

**ATTENTION BIDDERS:**

**TOWN OF DRUMHELLER HAS MOVED EXCLUSIVELY TO EMAIL BID  
SUBMISSIONS, INCLUDING DIGITAL BID BONDS.**

**HARD COPY SUBMISSIONS WILL NOT BE ACCEPTED.**

**REFER TO SECTION 1, BID SUBMISSION, FOR MORE INFORMATION.**



**TENDER NO.: 2022-06-21-C**

for

**DRUMHELLER RESILIENCY AND FLOOD MITIGATION  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT**

**Volume 1 of 3**

Location: Grove Plaza, Town of Drumheller

Pre-Bid Meeting and Site Inspection  
June 28, 2022, at 10:00 am

Resiliency and Flood Mitigation Office, 702 Premier Way, Drumheller, Alberta T0J 0Y0.

**Closing Date and Time: Before 2:01:00 pm, Tuesday, July 12, 2022, local time.**

Tender Question Deadline: Before 4:30:00 pm, Wednesday, July 6, 2022, local time.

**Tender Submission**

**Email Address:**

**[purchasing@drumheller.ca](mailto:purchasing@drumheller.ca)**

**Inquiries Contact:**

**[dscharbatke@kwl.ca](mailto:dscharbatke@kwl.ca)**

**(include Tender Number in subject line)**



**TENDER NO.: 2022-06-21-C  
TOWN OF DRUMHELLER  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE  
PROJECT**

**Prime Consultant:**

Kerr Wood Leidal Associates Ltd.  
1212 1 Street SE  
Calgary, AB T2G 2H8

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## PREAMBLE

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The format of these Specifications is based on "MasterFormat" published jointly by Construction Specifications Canada and The Construction Specifications Institute. This Table of Contents generally reflects the "MasterFormat" division and section arrangement.

Where it is indicated that a division of "MasterFormat" is "Not Used", or where a division heading is omitted entirely, this means only that the division has not been included in the Specification. It does not necessarily mean that the work normally specified in that division is not required.

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## SEPARATE VOLUMES

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The Specifications and Contract Information Documents for this contract are bound in separate volumes as follows:

Volume 1 of 3: Specifications, Divisions 00 to 02  
Volume 2 of 3: Contract Information Documents  
Volume 3 of 3: Drawings

The Drawings in the Contract Documents as per Section 00015 – List of Drawings are bound separately.

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## 1. BID SUBMISSION

- .1 Bidders must submit tenders by email to the Town of Drumheller (in the Instructions to Bidders referred to as the “Owner”) at the email address identified on the cover page of the tender (“Tender Submission Email Address”) only.
- .2 The subject line of the email must follow the following format: “2022-06-21-C DRFM – Dike C – North Drumheller Grove Plaza Dike Project Bid Submission – [Contractor Name]”
- .3 Tenders must be received before the bid closing date and time identified on the cover page of the tender (“Closing Date and Time”).
- .4 The official time of receipt shall be determined by the time and date stamp of the Submission Email Address system.
- .5 The Bidder is solely responsible for ensuring that its tender submission is received in its entirety before the tender Closing Date and Time at the Tender Submission Email Address. The Department assumes no responsibility for server availability, incompatibility of programs or files or any other technical problem, issue or delay that prevents the tender submission from being received by, or opened after, the tender Closing Date and Time.
- .6 The Bidder acknowledges, agrees and assumes all risks, responsibility, and liability associated with using electronic communications and submitting bids electronically, including, without limitation:
  - a) any lack of security;
  - b) any unreliability of delivery;
  - c) the possible loss of confidentiality;
  - d) the receipt of a garbled, corrupted or incomplete bid;
  - e) the incompatibility between the sending and receiving equipment;
  - f) any delay in transmission or receipt of the bid; or
  - g) the potential illegibility of the bid.
- .7 Bidders can acquire copies of the tender documents as set out in Instructions to Bidders clause 15, Availability of Bid Documents.

## 2. FORMAT OF TENDER SUBMISSION

- .1 A tender submitted by the Bidder shall comply with the following requirements:
  - .1 The tender shall include all pages entitled "Tender Forms" and any attachments thereto in **one** single e-mail with a maximum email size of 25MB.
  - .2 If submissions are larger than 25MB, an email submission with a link to a cloud-based file sharing account is acceptable. It is the responsibility of the contractor to ensure the client can access all files at the time of the deadline, as posted on the cover page. The client will then download all files and documents immediately after the deadline.
  - .3 The email shall include the Tender Number and Bidder Name in the subject title of the email submission.
  - .4 The tender shall be signed and sent in an unprotected Portable Document Format (PDF).
  - .5 The tender shall be accompanied by a bid bond in a digital format as outlined in Section 00210, Bid Security.
  - .6 All files included in the tender submission shall be in file formats that can be opened by Adobe Acrobat Reader, unless otherwise instructed in the tender documents. The Owner will NOT be accepting compressed files (i.e. .zip, .7z).
  - .7 All Tender Forms submitted shall be as issued by the Town of Drumheller without any additions, alterations or changes, other than the addition of information requested. Any required information that is missing, omitted or illegible, any alterations to the text, or any conditions added on or submitted with the Tender Forms, may cause the tender to be declared invalid and rejected.

## 3. DEPARTMENT NAME CHANGE

- .1 Alberta Transportation Civil Master Works Specification format has been adopted for use with this project. **Where applicable, Town of Drumheller is referred to as "The Owner" herein.**

#### **4. BASIS OF BID – UNIT PRICE**

- .1 Bids shall be on a unit price and fixed price basis.
- .2 The unit prices, lump sums and allowances stated in the Schedule of Prices shall form the basis of the bid price.
- .3 Make entries in the Schedule of Prices in figures only. Ensure that figures are legible.
- .4 Where, in The Owner's opinion, there is a question as to the legibility of figures entered by the Bidder, The Owner will make a determination as to legibility. The Owner may, at The Owner's sole discretion, declare as invalid and reject any bid that contains figures which, in The Owner's opinion, are illegible or open to dispute.
- .5 Extensions of unit prices and addition of extended unit prices, lump sums and allowances entered in the Schedule of Prices will be checked by The Owner. If arithmetical errors are discovered, the unit prices shall be considered as representing the Bidder's intentions and the unit price extensions and the total amount entered in the Schedule of Prices and the Bid Form will be corrected by The Owner. The Bidder shall be bound to such corrected amounts.
- .6 If no unit price is stated for an item, but an extended amount is stated, a unit price determined by dividing the extended amount by the estimated quantity shall be considered as representing the Bidder's intentions.
- .7 The total amount of the bid shall be the arithmetically correct sum of the arithmetically correct unit price extensions, lump sums and allowances in the Schedule of Prices.
- .8 Prices must not exceed two decimal places. If a submitted unit price contains prices exceeding two decimal places, The Owner will round to the nearest two decimal places with .005 being rounded upwards. Bidders will be bound to such rounded amounts.
- .9 Each unit price stated in the Schedule of Prices shall be a reasonable price for that item of work.
- .10 Unless otherwise indicated, quantities specified in the Schedule of Prices are estimated quantities and shall not be considered as actual quantities of work to be performed. Subject to Contract terms, unit prices stated in the Schedule of Prices shall be applied to actual quantities of work performed as measured in accordance with the Contract.

#### **5. SUFFICIENCY OF BID**

- .1 The submission of a bid shall constitute an incontrovertible representation by the Bidder that:
  - .1 the Bidder has complied with all bidding requirements,
  - .2 the Bidder is qualified and experienced to perform the Work in accordance with the Bid Documents,
  - .3 the bid is based upon performing the Work in accordance with the Bid Documents, without exception, and
  - .4 the price or prices stated in the bid cover all the Bidder's obligations under the Contract and all matters and things necessary for the performance of the Work in accordance with the Bid Documents

## 6. BID DOCUMENTS

- .1 The Bid Documents are the documents issued or made available to Bidders by The Owner for the purpose of preparing a bid. The Bid Documents consist of the following:
  - Instructions to Bidders
  - Bid Modification Form
  - Bid Security
  - Pre-Bid Meeting
  - Bid Form and Bid Form Supplements
  - Agreement Form
  - Definitions
  - Payment Conditions
  - Statutory Declarations
  - Contract Performance Security
  - Security for Payment of Claims
  - Insurance Conditions
  - General Conditions of Contract
  - Supplementary Conditions
  - Public Works Act Claims
  - Specifications, Divisions 00 to 02
  - Drawings
  - Addenda issued during the bid period
  - Contract Information Documents

## 7. BID FORM

- .1 Fill in all the blanks in the Bid Form and sign as follows:
  - .1 Limited Corporation: Print or type in the space provided the full name of the corporation and the name(s) and status of authorized signing officer(s). Authorized signing officer(s) shall sign.
  - .2 Joint Venture: not permitted.
  - .3 Partnership: Print or type in the space provided the firm's name and the name(s) of person(s) signing. One or more of the partners who have the ability to bind the partnership shall sign.
  - .4 Sole Proprietorship: Print or type in the space provided, the business name and the name of the sole proprietor. The sole proprietor shall sign.
- .2 Complete the Bid Form in its entirety. Any required information that is omitted or illegible, any alterations to the text, or any conditions added on or submitted with the Bid Form, may cause the bid to be declared invalid and rejected.
- .3 For all Bidders, the legal name, address, and e-mail address to which all notices or letters are to be mailed and e-mailed must be given in addition to the signature of the individual or one of the officers of the partnership, corporation or company with authority to bind the Bidder.

## 8. BID FORM SUPPLEMENTS

- .1 Prepare and submit each of the following bid form supplements together with the Bid Form:
  - .1 Section 00431 - Schedule of Prices: Complete the Schedule in its entirety, including all extensions and additions, and attach it to the Bid Form.
  - .2 Section 00441 - List of Subcontractors: Enter the names of the Subcontractors and Suppliers in the spaces provided.
  - .3 Section 00441 – Relevant Experience: indicate previous project experience completed by the bidder that are relevant to this project.
  - .4 Section 00441 – Local Content: indicate the local contractors and workers that will be used for the project.
  - .5 Proposed Construction Execution Schedule
  - .6 Equipment and Services List Rate Sheet
- .2 Any required information that is omitted or illegible, any alterations to the text, or any conditions added or submitted with a bid form supplement, may cause the bid to be declared invalid and rejected.
- .3 The Owner may, after the bid closing time and before contract award, require any Bidder to submit, in a form prescribed by or acceptable to The Owner, supplementary information about any aspect of the Bidder's bid which, in The Owner's opinion, is necessary for bid evaluation purposes.

## 9. BID MODIFICATION

- .1 A Bidder wishing to make changes to its tender before the time set for receiving tenders may withdraw the tender submission and the modified tender may then be resubmitted in compliance with Instructions to Bidders Section 1, Bid Submission, up to the bid Closing Date and Time. Bidders are advised that requests for withdrawal of tender submissions must comply with Instructions to Bidders Section 12, Bid Withdrawal and Acceptance.
- .2 If the changes to its tender are only an amendment to the unit price schedule, the Bidder may send a completed copy of the "TENDER AMENDMENT FORM" included in the tender document to the email address as shown on the Tender Amendment Form. The email subject title shall contain the following:

Tender No. 2022-06-21-C – Tender Amendment – Name of Bidder
- .3 To be acceptable, the form must be completed in full including the legal name of the Bidder and the changes to be made, and it must be signed by an authorized officer of the Bidder and received before the tender Closing Date and Time in accordance with the Instructions to Bidders Section 1, Bid Submission. The form must also be submitted in an unprotected portable document format (PDF).
- .4 The Bidder is responsible for ensuring its modifications are received before the time fixed for receiving tenders and are legible, clear as to the intent, unambiguous, and comply with the terms of the tender document. Failure of the Bidder to do the foregoing will render these modifications null and void. The Owner assumes no responsibility or liability for the content of modifications, or for modifications that are, for any reason, delayed, illegible, unclear as to intent, ambiguous, contrary to these instructions, or otherwise improperly received. The Owner, at its sole discretion, may reject modifications in accordance with the terms of the



- Tender Amendment Form or may reject the tender in accordance with the Instructions to Bidders Section 13, Irregularities.
- .5 Prices must not exceed two decimal places. If a submitted unit price schedule change contains prices exceeding two decimal places, The Owner will round to the nearest two decimal places with .005 being rounded upwards. Bidders will be bound to such rounded amounts.
  - .6 The “Tender Amendment Form”, if applicable, must be completed by identifying only the changes required, as follows:
    - .1 Estimated Quantity Changes
      - .1 For bid items where the unit price is fixed and the Bidder is required to provide an estimated quantity (for example site occupancy), show the amount of the increase or decrease of the quantity in the “Estimated Quantity Changes + or -” column and the total value of the change in the “Net Change to Total Bid + or -” column. Use the unit price as it appears in the unit price schedule as the unit price in the Tender Amendment Form.
      - .2 In case of discrepancy, the estimated quantity figure in the “Estimated Quantity Changes + or -” column will take precedence over the amount in “Net Change to Total Bid + or -” column, and the unit price in the unit price schedule will take precedence over the unit price in the Tender Amendment Form.
    - .2 Unit Price Changes
      - .1 For bid items where the Bidder is required to provide a unit price, show the amount of the change to the unit price in the “Unit Price Changes + or -” column, and the total for each change in the “Net Change to Total Bid + or -” column. Use the estimated quantity as it appears in the unit price schedule as the estimated quantity in the Tender Amendment Form.
      - .2 In case of discrepancy, the change to the unit price figure in the “Unit Price Changes + or -” column will take precedence over the total change in the “Net Change to Total Bid” column.
    - .3 Lump Sum Changes
      - .1 For bid items where the Bidder is required to provide a lump sum, leave a blank space in the “Unit Price Changes + or -” column, and enter the amount of the lump sum change in the “Net Change to Total Bid + or -” column.
    - .4 Net Change to Total Bid
      - .1 Show the sum of all items in the “Net Change to Total Bid + or -” column in the space after “Increase (+) or Reduce (-) Total Tender By”.
  - .7 If arithmetical errors are discovered, the changed estimated quantities or unit prices, as applicable, will be considered as representing the Bidder's intentions; and the net change to total bid price extensions and the change to total tender amount entered in the Tender Amendment Form will be corrected accordingly by The Owner. The Bidder will be bound to such corrected amounts.

## **10. BID WITHDRAWAL AND ACCEPTANCE**

- .1 A Bidder may withdraw its tender by submitting a request in writing signed by an authorized officer of the Bidder. Such request may be in the form of an e-mail. The request must be

received in accordance with clause 1, Bid Submission, prior to the tender Closing Date and Time. A bid may not be withdrawn at or after the tender Closing Date and Time and shall be open to acceptance by The Owner until:

- .1 some other Bidder has entered into a contract with The Owner for the Work specified in these tender documents and provided the required security and evidence of insurance coverage in accordance with Section 00612, Contract Performance Security, Section 00616, Security for Payment of Claims, and Section 00625, Insurance Conditions, which must be satisfactory to The Owner and in compliance with clause 7 of Section 00425, Unit Price Bid Form, or
- .2 thirty-five (35) calendar days after the time fixed for receiving tenders unless The Owner has notified the bidder that they are the successful bidder;

whichever occurs first.

- .2 The 35 day period referred to above will commence at 11:59:00 p.m. of the date of the bid closing and will terminate at 11:59:00 p.m. of the 35th day thereafter. If the 35th day falls on a weekend or statutory holiday, such day(s), and any subsequent contiguous holidays, will be omitted from the computation.
- .3 The 35 day acceptance period referred to above may be extended at The Owner's request and subject to the Bidder's written agreement to the extension.
- .4 The Owner is not required to accept the lowest cost bid, and may reject any or all bids.
- .5 The Owner may negotiate contract terms with the Bidder submitting the lowest valid bid, provided that the negotiated changes to the Bid Documents result in either no change to the bid price or a reduced bid price. Such changes may be formalized in the form of a post-bid addendum that, upon written acceptance by the Bidder, will form part of the Contract Documents.
- .6 Contracts will not be awarded to any government agency including but not limited to the government of Canada, the government of a province or territory of Canada, any agency thereof, or any municipality or other unit of local government within any province or territory of Canada.
- .7 "Government Agency" means a branch, unit, subsidiary or other form of entity, owned or controlled by a government agency and includes any subsidiaries or entities owned or controlled by that agency.
- .8 Contracts will only be awarded to Bidders registered with Service Alberta, Corporate Registry.
- .9 Only one tender per Bidder will be considered. Reasonable grounds for believing that any Bidder is interested in more than one tender for the Work, in the capacity of the Contractor, may cause the rejection of all tenders in which such Bidder is interested.
- .10 Any or all tenders will be rejected if there is reason to believe that collusion exists among the Bidders, and none of the participants in such collusion will be considered in future tenders.
- .11 The lowest priced compliant bidder may be required to supply evidence of experience, equipment, ability and financial capability before the Contract is executed. Lack of any of these will be considered sufficient cause for rejecting the tender.

## 11. IRREGULARITIES

- .1 Submitted tenders must substantially comply with the requirements of the tender documents. Bidders are advised to pay careful attention to the wording used throughout the tender documents. Failure to satisfy any term, condition or mandatory requirement may result in rejection of the Bidder's tender. Further, in submitting a tender, the Bidder understands and acknowledges that ambiguous, unclear, unreadable, or qualified tenders may be rejected.
- .2 The Owner may waive an irregularity with the requirements of the tender documents where the irregularity is minor or inconsequential. The determination of what is or is not a minor or inconsequential irregularity, and the determination of whether to waive or not waive the irregularity is at The Owner's sole discretion.

## 12. TENDER DATE CHANGES AND CANCELLING OF TENDERS

- .1 The Owner may extend the date and time for receiving tenders, or The Owner may amend, suspend, postpone or cancel this tender at any time.

## 13. SAFETY PREQUALIFICATION

- .1 As a precondition to contract award, the Bidder must have a valid Certificate of Recognition (COR) or a valid Temporary Letter of Certification (TLC) for a standard COR, or a COR Equivalency Letter (COREL) for out of province bidders, as issued by the Alberta Construction Safety Association (ACSA) or another certifying organization authorized by Alberta Ministry of Labour to issue CORs.
- .2 Bidders may be required to submit evidence of safety qualifications by the earlier of:
  - .1 The date that The Owner may request in writing, or
  - .2 Seven days before expiry of the tender acceptance period.
- .3 The Owner will confirm that the Bidder possesses a COR or valid TLC or COREL through the Alberta Construction Safety Association.
- .4 Bidders are advised that a small employers' certificate of recognition (SECOR) (for employers with less than 10 employees) is not acceptable.
- .5 It is the Bidder's responsibility to ensure its registration in the program is properly documented with the issuing certifying partner. The Owner will assume no liability for errors or omissions in this regard.
- .6 The Bidder must maintain a valid registration throughout the course of the Contract.
- .7 Prospective Bidders who do not possess a COR, and wish to obtain information about obtaining a COR, TLC or COREL are advised to contact:

The Alberta Construction Safety Association  
225 Parsons Rd. S.W.  
Edmonton, AB, T6X 0W6  
Web Site: [www.acsa-safety.org](http://www.acsa-safety.org)  
E-mail: [Edmonton@acsa-safety.org](mailto:Edmonton@acsa-safety.org)

Telephone: (780) 453-3311 or  
(Toll Free) 1-800-661-2272  
Fax: (780) 455-1120 or  
1-877-441-0440

#### **14. AVAILABILITY OF BID DOCUMENTS**

- .1 The Bid Documents (Volume 1), Contract Information Documents (Volume 2), and Contract Drawings (Volume 3) are available for free download from the Alberta Purchasing Connection website at the following link: [www.purchasingconnection.ca](http://www.purchasingconnection.ca). They are also available at [www.drumheller.ca/do-business/tenders](http://www.drumheller.ca/do-business/tenders).
- .2 The Owner will assume no responsibility or liability for the completeness of any tender documents obtained from any other source.
- .3 In the event of a discrepancy between tender documents downloaded from the Alberta Purchasing Connection website and documents obtained from any other source, the tender documents downloaded from the Alberta Purchasing Connection website shall be deemed to be correct.
- .4 Bidders shall promptly notify the contact identified on the cover page of the tender upon discovery of any such discrepancies.

