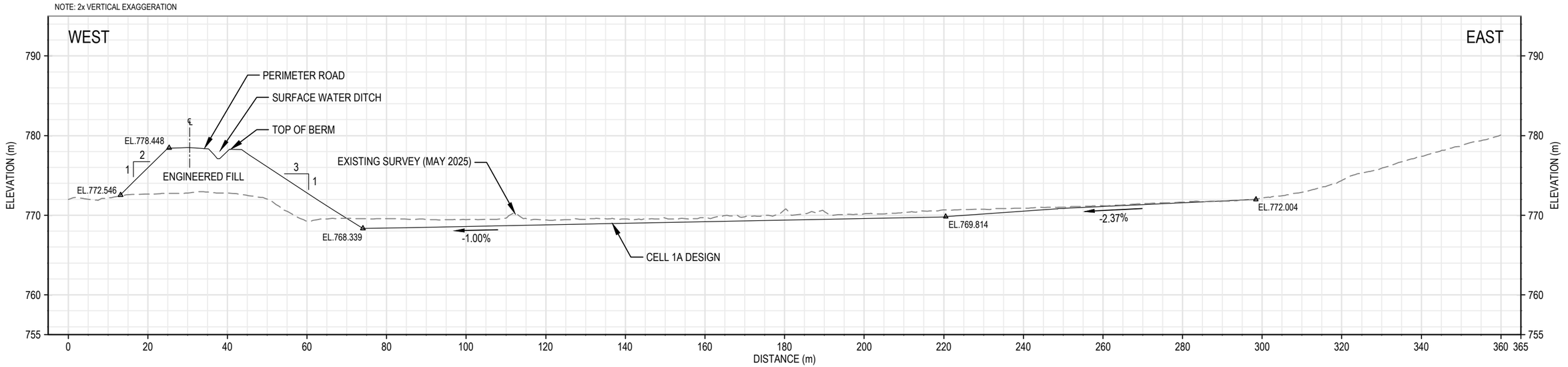
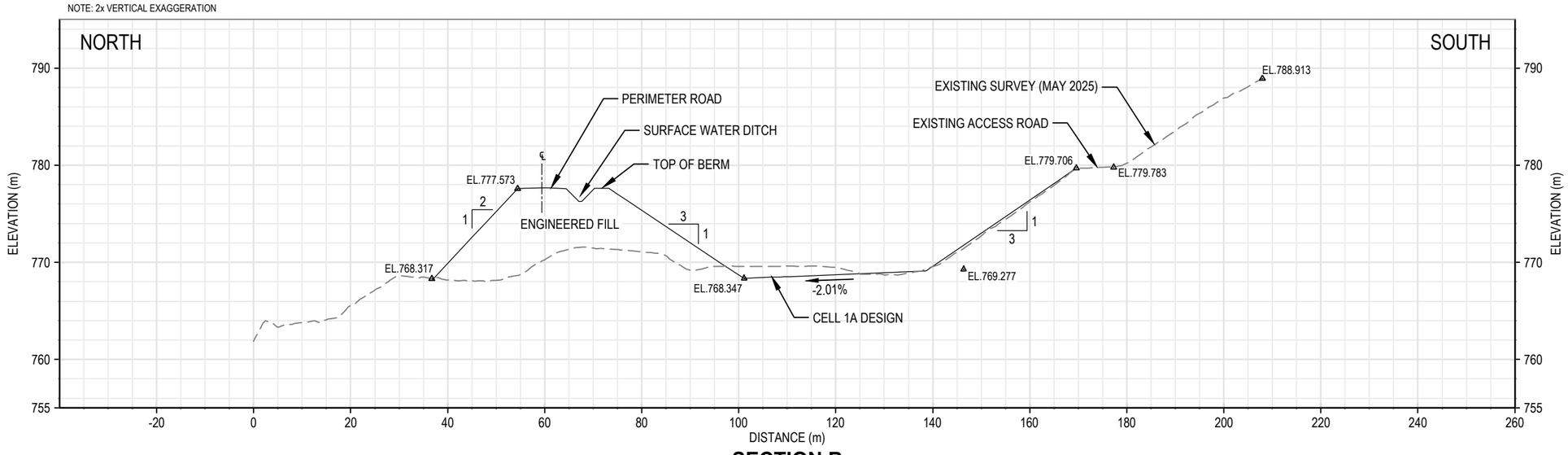
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	