#### **15. REFERENCE DRAWINGS**

- .1 Electronic (PDF) copies of all reference drawings listed in the Tender document may be viewed and/or downloaded, free of charge, from the Alberta Purchasing Connection at [www.purchasingconnection.ca](http://www.purchasingconnection.ca). They are also available at [www.drumheller.ca/do-business/tenders](http://www.drumheller.ca/do-business/tenders).
- .2 Copies of these drawings will be included with the Contract Documents, in Volume 3, presented to the successful bidder.

#### **16. EXAMINATION OF BID DOCUMENTS AND THE SITE**

- .1 Bidders shall, before submitting a bid:
  - .1 examine and read the Bid Documents thoroughly,
  - .2 visit the Site and its surroundings and other locations to become familiar with local and other conditions affecting the Work,
  - .3 consider the effect of Regulatory Requirements applicable to the Work,
  - .4 study and correlate the Bidder's site observations with the Bid Documents,
  - .5 immediately notify The Owner of all perceived omissions and discovered conflicts, errors and discrepancies in the Bid Documents, and
  - .6 understand the Bid Documents and be competent to undertake and complete the Work.
- .2 Before submitting a bid, each Bidder shall, at the Bidder's expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data that pertain to the conditions at, under, or contiguous with the site, which may affect performance of the Work and which the Bidder deems necessary to determine its bid for performing the Work in accordance with the Bid Documents. Bidders shall obtain The Owner's prior approval for access to the site for the purpose of carrying out any such activities. Bidders shall restore the site to a condition acceptable to The Owner upon completion of such activities.

- .3 Lands upon which Work is to be performed, rights of way and easements for access thereto and other lands designated for use by the Contractor in performing the Work are identified in the Bid Documents. Additional lands and access thereto required for performance of the Work shall be provided by the Contractor.

## **17. PRE-BID MEETING AND SITE INSPECTION**

- .1 Submit Form 00250A – Confirmation of Pre-Bid Attendance as specified in Section 00250 – Pre-Bid Meeting.

## **18. BID SECURITY**

- .1 Provide and submit the bid security specified in Section 00210 - Bid Security.

## **19. CONTRACT PERFORMANCE SECURITY**

- .1 Provide and include in the bid price for the security specified in Section 00612 - Contract Performance Security.

## **20. SECURITY FOR PAYMENT OF CLAIMS**

- .1 Provide and include in the bid price for the security specified in Section 00616 - Security for Payment of Claims.

## **21. EVALUATION AND QUALIFICATION**

- .1 Tender submissions from each qualified Tender will be evaluated and the contract will be awarded to the contractor with the lowest bid price.
- .2 All bidders are encouraged that, where possible, local resources be used. Bidders are encouraged that, where possible, local contractors are to be hired as subcontractors for portions of the work, and labour be obtained from a local contractor or from local employment departments.
- .3 To qualify as a local contractor, the general contractor must have a Town of Drumheller business license.
- .4 For a directory of potential local resources and Town of Drumheller contractors, bidders can reference the list found at the following link: <https://www.drumhellerchamber.com/member-directory#/action/Category/cid/1723/id/201/listingType/O>
- .5 Throughout all stages of the evaluation process The Owner may, at its discretion, seek additional clarification on any aspect of the tender submission, and perform reference checks as required to verify or clarify the information provided.

## **22. ALLOWANCE**

- .1 Include in the bid price all allowances specified in Section 01210 - Allowances.

## **23. PRODUCT OPTIONS AND SUBSTITUTIONS**

- .1 During the bid period, it is the sole responsibility of each Bidder to determine whether a substitution meets the requirements specified in Section 01621 – Product Options and Substitutions.
- .2 The Owner will not consider requests for approval of substitutions from Bidders during the bid period.
- .3 Substitutions will be evaluated and approved or rejected by The Owner after the contract award.

## **24. AGREEMENT**

- .1 The successful Bidder will be required to enter into a formal Agreement with The Owner for the performance of the Work.

## **25. DIVISION OF WORK**

- .1 Work specified in the Specifications is divided into divisions and sections for reference purposes only. Except as may be otherwise specified in the Bid Documents, the division of the Work among the Contractor, Subcontractors, Sub subcontractors and suppliers is the Bidders' responsibility.

## **26. CONFLICTS OF INTEREST**

- .1 As required by the Conflicts of Interest Act (Alberta) no Member of the Legislative Assembly or person directly associated with a Member, as defined in the Act, shall submit a bid for this Contract. Additionally, no Federal, Provincial, or Municipal officials, or persons directly associated with said officials, shall submit a bid for this Contract.
- .2 Bidders must fully disclose to the contact listed on the cover page of the tender, in writing, the circumstances of any actual, possible or perceived conflict of interest in relation to the Bidder or any employee, sub-contractor or agent, if the Bidder were to become the Contractor pursuant to this tender process. The Owner will review any submissions by Bidders under this provision and may reject any tender where, in the opinion of The Owner, the Bidder or any, employee, sub-contractor or agent is, could be, or could be perceived to be in a conflict of interest if the Bidder were to become the Contractor pursuant to this tender process.

## **27. INTERPRETATION AND MODIFICATION OF BID DOCUMENTS**

- .1 Submit questions about the meaning and intent of the Bid Documents to the person named on the cover of the Bid Documents. Interpretations and modifications considered necessary by The Owner in response to such questions will be issued by The Owner in writing in the form of an addendum.
- .2 Addenda may also be issued by The Owner to modify the Bid Documents as considered necessary by The Owner.
- .3 Submit questions as early as possible in the bid period. The Owner may not respond to questions received too close to the bid closing date to permit the issuance of an addendum.

- .4 It is the Bidder's responsibility to notify The Owner, in writing, of any ambiguity, divergence, error, or omission, oversight, contradiction, or item subject to more than one interpretation in these tender documents, as it is discovered, and to request any instruction, decision, or direction required for the Bidder to bid.
- .5 If an inquiry requires an interpretation or revision of the tender documents, the response to that inquiry will be issued in the form of a written addendum, to ensure that all bidders base their bids on the same information.
- .6 Replies to questions, interpretations and modifications made in a manner other than by written addenda will not be binding.

## **28. ADDENDA**

- .1 Addenda, when issued, will become part of the Bid and Contract Documents.
- .2 Each Bidder shall ascertain before tender submission that it has obtained all addenda issued by The Owner and by signing the Tender Form or submitting a Tender Amendment Form, each Bidder acknowledges that all issued addenda have been examined, read, and considered in their tender.
- .3 During the tendering period, all addenda issued by The Owner will be posted and available for free download from the Alberta Purchasing Connection Website <http://www.purchasingconnection.ca/> and at [www.drumheller.ca/do-business/tenders](http://www.drumheller.ca/do-business/tenders).

## **29. FREEDOM OF INFORMATION AND PROTECTION OF PRIVACY ACT**

- .1 The Bidder acknowledges that:
  - .1 The Freedom of Information and Protection of Privacy Act of Alberta ("FOIP Act") applies to all information and records relating to, or obtained, generated, created, collected or provided under, the tender documents and which are in the custody or under the control of The Owner. The FOIP Act allows any person a right of access to records in The Owner's custody or control, subject to limited and specific exceptions as set out in the FOIP Act; and
  - .2 If Personal Information, as defined in the FOIP Act, is expressly required in the tender documents, the purpose of collecting the Personal Information is to enable The Owner to ensure the accuracy and reliability of the information, to evaluate the tender, and for other related purposes of The Owner. Authority for this collection is the Government Organization Act (Alberta), as amended from time to time and section 33 (c) of the FOIP Act. Before disclosing to The Owner any Personal Information about any individual who is providing or will provide the services, the Bidder shall obtain the consent of the affected individual. The consent must be in writing, and it must specify to whom the Personal Information can be disclosed; and how the Personal Information can be used. The Bidder shall provide such consents to The Owner for confirmation and review upon The Owner's request.

## **30. POSTING OF TENDER RESULTS AND AWARD INFORMATION**

- .1 Tender results and award information will be made available on the Alberta Purchasing Connection website <http://www.purchasingconnection.ca/> and at [www.drumheller.ca/do-business/tenders](http://www.drumheller.ca/do-business/tenders).

### **31. CONFIDENTIALITY**

- .1 Subject to clause 31, Freedom of Information and Protection of Privacy Act, the Bidder and their employees, subcontractors, and agents shall:
  - .1 keep strictly confidential all information concerning The Owner or third parties, or any of the business or activities of The Owner or third parties acquired as a result of participation in this tender process; and
  - .2 only use, copy or disclose such information as necessary for the purpose of submitting a tender or upon written authorization from The Owner.
- .2 The Bidder shall maintain security standards, including control of access to data and other information consistent with the highest standards of business practice in the industry.
- .3 No press release or other public announcement relating to this tender shall be issued without the prior written consent of The Owner.
- .4 If a Bidder becomes aware of any situation whereby a breach of confidentiality may have or has occurred, the Bidder shall notify and provide details to the person named on the coverage of the tender, as soon as practicable. The Bidder shall cooperate with The Owner with respect to any directions provided.

### **32. GOVERNING LAW**

- .1 This bid process will be governed and interpreted in accordance with the laws in force in the Province of Alberta and the Bidder irrevocably attorns to the exclusive jurisdiction of the Courts of Alberta.

### **33. LANGUAGE**

- .1 All tenders, including attachments and other information, must be in English.

### **34. INQUIRIES**

- .1 Direct inquiries during the bid period to the person named on the cover of the Bid Documents.

### **35. HIRING OF APPRENTICES**

- .1 The Government of Alberta encourages all bidders to consider employing apprentices on public sector construction projects. To find out more about hiring an apprentice and the supports available for their training, please visit <http://tradesecrets.alberta.ca/>.

**END OF SECTION**





## 1. BID SECURITY

- .1 Each bid must be accompanied by a bid bond in its original digital format made out to the Town of Drumheller equal to 10% of the tender amount. Tenders not accompanied by an immediately verifiable digital bid bond using the bid bond's electronic content verification process will be rejected as non-compliant.
- .2 Bid bonds shall be issued by a duly incorporated surety company authorized to transact business of suretyship in the Province of Alberta in a form acceptable to The Owner.
- .3 The bid bond shall be submitted as its own PDF document, separate from the other tender submission documents in its original electronic format. Scanned or altered PDF copies of the original bid bond in either paper or digital format will be deemed invalid and will cause the Bid to be rejected.
- .4 Verification of the bid bond may be conducted by the Department at any time immediately after Closing Date and Time, or at any time during the life of the bid bond and at the discretion of The Owner with no requirement for additional electronic copies of the bid bond, passwords or fees.

### ELECTRONIC BONDING CRITERIA

- .1
  - .1 The bid bond submitted by the Bidder must be verifiable with respect to the totality and wholeness of the bond form and the security which it represents, including but not limited to:
    - .1 the content of the bid bond;
    - .2 any details required for accessing and authenticating the bid bond, either via a verification tag or link that provides immediate access to the bond;
    - .3 all signatures and seals affixed thereto;
    - .4 encrypted digital signatures creating a secure electronic document; or
    - .5 anything that may prevent the enforcement and/or realization of the bid bond by The Owner in accordance with clause 1.3, Electronic Bonding Enforceability.
- .2 by The Owner with the Surety Company, or an approved verification service provider of the Surety Company.

### ELECTRONIC BONDING ENFORCEABILITY

- .1 The bid bond shall be enforceable for the earlier of the tender acceptance period as specified in clause 12, Bid Withdrawal Acceptance, or until the bond's principal enters into the Contract and provides the required security and evidence of insurance coverage in accordance with Section 00625, Insurance Conditions, Section 00612, Contract Performance Security, and Section 00616, Security for Payment of Claim, which must be satisfactory to The Owner and in compliance with clause 7 of Section 00425, Unit Price Bid Form.

## **2. DEFAULT BY BIDDER**

- .1 If a Bidder whose Bid is accepted by The Owner in writing, without qualification, and within the acceptance period specified in the Bid Documents, refuses or fails after the Contract is received, and the Contract is received when opened if delivered by email, or when delivered if using any other means:
  - .1 within seven (7) calendar days, to sign and return the Contract to The Owner for the performance of the Work and/or the supplying of material covered by this tender, and
  - .2 within fourteen (14) calendar days, to provide the required security and evidence of insurance coverage in accordance with Section 00625, Insurance Conditions, Section 00612, Contract Performance Security, and Section 00616, Security for Payment of Claim, satisfactory to The Owner,

the tender security is subject to forfeiture to The Owner, and if a Contract for the project(s) is then entered into with some other party for a greater amount, the Bidder is liable to The Owner in the amount equal to the difference between the amount of its tender and the amount of the Contract actually entered into, the maximum liability not exceeding the amount of the tender security required under Section 00210, Bid Security.

**END OF SECTION**

**1. PRE-BID MEETING AND SITE INSPECTION**

- .1 A pre-bid meeting and site inspection will be held at the time and place specified on the cover of the Bid Documents.
- .2 The purpose is to provide Bidders an opportunity to familiarize themselves with the Work and with existing conditions.
- .3 Attendance at the time and place specified is strongly recommended for all Bidders. Major subcontractors are strongly advised to attend. Others are invited to attend.
- .4 Submit, with the bid, a signed copy of Form 00250A - Confirmation of Pre-bid Meeting Attendance. A Form 00250A – Confirmation of Pre-Bid Meeting Attendance is appended to this section.
- .5 No information provided by The Owner at the pre-bid meeting and site inspection shall be binding, unless such information is included in an addendum.

**END OF SECTION**

FROM (Bidder):

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Email)

TO:

Dirk Scharbatke  
Kerr Wood Leidal Associates Ltd.  
dscharbatke@kwl.ca

PROJECT:

TOWN OF DRUMHELLER – DIKE C – NORTH DRUMHELLER GROVE  
PLAZA DIKE

CONTRACT:

DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT

The undersigned hereby confirm that a representative of the above-named Bidder attended the pre-bid meeting and site inspection for the above named project, held on:

\_\_\_\_\_  
(Insert date) (month (name of), date, year)

SIGNATURE OF BIDDER'S  
REPRESENTATIVE:

NAME OF PERSON SIGNING BESIDE:  
(Please print)

\_\_\_\_\_  
SIGNATURE OF  
OWNER'S REPRESENTATIVE:

\_\_\_\_\_  
NAME OF PERSON SIGNING BESIDE:  
(Please print)

## 1. CONTRACT INFORMATION DOCUMENTS

- .1 Contract Information Documents listed in clause 4.1 are incorporated into the Contract.
- .2 The Bidder is entitled to rely upon the factual information or factual data contained in Contract Information Documents, or parts thereof, which have been obtained principally for the purposes of study and design and are believed to be correct, within normal limits inherent in gathering such information and data, but the Bidder shall draw its own conclusions from such factual information or factual data and shall not rely on opinions or interpretations contained therein.
- .3 Contract Information Documents shall not be considered a representation or warranty that information contained therein is complete or appropriate for construction.
- .4 Information contained in Contract Information Documents may be time sensitive and dates and times shall be considered when interpreting such information.
- .5 The Bidder is encouraged to obtain specialist advice with respect to Contract Information Documents. The Owner assumes no responsibility for such interpretations and conclusions.
- .6 Some information included as Contract Information Documents, such as historical records, weather data, etc., have been prepared by persons other than The Owner. Use of any Contract Information Document shall be only for the purpose of the construction contract with which it is provided.

## 2. INFORMATION PREPARED FOR THE OWNER

- .1 When reading the Contract Information Documents consider the following in planning and implementing construction methods and procedures. Field investigations, laboratory testing, classifying and logging, are performed principally for the purposes of study and design. Unless otherwise noted, information prepared by, or for, The Owner is prepared in accordance with generally accepted professional practices with consideration for the type of information needed, current practices, the location of the work, and the date and time, etc. when the information is prepared.
- .2 Soils and Bedrock Information
  - .1 Investigations are carried out for the purpose intended at the time of the investigation. Samples of soils and bedrock are recovered from drillholes, test pits, or other exploration methods. Samples are identified and classified, and the data recorded. Samples taken may not be continuous and extrapolation may be used to complete the information. The data are true only for the sample and its unique location. Classification of soils and bedrock is subjective and is based on observations and laboratory testing.
  - .2 Classification of soils follows the Modified Unified Soil Classification system, unless noted otherwise. Classification of bedrock follows normally accepted geologic practice.
  - .3 The nature and thickness of the material between adjacent soils or bedrock zones may be a blend of the classified materials. Consequently, the location of the horizon between one zone and another may vary between excavations, or with logs prepared by another person. Different exploration methods may also give variations in the information. The foregoing is also true for bedrock investigations and logging.

- .4 Stratigraphic drawings show extrapolation of testhole information between testhole locations. The extrapolations are subject to the variations associated with them therefore, actual conditions may differ from that shown on stratigraphic drawings.
- .5 Soils and bedrock properties can change rapidly after exposure to elements such as air, frost, and moisture. Soils and bedrock properties can change with changes in moisture content, which may vary over time. Recorded conditions may vary after the date of investigation.
- .3 Laboratory Testing
  - .1 Laboratory testing used for classifying soils and bedrock follows industry standards, unless otherwise noted. Recorded test results show some, but not necessarily all, properties of the soils or bedrock material. The sample tested may contain some, but not necessarily all, of the properties of the soils or bedrock adjacent to the location from which the sample was taken.
- .4 Groundwater Information
  - .1 Groundwater elevations and other groundwater information are based on observations made at the time of the investigations. Daily and seasonal fluctuations may occur due to climatic and other effects. Variations between testing locations may exist due to meteorological conditions, reservoir, lake, and river conditions.
- .5 Construction Activity
  - .1 Construction activity can alter the in situ ground conditions. The influence of all construction activities on the geologic environment should be considered.

### **3. OTHER INFORMATION DOCUMENTS**

- .1 Other Information Documents means information documents not listed in clause 4.1 herein, and are not part of the Contract Documents.
- .2 The Bidder is not entitled to rely upon the factual information or factual data in any Other Information Documents, nor any opinions or interpretations contained therein. Other Information Documents shall not be considered accurate, complete, or appropriate.
- .3 Other Information Documents are made available to the Bidder for the purpose of providing the Bidder with access to the information available to The Owner.

### **4. LIST OF CONTRACT INFORMATION DOCUMENTS**

- .1 Contract Information Documents comprise the following:
  - .1 Volume 2 of 3 of the Bid Documents

**END OF SECTION**

1. FROM: \_\_\_\_\_  
(Legal Name of Bidder)
- TO: Drumheller Resiliency and Flood Mitigation Office  
Town Hall, 224 Centre Street  
Drumheller, AB  
T0J 0Y4
- CONTRACT: TOWN OF DRUMHELLER  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT  
[ contract number in title case when used ]
2. We, the undersigned, having examined and read the Bid Documents for the above noted contract, and having visited the Site and examined all conditions affecting the Work, are satisfied we understand the Bid Documents and declare ourselves competent to undertake and complete the Work and do hereby irrevocably bid and agree to carry out the Work in accordance with the Bid Documents, for the unit prices, lump sums and allowances set out in the Schedule of Prices, the total amount of which is:
- \$ \_\_\_\_\_ which amount **excludes** GST.  
(Total Amount In Figures Only)
3. This bid is based on and submitted in accordance with Section 00431 - Schedule of Prices which is attached hereto and which forms an integral part of this bid.
4. The total amount of the bid set out in clause 2. is the sum of all unit price extensions, lump sums and allowances in the Schedule of Prices. It is understood that the unit prices, lump sums and allowances set out in the Schedule of Prices form the basis of the bid price and that the extensions of unit prices and addition of unit price extensions, lump sums and allowances will be checked by The Owner and if arithmetical errors are discovered, the unit prices shall be considered as representing the Bidder's intentions and the unit price extensions and the total amount entered in the Schedule of Prices and the Bid Form will be corrected accordingly by The Owner.
5. This bid includes all costs associated with the assignable contracts specified in Section 01118 – Assignable Contracts.
6. The following is submitted with this bid:
- .1 Schedule of Prices, as specified in Section 00431 – Schedule of Prices.
  - .2 Bid security as specified in Section 00210 – Bid Security.
  - .3 An executed Form 00250A - Confirmation of Pre-Bid Meeting Attendance as specified in Section 00250 – Pre-Bid Meeting.
  - .4 List of Subcontractors as specified in Section 00441 – List of Subcontractors.



7. If notified in writing by The Owner of the acceptance of this bid within 35 days after the bid closing time, the undersigned will,
- .1 within seven (7) calendar days, to sign and return the Contract to The Owner for the performance of the Work and/or the supplying of material covered by this tender, and
  - .2 within fourteen (14) calendar days, to provide the required security and evidence of insurance coverage in accordance with Section 00625, Insurance Conditions, Section 00612, Contract Performance Security, and Section 00616, Security for Payment of Claim, satisfactory to The Owner

for the performance of the Work for the above stated compensation and comply with all other requirements of the Bid Documents.

8. It is understood that, with respect to the Bid Form and Schedule of Prices, should any required information be omitted or illegible, should any alteration be made to the text, or should any condition be added on or submitted with the Bid Form or Schedule of Prices, the bid may be declared informal and the bid may be rejected.

9. Executed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

NAME AND ADDRESS  
OF BIDDER:  
(Print or Type) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

SIGNATURE OF AUTHORIZED  
REPRESENTATIVE(S):  
  
\_\_\_\_\_  
\_\_\_\_\_

NAME AND TITLE OF AUTHORIZED  
REPRESENTATIVE  
(Print or Type)  
  
\_\_\_\_\_  
\_\_\_\_\_

**END OF SECTION**

1. FROM: \_\_\_\_\_  
(Legal Name of Bidder)  
  
TO: Drumheller Resiliency and Flood Mitigation Office  
Town Hall, 224 Centre Street  
Drumheller, AB  
T0J 0Y4  
  
CONTRACT: TOWN OF DRUMHELLER  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
2. This Schedule of Prices forms an integral part of the bid for the above noted project and shall be read and considered in conjunction with Section 00425 - Unit Price Bid Form.
3. It is understood and agreed that with respect to the submission of this Schedule of Prices, the following shall apply:
  - .1 Items of Work are priced in accordance with the Bid Documents, including Section 00630 - Payment Conditions, Section 01275 - Measurement Rules, and Section 01280 - Measurement Schedule.
  - .2 Section references are a guide and are not to be considered as modifying the scope of payment.
  - .3 Every price requested shall be submitted or the bid may be declared informal and the bid may be rejected.
  - .4 Should any item be omitted or illegible, should any alteration be made to the text, or should any condition be added on or submitted with the Schedule of Prices, the bid may be declared informal and the bid may be rejected.
4. Schedule: See next page.

ITEM NO.	ITEM NAME	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
<b>1. General</b>					
1.1	Mobilization and Demobilization	L.S.	1		
1.2	Staging Area Preparation and Restoration	L.S.	1		
1.3	Existing and Temporary Access Roads Preparation	L.S.	1		
1.4	Preparation and Implementation of the Traffic Accommodation Plan	L.S.	1		
1.5	Utility Locates	L.S.	1		
1.6	Construction Care of Water	L.S.	1		
1.7	Environmental Monitoring During Construction	L.S.	1		
1.8	2-Year Warranty	L.S.	1		
<b>2. Allowances</b>					
2.1	ECO Plan	L.S.	1	10,000	
<b>3. Site Work</b>					
3.1	Clearing and Mulching	LS	1		
3.2	Remove, Salvage and Replace Existing Retaining Wall	m	35		
3.3	Remove and Relocate Existing Chain Link Fence	m	280		
3.4	Topsoil Stripping and Stockpiling	m <sup>3</sup>	550		
3.5	Zone 1A Impervious Fill for Dike and Emergency Ramp / 3 Point Turn Around - Supply and Place	m <sup>3</sup>	2,650		
3.6	Designation 4 - Gravel Surfacing Aggregate - Supply and Place	m <sup>3</sup>	80		
3.7	Remove, Salvage and Replace Zone 6B Riprap	m <sup>3</sup>	300		
3.8	Supply and Place Riprap Bedding Gravel 5A - Supply and Place	m <sup>3</sup>	140		
3.9	Topsoil Placement	m <sup>3</sup>	420		
3.10	Manhole (1200 mm) - Supply and Install	ea	1		
3.11	1S Manhole Extension - Supply and Install	v.m	2		
3.12	375 mm Precast Concrete Pipe - Supply and Install	m	3		

ITEM NO.	ITEM NAME	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
3.13	Catch Basin (900 mm) - Supply and Install	ea	1		
3.14	Catch Basin - Relocate	ea	1		
3.15	300 mm PVC DR 35 Pipe - Supply and Install	m	1		
3.16	Remove and Dispose of Existing Asphalt Pathway	m	40		
3.17	Remove and Dispose of Silt	m <sup>3</sup>	250		
3.18	Replace Existing Outfall Inlet Gate	L.S.	1		
3.19	Final Grading	L.S.	1		
<b>4. Landscaping</b>					
4.1	Asphalt path	m <sup>2</sup>	320		
4.2	Timber steps and handrail at Travelodge retaining wall	L.S.	1		
4.3	Precast unit retaining wall. Maximum 1.0m height	m	137		
4.4	Guardrail at precast wall and stairs	m	5		
4.5	Rock wall. Maximum 1.5m height including unit rock course below grade.	m	38		
4.6	Guardrail at rock wall	m	38		
4.7	Seed mix 2A	m <sup>2</sup>	2,850		
4.8	Seed mix 2B	m <sup>2</sup>	2,300		
<b>5. Provisional Items</b>					
5.1	New Chain Link Fence Material – Supply and Install	m	up to 280		-
5.2	Topsoil Supply	m <sup>3</sup>	up to 420		-
5.3	Topsoil Disposal	m <sup>3</sup>	up to 550		-
5.4	Zone 6A Riprap – Supply and Place	m <sup>3</sup>	up to 300		-

**SUMMARY**

1.	General Total	\$ _____
2.	Allowances	
	ECO PLAN	\$ <u>10,000</u>
3.	Site Work Total	\$ _____
4.	Landscaping Total	\$ _____

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TOTAL AMOUNT OF THE BID: \$ \_\_\_\_\_  
(Sum of extended amounts of all Unit Prices,  
Lump Sums and Allowances. Provisional items not included.)

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**END OF SECTION**

1. FROM: \_\_\_\_\_  
(Legal Name of Bidder)  
  
TO: Drumheller Resiliency and Flood Mitigation Office  
Town Hall, 224 Centre Street  
Drumheller, AB  
T0J 0Y4  
  
PROJECT: TOWN OF DRUMHELLER  
  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT
2. This List of Subcontractors forms a part of the bid for the above project.
3. The following conditions apply to the List of Subcontractors:
  - .1 Names are entered, where applicable, for the items of work listed.
  - .2 Items of work for which the Bidder intends to use Subcontractors, Sub-subcontractors, Suppliers and own-forces are so indicated.
  - .3 Should the Bidder be awarded the Contract, the parties named, including the Bidder's own forces, shall be used to perform the work they are scheduled to perform and shall not be changed without The Owner's written consent.
4. The following conditions apply to the Cost Breakdown:
  - .1 Provide an approximate value of Subcontractor work. Separate itemized costs are entered for the items of work listed.
5. List of Subcontractors: See next page.

<b>Subcontractor</b>	<b>Item of Work</b>	<b>Approximate Value</b>

**END OF SECTION**

1. FROM:

\_\_\_\_\_  
(Legal Name of Bidder)

TO: Drumheller Resiliency and Flood Mitigation Office  
Town Hall, 224 Centre Street  
Drumheller, AB  
T0J 0Y4

PROJECT: TOWN OF DRUMHELLER  
  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT

2. This list of relevant experience and qualifications from the bidder will allow The Owner to evaluate the credibility of the Contractor. The Owner may choose to reject bids based on the acceptability of information provided in support of this schedule.
3. The following conditions apply to the List of Projects:
  - .1 The year indicated is the year in which the project is completed.
  - .2 Projects listed must be projects completed by the bidder as the Prime Contractor. Projects where the bidder was a subcontractor will not be considered.
  - .3 Reference Contact Information must be valid. If the reference is not accessible with the contact information provided, that project will not be considered as Relevant Experience.
4. List of Relevant Experience: See next page.



<b>Year Completed and Location</b>	<b>Project Description (scope of work completed by Bidder)</b>	<b>Approximate Value</b>	<b>Reference Contact</b>

**END OF SECTION**

1. FROM:

---

(Legal Name of Bidder)

TO: Drumheller Resiliency and Flood Mitigation Office  
Town Hall, 224 Centre Street  
Drumheller, AB  
T0J 0Y4

PROJECT: TOWN OF DRUMHELLER  
DIKE C – NORTH DRUMHELLER GROVE PLAZA DIKE PROJECT

2. This list of local content will be considered supplemental to the Bid Submission.
3. Contractors are encouraged to develop their Bid with consideration for local content. The following conditions apply to the List of Local Content:
  - .1 Local content may include subcontractors, trades, labourers, equipment / material suppliers, accommodations, fuel, etc.
  - .2 To be considered a local contractor, general contractors must have a Town of Drumheller business license.
  - .3 Reference Contact Information must be valid. If the reference is not accessible with the contact information provided, that resource will not be considered as Local Content.
5. List of Local Content: See next page.

<b>Name or Company Name of Local Resource</b>	<b>Services Provided</b>	<b>Estimated Value of Service</b>	<b>Reference Contact</b>

**END OF SECTION**

**AGREEMENT BETWEEN THE TOWN OF DRUMHELLER  
AND CONTRACTOR**

This Agreement made on the \_\_\_\_\_ day of

.....

**between**

THE Town of Drumheller  
hereinafter called the "Owner"

**and**

.....  
name of Contractor

.....  
address

.....

.....

.....

.....  
hereinafter called the "Contractor"

**witnesses:** that the parties agree as follows:

**1. THE WORK**

The Contractor shall perform the Work required by the Contract Documents for:

.....  
title of the Work and the Project

.....

.....

.....

.....

and do and fulfill everything required by this Agreement.

**2. CONTRACT DOCUMENTS**

The Contract Documents referred to in clause 1 of this Agreement shall be as defined in the Contract Documents. Terms used in the Contract Documents which are defined in the Definitions and Interpretation section shall have the meanings designated therein.

**3. CONTRACT TIME**

The Contractor shall attain Substantial Performance of the Work by the following date:

..... day of ..... 20\_\_

and shall attain Total Performance of the work as provided for in the Contract Documents.

**4. CONTRACT PRICE**

The Contract Price is .....

.....

..... dollars

(\$.....) in Canadian funds.

**6. PAYMENT**

The Owner shall make payment in Canadian funds to the Contractor on account of the Contract Price in accordance with the Payment Conditions and other applicable provisions of the Contract Documents.

**7. RIGHTS AND REMEDIES**

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. No action or failure to act by The Owner or 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.

**8. LANGUAGE AND LAW OF THE CONTRACT**

The language of the Contract is English and the Contract shall be construed and interpreted accordingly. The law prevailing in the Province of Alberta, Canada shall govern the interpretation of the Contract.

**9. SUCCESSION**

The Contract Documents are to be read into and form part of this Agreement and the whole shall constitute the Contract between the parties and subject to law and the provisions of the Contract Documents shall ensure to the benefit of and be binding upon the parties hereto, their respective heirs, legal representatives, successors and permitted assigns.

**10. NOTICES**

Notices to be given under the Contract shall be addressed to the parties as follows:

The Owner and The Owner's Representative at:

The Town of Drumheller  
702 Premier Way  
Drumheller AB T0J 0Y0

The Contractor at:

.....  
name

.....  
address

.....

.....

.....

.....

Telephone: .....

Email Address: .....

**In witness whereof** the parties hereto have executed this Agreement under their respective seals and by the hands of their proper officers thereunto duly authorized.

SIGNED, SEALED AND DELIVERED in the presence of:

**CONTRACTOR**

.....  
company name

.....  
signature of authorized signing officer

.....  
name and title of officer

.....  
signature of authorized signing officer

.....  
name and title of officer

.....  
signature of witness

.....  
name and title of witness

**OWNER OR OWNERS'S AUTHORIZED REPRESENTATIVE**

.....  
signature

.....  
name and title

.....  
provincial seal

.....  
signature of witness

.....  
name and title of witness

**END OF SECTION**

## 1. DEFINITIONS

In the Contract the following terms shall have the meanings assigned to them:

- 1.1 "Additional Instruction" means a written instruction, issued by The Owner to the Contractor, clarifying or finalizing requirements of the Contract Documents and not involving a change in the Contract Price or the Contract Time.
- 1.2 "Agreement Form" means the document which, when executed by The Owner and the Contractor, formalizes the Contract.
- 1.3 Omitted: "Alberta Transportation" definition.
- 1.4 "Bid" means the Contractor's priced offer to The Owner for the performance of the Work in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance.
- 1.5 "Change Order" means a written instruction, issued by The Owner to the Contractor on or after the date of execution of the Agreement Form, authorizing or ordering a Change in the Work or a change in the Contract Price or the Contract Time or any combination thereof.
- 1.6 "Change Proposal" means a written communication, issued by The Owner to the Contractor on or after the date of execution of the Agreement Form, containing a proposed Change in the Work and requiring the Contractor to submit a quotation for executing such proposed change, including the Contractor's proposed changes to either or both the Contract Price or the Contract Time.
- 1.7 "Change in the Work" means an addition to, deletion from or other modification of the Work consistent with the scope and intent of the Contract.
- 1.8 "Construction Equipment" means equipment, appliances and things required for the performance of the Work, but does not include Permanent Work or Temporary Work.
- 1.9 "Contract" means the undertaking by The Owner and the Contractor to perform their respective duties, responsibilities and obligations as prescribed in the Contract Documents and represents the entire agreement between The Owner and the Contractor. The Contract Documents form the Contract.
- 1.10 "Contract Deficiency" means a deficiency in the Work, or part thereof, for which the Contractor is responsible under the Contract and includes a deficiency in any design for which the Contractor is responsible.
- 1.11 "Contract Documents" means:
  - the Letter of Acceptance;
  - the executed Agreement Form;
  - Instructions to Bidders, completed Bid Form, Schedule of Prices, and Supplements to Bid Form;
  - Information Documents specifically incorporated into the Contract Documents;
- Definitions and Interpretation, Payment Conditions, Security Conditions, Insurance Conditions, General Conditions, Supplementary Conditions, conditions related to Public Works Act claims;
- the Specifications;
- the Drawings;
- Addenda;
- Regulatory Permits and Authorizations;
- and such other documents as may be identified as Contract Documents, and shall include amendments thereto made pursuant to the provisions of the Contract.
- 1.12 "Contract Price" means the total amount payable by The Owner to the Contractor under the Contract as stated in the Agreement Form, including authorized adjustments thereto.
- 1.13 "Contract Time" means the period of time specified in the Contract for attainment of Substantial Performance of the Work, including authorized adjustments thereto.
- 1.14 "Contractor" means the person, firm or corporation contracting directly with The Owner to perform the Work.
- 1.15 "Cost Plus Work" means a contractual arrangement that prescribes the cost of the work plus an allowance for overhead and profit, as expressly defined in the Contract, as payment for performance of the item of work to which it relates.
- 1.16 Omitted: The "Crown" definition.
- 1.17 "Day" means a calendar day.
- 1.18 "Department" means the Town of Drumheller or such successor department.
- 1.19 Omitted: "Deputy Minister" definition.
- 1.20 "Drawings" means the graphic and pictorial portions of the Contract Documents showing the design, location or dimensions of the Work, generally including plans, elevations, sections, details and diagrams.
- 1.21 "Force Majeure Event" means any war, invasion, insurrection, armed conflict, act of foreign enemy, revolution, terrorist act, interference by military authorities, nuclear explosion, contamination by ionizing radiation, epidemic, pandemic including Covid-19, or quarantine restriction that prevents, delays or interrupts the performance of any obligation under this Contract, other than any obligation to pay any money, and provided such event does not occur by reason of:
  - .1 The negligence of the Party relying on the Force Majeure Event (or those for whom it is in law responsible); or
  - .2 Any act or omission of the Party relying on the Force Majeure Event (or those for whom it is in law responsible) that is in breach of this Contract.
- 1.22 "Information Documents" means information of any type and in any form related to the Project and identified in the Contract Documents as such, but which does not form part of the Contract unless specifically incorporated therein.