SECTION A



SECTION B

NUM	DATE	APR	DESCRIPTION
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A	JAN 22/26	ML	ISSUED FOR REVIEW
NUM	DATE	APR	DESCRIPTION
			DRAWING STATUS

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PERMIT NUMBER: 1001972

PERMIT

2026-04-01

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M.E. LEFEBVRE
#26071

FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

CROSS-SECTION A AND B

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
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DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	

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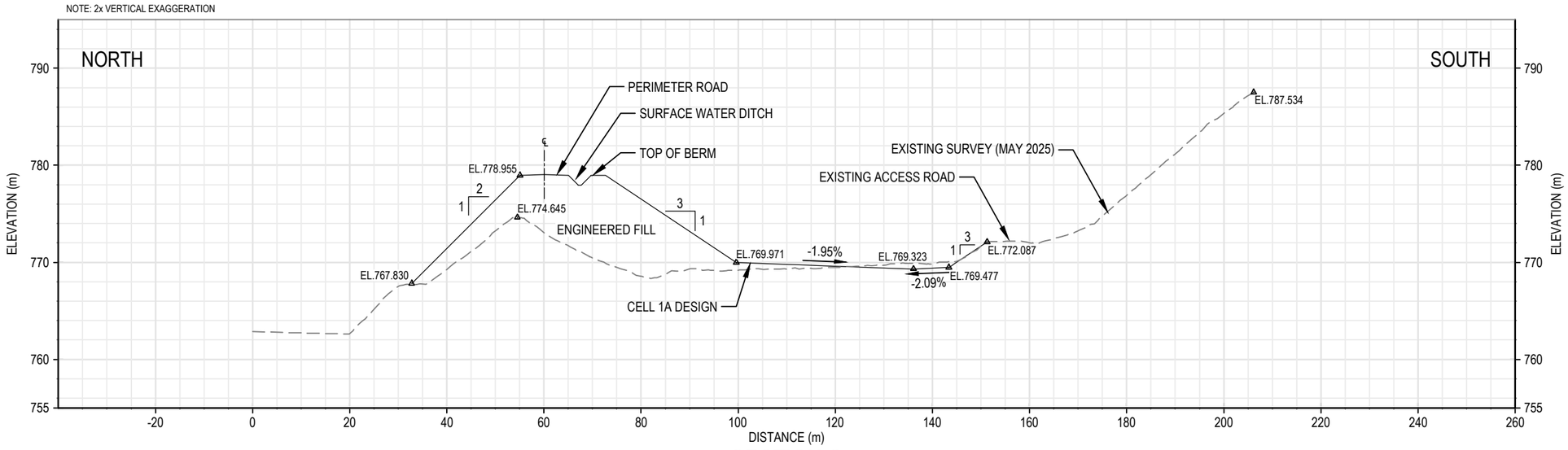