- 1.23 "Invention" means any new and useful practice, process, machine, device, manufacture or composition of matter, or any new and useful improvement thereof.
- 1.24 "Letter of Acceptance" means the formal acceptance by The Owner of the Contractor's Bid, including any modifications to the Bid agreed to by The Owner and the Contractor and incorporated therein.
- 1.25 "Lump Sum Work" means a contractual arrangement that prescribes a lump sum as payment for performance of the item of work to which it relates.
- 1.26 "Milestone Date" means a time period or date specified in the Contract for completion or attainment of specified portions of the Work.
- 1.27 "Owner" means the Town of Drumheller and includes a person acting for, or if the office is vacant, in place of, The Owner and The Owner's successors in the office.
- 1.28 "Owner's Representative" means the officer or employee of the Town of Drumheller identified in writing by a duly authorized departmental officer to represent The Owner under the Contract.
- 1.29 "Other Contractor" means any person, firm or corporation employed by or having a separate contract with The Owner for work related to the project other than that required by the Contract Documents.
- 1.30 "Permanent Work" means any structure, Product or thing constructed, manufactured or installed in the performance of the Work, but does not include Temporary Work.
- 1.31 "Products" means material, components, elements, machinery, equipment, fixtures, systems and other items forming the Work or part thereof but does not include Construction Equipment. "Products" is synonymous with "Materials".
- 1.32 "Project" means the total construction of which the Work to be provided under the Contract may be the whole or a part.
- 1.33 "Regulatory Requirements" means laws, ordinances, rules, regulations, orders, codes, and other legally enforceable requirements in effect and applicable to the performance of the Work.
- 1.34 "Schedule of Prices" means the completed Schedule of Prices submitted by the Contractor with his Bid, as accepted by the Letter of Acceptance.
- 1.35 "Site" means the designated Site or location of the Work and any other places as may be specifically designated in the Contract as forming part of the Site.
- 1.36 "Specifications" means that portion of the Contract Documents comprising Divisions 01 onwards of the specification format including the General Requirements and technical specifications.
- 1.37 "Subcontractor" means a person, firm or corporation having a contract with the Contractor for the performance of a part of the Work at the Site.
- 1.38 "Sub-subcontractor" means a person, firm or corporation having a contract with a Subcontractor for the performance of a part of the Work at the Site.
- 1.39 "Substantial Performance of the Work" means the time when the prerequisites to Substantial Performance of the Work required by the Contract are fulfilled and the Work is ready for use or is being used for the purpose intended and the state of the work is so declared, in writing, by The Owner.
- 1.40 "Supplier" means a person, firm or corporation having a contract with the Contractor, a Subcontractor or a Sub-subcontractor for the supply of goods or services to be incorporated into or utilized in the performance of the Work.
- 1.41 "Temporary Work" means site offices, temporary structures, facilities and controls and other temporary things required for the performance of the Work, but does not include Construction Equipment.
- 1.42 "Total Performance of the Work" means the time when the prerequisites to Total Performance of the Work required by the Contract are fulfilled and the entire Work, except those items arising from the warranty provisions of the Contract, has been performed to the requirements of the Contract Documents and is so declared, in writing, by The Owner.
- 1.43 "Unit Price" means the amount payable by The Owner to the Contractor under the Contract for a single unit of each separately identified item of work for which a unit price is prescribed as the basis of payment, as stated in the Schedule of Prices.
- 1.44 "Unit Price Work" means a contractual arrangement that prescribes the product of a Unit Price multiplied by a number of units of measurement of a class as payment for performance of the item of work to which it relates.
- 1.45 "Warranty Performance of the Work" means the time when the prerequisites to Warranty Performance of the Work required by the Contract are fulfilled and all items arising from the warranty period or periods required by the Contract have been corrected by the Contractor and the state of the Work is so declared, in writing, by The Owner.
- 1.46 "Work" means the total construction and related services required by the Contract Documents.

## **2. INTERPRETATION**

The Contract shall be interpreted as follows:

- 2.1 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.
- 2.2 Words importing the singular also include the plural and the masculine includes the feminine and vice-versa where the context requires.
- 2.3 "Herein", "hereby", "hereof", "hereunder" and similar expressions refer to the Contract as a whole and not to a particular part thereof, unless the context indicates otherwise.

- 2.4 Words and abbreviations which have well known technical meanings are used in the Contract in accordance with such recognized meanings.
- 2.5 Words importing persons or parties shall include firms and corporations and any organization having legal capacity.
- 2.6 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an", but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.
- 2.7 The imperative mood is used extensively in the Contract Documents, particularly the Specifications. Such language is always directed to the Contractor, and it is the Contractor's responsibility to perform the Work specified in the imperative mood, unless specifically stated otherwise.
- 2.8 Unless the context indicates otherwise, where a term is defined in the Contract Documents, other parts of speech or grammatical forms of the same word or expression have corresponding meanings.
- 2.9 Unless the context indicates otherwise, all monetary amounts shall be interpreted as amounts in the lawful currency of Canada.
- 2.10 When provision is made for the giving or issue of any notice, consent, approval, certificate or determination by any person, unless otherwise specified, such notice, consent, approval, certificate or determination shall be in writing and the words "notify", "certify" or "determine" shall be construed accordingly. Any such consent, approval, certificate or determination shall not unreasonably be withheld or delayed.
- 2.11 When provision is made for a communication to be "written" or "in writing" this means any hand-written, type-written or printed communication, including facsimile transmissions.
- 2.12 Except in relation to a change in the Contract Time, any period of time in the Contract within which The Owner or the Contractor is to take action or decide anything may be extended by agreement, notwithstanding that the period of time has expired.
- 2.13 The term "including" or "includes" shall be construed as inclusive and not exclusive, and shall be interpreted to mean including but not necessarily limited to the items referred to.
- 2.14 This Contract may be executed by the parties in counterparts, and may be delivered by email in Portable Document Format (PDF), each of which upon execution and delivery shall be deemed an original and all which taken together shall constitute one and the same agreement.
- 2.15 In the event of ambiguities, discrepancies and conflicts between the several documents forming the Contract Documents the following order of precedence shall apply:
- .1 .Executed Agreement Form
  - .2 .Letter of Acceptance.
  - .3 .Supplementary Conditions.
  - .4 .Conditions of Contract, including General, Payment, Security and Insurance Conditions.
  - .5 Drawings.
  - .6 .Specifications.
  - .7 .Drawings of larger scale shall govern over those of smaller scale of the same date.
  - .8 .Figured dimensions shown on a Drawing shall govern even though they may differ from dimensions scaled on the same Drawing.
- Notwithstanding the foregoing, documents of later date shall always govern over the documents amended.
- END OF SECTION**



**1. CONTRACT PERFORMANCE SECURITY**

---

- 1.1 Contractor shall provide security for performance of the Contract in the form of a Performance Bond for 50% of the Contract Price.
- 1.2 Bond shall be in accordance with the Canadian Construction Documents Committee (CCDC) Standard Form of Performance Bond, CCDC Document No. 221.
- 1.3 Bond shall be issued by a duly incorporated surety company authorized to transact business of suretyship in the Province of Alberta.
- 1.4 Consign bond to "the Town of Drumheller".
- 1.5 Submit bond to The Owner within 15 days after date of issuance of Letter of Intent to Enter Contract.

**END OF SECTION**

**1. LETTER OF CREDIT IN LIEU OF HOLDBACK**

---

- 1.1 The Contractor may, as an alternative to retention of holdback in accordance with the provisions of Section 00630 - Payment Conditions, provide, at any time, an irrevocable, standby, Letter of Credit, subject to the provisions specified herein.
- 1.2 If the Contractor provides a Letter of Credit meeting the requirements specified herein and otherwise acceptable to The Owner, The Owner will release all holdback monies previously retained, if any, and will not retain holdback on any subsequent progress payments.

**2. LETTER OF CREDIT**

---

- 2.1 The Letter of Credit shall be provided by a domestic chartered bank as listed in the Bank Act (Canada), "Schedule A, Domestic Chartered Banks", "Schedule B, Foreign Chartered Banks", or the Alberta Treasury Branches.
- 2.2 The Letter of Credit shall be irrevocable. Partial drawings shall be permitted.
- 2.3 The amount of the Letter of Credit shall be calculated by multiplying the holdback percentage, as specified in Section 00630 – Payment Conditions, by the Contract Price as specified in Section 00525 – Agreement Form.
- 2.4 The expiry date shall be six months after the last day of the Contract Time.
- 2.5 The Letter of Credit shall provide that claims shall be duly honoured on presentation by The Owner, without inquiry by the bank as to whether The Owner has a right to make such claim, and without recognizing any claim of the Contractor, provided that the terms and conditions of the Letter of Credit are complied with.
- 2.6 The Letter of Credit shall be subject to the Uniform Customs and Practice for Documentary Credits (1993 Revision), International Chamber of Commerce, Publication 500.
- 2.7 The Letter of Credit shall be in the form of the Town of Drumheller standard form of Letter of Credit, Document 00614A, a copy of which is appended hereto.

**3. AMENDMENTS TO LETTER OF CREDIT**

---

- 3.1 The Owner may, from time to time, require the Contractor to amend the Letter of Credit by:

- .1 increasing the amount of the Letter of Credit if changes in the Work, or quantity variations of Unit Price items, result in a significant increase in the Contract Price, such revised amount being calculated in accordance with clause 2.3,
- .2 extending the expiry date of the Letter of Credit if there is a significant extension of Contract Time pursuant to Section 00725 - General Conditions, or for any other reasonable cause, the length of such time extension being determined by The Owner.

- 3.2 The Contractor shall, within 14 days after being requested to do so, provide to The Owner an amendment to the Letter of Credit containing the required changes.

- 3.3 If the Contractor fails to comply with clause 3.2, The Owner may:

- .1 retain holdback from subsequent progress payments,
- .2 withhold all or part of subsequent progress payments, or
- .3 draw funds on the letter of credit, as required to protect the interests of The Owner or third party claimants.

**4. DRAWING FUNDS ON LETTER OF CREDIT**

---

- 4.1 The Owner may draw funds on the Letter of Credit at any time The Owner determines there is a need to establish a holdback fund in order to protect the interests of The Owner or third party claimants.
- 4.2 The Owner shall notify the Contractor not less than 14 days before drawing funds on the Letter of Credit and stating reasons for the intention to draw funds.
- 4.3 The cumulative amount of any funds drawn by The Owner shall not exceed the amount of holdback The Owner would have otherwise been entitled to retain under the Contract.

**5. RETURN OF LETTER OF CREDIT**

---

- 5.1 Notwithstanding the provisions for release of holdback specified in Section 00630 - Payment Conditions, The Owner shall return the Letter of Credit with final payment only.

**END OF SECTION**

**KNOWN ALL MEN BY THESE PRESENTS THAT**

**The Town of Drumheller**, hereinafter called the "Owner"

**and**

.....  
name of Contractor

.....  
address

hereinafter called the "Contractor", and whereas  
The Owner and the Contractor have entered into a Contract for

.....  
title of the Work and the Project

.....  
dated the .....

.....20 .....

hereinafter called the Contract, and The Owner and the  
Contractor have agreed that:

- the Contractor shall provide The Owner with this Letter of Credit as an alternative to the holdback, as specified in the Contract.

**THEREFORE**, for an amount not exceeding in the aggregate of

.....dollars

(\$.....) lawful money of Canada,

.....  
name of bank

.....  
branch name and address

.....  
hereinafter called the "Bank", a Domestic Chartered Bank as listed in the Bank Act, "Schedule A, or Schedule B, Domestic Chartered Banks", or the Alberta Treasury Branches, hereby establishes in The Owner's favour a Standby Letter of Credit which is irrevocable. Partial drawings are permitted.

Date: .....

Letter of Credit No.: .....

Claims hereunder shall be made in writing, in the form of a sight draft, and shall identify the applicable Letter of Credit by number and date, and shall be presented to the Bank branch office.

**THE BANK HEREBY** undertakes that such drafts will be duly honoured on presentation, without inquiring whether The Owner has a right between The Owner and the Contractor to make such presentation and without recognizing any claim of the Contractor provided that the terms and conditions of this Credit are complied with.

It is understood the Bank is obligated under this Standby Letter of Credit for the payment of monies only.

The expiry date is the .....day of  
.....20.....

for presentation of any claims at the Bank and the Bank's liability will be extinguished for any claims thereafter.

Except as otherwise stated therein, this Credit is subject to the Uniform Customs and Practice for Documentary Credits (1993 Revision), International Chamber of Commerce, Publication 500.

**BANK MANAGER**

.....  
signature

**WITNESS**

.....  
signature

**If presented for payment, payment shall be made to the  
Town of Drumheller**

**1. TYPE AND AMOUNT OF SECURITY**

---

- 1.1 Contractor shall provide security for labour and material of the Contract in the form of a Labour and Material Payment Bond for 50% of the Contract Price.
- 1.2 Bond shall be in accordance with the Canadian Construction Documents Committee (CCDC) Standard Form of Labour and Material Payment Bond, CCDC Document No. 222.
- 1.3 Bond shall be issued by a duly incorporated surety company authorized to transact business of suretyship in the Province of Alberta.
- 1.4 Consign bond to "the Town of Drumheller". (client to confirm)
- 1.5 Submit bond to The Owner within 15 days after date of issuance of Letter of Intent to Enter Contract.

**END OF SECTION**

**1. RELATED REQUIREMENTS**

---

1.1 Hold Harmless Agreement: General Conditions.

**2. GENERAL REQUIREMENTS FOR INSURANCE**

---

2.1 Without restricting the generality of the hold harmless provisions of the General Conditions of Contract and without limiting the obligations or liabilities under the Contract, the Contractor shall, provide, maintain, and pay for the insurance coverages specified in this section.

2.2 Form: Insurance policies shall be placed with Insurers who comply with the Insurance Act (Alberta) and be in forms acceptable to The Owner. All required insurance shall be primary and shall not require the pro rata sharing of any loss by any insurer of The Owner.

2.3 Duration: Unless otherwise specified, required insurance coverages shall be maintained continuously from the date of commencement of the Work until the date of Total Performance of the Work.

2.4 Waiver of Recourse: The Contractor waives all rights of recourse against The Owner for damages to the Contractor's property.

2.5 Deductible: The amount of deductible on any insurance provided by the Contractor shall be reasonable and shall be subject to The Owner's approval.

2.6 Notice of Change to Policy: Each required policy shall be endorsed to provide The Owner with not less than 30 Days advance written notice of cancellation including cancellations for non-payment of premium.

2.7 Proof of Insurance: Prior to commencement of any activities on Site, the Contractor shall provide The Owner with proof that insurance coverages are in effect and meet the specified conditions. Proof of insurance shall be in the following forms:

- .1 Completed Certificate of Liability Insurance.
- .2 Completed Certificate of Property Insurance.
- .3 Insurer's standard certificate for insurance coverage.

In addition, the Contractor shall at any time upon request, promptly file a certified true copy of any insurance policy and shall otherwise provide proof of any required insurance, in a form acceptable to The Owner.

2.8 Subcontractors' Insurance: The Contractor shall ensure that Subcontractors provide their own General Liability Insurance, Automobile Liability Insurance, where such risks exist, Aircraft and Watercraft Liability Insurance, and Other Insurance equivalent to that specified herein. With respect to General Liability Insurance, the Contractor may alternatively provide such insurance on a wrap-up basis insuring himself, his Subcontractors, and anyone employed directly or indirectly by himself or his Subcontractors to perform a part of the Work. The named insureds on such wrap up liability insurance policy shall be the Contractor and The Owner. The requirements under Article 3 – General Liability Insurance shall apply to such wrap up liability insurance and in addition, the policy shall contain completed operations liability coverage, which shall remain in effect

for a period of 12 months after the date of Interim Acceptance of the Work

**3. GENERAL LIABILITY INSURANCE**

---

3.1 The Contractor shall provide General Liability Insurance with limits of not less than \$10,000,000.00 inclusive per occurrence, insuring against bodily injury, death, and property damage including loss of use thereof. Such insurance shall include but not necessarily be limited to coverage for:

- .1 Owner's and Contractor's protective liability,
- .2 blanket written contractual liability,
- .3 personal injury liability,
- .4 non-owned automobile liability (minimum sub-limit \$5,000,000),
- .5 broad form property damage endorsement (as per as per IBC 2313 or similar. Minimum sub-limit \$1,000,000),
- .6 sudden and accidental pollution,
- .7 Forest-fire fighting expenses (minimum sub-limit \$250,000).

3.2 Where such further risks exist, General Liability Insurance shall also include coverage for the following, to limits specified in clause 3.1:

- .1 Operations requiring the use of explosives for blasting, or pile driving or caisson work, or removal or weakening of support of property, building or land.
- .2 Elevator and hoist liability.
- .3 Operation of attached machinery.

3.3 General Liability Insurance shall:

- .1 **not** include The Owner as a named insured, and
- .2 shall be maintained continuously until twelve months following the date of Substantial Performance of the Work or until the date of Total Performance of the Work, whichever is later.

**4. AUTOMOBILE LIABILITY INSURANCE**

---

4.1 The Contractor shall provide Automobile Liability Insurance on all vehicles owned, operated or licensed in Contractor's name, with limits of not less than \$5,000,000 inclusive per occurrence for bodily injury, death, and property damage.

**5. AIRCRAFT AND WATERCRAFT LIABILITY INSURANCE**

---

.1 Where such risks exist, Contractor shall provide Aircraft Liability Insurance and Watercraft Liability Insurance on all aircraft and watercraft, owned, operated or licensed in Contractor's name and non-owned aircraft and watercraft used in Contractor's operations, with limits of not less than \$5,000,000 inclusive per occurrence for bodily injury, death and damage to property including loss of use thereof.

**6. COURSE OF CONSTRUCTION AND BOILER INSURANCE**

---

- 6.1 The Contractor shall provide Course of Construction Insurance in the form of:
- .1 an All Risks Builder's Risk Policy, or
  - .2 if appropriate, due to the nature of the Work, and subject to The Owner's approval, an All Risks Installation Floater,
- Coverage shall:
- .1 insure not less than the sum of the amount of the Contract Price and, if any the full value of Products specified to be provided by The Owner for incorporation into the Work.
  - .2 extend to any location and while in transit and shall be maintained continuously until the date of Substantial Performance of the Work.
  - .3 include loss or damage caused by flood.
  - .4 include loss or damage caused by earthquake.
- 6.2 Where such risks exist, the Contractor shall provide Boiler and Machinery/Equipment Breakdown Insurance insuring not less than the sum of the amount of the Contract Price and the full value of Products specified to be provided by Owner for incorporation into the Work. Such risk shall be deemed to exist when the Work includes any boiler, fired or unfired pressure vessel, refrigerating or air conditioning system, mechanical or electrical machine or apparatus used for the generation, transmission or utilization of mechanical or electrical power. The insurance coverage shall not less than the insurance provided by a comprehensive boiler and machinery policy. The policy shall have the same limits as specified for the course of construction policy and shall be written on a replacement cost basis and shall cover all boilers, pressure vessels and other objects insurable under a standard boiler and machinery policy. The named insureds on the insurance policy shall be the Contractor and The Owner. Other insureds shall include all subcontractors, consultants and subconsultants of every tier, whether named or unnamed in the policy, and all others having an insurable interest in the Work as other insureds. The policy shall be maintained continuously until date of Substantial Performance of the Work or until such objects have been installed, tested and accepted by The Owner, whichever is the latest.

**7. CONTRACTOR'S EQUIPMENT INSURANCE**

---

- 7.1 The Contractor shall provide insurance covering construction machinery and equipment owned, rented, or used by the Contractor for performance of the Work, in such forms and amounts as will enable the expeditious replacement or repair of damaged or destroyed equipment.

**8. OTHER INSURANCE**

---

- 8.1 The Contractor shall provide, maintain and pay for any additional insurance required to be provided by law, or which he considers necessary to cover risks not otherwise covered by insurance specified in the Contract Documents.

**END OF SECTION**

**INSTRUCTIONS:**

- This certificate must be completed by the Contractor's insurance agent or broker and submitted to The Town of Drumheller **prior to commencement of any activities** by the Contractor on site. Refer to the Insurance Conditions in the Contract Documents for detailed description of insurance requirements, including required coverages.
- An Insurer's standard certificate of insurance is **not acceptable** in lieu of this Town of Drumheller form, unless modified to provide **all** information required by this form.
- It is understood that this certificate is issued as information only. It does not amend, extend or alter coverages afforded by the policies described herein.
- Submit the completed certificate to: **Town of Drumheller  
702 Premier Way  
Drumheller, AB  
T0J 0Y4**

**Identification of Insured**

Contractor's Name		
Contractor's Address		
City / Town	Province	Postal Code

**Identification of Contract**

Contract Name (location and description of the Work as it appears in the Contract Documents)	Project ID (from Contract Documents)
	Contract Number
	CPIN

**General Liability Insurance**

Insurer's Name		
Policy Number	Expiry Date <small>month (name of), date, year</small>	Limit of Liability (per occurrence)
Coverages provided by this Policy (check applicable coverages)		
<input type="checkbox"/> Owner's and Contractor's protective liability <input type="checkbox"/> Blanket written contractual liability <input type="checkbox"/> Personal injury liability <input type="checkbox"/> Non-owned automobile liability <input type="checkbox"/> Broad form property damage endorsement <input type="checkbox"/> Sudden and accidental pollution liability	<input type="checkbox"/> Blasting <input type="checkbox"/> Piledriving or caisson work <input type="checkbox"/> Removal or weakening of support of property, building or land <input type="checkbox"/> Elevator and hoist liability <input type="checkbox"/> Operation of attached machinery <input type="checkbox"/> Forest fire-fighting expenses	

**Automobile Liability Insurance**

Insurer's Name		
Policy Number	Expiry Date <small>month (name of), date, year</small>	Limit of Liability (per occurrence)

**Aircraft Liability Insurance (if applicable)**

Insurer's Name		
Policy Number	Expiry Date <small>month (name of), date, year</small>	Limit of Liability (per occurrence)

**Watercraft Liability Insurance (if applicable)**

Insurer's Name		
Policy Number	Expiry Date <small>month (name of), date, year</small>	Limit of Liability (per occurrence)

**Certification**

<p>The undersigned hereby certifies that:</p> <ul style="list-style-type: none"> <li>• The policies described herein, subject to their terms, conditions, and exclusions, have been issued to the named insured and are in force at this time.</li> <li>• Coverages afforded under said policies will not be cancelled or materially changed to restrict coverage unless thirty (30) days advance written notice has been given to the Town of Drumheller at the address shown on page 1 of this form and each of the policies have been endorsed to this effect.</li> <li>• The undersigned is an authorized representative of each of the insurance companies listed herein, and has full knowledge of the facts set forth herein and believes them to be true.</li> </ul>			
Name of Issuing Agency			
Address of Issuing Agency			
City / Town	Province	Postal Code	Telephone No.
Name of Authorized Representative (print or type)	Signature of Authorized Representative		Date of Issue



**INSTRUCTIONS:**

- This certificate must be completed by the Contractor's insurance agent or broker and submitted to the Town of Drumheller **prior to commencement of any activities** by the Contractor on site. Refer to the Insurance Conditions in the Contract Documents for detailed description of insurance requirements, including required coverages.
- An Insurer's standard certificate of insurance is **not acceptable** in lieu of this Town of Drumheller form, unless modified to provide **all** information required by this form.
- It is understood that this certificate is issued as information only. It does not amend, extend or alter coverages afforded by policies described herein.
- Submit the completed certificate to:
 

**Town of Drumheller**  
**702 Premier Way**  
**Drumheller, AB**  
**T0J 0Y4**

**Identification of Insured**

Contractor's Name		
Contractor's Address		
City / Town	Province	Postal Code

**Identification of Contract**

Contract Name (location and description as it appears in the Contract Documents)	Project ID (from Contract Documents)
	Contract Number
	CPIN

## Course of Construction Insurance

Insurer's Name		
Policy Number	Expiry Date <hr style="border: none; border-top: 1px solid black; width: 100%;"/> <small>month (name of), date, year</small>	Total Insured Value
Form of Policy (check applicable)		
<input type="checkbox"/> All Risks Builder's Risk Policy <span style="margin-left: 200px;"><input type="checkbox"/> Other (specify below)</span>		
<input type="checkbox"/> All Risks Installation Floater		
Limits of Liability		
\$ _____ <small>At Place of Work</small>	\$ _____ <small>At any other location</small>	\$ _____ <small>In transit</small>
Deductible		
\$ _____ <small>At Place of Work</small>	\$ _____ <small>At any other location</small>	\$ _____ <small>In transit</small>
Coverages provided by this Policy (check applicable coverages)		
<input type="checkbox"/> All risks coverage <span style="margin-left: 100px;"><input type="checkbox"/> Primary Insurance, <b>not</b> requiring loss sharing with other insurers</span>		
<input type="checkbox"/> Town of Drumheller included as a named insurable insured <span style="margin-left: 100px;"><input type="checkbox"/> Subcontractors, sub-subcontractors and others with an interest, included as additional insureds</span>		

**Boiler Insurance**

Insurer's Name		
Policy Number	Expiry Date  _____ month (name of), date, year	Limit of Liability (per occurrence)

**Certification**

<p>The undersigned hereby certifies that:</p> <ul style="list-style-type: none"> <li>• The policies described herein, subject to their terms, conditions, and exclusions, have been issued to the above named insured and are in force at this time.</li> <li>• Coverages afforded under said policies will not be cancelled or materially changed to restrict coverage unless thirty (30) days advance written notice has been given to Town of Drumheller at the address shown on page 1 of this form and each of the policies has been endorsed to this effect.</li> <li>• The undersigned is an authorized representative of each of the insurance companies listed herein, and has full knowledge of the facts set forth herein and believes them to be true.</li> </ul>			
Name of Issuing Agency			
Address of Issuing Agency			
City / Town	Province	Postal Code	Telephone No.
Name of Authorized Representative (print or type)	Signature of Authorized Representative		Date of Issue

**1. FEDERAL GOODS AND SERVICES TAX**

- 1.1 Monies payable by The Owner to the Contractor shall be charged the federal Goods and Services Tax (GST).

**2. BASIS OF PAYMENT**

- 2.1 Payment for Lump Sum Work shall be based on the prices in the Contract and, when required by the Contract, the approved schedule of values for such work.
- 2.2 Payment for Unit Price Work shall be based on the Unit Prices in the Contract.
- 2.3 Payment for Cost Plus Work shall be based on the cost of such work, as specified herein, plus a fee in the amount of 10% of the cost of such work for the Contractor's overhead and profit except that no fee shall be applied to the cost of Construction Equipment when such cost is based on rates which already include the Contractor's overhead and profit.
- 2.4 The cost of Cost Plus Work shall be computed as the sum of the following cost elements as applicable to such work:

- .1 Cost of labour (other than labour costs included in other cost elements) comprised of payroll costs for employees in the direct employ of the Contractor. Such employees shall include the superintendent and foremen at the Site. Payroll costs shall include salary, fringe benefits and statutory charges paid by the Contractor. Fringe benefits shall include health care, vacations with pay, sick time allowance, and pension plan, life and disability insurance, dental and medication plan contributions. Statutory charges shall include contributions for Canada Pension Plan, Workers' Compensation, statutory holidays and Unemployment Insurance. Labour rates shall be consistent with rates actually paid for equivalent job classifications in the normal performance of Lump Sum Work or Unit Price Work or, if there are no such equivalencies, under a schedule of job classifications and labour rates agreed upon by The Owner and the Contractor, if possible before labour costs are incurred.

- .2 Cost of Products supplied and incorporated into Permanent Work, including cost of transportation and storage thereof and Supplier's site services required in connection therewith. Cash discounts shall accrue to the Contractor. Trade discounts, rebates and refunds and returns from sale of surplus Products shall accrue to The Owner.

- .3 Cost of Construction Equipment:

- .1 Cost of Construction Equipment shall be paid at the rates specified in the current edition of the Equipment Rental Rates Guide published by the Alberta Roadbuilders and Heavy Construction Association, hereinafter called the "Rates Guide", subject to the following:

- .1 Rates specified in the Rates Guide shall be deemed to include all overhead and profit, regardless of whether Construction Equipment is provided by the Contractor, Subcontractors or Sub-subcontractors.

- .2 Rates specified in the Rates Guide shall be deemed to include cost of owning, operating (including wages for equipment operators but not including travel and subsistence costs for equipment operators) loading, unloading, assembling, erecting, and dismantling.

- .2 When applicable rates are not included in the Rates Guide, costs shall be paid at the rates agreed upon by The Owner and the Contractor, if possible before such costs are incurred.

- .3 Cost of moving Construction Equipment to and from the Site shall not be payable, unless such cost is solely attributable to the Work and is approved as such by The Owner.

- .4 Except for Construction Equipment traveling under its own power, travel time for Construction Equipment shall not be payable. Unless otherwise approved by The Owner, Construction Equipment shall be moved by the most economical method.

- .4 Cost of Temporary Work, including cost of transportation and maintenance thereof, used and consumed in the performance of the Work and the cost less fair market value of such work used but not consumed which shall remain the property of the Contractor.

- .5 Cost of special services, including the cost of architects, engineers, specifiers, surveyors, testing laboratories and inspection agencies.

- .6 Supplemental costs, including:

- .1 travel and subsistence costs of the Contractor's employees (including equipment operators under clause 2.4.3.);
- .2 statutory charges, including fees, cost of permits and licences and custom duties;
- .3 cost of rights-of-way and other land related costs;
- .4 royalty payments and patent licence fees;
- .5 deposits lost for causes other than the Contractor's fault or negligence.

- .7 Subcontract and Sub-subcontract costs, including payments made by the Contractor to Subcontractors and by Subcontractors to Sub-subcontractors in accordance with the requirements of such contracts. Subcontractors' and Sub-subcontractors' costs and fees for overhead and profit for Cost Plus Work to be performed under such contracts shall be determined in the same manner as the Contractor's cost and fee.

- 2.5 With respect to Cost Plus Work:

- .1 Costs payable by The Owner shall be directly related to or shall have been necessarily and properly incurred in the performance of such work.

- .2 Overhead shall include the Contractor's costs related to the operation and maintenance of his head office and branch offices, administration at head office and branch offices, general management, legal, audit and accounting services, buying organization, corporate tax, financing and other bank charges, company

directors, salaries and other compensation of personnel stationed off-site, design of Construction Equipment and Temporary Work, planning and scheduling of work, expendable and unexpendable small tools, including maintenance thereof, and recruitment and training of site staff.

- .3 The Contractor shall obtain The Owner's prior approval to subcontract or enter into other agreements for Cost Plus Work.
- .4 The Owner may refuse to pay all or part of the cost of any Work item under any cost element, where the item in question was, in The Owner's opinion, unsuitable for the Work performed.

### **3. MEASUREMENT FOR PAYMENT**

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- 3.1 Unless otherwise specified in the Contract, The Owner shall measure the Work for the purpose of determining payment to the Contractor in accordance with the measurement provisions of the Contract.

### **4. PROGRESS PAYMENTS**

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- 4.1 Prior to Substantial Performance of the Work, The Owner shall make monthly payments to the Contractor.
- 4.2 Within 7 days after the end of each monthly payment period, the Contractor shall submit to The Owner:
  - .1 completed Statutory Declaration Form 00630A, at and after the second monthly payment period,
  - .2 any data requested by The Owner to assist The Owner to determine the amount due and payable to the Contractor, and
  - .3 for Products stored by the Contractor on the Site for incorporation in Permanent Work but not incorporated in such Work, proof of purchase price and delivery to the Site, along with a statement of the quantity of such Products and the Schedule of Prices item to which the Products relate.
- 4.3 The Owner shall, within 42 days after the end of each monthly payment period and subject to having received within the time specified any required information referred to in clause 4.2, pay to the Contractor the amount which The Owner determines to be due and payable to the Contractor, up to the end of the monthly payment period in respect of:
  - .1 the value of Work executed;
  - .2 the value of Work executed pursuant to authorized Changes in the Work;
  - .3 the value of Products stored by the Contractor on the Site for incorporation in Permanent Work but not incorporated in such Work;
  - .4 adjustments due to changes in Regulatory Requirements or price fluctuation provisions of the Contract, if applicable;
  - .5 any other amount determined by The Owner; and
  - .6 subject to:
    - .1 any deductions under clause 11.;
    - .2 any withholdings under clause 12.; and

.3 retention of the holdback amount calculated by applying the holdback percentage referred to in clause 5. to the amount payable to the Contractor under clause 4.3 after any deductions and withholdings.

- 4.4 For Unit Price Work, The Owner may, at his discretion, make partial payment based on partial completion of the scope of a single unit of an item of Work.
- 4.5 If, after receipt of a progress payment from The Owner, the Contractor disagrees with the amount of such payment, such amount shall nevertheless be considered to be correct unless the Contractor, within 7 days after such receipt, notifies The Owner of the respects in which such payment is claimed by him to be incorrect. On receipt of such notice, The Owner shall review the amount of the payment and either confirm or vary it. If The Owner varies the payment, such variance shall be added to the next progress payment.
- 4.6 Notwithstanding the terms of this clause or any other clause of the Contract no amount shall be paid by The Owner until the contract security and proof of insurance, if required under the Contract, have been provided by the Contractor.

### **5. HOLDBACK**

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- 5.1 The Owner shall hold back 10% from each progress payment referred to in clause 4, pursuant to the Builders Lien Act.
- 5.2 Up to 100% of retained holdback monies shall be payable by The Owner to the Contractor not less than 45 days after the date of Substantial Performance of the Work as certified by The Owner provided:
  - .1 third party claims, received by The Owner pursuant to the Public Works Act, the Builders Lien Act or applicable or addressed and a course of action agreed to by The Owner and the Contractor, and
  - .2 the Contractor has submitted to The Owner, within 7 days after the date of Substantial Performance, a letter of clearance from the Workers' Compensation Board and a completed Statutory Declaration Form 00630A.
- 5.3 The Owner shall, within 63 days after Substantial Performance and subject to having received within the time specified any required information referred to in clause 5.2, pay to the Contractor 100% of retained holdback monies, subject to any deductions under clause 11. and to any withholdings under clause 12., and subject further to withholding:
  - .1 an amount equal to twice The Owner's estimate of the cost to The Owner of remedying any defects described in the certificate of Substantial Performance of the Work, and
  - .2 an amount equal to The Owner's estimate of the cost to The Owner of completing any outstanding work described in the certificate of Substantial Performance of the Work.
- 5.4 If The Owner withholds a portion of the retained holdback pursuant to clause 5.3, The Owner shall, at such reasonable times and intervals as The Owner may

determine, pay to the Contractor the balance of the retained holdback, as and when the cause or causes for the withholding are removed.

- 5.5 When a certificate of Substantial Performance for part of the Work has been issued by The Owner, the provisions of clause 5.2 shall apply proportionately to such part of the Work.

#### **6. PAYMENT AFTER SUBSTANTIAL PERFORMANCE**

- 6.1 After Substantial Performance of the Work, The Owner shall make periodic payments to the Contractor on the same basis and conditions as specified in clause 4, except that such payments:

- .1 shall be made at such reasonable times and intervals as The Owner may determine, and
- .2 shall not be subject to holdback.

- 6.2 When a certificate of Substantial Performance for part of the Work has been issued by The Owner, the provisions of this clause shall apply proportionately to such part of the Work.

#### **7. FINAL PAYMENT**

- 7.1 The Owner shall prepare the final statement and make final payment to the Contractor.
- 7.2 Within 42 days after the date of Total Performance of the Work, the Contractor shall submit to The Owner:
- .1 any data requested by The Owner to assist The Owner to determine the final amount due and payable to the Contractor,
  - .2 a completed Statutory Declaration Form 00630A, and
  - .3 a letter of clearance from Workers' Compensation Board.
- 7.3 Subject to having received within the time specified any required information referred to in clause 7.2, The Owner shall, within 63 days after the date of Total Performance of the Work, prepare and deliver to the Contractor the final statement, stating the final amount which The Owner determines to be due and payable by The Owner to the Contractor.
- 7.4 The Owner shall, within 42 days after the final statement is issued to the Contractor, pay the Contractor the final amount.
- 7.5 If the final statement is considered by the Contractor to be incorrect, the Contractor shall, within 63 days of receipt thereof, submit to The Owner a notice of claim, including substantiation, notwithstanding the time provisions of clause 10. of the General Conditions
- 7.6 If The Owner does not receive a notice of claim pursuant to clause 7.5 within the time specified, the final statement shall be considered correct.
- 7.7 The final payment shall represent full and final settlement of all monies due to the Contractor pursuant to the Contract except with respect to unresolved claims, if any.

#### **8. OWNER'S LIABILITY**

- 8.1 .1 After the final payment issued pursuant to clause 7.4 has been made, The Owner shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract, except as may be provided elsewhere in the Contract, unless the Contractor shall have made a claim in respect therefor prior to or within the time specified in clause 7.5.

#### **9. DELAY IN MAKING PAYMENT**

- 9.1 In respect of progress payments, payment after Substantial Performance of the Work, payment of holdback, and final payment, The Owner shall pay the Contractor an amount that The Owner considers to be due to the Contractor, pursuant to the Contract, within the time specified.

#### **10. RIGHT OF SET-OFF**

- 10.1 Without limiting any right of set-off, deduction or recovery given or implied by law or elsewhere in the Contract, The Owner may set off any amount payable to The Owner by the Contractor, or recoverable from the Contractor by The Owner, under the Contract or under any other current contract against any amount payable to the Contractor under this Contract.
- 10.2 For the purposes of these Payment Conditions, "other current contract" means a contract between The Owner and the Contractor under which the Contractor has an undischarged obligation to perform or supply work, labour, or material, or in respect of which The Owner has, since the date of execution of the contract agreement, exercised any right to take the work that is the subject of the contract out of the Contractor's hands.

#### **11. DEDUCTIONS FROM PAYMENTS**

- 11.1 The Owner may deduct from any amount claimed by or payable to the Contractor:
- .1 an amount at least equal to the value, as determined by The Owner, of work not in accordance with Contract Documents,
  - .2 the amount of any unresolved third party claim submitted pursuant to the Public Works Act or applicable requirements of the Contract,
  - .3 the amount of any unpaid and overdue statutory account related to the Contract and of which The Owner has received notice and which is enforceable against The Owner,
  - .4 the amount of any overpayment made by The Owner to the Contractor, and
  - .5 any other amount recoverable by The Owner from the Contractor under the Contract.

#### **12. WITHHOLDING OF PAYMENT**

- 12.1 The Owner may withhold all or part of any amount payable to the Contractor in order to protect The Owner or third parties from loss due to the Contractor's:

- .1 failure to make payments properly to Subcontractors or for labour, materials or equipment,
  - .2 failure to ensure that Subcontractors make payments properly to Sub-subcontractors or for labour, materials or equipment,
  - .3 inability to complete the Work within the Contract Time,
  - .4 inability to complete the Work for the unpaid balance of the Contract Price,
  - .5 persistent failure to perform the Work in accordance with the Contract Documents.
- 12.2 Owner may withhold all or part of any amount payable to Contractor due to Contractor's persistent failure to provide submittals in accordance with the Contract Documents.
- 12.3 When the causes for withholding payment pursuant to clauses 12.1 or 12.2 are removed to The Owner's satisfaction, The Owner shall pay the Contractor the amount previously due and payable with the next progress payment.

**13. TITLE TO AND ACCEPTANCE OF WORK**

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- 13.1 The Contractor warrants that title to work and Products covered by any payment made by The Owner to the Contractor will pass to The Owner, at the time of payment, free and clear of all claims, interests and encumbrances.
- 13.2 The Contractor further warrants that Products stored at the Site and for which payment has been received, shall not be removed from the Site and shall be kept secure and protected.
- 13.3 Payments made by The Owner shall not be construed as an acceptance that the Work, Products, or any part thereof is complete, is satisfactory or is in accordance with the Contract Documents.