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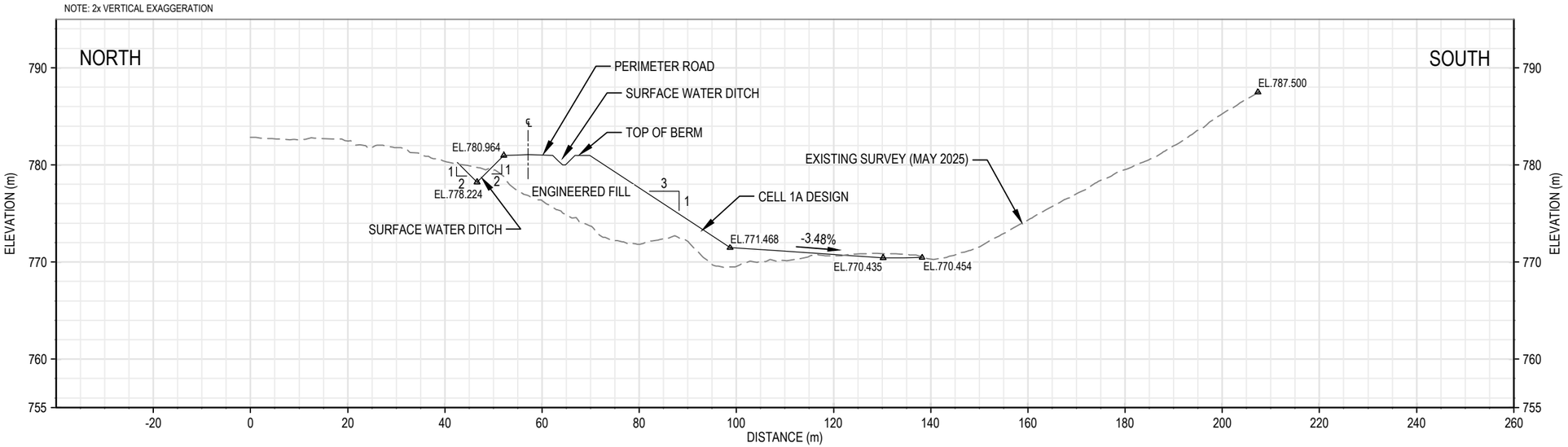

SECTION D

NUM	DATE	APR	DESCRIPTION
			REVISIONS
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A	JAN 22/26	ML	ISSUED FOR REVIEW
NUM	DATE	APR	DESCRIPTION
			DRAWING STATUS

PERMIT TO PRACTICE
TETRA TECH CANADA INC.

PERMIT NUMBER: 1001972

PERMIT

2026-04-01

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M.E. LEFEBVRE
#26071

FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01
FILE NO: SWM.SWOP04864-01

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

CROSS-SECTION C AND D

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
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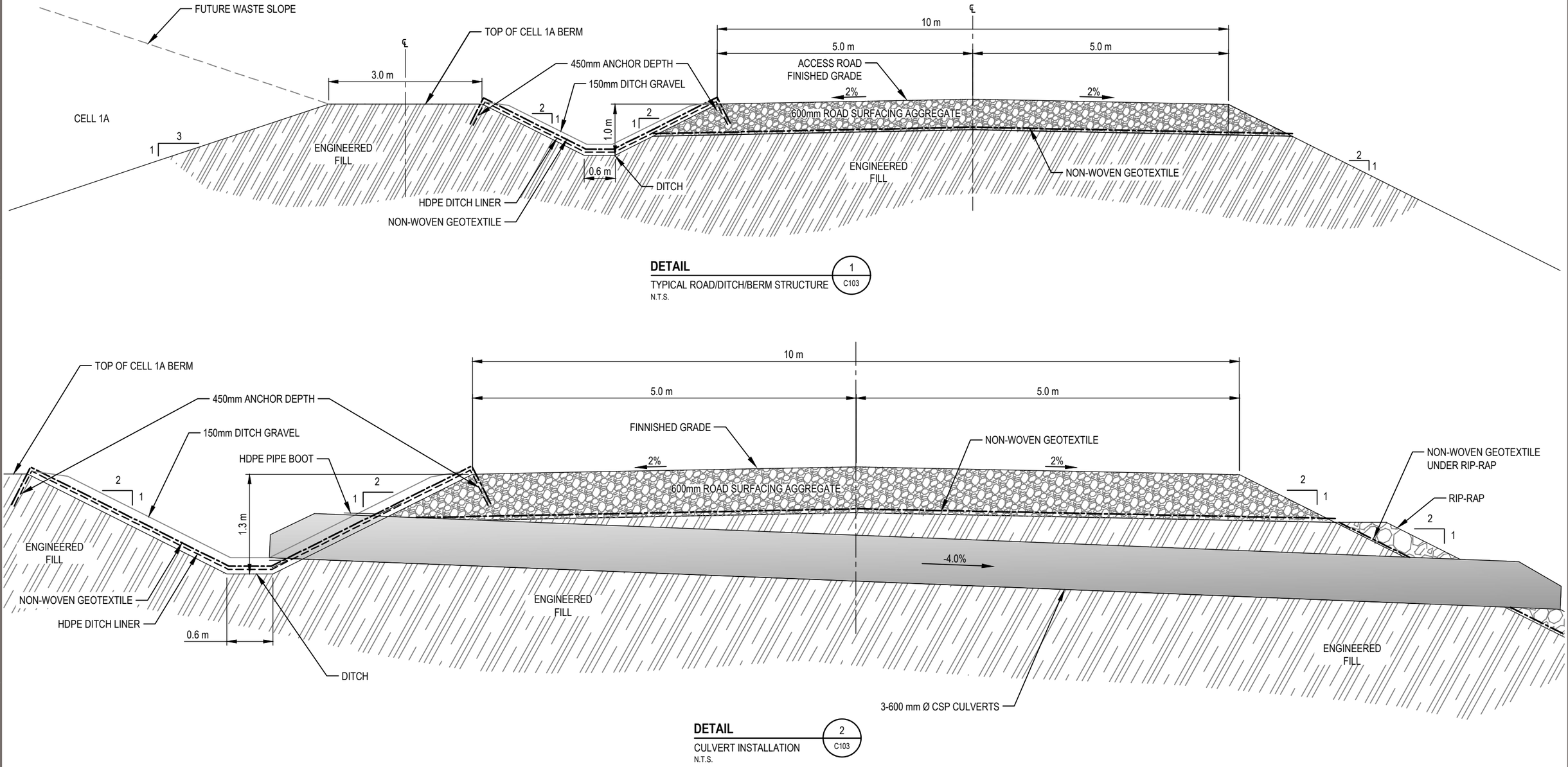