**END OF SECTION**

## STATUTORY DECLARATION SUBMITTED BY CONTRACTOR FOR PAYMENT

**IDENTIFICATION OF AGREEMENT**

Project Title: _____	
Contractor: _____	
Agreement Effective Date:   (year)                      (month)                      (day)	
Town Representative: _____	Contractor: _____

**IDENTIFICATION OF DECLARANT: Must Be An Authorized Representative Of The Contractor**

Name of Declarant: \_\_\_\_\_

Business Address: \_\_\_\_\_

Position/Title: \_\_\_\_\_

**DECLARATION OF CONTRACTOR'S REPRESENTATIVE:**

I solemnly declare that, as of the date of this Statutory Declaration, I am an authorized signing officer of the Contractor named in the Agreement identified above, and as such have legal authority to bind the Contractor, and have personal knowledge that all insurance and Workers' Compensation Board premiums, accounts payable for subcontracts and related Total Costs of Material and Labour which have been incurred by the Contractor in performance of the Work pursuant to the Agreement, have been paid in full up to and including the latest Construction Period Payment received, as identified above, except for:

1. Payments deferred by agreement between the Contractor and a Subcontractor which have been reported to the Town Representative for the Town's Representative's verification and prior approval, or
2. Amounts withheld by reason of a legitimate dispute which has been identified to the relevant Party or Parties and from whom payment has been withheld including any legitimate dispute with a Subcontractor, as identified below:

\_\_\_\_\_

\_\_\_\_\_

I make this solemn statutory declaration conscientiously believing it to be true, and knowing that it is of the same legal force and effect as if made under oath.

**The making of a false or fraudulent statutory declaration is a contravention of the Criminal Code of Canada and carries, upon conviction, penalties including fines or imprisonment, or both.**

\_\_\_\_\_  
Signature of Declarant  
Authorized Representative of the Contractor

Declared before me at \_\_\_\_\_

In the Province of \_\_\_\_\_

dated \_\_\_\_\_

\_\_\_\_\_  
Signature of Notary Public or Commissioner of Oaths in and for Alberta

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Expiry Date of Commission



**1. GENERAL**

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- 1.1 The Public Works Act (Alberta) applies to this Project. The Builders' Lien Act (Alberta) does not apply.
- 1.2 The Public Works Act allows any person who has not received proper payment, regardless of their level in the contracting chain, to make a claim directly to The Owner.
- 1.3 This Section specifies procedures for making a claim under the Public Works Act.
- 1.4 For the purpose of interpreting the "Notice of Claim" provisions under Section 14 of the Public works Act, this Contract shall be deemed to be a contract for work *other than* a highway or road as defined in section 1 of schedule 14 of the Government Organization Act. The 45-day claim period as set out in Section 14(3)(a) shall apply.

**2. POSTING OF CLAIMS INFORMATION**

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- 2.1 Contractor shall display, at the Site, on a bulletin board of adequate size, a copy of each of the following:
  - .1 This Specification Section.
  - .2 Notice of Public Works Act Claim Form (copy appended to this Section).
  - .3 Labour and Material Payment Bond, if provided under the Contract.
- 2.2 Protect display in plastic sleeves and maintain in legible condition for duration of Contract.
- 2.3 The Owner may, upon request, waive the requirement to post claims information where it is not practicable to display this information at the Site.

**3. CLAIMS PROCEDURE**

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- 3.1 Complete Notice of Public Works Act Claim form (copy appended to this Section) and submit form to address indicated on form within 45 Days after the last day on which labour, equipment, material or services giving rise to claim were provided.
- 3.2 Owner will acknowledge receipt of claim in writing.
- 3.3 The claimant shall, if requested by Owner, submit additional evidence in support of claim.

**4. EXTRACT FROM PUBLIC WORKS ACT**

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Notice of claim

**14(1) When**

(a) a person provides labour, equipment, material or services used or reasonably required for use in the performance of a contract with the Crown for the construction, alteration, demolition, repair or maintenance of a public work, and

(b) that person is not paid by the party who is legally obliged to pay that person, that person may send a notice of that person's claim to the Minister, or agent of the Crown that is responsible for the public work.

(2) (b) that person is not paid by the party who is legally obliged

to pay that person (3) The notice of claim, other than for a claim referred to in subsection (2), must

(a) be sent by registered mail not later than 45 days after the last day on which the labour, equipment, material or services were provided, and

(b) set out the nature and amount of the claim in a form satisfactory to the Crown.

**END OF SECTION**

# Notice of Public Works Act Claim



Submit completed form by **“Registered Mail”** to:

Town of Drumheller  
 Resiliency and Flood Mitigation Office  
 702 Premier Way  
 Drumheller, Alberta, T0J 0Y0

## Claimant Information

Name (legal name)				
Address				City/Town
Province	Postal Code	Telephone	Fax	E-Mail

## Project Information

The claim is made in respect of the following project:	
Project Name:	
Town of Drumheller Contract #: (if known)	

## Details of Claim

<b>1</b>	Our Contract is with (name of contracting party):	(and Prime Contractor, if different)
<b>2</b>	This claim is made in respect of the following work (provide a short description of labour, equipment, materials, or service provided):	
<b>3</b>	Time (work includes labour, equipment, materials or services provided)	
	<input type="checkbox"/> The work related to this claim was fully performed on: _____ <b>OR</b> <input type="checkbox"/> The work related to this claim is not yet fully performed but payment for work performed to: _____ has not been received as of: _____ (Today's Date)	
<b>4</b>	Amount	
	The amount of this claim is \$_____ which includes \$_____ In holdback funds or not	
<b>5</b>	Signature	
I, the undersigned, am or represent the claimant named above and believe that the information provided is true and correct		
Printed Name of Declarant		Signature of Declarant

## For Owner Use Only

Contract #	Date Received	Date Filed	Date Acknowledged
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**1. OWNER AND OWNER'S REPRESENTATIVE**

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- 1.1 Owner's Duties and Authority
- 1.2 Owner's Representative
- 1.3 Appointment of Assistants
- 1.4 Instructions in Writing
- 1.5 Owner Interpreter of Contract
- 1.6 Owner's Determinations
- 1.7 Owner's Review

**2. ASSIGNMENT, SUBCONTRACTING AND NOMINATION**

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- 2.1 Assignment
- 2.2 Subcontracting
- 2.3 Nominated Subcontractors and Suppliers

**3. DOCUMENTS**

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- 3.1 Property and Use of Contract Documents
- 3.2 Reporting of Conflicts, Errors and Discrepancies
- 3.3 Disruption of Progress
- 3.4 Additional Instructions
- 3.5 Forms

**4. GENERAL OBLIGATIONS**

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- 4.1 Contractor's Responsibilities
- 4.2 Contract Security
- 4.3 Site Operations and Methods of Construction
- 4.4 Differing Physical Conditions or Obstructions
- 4.5 Climatic and Weather Conditions
- 4.6 Contractor's Superintendence
- 4.7 Contractor's Employees
- 4.8 Owner May Object
- 4.9 Safety, Security and Protection of the Environment
- 4.10 Owner's Responsibilities for Safety
- 4.11 Care of Work
- 4.12 Responsibility to Rectify Loss or Damage
- 4.13 Hold Harmless Agreement
- 4.14 Regulatory Requirements
- 4.15 Artifacts and Fossils
- 4.16 Patent Rights

- 4.17 Royalties
- 4.18 Other Contractors
- 4.19 Permanent Work Designed by Contractor
- 4.20 Records and Audit
- 4.21 Record of Labour and Construction Equipment
- 4.22 Customs
- 4.23 Urgent Remedial Work

**5. QUALITY OF PRODUCTS AND WORK**

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- 5.1 Products and Workmanship
- 5.2 Cost of Samples
- 5.3 Cost of Tests Provided For
- 5.4 Cost of Tests Not Provided For
- 5.5 Inspection and Testing
- 5.6 Dates for Inspection and Testing
- 5.7 Rejection
- 5.8 Cost for Inspection and Testing
- 5.9 Independent Inspection
- 5.10 Examination of Work Before Covering Up
- 5.11 Uncovering and Making Openings
- 5.12 Removal of Improper Work or Products

**6. COMMENCEMENT, COMPLETION, CONTRACT TIME AND DELAYS**

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- 6.1 Commencement of Work
- 6.2 Possession of Site and Access to Site
- 6.3 Contract Time
- 6.4 Extension of Contract Time
- 6.5 Contractor to Provide Notification and Details
- 6.6 Interim Determination of Extension of Time
- 6.7 Rate of Progress
- 6.8 Substantial Performance of the Work
- 6.9 Substantial Performance of Part or Parts of Work
- 6.10 Total Performance of the Work
- 6.11 Warranty Performance of the Work
- 6.12 Acceleration
- 6.13 Damages for Delay
- 6.14 Damages for Delay of Specific Work

**7. WARRANTY**

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- 7.1 Warranty Period
- 7.2 Completion of Outstanding Work
- 7.3 Remedying Defects
- 7.4 Contractor's Failure to Carry Out Instructions
- 7.5 Contractor to Search

**8. CHANGES AND VARIATIONS**

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- 8.1 Changes in the Work
- 8.2 Instructions for Changes in the Work
- 8.3 Valuation of Changes in the Work
- 8.4 Impact of Changes in the Work
- 8.5 Quantity Variations

**9. CHANGES IN COST AND REGULATORY REQUIREMENTS**

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- 9.1 Increase or Decrease in Cost
- 9.2 Changes in Regulatory Requirements

**10. CLAIMS REVIEW PROCESS AND DISPUTE RESOLUTION PROCEDURE**

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- 10.1 General
- 10.2 Claims Review Process for Contractor Claims
- 10.3 Dispute Resolution Procedure
- 10.4 Obligations to and Claims of Third Parties

**11. RELEASE FROM PERFORMANCE**

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- 11.1 Frustration
- 11.2 Removal of Construction Equipment on Termination
- 11.3 Payment if Contract Terminated

**12. SUSPENSION AND TERMINATION BY OWNER**

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- 12.1 Suspension of Work
- 12.2 Owner's Determination Following Suspension
- 12.3 Suspension Lasting More Than 91 Days
- 12.4 Termination of Contract

**13. DEFAULT OF CONTRACTOR**

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- 13.1 Default
- 13.2 Valuation at Date of Termination
- 13.3 Payment After Termination
- 13.4 Assignment of Benefit of Agreement

**14. DEFAULT OF OWNER**

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- 14.1 Failure of Owner to Pay
- 14.2 Removal of Construction Equipment
- 14.3 Payment on Termination
- 14.4 Contractor May Suspend Work
- 14.5 Resumption of Work

**15. FORCE MAJEURE**

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- 15.1 Force Majeure Event

**1. OWNER AND OWNER'S REPRESENTATIVE**

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- 1.1 **Owner's Duties and Authority:** The Owner shall carry out the duties and exercise the authority specified in the Contract.
- 1.2 **Owner's Representative:** The Owner shall appoint a representative who shall, unless the Contractor is expressly advised otherwise by The Owner or a duly authorized departmental officer, have full authority to act on behalf of and bind The Owner under the Contract.
- 1.3 **Appointment of Assistants**
  - .1 The Owner's Representative may appoint any number of persons to assist him in carrying out his duties. He shall notify the Contractor of the names, duties and scope of authority of such persons.
  - .2 The failure of any assistants appointed pursuant to clause 1.3.1 to disapprove any work shall not prejudice the authority of The Owner to disapprove such work and to give instructions for the rectification thereof.
- 1.4 **Instructions in Writing:** The Contractor shall take instructions only from The Owner, The Owner's Representative, or any assistants appointed pursuant to clause 1.3. Instructions given by The Owner shall be in writing, provided that if The Owner considers it necessary to give any instruction orally, the Contractor shall comply with such instruction. Confirmation in writing of such oral instruction given by The Owner, whether before or after the carrying out of the instruction, shall be deemed to be an instruction within the meaning of this clause. Provided that if the Contractor, within 7 days, confirms in writing to The Owner any oral instruction of The Owner and such confirmation is not contradicted in writing within 7 days by The Owner, it shall be deemed to be an instruction of The Owner.
- 1.5 **Owner Interpreter of Contract:** The Owner in the first instance shall be the interpreter of the Contract and the judge of the Contractor's performance.
- 1.6 **Owner's Determinations:** When The Owner is required to exercise his discretion by giving his decision, opinion or consent, or expressing his satisfaction or approval, or determining value, or otherwise taking action which may affect the rights and obligations of the Contractor he shall exercise such discretion within the terms of the Contract after due consultation with the Contractor and shall promptly notify the Contractor of such decision, opinion, consent, approval or determination.
- 1.7 **Owner's Review:** Any review, comment, consent, acceptance or approval, or lack thereof, by The Owner, shall not relieve the Contractor of any of its responsibilities or liabilities under the Contract.

**2. ASSIGNMENT, SUBCONTRACTING AND NOMINATION**

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**2.1 Assignment**

- .1 The Contractor shall not assign the Contract, either in whole or in part, without the previous written consent of The Owner, which consent,

notwithstanding other provisions of the Contract, shall be at The Owner's sole discretion.

- .2 The Owner shall not be bound by any assignment by the Contractor of any monies payable or to become payable to the Contractor under the Contract, without the written consent of The Owner, which consent:
  - .1 will not be given for a general assignment of book debts, but
  - .2 may, at The Owner's sole discretion, be given for a specific assignment of all or part of monies payable to the Contractor under the Contract,subject however, in all cases, to the provisions of the Financial Administration Act (Alberta).

**2.2 Subcontracting**

- .1 The Contractor:
  - .1 shall not sublet the Contract as a whole,
  - .2 shall not subcontract any part of the Work without The Owner's prior consent, which shall not be unreasonably withheld,
  - .3 shall provide such details of any Subcontractor he wishes to engage as The Owner may require,
  - .4 shall contract with those Subcontractors proposed by him and accepted by The Owner and such Subcontractors shall not be changed without The Owner's prior consent.
- .2 The Owner may, for reasonable cause, object to the use of a proposed Subcontractor and require the Contractor to contract with another Subcontractor.
- .3 If The Owner requires a change from a proposed Subcontractor, the Contract Price shall be adjusted by any difference in cost and markup occasioned by such required change, except where such change is required due to the Contractor's default or negligence, in which case there shall be no change in the Contract Price.
- .4 The Owner may, upon reasonable request and at his discretion, provide to a Subcontractor information as to the percentage or quantity of the Subcontractor's work for which payment has been approved.
- .5 Nothing contained in the Contract shall create a contractual relationship between a Subcontractor and The Owner and subcontracting part of the Work shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any Subcontractor, his agents, servants or workers as fully as if they were his own.
- .6 The Contractor shall enter into contracts or written agreements with his Subcontractors to require them to perform their work in accordance with the Contract, and the Contractor shall incorporate the terms and conditions of the Contract Documents, to the extent that they apply, into all subcontracts.

**2.3 Nominated Subcontractors and Suppliers**

- .1 A nominated Subcontractor or nominated Supplier means a person, firm or corporation with whom the Contract requires the Contractor to enter into a

contract for the performance of a subcontract or the supply of things related to the Work.

2. Nothing contained in the Contract shall create a contractual relationship between The Owner and a nominated Subcontractor or nominated Supplier and such nomination shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any nominated Subcontractor or nominated Supplier, his agents, servants or workers as fully as if they were his own.

### **3. DOCUMENTS**

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3.1 **Property and Use of Contract Documents:** The Contract Documents are the sole property of The Owner and unless it is necessary for the purposes of the Contract, the Contract Documents shall not, without the consent of The Owner, be used by or communicated to a third party by the Contractor.

#### **3.2 Reporting of Conflicts, Errors and Discrepancies**

- .1 If the Contractor finds a conflict, error or discrepancy in the Contract Documents, the Contractor shall so report to The Owner in writing at once and, before proceeding or continuing with the Work affected thereby, shall obtain a written interpretation or clarification from The Owner; however, the Contractor shall not be liable to The Owner for failure to report any conflict, error or discrepancy in the Contract Documents unless the Contractor had actual knowledge thereof or should reasonably have known thereof.
- .2 The Contractor shall obtain from The Owner any dimensions required but not indicated in figures in the Contract Documents nor calculable from figures in the Contract Documents. Scaling of Drawings, for any purpose, shall be at the Contractor's risk.

#### **3.3 Disruption of Progress**

- .1 The Contractor shall notify The Owner when planning or execution of the Work is likely to be delayed or disrupted unless any further document or instruction required of The Owner under the Contract is issued by The Owner within a reasonable time. The notice shall include details of the document or instruction required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.
- .2 If, by reason of any failure or inability of The Owner to issue, within a reasonable time, any document or instruction for which notice has been given by the Contractor in accordance with clause 3.3.1, the Contractor suffers delay or incurs costs then The Owner shall determine:
  - .1 any extension of time to which the Contractor is entitled under clause 6.4, and
  - .2 the amount of such costs, which shall be added to the Contract Price.
- .3 If the failure or inability of The Owner to issue any documents or instruction is caused in whole or in part by the failure of the Contractor to submit documents which he is required to submit under the Contract, The Owner shall take such failure by the

Contractor into account when making his determination pursuant to clause 3.3.2.

3.4 **Additional Instructions:** The Owner shall have authority to issue to the Contractor, from time to time, such Additional Instructions as may be necessary for the proper performance of the Work. The Contractor shall carry out and be bound by such Additional Instructions.

3.5 **Forms:** Forms to be used pursuant to the Contract or as otherwise may be required for the administration of the Contract shall be as prescribed or approved by The Owner.

### **4. GENERAL OBLIGATIONS**

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4.1 **Contractor's Responsibilities:** The Contractor shall, with due care and diligence, design, to the extent provided for by the Contract, execute and complete the Work and remedy any defects therein in accordance with the provisions of the Contract. This shall include the provision of superintendence, labour, Products, Construction Equipment, Temporary Work and all other things, whether of a temporary or permanent nature, required in and for such design, execution, completion and remedying of any defects. The Contractor shall comply with and adhere strictly to The Owner's instructions on any matter, whether mentioned in the Contract or not, concerning the Work.

#### **4.2 Contract Security**

- .1 The Contractor shall, if required by the Bid Documents, provide either or both contract performance security or security for payment of claims for labour and material.
- .2 Surety bonds shall be issued by a duly incorporated surety company authorized to transact business of suretyship in the Province of Alberta.
- .3 The Owner may, for reasonable cause, object to use of the surety company proposed by the Contractor, and may require the Contractor to provide a surety bond issued by another surety company acceptable to The Owner, with no change in Contract Price.

#### **4.3 Site Operations and Methods of Construction**

- .1 The Contractor shall be fully responsible for the adequacy, stability and safety of all Site operations and methods of construction.
- .2 The Contractor shall submit at such times and in such detail as The Owner may require such information pertaining to the methods of construction (including Temporary Work and the use of Construction Equipment) which the Contractor proposes to use and such calculations of stresses, strains and deflections that will arise, in the Permanent Work or any part thereof, from the use of such methods during execution of the Work.
- .3 The Owner shall, on request from the Contractor, provide to the Contractor such design criteria relevant to the Permanent Work or any Temporary Work designed by The Owner as may be necessary to enable the Contractor to comply with clause 4.3.2.
- .4 For the purposes of this clause, "method of construction" means a method, means, technique, sequence or procedure of construction.

#### 4.4 Differing Physical Conditions or Obstructions

- .1 If, during the execution of the Work, the Contractor encounters physical obstructions or physical conditions, including sub-surface obstructions or conditions, other than weather conditions or conditions due to weather conditions, on the Site, which, in his opinion, differ substantially from those indicated in the Contract and which were not reasonably foreseeable, the Contractor shall as soon as possible give notice thereof to The Owner. On receipt of such notice, The Owner shall, if in his opinion such obstructions or conditions differ substantially from those indicated in the Contract Documents and could not have been reasonably foreseen, determine:
  - .1 any extension of time to which the Contractor is entitled under clause 6.4, and
  - .2 the amount of any costs, valued in accordance with clause 8.3, which may have been incurred by the Contractor by reason of such obstructions or conditions having been encountered, which shall be added to the Contract Price.
- .2 A determination by The Owner pursuant to clause 4.4.1 shall take account of:
  - .1 the time of the Contractor's notice to The Owner of a differing physical condition or obstruction,
  - .2 any instruction which The Owner may have issued to the Contractor in connection therewith, and
  - .3 any proper and reasonable measures acceptable to The Owner which the Contractor may have taken in the absence of specific instructions from The Owner.

4.5 **Climatic and Weather Conditions:** The relevant climatological records and related information published by the Canadian Climate Centre of Environment Canada, for one or more locations in the vicinity of the Site, shall be used as a basis for any evaluations and determinations concerning climate and weather.

#### 4.6 Contractor's Superintendence

- .1 The Contractor shall provide all necessary superintendence during the execution of the Work and as long thereafter as The Owner may consider necessary for the proper fulfilling of the Contractor's obligations. The Contractor, or a competent and authorized representative approved of by The Owner, which approval may at any time be withdrawn, shall give his whole time to the superintendence of the Work. Such authorized representative shall receive, on behalf of the Contractor, instructions from The Owner.
- .2 If approval of the Contractor's representative is withdrawn by The Owner, the Contractor shall, as soon as is practicable, after receiving notice of such withdrawal, remove the representative from the Work and shall not employ him again on the Work in any capacity and shall replace him by another representative approved by The Owner.

#### 4.7 Contractor's Employees

- .1 The Contractor shall provide on the Site in connection with the execution and completion of the Work and the remedying of any defects therein:
  - .1 technical assistants who are skilled and experienced in their respective trades and such foremen and others as are competent to give proper superintendence of the Work, and
  - .2 labour as is necessary for the proper and timely fulfilling of the Contractor's obligations.

4.8 **Owner May Object:** The Owner may object to and require the Contractor to remove forthwith from the Site any person who, in the opinion of The Owner, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose presence is otherwise considered by The Owner to be undesirable, and such person shall not be allowed on the Site without the consent of The Owner.

#### 4.9 Safety, Security and Protection of the Environment

- .1 The Contractor shall, throughout the execution of the Work and the remedying of any defects therein:
  - .1 have full regard for the health and safety of all persons upon the Site and keep the Site and the Work, to the extent that they are under his control, in an orderly state appropriate to the avoidance of danger to such persons, and
  - .2 provide and maintain at his own cost all temporary facilities and controls when and where necessary or required by The Owner or by any duly constituted authority, for the protection of the Work or for the safety and convenience of the public or others, and
  - .3 take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or any other causes arising as a consequence of his methods of operation.
- .2 The Contractor shall appoint a person at the Site who shall manage an accident prevention program. This person shall be the Contractor's superintendent unless another person is appointed and approved by The Owner.

#### 4.10 Owner's Responsibilities for Safety

- .1 If under clause 4.18 The Owner carries out work on the Site with his own workers he shall, in respect of such work and subject to clause 4.9:
  - .1 have full regard to the safety of all persons upon the Site, and
  - .2 keep the Site in an orderly state appropriate to the avoidance of danger to such persons.
- .2 If under clause 4.18 The Owner contracts with Other Contractors on the Site he shall require them to have the same regard for safety and avoidance of danger.

#### 4.11 Care of Work

- .1 The Contractor shall take full responsibility for the care of the Work from the date of commencement of

Work at the Site until the date of issue of the certificate of Substantial Performance of the Work, when the responsibility for such care shall pass to The Owner, provided that:

- .1 except where otherwise specified in the Contract, if The Owner issues a certificate of Substantial Performance for part of the Permanent Work the Contractor shall cease to be liable for the care of that part from the date of issue of such certificate, when the responsibility for the care of that part shall pass to The Owner, and
- .2 the Contractor shall take full responsibility for the care of any outstanding Work which he undertakes to finish during the warranty period until such outstanding Work has been completed.

**4.12 Responsibility to Rectify Loss or Damage:** If there is any loss or damage to the Work, or any part thereof, or to Products for incorporation therein, during the period for which the Contractor is responsible for the care thereof, from any cause whatsoever, the Contractor shall, at his own cost, rectify such loss or damage so that the Work conforms with the provisions of the Contract to the satisfaction of The Owner. The Contractor shall also be liable for any loss or damage to the Work occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under the warranty provisions of the Contract.

**4.13 Hold Harmless Agreement:** The Contractor shall hold harmless The Owner from any and all third party claims, demands, or actions for which the Contractor is legally responsible, including those arising out of negligence or willful acts by the Contractor or the Contractor's employees or agents. This hold harmless shall survive the Contract.

#### 4.14 Regulatory Requirements

- .1 The Contractor shall conform in all respects, including by the giving of all notices and the paying of all fees, with the provisions of:
  - .1 any Regulatory Requirements, and
  - .2 the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Work,and the Contractor shall keep The Owner indemnified against all penalties and liability of every kind for breach of any such provisions.
- .2 The Owner shall be responsible for obtaining any planning, zoning or other similar permission required for the Project to proceed.
- .3 Without limiting the Contractor's obligations under clause 4.14.1, the Contractor shall:
  - .1 comply with all requirements of and pay all fees in connection with the Workers' Compensation Act (Alberta),
  - .2 comply with the Occupational Health and Safety Act (Alberta) and all safety requirements as contained in the regulations thereto,

- .3 ensure that wages, hours of work and other conditions of employment of all persons employed by the Contractor in the performance of any work required by the Contract are in compliance with the requirements of the Employment Standards Code (Alberta), the Labour Relations Code (Alberta) and any other applicable law, rule, regulation or order, and
- .4 pay all fees and charges levied by a municipal authority in respect of applicable permits and licences.

#### 4.15 Artifacts and Fossils

- .1 Coins, fossils, artifacts, structures and other remains or things of geological or archaeological interest discovered on the Site shall, as between The Owner and the Contractor, be deemed to be the property of The Owner. The Contractor shall take reasonable precautions to prevent his workers or any other persons from removing or damaging any such clause or thing and shall, immediately upon discovery thereof and before removal, inform The Owner of such discovery and carry out The Owner's instructions for dealing with same. If, by reason of such instructions, the Contractor suffers delay or incurs costs then The Owner shall determine:
  - .1 any extension of time to which the Contractor is entitled under clause 6.4, and
  - .2 the amount of such costs, which shall be added to the Contract Price.

**4.16 Patent Rights:** The Contractor shall indemnify The Owner from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of any Product, Construction Equipment, Temporary Work or other thing used for or in connection with or for incorporation in the Work and from and against all damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, except where such infringement results from compliance with the design or specification provided by The Owner.

#### 4.17 Royalties

- .1 Except as otherwise provided in the Contract, the Contractor shall be liable for all tonnage and other royalties, rent and other payments or compensation, if any, for obtaining stone, sand, gravel, clay or other materials required for the Work.
- .2 The Contractor shall be liable for all payments or other compensation, if any, levied in relation to the dumping of all or part of any waste materials.

#### 4.18 Other Contractors

- .1 The Contractor shall, in accordance with the requirements of The Owner, afford all reasonable opportunities for carrying out their work to:
  - .1 any Other Contractors of The Owner and their workers,
  - .2 the workers of The Owner, and
  - .3 the workers of any duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contract or of any contract which The Owner



may enter into in connection with or ancillary to the Work.

- .2 Pursuant to clause 4.18.1, and except as may be provided in the Contract, the Contractor shall, on the request of The Owner:

- .1 make available to any person referred to in clause 4.18.1, any roads or ways for the maintenance of which the Contractor is responsible, or
- .2 permit the use, by any such persons, of Temporary Work or Construction Equipment on the Site, or
- .3 provide any other service for any such person,

The Owner shall determine an addition to the Contract Price in accordance with clause 8.3.

#### 4.19 Permanent Work Designed by the Contractor

- .1 Where the Contract provides that part of the Permanent Work shall be designed by the Contractor, he shall submit to The Owner, for review:

- .1 such drawings, specifications, calculations and other information as is necessary for The Owner's review, and
- .2 operation and maintenance manuals, as applicable together with drawings of the Permanent Work as completed, in sufficient detail to enable The Owner to operate, maintain, dismantle, reassemble and adjust the Permanent Work incorporating that design,

and such design and any alterations thereto shall be performed by a qualified design professional licensed to practice in Alberta.

- .2 The Contractor shall not commence any work to which the information referred to in clause 4.19.1 relates unless such information has been reviewed by The Owner, and the Contractor shall not thereafter alter such design without The Owner's review.

#### 4.20 Records and Audit

- .1 With respect to Cost Plus Work, the Contractor shall:
  - .1 keep accurate records of estimated and actual costs, payments made and time spent;
  - .2 keep record copies of bids, quotations, contracts, correspondence, invoices, receipts and vouchers related thereto;
  - .3 make such records available for inspection and audit by The Owner for a period of at least 2 years after the date of Total Performance of the Work;
  - .4 provide The Owner with copies and extracts therefrom when requested by The Owner; and
  - .5 afford facilities for audit and inspection by The Owner at mutually agreeable times and places.
- .2 The Contractor shall cause Subcontractors and other persons directly or indirectly controlled by or affiliated with the Contractor and persons directly or indirectly having control of the Contractor to comply with clause 4.20.1 as if they were the Contractor.

#### 4.21 Record of Labour and Construction Equipment:

The Contractor shall, if required by The Owner, deliver

to The Owner a record in detail, in such form and at such intervals as The Owner may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting Construction Equipment as The Owner may require.

#### 4.22 Customs

- .1 With respect to the importation and re-export of Construction Equipment, Temporary Work, Products and other things required for the Work, the Contractor shall:
  - .1 be liable for all applicable customs, import duties, taxes and brokerage fees, and
  - .2 be responsible for obtaining clearance through Customs. If requested by the Contractor, The Owner may assist in obtaining such clearance.

#### 4.23 Urgent Remedial Work

- .1 If, due to any accident, or failure, or other event occurring to, in, or in connection with the Work, or any part thereof, either during the execution of the Work, or during the warranty period, any remedial or other work is, in the opinion of The Owner, urgently necessary for the safety of the Work, persons or property and the Contractor is unable or unwilling at once to do such work, The Owner may employ other persons or contract with other firms or corporations to carry out such work as The Owner may consider necessary.
- .2 If the work or repair done by The Owner pursuant to clause 4.23.1 is work which, in the opinion of The Owner, the Contractor was liable to do at his own cost under the Contract, then all costs consequent thereon or incidental thereto shall be determined by The Owner and shall be recoverable from the Contractor by The Owner.

### 5. QUALITY OF PRODUCTS AND WORK

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#### 5.1 Products and Workmanship

- .1 Products and workmanship shall be:
  - .1 of the respective kinds described in the Contract, and
  - .2 subjected from time to time to such tests as The Owner may require at the place of manufacture, fabrication or preparation, or on the Site or at such other place or places as may be specified in the Contract, or at all or any of such places.
- .2 The Contractor shall:
  - .1 at his cost provide all things necessary for examining, measuring, and testing Products including labour, electricity, fuels, stores, apparatus and instruments, and
  - .2 supply samples of materials, before incorporation in the Work, for testing as may be selected and required by The Owner.

- 5.2 **Cost of Samples:** All samples shall be supplied by the Contractor at his own cost if the supply thereof is provided for in the Contract.

**5.3 Cost of Tests Provided For**

- .1 The cost of making any test shall be borne by the Contractor if such test is:
  - .1 specified in the Contract to be performed by the Contractor, or
  - .2 in cases of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfill, specified in the Contract in sufficient detail to enable the Contractor to price or allow for the same in his Bid.

**5.4 Cost of Tests Not Provided For**

- .1 If The Owner requires any test which is not provided for in the Contract and such test shows the Products or workmanship not to be in accordance with the Contract, then the cost of such test shall be borne by the Contractor, but in any other case clause 5.4.2 shall apply.
- .2 Where, pursuant to clause 5.4.1, this clause applies, The Owner shall determine:
  - .1 any extension of time to which the Contractor is entitled under clause 6.4, and
  - .2 the amount of any costs incurred by the Contractor, which shall be added to the Contract Price.

**5.5 Inspection and Testing**

- .1 The Owner shall at reasonable times have access to the Site and to all workshops and places where Products are being manufactured, fabricated or prepared for the Work and the Contractor shall afford every facility for, and every assistance in, obtaining the right to such access.
- .2 The Owner shall be entitled, during manufacture, fabrication or preparation to inspect and test the Products to be supplied under the Contract. If Products are being manufactured, fabricated or prepared in workshops or places other than those of the Contractor, the Contractor shall obtain permission for The Owner to carry out such inspection and testing in those workshops or places. Such inspection or testing shall not release the Contractor from any obligation under the Contract.

**5.6 Dates For Inspection and Testing:** The Contractor Shall agree with the Minster on the time and place for the inspection or testing of any Products as provided in the Contract. The Owner shall give the Contractor not less than 48 hours notice of his intention to carry out the inspection or to attend the tests. If The Owner does not attend on the date agreed, the Contractor may, unless otherwise instructed by The Owner, proceed with the tests. The Contractor shall forthwith forward to The Owner certified copies of the test results.

**5.7 Rejection:** If, at the time and place agreed in accordance with clause 5.6, Products are not ready for inspection or testing or if, as a result of the inspection or testing referred to in clause 5.5, The Owner determines that the Products are defective or otherwise not in accordance with the Contract, he may reject the Products and shall notify the Contractor thereof

immediately. The notice shall state The Owner's objections with reasons. The Contractor shall then promptly make good the defect or ensure that rejected Products comply with the Contract. If The Owner so requests, inspection and testing of rejected Products shall be made or repeated under the same terms and conditions.

**5.8 Cost for Inspection and Testing:** All costs incurred by The Owner because of rescheduling, or undue delay of inspection and testing, and for which the Contractor is responsible, shall be determined by The Owner and shall be recoverable from the Contractor by The Owner.

**5.9 Independent Inspection:** Inspection and testing of Products to be carried out by The Owner may be delegated to an independent agency. Any such delegation shall be effected in accordance with clause 1.3 and for this purpose such independent agency shall be considered as an assistant of The Owner.

**5.10 Examination of Work Before Covering Up:** The Contractor shall afford full opportunity for The Owner to examine and measure any part of the Work which is about to be covered up or put out of view and to examine exposed or excavated surfaces before any part of the Work is placed thereon. The Contractor shall give notice to The Owner whenever any such part of the Work or exposed or excavated surface is or are ready or about to be ready for examination and The Owner shall, without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such part of the Work or of examining such surfaces.

**5.11 Uncovering and making Openings:** The Contractor shall uncover any part of the Work or make openings in or through the same as The Owner may from time to time instruct and shall reinstate and make good such part. If any such part has been covered up or put out of view after compliance with the requirement of clause 5.9 and is found to be executed in accordance with the Contract, The Owner shall determine the amount of the Contractor's costs in respect of such uncovering, making openings in or through, reinstating and making good, which shall be added to the Contract Price. In any other case all costs shall be borne by the Contractor.

**5.12 Removal of Improper Work or Products**

.1 The Owner shall have authority to issue instructions for:

- .1 the removal from the Site, within such time or times as may be specified in the instruction, of any Products which, in the opinion of The Owner, are not in accordance with the Contract,
- .2 the substitution of proper and suitable Products, and
- .3 the removal and proper re-execution, notwithstanding any previous test thereof or progress payment therefor, of any work which is not in accordance with the Contract.

.2 In case of default by the Contractor in carrying out instructions pursuant to clause 5.12.1 within the time specified therein or, if none, within a reasonable time, The Owner may employ other persons or contract

with other firms or corporations to carry out the same, and all costs consequent thereon or incidental thereto shall be determined by The Owner and shall be recoverable from the Contractor by The Owner.

## **6. COMMENCEMENT, COMPLETION, CONTRACT TIME AND DELAYS**

**6.1 Commencement of Work:** The Contractor shall commence the Work as soon as is reasonably possible in accordance with the instructions contained in the Letter of Acceptance and other provisions of the Contract. Thereafter, the Contractor shall proceed with the Work without delay.

### **6.2 Possession of and Access to Site**

.1 If the Contractor suffers delay or incurs costs from failure of The Owner to give possession of the Site or part thereof in accordance with the provisions of the Contract, The Owner shall determine:

- .1 any extension of time to which the Contractor is entitled under clause 6.4, and
- .2 the amount of such costs, which shall be added to the Contract Price.

.2 The Contractor shall bear all costs and charges for special or temporary rights-of-way required by him in connection with the Work. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for the purposes of the Work.

### **6.3 Contract Time**

.1 The Contractor shall achieve Substantial Performance of the Work as a whole within the Contract Time.

.2 When the Contractor is required to achieve Substantial Performance of part or parts of the Work prior to achieving Substantial Performance of the Work as a whole, the Contractor shall achieve Substantial Performance of such part or parts of the Work within the time or times specified and such time or times shall be considered to be the Contract Time or Times for such part or parts.

### **6.4 Extension of Contract Time**

.1 In the event of:

- .1 a change in the Work made under clause 8.1, or
- .2 any cause of delay referred to in the Contract, or
- .3 abnormally adverse weather conditions, abnormal weather being defined as temperature, precipitation, humidity or wind that is outside of plus or minus one standard deviation from the mean, for the time period in question, determined pursuant to clause 4.5, or
- .4 any delay, impediment or prevention by The Owner, or
- .5 other special circumstances which may occur, other than through a default of or breach of Contract by the Contractor or for which he is responsible,

being such as to affect an activity on the critical path of the Contractor's schedule, The Owner shall determine the extension of the Contract Time for the whole or part of the Work, to which the Contractor may be entitled.

### **6.5 Contractor to Provide Notification and Details**

.1 The Owner shall not be bound to make any determination pursuant to clause 6.4 unless the Contractor has:

- .1 within 7 days after such event has first arisen notified The Owner, and
- .2 within 14 days, or such other reasonable time as may be agreed by The Owner after such notification, submitted to The Owner details of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time.

**6.6 Interim Determination of Extension of Time:** Where an event has a continuing effect such that it is not practicable for the Contractor to submit details within the period of 14 days referred to in clause 6.5.1.2, he may claim for an extension of time provided that he has submitted to The Owner interim details at intervals of not more than 14 days and final details within 14 days of the end of the effects resulting from the event. On receipt of such interim details, The Owner may make an interim determination of extension of time and, on receipt of the final details, The Owner shall review all the circumstances and may determine an overall extension of time in regard to the event. No final review shall result in a decrease of any extension of time already determined by The Owner. The Owner may determine an extension of the Contract Time notwithstanding that the Contract Time may have passed without being extended.

**6.7 Rate of Progress:** If for any reason, which does not entitle the Contractor to an extension of time, the rate of progress of the Work or any part is at any time, in the opinion of The Owner, too slow to comply with the Contract Time, or Milestone Dates, The Owner may notify the Contractor who shall immediately take such steps as are necessary, subject to the consent of The Owner, to expedite progress so as to comply with the Contract Time or Milestone Dates. The Contractor shall not be entitled to any additional payment for taking such steps. If any steps, taken by the Contractor in meeting his obligations under this clause, involve The Owner in additional costs, such costs shall be determined by The Owner and shall be recoverable from the Contractor by The Owner.