DETAIL 1 / C103
TYPICAL ROAD/DITCH/BERM STRUCTURE
N.T.S.

DETAIL 2 / C103
CULVERT INSTALLATION
N.T.S.

NUM	DATE	APR	DESCRIPTION
			REVISIONS
B	APR 2/26	ML	ISSUED FOR TENDER
A	JAN 22/26	ML	ISSUED FOR REVIEW
NUM	DATE	APR	DESCRIPTION
			DRAWING STATUS

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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA M.E. LEFEBVRE #26071
FILE NO: SWM.SWOP04864-01
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PROFESSIONAL SEAL

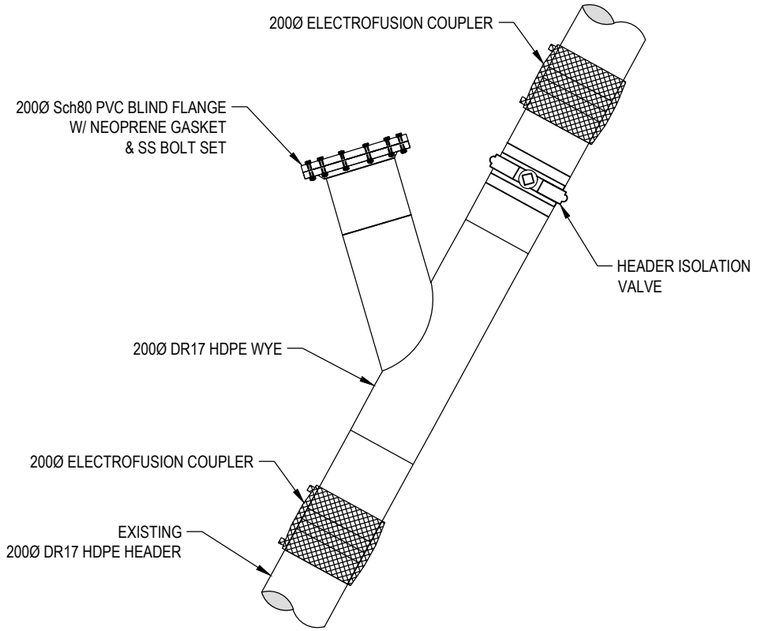
CLIENT
REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

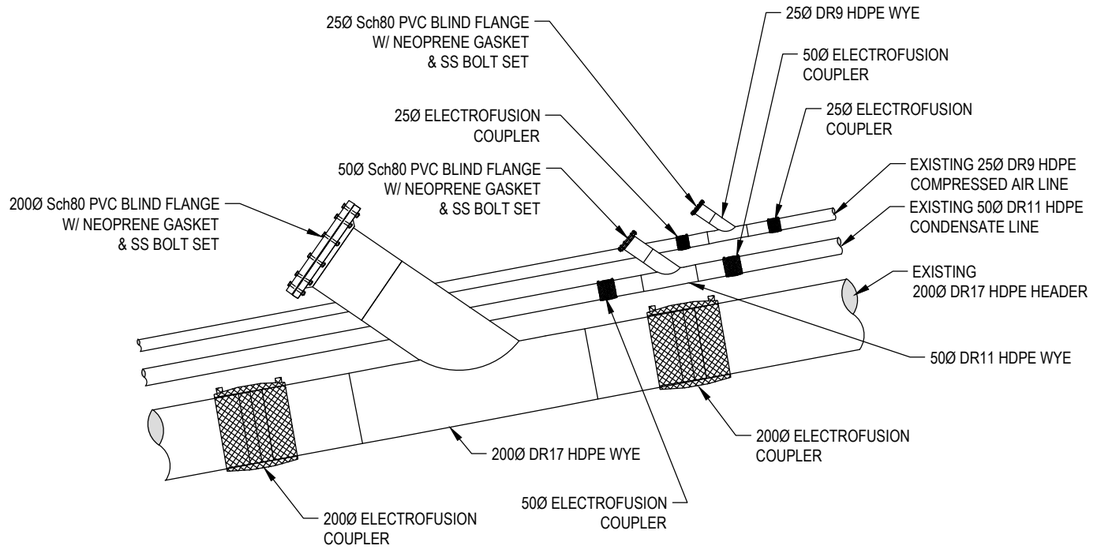
RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

DETAILS

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
SWM.SWOP04864-01	EDM	ML/DRG	SS	-	**C301**
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	



DETAIL 3 / C103
HEADER WYE INSTALLATION - WEST
N.T.S.



DETAIL 5 / C103
HEADER WYE INSTALLATION - EAST
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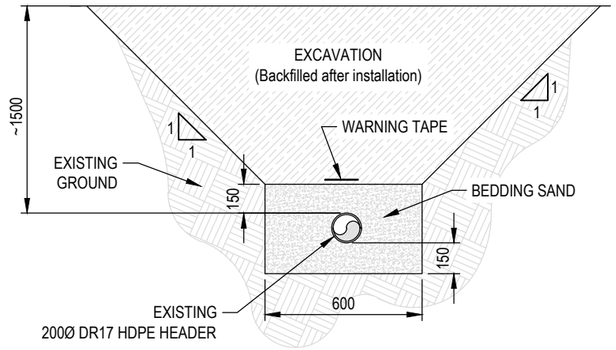

DETAIL 4 / C103
HEADER WYE INSTALLATION - WEST EXCAVATION
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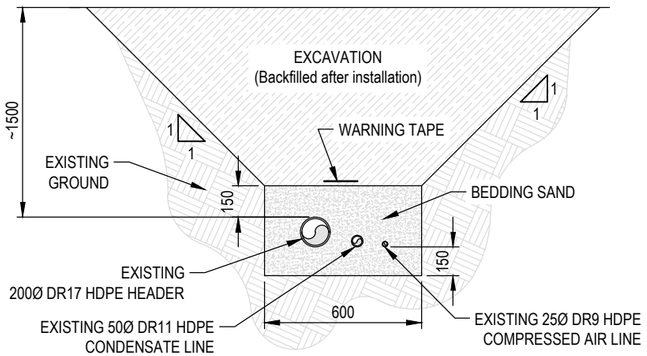

DETAIL 6 / C103
HEADER WYE INSTALLATION - EAST EXCAVATION
N.T.S.

NOTES
ALL UNITS IN MILLIMETERS UNLESS OTHERWISE INDICATED.

NUM	DATE	APR	DESCRIPTION
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			DRAWING STATUS

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TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

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2026-04-01
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M.E. LEFEBVRE
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PROFESSIONAL SEAL

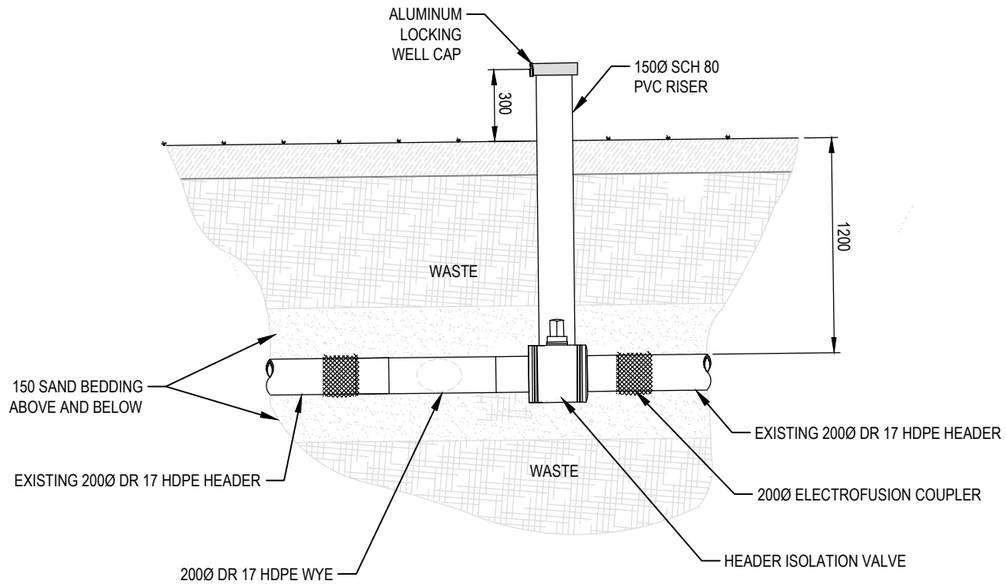
CLIENT
REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

LFG HEADER DISCONNECTION - DETAILS 1

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
SWM.SWOP04864-01	EDM	ML/DRG	SS	-	C302
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	



DETAIL 7
HEADER ISOLATION VALVE C103
N.T.S.

NOTES
ALL UNITS IN MILLIMETERS UNLESS OTHERWISE INDICATED.

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B	APR 2/26	ML	ISSUED FOR TENDER
A	JAN 22/26	ML	ISSUED FOR REVIEW
NUM	DATE	APR	DESCRIPTION

REVISIONS

DRAWING STATUS

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TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

PERMIT

2026-04-01
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA M.E. LEFEBVRE #26071
FILE NO: SWM.SWOP04864-01
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FILE NO: SWM.SWOP04864-01

PROFESSIONAL SEAL

CLIENT

REGIONAL DISTRICT of Fraser-Fort George

TETRA TECH

RDFFG CELL 1A EARTHWORKS DESIGN
FOOTHILLS BOULEVARD REGIONAL LANDFILL

LFG HEADER DISCONNECTION - DETAILS 2

PROJECT No.	OFFICE	DES	CKD	REV	DRAWING
SWM.SWOP04864-01	EDM	ML/DRG	SS	-	C303
DATE: April 2, 2026	SHEET No. - of -	DWN DRG	APP ML	STATUS B	

APPENDIX R - SUPPLEMENTAL GENERAL CONDITIONS

SGC 1 General

These Supplemental General Conditions modify, delete or add to the General Conditions of the Contract. In the event of a conflict between the General Conditions and the Supplementary General Conditions, the Supplementary General Conditions take precedence. Clauses of the General Conditions that have not been specifically modified shall remain in effect.

SGC 2 Definitions

2.1 Owner - means the Regional District of Fraser-Fort George.

2.2 Engineer or Consultant - means Tetra Tech Canada Inc.

2.3 Contractor(s) - means the person or entity identified as such in the Agreement. The term Contractor means the Contractor or the Contractor's authorized representative as designated to the Owner in writing.

2.4 Site - means the Foothills Boulevard Regional Landfill.

2.5 Work(s) - means the work(s) related to the earthworks for the expansion of cell one at the Foothills Boulevard Regional Landfill.

SGC 3 Documents

3.1 In addition to the signed copy of the Contract, the Owner shall furnish to the Contractor, without charge, four copies of the drawings and specifications.

3.2 The specifications are arranged in Divisions and Sections for convenience and clarity only. The Contractor is responsible for all work required to complete the Contract. Such divisions and sections do not obligate the Owner or Consultant to establish limits of any Contract between the Contractor and any Subcontractor.

3.3 The intention and meaning of specifications and drawings are to be taken as a whole. The work shown on the drawings, if not fully described in specifications, or vice versa, which is reasonably implied and is evidently necessary for the complete finish of each branch of the work, is to be done by the Contractor as though both shown and specified.

SGC 4 Time is of the Essence

4.1 Time is of the essence in the performance of this Contract. In the event of schedule delay greater than one week, as determined by the Engineer, the Owner shall have the right to require the Contractor:

(a) To increase the personnel or have existing personnel work overtime for work done by their own forces or for work done by their Subcontractor to complete the work on schedule, at the Contractor's expense;

(b) To arrange for the work of their suppliers to be accelerated through an increase in personnel or through overtime work, or both, or pay additional premiums as necessary to have manufactured components arrive and be installed at the site on schedule, at the Contractor's expense;

(c) To remove the Subcontractor that is the cause of the delay and replace with another Subcontractor acceptable to the Owner;

(d) To provide additional supervision as necessary.

4.2 The Contractor shall comply with such direction and shall bear any additional costs associated by compliance.

4.3 The provision of such direction to take corrective action shall not diminish the Owner's rights and remedies under other provisions of the Contract.

SGC 5 Work Schedule

At the time of Tender, the Contractor shall indicate that it can complete the work on or before the completion date indicated. Following the Contract Award, a detailed schedule as per Section 01 32 16.07 of the specifications shall be provided to the Consultant.

SGC 6 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, Subcontractors and suppliers used in connection with the work have been fully paid and satisfied and 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.

SGC 7 Performance Security

7.1 The successful bidder shall deposit, with the Regional District, when signing the Contract, the following:

(a) Performance Bond

A Performance Bond in the amount of fifty percent (50%) of the tendered price; and a

(b) Labour and Materials Payment Bond

A Labour and Materials Payment Bond in the amount of fifty percent (50%) of the tendered price.

7.2 In the event of any breach, default, or non-performance by the successful bidder causing loss to the Regional District, then the Regional District may enforce the Labour and Materials Payment Bond, and/or Performance Bond as liquidated damages.

7.3 All bonds must be issued by a Surety Company authorized to do business in the Province of British Columbia.

SGC 8 Changes to the Contract Work

10.1 Changes to the Work

The Regional District, through the Consultant, may make changes to the Work by altering, adding to, or deducting from the Work, without invalidating the Contract. The Contractor shall proceed with such changed Work when directed, and all such Work shall be executed in accordance with the Contract.

10.2 Owner Controlled Contingency

The Regional District will maintain an Owner Controlled Contingency Reserve of 10% of Contract Price for the purpose of managing reasonable adjustments to the Work arising during the performance of the Contract. This reserve is not part of the Contract Price, is not a contingency allowance under CCDC4-2023 GC 4.2 and is not payable to the Contractor except as authorized through a Change Order or Change Directive in accordance with CCDC4-2023 Part 6 – Changes in the Work.

Requests by the Contractor for changes to the Work shall be submitted in accordance with the Contract and shall comply with the Regional District of Fraser Fort George Delegation Bylaw No. 3276, as amended by Bylaw No. 3339.

The Regional District will consider such requests having regard to the available Contingency Reserve and the overall project budget.

The Contractor acknowledges that the Regional District intends, but is not obligated, to manage adjustments to the Work within its approved project budget and may approve, defer, or decline changes accordingly.

10.3 Change Orders

No change to the Work shall be undertaken by the Contractor unless authorized by a Change Order prepared by the Consultant and signed by both the Regional District and the Contractor, or by a Change Directive issued by the Regional District through the Consultant.

The Regional District will evaluate proposed changes to the Work and may, acting reasonably, authorize changes where appropriate.

10.4 Weather Related Work Adjustments

The Contractor shall comply with any safety-based direction to temporarily stop or modify Work operations where adverse weather conditions create a risk to the integrity of the Work or to safety. Such direction shall be determined jointly by the Regional District's Project Manager and the Contractor's Superintendent.

SGC 10 Notice of Protest

TO: General Manager of Environmental Services
Regional District of Fraser-Fort George
FROM: (Contractor)
DATE:

SUBJECT: THE CONTRACT

Date of Direction:

You have required me to perform the following work that is beyond the scope of the Contract.
(Set out details of work).
(Include dates where applicable)

The additional costs and claim for this work is as follows:
(Set out details of cost)

All supporting documentation and invoices are attached.

I understand that I am required to keep accurate and detailed cost records, which will indicate the cost of the work done under protest, and failure to keep such records will be a bar to any recovery by me.

Signature of Contractor

APPENDIX S – CCDC41 INSURANCE REQUIREMENTS

300-250 Albert St
Ottawa, ON K1P 6M1

Tel: 613-236-9455
info@ccdc.org

CCDC
Canadian Construction Documents Committee

CCDC 41
CCDC INSURANCE REQUIREMENTS

PUBLICATION DATE: December 14, 2020

1. General liability insurance shall be with limits of not less than $10,000,000 per occurrence, an aggregate limit of not less than $10,000,000 within any policy year with respect to completed operations, and a deductible not exceeding $10,000. The insurance coverage shall not be less than the insurance provided by IBC Form 2100 (including an extension for a standard provincial and territorial form of non-owned automobile liability policy) and IBC Form 2320. To achieve the desired limit, umbrella or excess liability insurance may be used. Subject to satisfactory proof of financial capability by the *Contractor*, the *Owner* may agree to increase the deductible amounts.

2. Automobile liability insurance in respect of vehicles that are required by law to be insured under a contract by a Motor Vehicle Liability Policy, shall have limits of not less than $10,000,000 inclusive per occurrence for bodily injury, death and damage to property, covering all vehicles owned or leased by the *Contractor*. Where the policy has been issued pursuant to a government-operated automobile insurance system, the *Contractor* shall provide the *Owner* with confirmation of automobile insurance coverage for all automobiles registered in the name of the *Contractor*.

3. Manned Aircraft and watercraft liability insurance with respect to owned or non-owned aircraft and watercraft (if used directly or indirectly in the performance of the *Work*), including use of additional premises, shall have limits of not less than $10,000,000 inclusive per occurrence for bodily injury, death and damage to property including loss of use thereof and limits of not less than $10,000,000 for aircraft passenger hazard. Such insurance shall be in a form acceptable to the *Owner*.

4. Unmanned aerial vehicle liability insurance with respect to owned or non-owned aircraft (if used directly or indirectly in the performance of the Work), shall have limits of not less than $5,000,000 per occurrence or accident for bodily injury, death and damage to property or such amounts as required by any applicable law or regulation.

5. "Broad form" property insurance shall have limits of not less than the sum of 1.1 times *Contract Price* and the full value, as stated in the *Contract*, of *Products* and design services that are specified to be provided by the *Owner* for incorporation into the *Work*, with a deductible not exceeding $10,000. The insurance coverage shall not be less than the insurance provided by IBC Forms 4042 and 4047 or their equivalent replacement. Subject to satisfactory proof of financial capability by the *Contractor*, the *Owner* may agree to increase the deductible amounts.

6. Boiler and machinery insurance shall have limits of not less than the replacement value of the permanent or temporary boilers and pressure vessels, and other insurable objects forming part of the *Work*. The insurance coverage shall not be less than the insurance provided by a comprehensive boiler and machinery policy including hot testing and commissioning.

7. Contractors' equipment insurance coverage written on an "all risks" basis covering *Construction Equipment* used by the *Contractor* for the performance of the *Work*, shall be in a form acceptable to the *Owner* and shall not allow subrogation claims by the insurer against the *Owner*. Subject to satisfactory proof of financial capability by the *Contractor* for self-insurance, the *Owner* may agree to waive the equipment insurance requirement.

8. Contractors' Pollution liability insurance shall have limits of not less than $5,000,000 per occurrence for bodily injury, death and damage to property.

Association of Canadian Engineering Companies

Canadian Construction Association

Construction Specifications Canada

The Royal Architectural Institute of Canada