### **6.8 Substantial Performance of the Work**

.1 When the whole of the Work has been substantially performed and any pre-requisites to Substantial Performance of the Work prescribed by the Contract have been met, the Contractor may so notify The Owner, accompanied by a written undertaking to finish without delay any outstanding work during the warranty period. Such notice and undertaking shall be deemed to be a request by the Contractor for The Owner to issue a certificate of Substantial Performance of the Work.

- .2 The Owner shall, within 21 days after the date of delivery of the notice referred to in clause 6.8.1, either issue to the Contractor, a certificate, stating the date on which, in his opinion, the Work was substantially performed in accordance with the Contract, or give instructions in writing to the Contractor specifying all the work which, in The Owner's opinion, is required to be done by the Contractor before the issue of such certificate. The Owner shall also notify the Contractor of any defects in the Work affecting substantial performance that may appear after such instructions and before completion of the Work specified therein. The Contractor shall be entitled to receive such certificate within 21 days after completion, to the satisfaction of The Owner, of the Work so specified and remedying all defects so notified. The Owner may specify the date for Total Performance of the Work in such certificate.

#### 6.9 Substantial Performance of Part or Parts of Work

- .1 In accordance with the procedure set out in clause 6.8, the Contractor may request and The Owner may issue a certificate of Substantial Performance in respect of any substantial part of the Permanent Work which has been substantially completed and which has been or will be occupied or used by The Owner or an Other Contractor prior to Substantial Performance of the Work as a whole, whether or not such prior occupation or use is provided for in the Contract.

#### 6.10 Total Performance of the Work

- .1 When the whole of the Work has been totally performed and any pre-requisites to Total Performance of the Work prescribed by the Contract have been met, the Contractor may so notify The Owner. Such notice shall be deemed to be a request by the Contractor for The Owner to issue a certificate of Total Performance of the Work.
- .2 The Owner shall, in accordance with the procedure set out in clause 6.8.2, either issue a certificate of Total Performance of the Work or give instructions.

- 6.11 **Warranty Performance of the Work:** The Work of the Contract shall only be considered as completed when a certificate of Warranty Performance of the Work has been signed by The Owner and delivered to the Contractor, stating the date on which the Contractor has completed his obligations to execute and complete the Work and remedy any defects therein to The Owner's satisfaction. The certificate of Warranty Performance of the Work shall be given by The Owner within 28 days after the expiration of the warranty period, or, if different warranty periods are applicable to different parts of the Permanent Work, the expiration of the latest such period, or as soon thereafter as any Work instructed, pursuant to clause 7, has been completed to the satisfaction of The Owner.

#### 6.12 Acceleration

- .1 If The Owner wishes to reduce the Contract Time for the Work or any part thereof, he shall issue to the Contractor a notice thereof and an instruction requiring the Contractor to submit to him within the period specified in the instruction:

- .1 the Contractor's priced proposals for reducing the Contract Time, together with any consequential modifications to the construction schedule, or
  - .2 the Contractor's explanation why he is unable to reduce the Contract Time.
- .2 If The Owner accepts the Contractor's proposals submitted pursuant to clause 6.12.1.1, including amendments thereto agreed by both parties, The Owner shall issue instructions to the Contractor modifying the Contract accordingly. Such instructions shall include:
- .1 the revised Contract Time or Times,
  - .2 the modifications to the construction schedule,
  - .3 the revised Contract Price, and
  - .4 any other relevant modifications to the Contract.
- .3 The Contractor may at any time submit to The Owner proposals to reduce the Contract Time for the Work or part thereof. The Owner shall consider such proposals and if he accepts them he shall take action as in clause 6.12.2.

### **7. WARRANTY**

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#### 7.1 Warranty Period

- .1 In the Contract the term "warranty period" shall mean a period of two (2) years, or such longer period as may be provided elsewhere in the Contract, calculated from:
  - .1 the date of Substantial Performance of the Work, certified by The Owner in accordance with clause 6.8, or
  - .2 in the event of more than one certificate having been issued by The Owner under clause 6.9, the respective dates so certified, or
  - .3 in the case of outstanding work to be completed after the date or dates of Substantial Performance referred to in clauses 7.1.1.1 and 7.1.1.2, the date upon which such work is certified as complete by The Owner,and in relation to the warranty period the term "the Work" shall be construed accordingly.

- 7.2 **Completion of Outstanding Work:** The Contractor shall complete work outstanding at the date of Substantial Performance of the Work within the time specified by The Owner in the certificate of Substantial Performance of the Work.

#### 7.3 Remedying Defects

- .1 The Contractor shall, during or as soon as practicable after the expiration of the warranty period, remedy any defects in the Work and execute any work of modification or reconstruction related thereto, as The Owner may, during the warranty period or within 14 days after its expiration instruct the Contractor to do.
- .2 Work referred to in clause 7.3.1 shall be executed by the Contractor at his own cost if the necessity thereof is, in the opinion of The Owner, due to:

- .1 defects in Products or workmanship, or defects in design for which the Contractor is responsible,
- .2 the neglect or failure on the part of the Contractor to comply with any obligation expressed or implied on the Contractor's part under the Contract.

If, in the opinion of The Owner, such necessity is due to any other cause, he may determine an addition to the Contract Price in accordance with clause 8.

- 7.4 **Contractor's Failure to Carry Out Instructions:** If the Contractor defaults in carrying out instructions issued pursuant to clause 7.2 or 7.3, The Owner may employ other persons or contract with other firms or corporations to carry out the same. If such work is work which, in the opinion of The Owner, the Contractor was liable to do at his own cost, then all costs consequent thereon or incidental thereto shall be determined by The Owner and shall be recoverable from the Contractor by The Owner.
- 7.5 **Contractor to Search:** If any defect in the Work appears at any time prior to the end of the warranty period, The Owner may instruct the Contractor to search for the cause thereof. If such defect is one for which the Contractor is liable, the cost of the work carried out in searching shall be borne by the Contractor and he shall in such case remedy such defect at his own cost in accordance with the provisions of clauses 7.3 and 7.4. If such defect is one for which the Contractor is not liable under the Contract, The Owner shall determine the amount of the costs of such search incurred by the Contractor, which shall be added to the Contract Price.

## **8. CHANGES AND VARIATIONS**

### **8.1 Changes in the Work**

- .1 Consistent with the Work, The Owner may make changes in the Work or any part thereof, and he shall have the right to instruct the Contractor to make such changes and the Contractor shall make such changes, which may include:
  - .1 increasing or decreasing the quantity of any work included in the Contract,
  - .2 omitting any work, but not if the omitted work is to be carried out by The Owner or by an Other Contractor except by reason of the Contractor's default or negligence,
  - .3 changing the character or quality or kind of any work,
  - .4 changing the levels, lines, position and dimensions of any part of the Work,
  - .5 executing additional work of any kind necessary for the completion of the Work,
  - .6 changing any specified sequence or timing of construction of any part of the Work.

No such change shall invalidate the Contract, but the effect, if any, if such changes on the Contract Price shall be valued in accordance with clause 8.3 and any extension of the Contract Time shall be determined in accordance with clause 6.4. Where an instruction to change the Work is necessitated by default or negligence of the Contractor or for which he is responsible, any cost and time attributable to

such default or negligence shall be borne by the Contractor.

### **8.2 Instructions For Changes in the Work**

- .1 The Contractor shall not make any changes in the Work without a written instruction from The Owner.
- .2 No instruction shall be required for:
  - .1 an increase or decrease in the quantity of any work where such increase or decrease is not the result of an instruction given under this clause, but is the result of quantities exceeding or being less than those stated in the Schedule of Prices, and
  - .2 a change or adjustment in lines, levels, grades or elevations when such change or adjustment is already provided for in the Contract.

### **8.3 Valuation of Changes in the Work**

- .1 Changes referred to in clause 8.1 and any changes to the Contract Price which are required to be determined in accordance with this clause (for the purposes of this clause referred to as "changed work"), shall be valued, at The Owner's option,:
  - .1 at the rates and prices set out in the Contract if, in the opinion of The Owner, these are applicable, or
  - .2 if the rates and prices set out in the Contract are not applicable to the changed work, at rates and prices deduced or extrapolated from such rates and prices, or
  - .3 by acceptance by The Owner of rates and prices submitted by the Contractor or other rates and prices as may be agreed by negotiation, or
  - .4 by acceptance by The Owner of a lump sum quotation submitted by the Contractor or other lump sum as may be agreed by negotiation, or
  - .5 as Cost Plus Work in accordance with the provisions of Section 00630 - Payment Conditions.
- .2 If there is disagreement on the value of changed work, The Owner shall fix such rates or prices as are, in his opinion, appropriate and shall notify the Contractor accordingly. Until such time as rates or prices are agreed or fixed, The Owner shall determine provisional rates or prices to enable on-account payments to be made in accordance with the payment conditions of the Contract.

### **8.4 Impact of Changes in the Work**

- .1 If in the opinion of The Owner or the Contractor the nature or amount of any changed work relative to the nature or amount of the whole of the Work or to any part thereof, is such that the rate or price contained in the Contract for any item of the Work is, by reason of such changed work, rendered inappropriate or inapplicable, then, after due consultation by The Owner with the Contractor, a suitable rate or price may be agreed upon between The Owner and the Contractor.

- .2 If there is disagreement on the rates or prices referred to in clause 8.4.1 The Owner shall fix such rate or price as is, in his opinion, appropriate and shall notify the Contractor. Until such time as rates or prices are agreed or fixed, The Owner shall determine provisional rates or prices to enable on-account payments to be made in accordance with the payment conditions of the Contract.

#### 8.5 Quantity Variations

- .1 Except for items of Work, if any, for which the applicability of this clause 8.5 has been specifically excluded elsewhere in the Contract, The Owner and the Contractor may agree to adjust a rate or price contained in the Contract:
  - .1 if the actual quantity of work executed under the item exceeds or falls short of the estimated quantity specified in the Schedule of Prices by more than 15%; and
  - .2 if there is no off-setting adjustment with respect to the quantity of any other item of work; and
  - .3 if, based on the actual quantity of work executed and the rate or price contained in the Schedule of Prices, the extended amount of the item exceeds 15% of the original Contract Price; and
  - .4 if the Contractor believes that he has incurred significant additional expense as a result thereof or The Owner believes that the quantity variation entitles The Owner to an adjustment in the rate or price.
- .2 An adjusted rate or price made pursuant to clause 8.5.1, where the actual quantity of work executed under the item exceeds the estimated quantity specified in the Schedule of Prices by more than 15%, shall apply only to the quantity that is in excess of 115%.
- .3 An adjusted rate or price made pursuant to clause 8.5.1, where the actual quantity of work executed under the item falls short of the quantity specified in the Schedule of Prices by more than 15%, shall not exceed the rate or price that would cause the total amount paid for the item to exceed 85% of the product of the original rate or price contained in the Schedule of Prices multiplied by the estimated quantity specified in the Schedule of Prices.

#### 9. CHANGES IN COST AND REGULATORY REQUIREMENTS

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- 9.1 **Increase or Decrease in Cost:** Subject to clause 9.2, the Contract Price shall not be subject to any adjustment in respect of rise or fall in the cost of labour, Products or any other matters affecting the cost of execution of the Contract, except where specified otherwise in the Contract Documents.
- 9.2 **Changes in Regulatory Requirements**
  - .1 If, after the latest date for submission of Bids for the Contract, there is a change to any Regulatory Requirement, or a new Regulatory Requirement is introduced, which causes additional or reduced cost to the Contractor in the execution of the

Contract, such additional or reduced cost shall be determined by The Owner and shall be added to or deducted from the Contract Price.

- .2 When a Regulatory Requirement is changed or introduced during the period of time referred to in clause 9.2.1 but public notice thereof has been given by the applicable authority before the commencement of such period of time, the change or introduction shall be deemed to have occurred before the commencement of such period of time.

#### 10. CLAIMS REVIEW PROCESS AND DISPUTE RESOLUTION PROCEDURE

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##### 10.1 General

- .1 Any claims or demands by the Contractor, arising out of alleged errors, omissions or misrepresentations in the Contract Documents or arising out of acts or omissions of The Owner's assistants or The Owner's assistants' directors, officers, employees, agents or sub-contractors, in relation to the carrying out of the Work, are to be made only to, or against, The Owner. The Contractor waives any right to commence or carry on such claims or demands against any person other than The Owner.
- .2 Unless otherwise agreed to in writing between The Owner and the Contractor, all disputes in respect of the application or interpretation of any provision of the Contract shall be determined in accordance with the Dispute Resolution Procedure (as defined in clause 10.3). Either party may at any time by notice to the other refer any question in respect of the application or interpretation of any provision of this Agreement to the Dispute Resolution Procedure. In the case of a Claim (as defined in clause 10.2), the Contractor shall follow the Claims Review Process for Contractor Claims (as set out in clause 10.2).
- .3 The Contractor is hereby warned that under applicable laws there may be certain things that have to be done by certain times, otherwise the Contractor may lose its legal right to make, or continue with making, a claim against The Owner.

##### 10.2 Claims Review Process for Contractor Claims : The review of the contractor's claim is subject to the following process:

- .1 If a circumstance arises between The Owner and the Contractor, in connection with or arising out of the Contract or the carrying out of the Work, which the Contractor believes requires a change in payment or compensation under the Contract or a change in the time required to complete the Contract, such situation is considered a claim (the "Claim").
- .2 As soon as the Contractor becomes aware of the Claim, the Contractor shall immediately begin to keep separate daily work records relating to the Claim. The records may include, but are not limited to, accurate quantity measurements, quality reports, actual direct costs, and actual indirect costs. The Contractor shall provide copies of such records in the manner and at the times requested by The Owner.
- .3 Notice of claim
  - .1 Where the Contractor considers that there is a Claim, the Contractor shall send a notice of the

- Claim (the "**Notice of Claim**") to The Owner's Representative (as set out in the Contract).
- .2 The Notice of Claim must be provided as soon as reasonably possible after the occurrence of the circumstance giving rise to the Claim, and not later than seven days after the occurrence of the circumstance or the Contractor becoming aware of the circumstance. It is imperative that the Contractor provide such notice in such manner and if the Contractor fails to provide such notice in such manner, The Owner may assert a claim for damages arising from such failure.
  - .3 The Notice of Claim shall be in such written form as directed in writing by The Owner or be in writing and expressly referring to this clause 10.2.3.3 and shall set out details about the Claim, including but not limited to:
    - .1 the Contract number;
    - .2 the Contract description;
    - .3 Notice of Claim number;
    - .4 identification of any documents or particulars that support the Claim (including any written or oral communications related to the Claim);
    - .5 detailed description of the substance of the Claim with dates, locations, incurred/projected direct costs (labour, material, equipment, etc.), incurred/projected indirect costs and any other items relevant to the Claim;
    - .6 relevant provisions of the Contract which support the Claim and the reasons why such provisions support the Claim;
    - .7 identify whether there is any impact on a critical path that will impact the construction schedule (as set out in the contract) thereby resulting in extension of the Contract Time (as defined in the contract);
    - .8 any other information that may be helpful for reviewing the Claim; and
    - .9 any proposals on ways to mitigate the impact of the Claim.
  - .4 In order for there to be an efficient and effective understanding of the Claim by The Owner, it is incumbent on the Contractor to provide all the necessary information reasonably needed by The Owner in order to understand the Claim and to provide all the necessary information in an organized, concise, and logical manner.
  - .5 Notwithstanding a Notice of Claim has been provided to The Owner, the Work must proceed or continue without delay.
- 4 Owner Acknowledgement of the Notice of Claim
    - .1 Upon receipt of the Notice of Claim, The Owner shall provide a written acknowledgement to the Contractor and within seven days of the receipt of the Notice of Claim arrange a tri-party meeting of The Owner's representative, the Contractor and The Owner's assistant. The details of the Claim will be discussed at the tri-party meeting.
  - 5 Ongoing effect
    - .1 If the circumstance giving rise to the Claim has a continuing effect, then the Contractor shall submit to The Owner such further information at such intervals as may be reasonably required by The Owner.
  - 6 Review of the Claim
    - .1 If the Contractor wishes to have The Owner review the Claim, the Contractor shall send a written notice to The Owner's Representative (as set out in the Contract) no later than 28 days after submitting the Notice of Claim, expressly referring to this clause 10.2.3.6 and requesting The Owner to review the Claim (the "**Level 1 Notice**").
    - .2 Failure by the Contractor to provide the Level 1 Notice in such manner shall be deemed by The Owner to be an abandonment of the Claims Review Process for Contractor Claims (as set out in clause 10.2), unless otherwise agreed to in writing by The Owner.
    - .3 The parties will make bona fide efforts to review the Claim but the Work must proceed or continue without delay during the following process to review the Claim.
    - .4 Level 1 Review by The Owner's Representative
      - .1 within 14 days of the receipt of the Level 1 Notice, the Level 1 reviewer will provide a written acknowledgement of receipt of the Level 1 Notice to the Contractor;
      - .2 the Level 1 reviewer shall commence review of the claim as soon as possible and will meet with the Contractor within a period of 30 days from the receipt of the Level 1 Notice. During this meeting, the Level 1 reviewer and the Contractor will start the process of negotiating and entering into a claim review process agreement for the Claim (the "**CRP Agreement**") addressing the schedule for the review, the process for the review (including participants), the date for providing the Level 1 reviewer's decision;
      - .3 the Contractor shall provide any additional information as set out in the CRP Agreement and as may be further required by the Level 1 reviewer;
      - .4 the Level 1 reviewer shall provide the Contractor with the Level 1 reviewer's decision (the "**Level 1 Decision**") by the date set out in the CRP Agreement;
      - .5 if the Contractor is not satisfied with the Level 1 Decision, the Contractor may submit the Claim to the Dispute Resolution Procedure set out in clause 10.3.
    - .5 The review of the Claim shall end no later than 12 months after the occurrence of the circumstance giving rise to the Claim. If the review of the Claim has not been completed within 12 months after the occurrence of the

circumstance giving rise to the Claim, for any reason whatsoever including the inability of the parties to agree on a CRP Agreement, the Claim shall be deemed to have been unequivocally denied by The Owner and the Contractor may submit the Claim to the Dispute Resolution Procedure set out in clause 10.3.

#### 10.3 Dispute Resolution Procedure :

- .1 Any Claim that has not been resolved by the Claims Review Process for Contractor Claims (as set out in clause 10.2), or any disagreement or other dispute in respect of the application or interpretation of any provision of the Contract (the "**Dispute**"), will be resolved in accordance with the dispute resolution procedure set out in this clause 10.3 (the "**Dispute Resolution Procedure**"):
  - .1 the Dispute Resolution Procedure shall be started by delivery of a notice (the "Dispute Notice") in writing and expressly referring to this clause 10.3, from one party to the other party providing details of a Dispute and invoking the Dispute Resolution Procedure in respect of that Dispute.
  - .2 any Dispute Notice issued by the Contractor to The Owner must be sent to:  
Project Director,  
Town of Drumheller,  
702 Premier Way,  
Drumheller, Alberta T0J 0Y0
  - .3 within 30 days from the receipt of the Dispute Notice, officials designated by The Owner and the Contractor will meet (the "**Settlement Meeting**") at a mutually acceptable time and place to make all reasonable efforts to attempt to resolve the Dispute (all negotiations held pursuant to the Settlement Meeting are to be held on a without prejudice basis and will not be used by either party as evidence at any other proceeding); and
  - .4 if the Settlement Meeting does not result in resolution of the Dispute, either party may refer the Dispute to a court of law of competent jurisdiction.

#### 10.4 Obligations to and Claims of Third Parties

- .1 The Contractor shall, with respect to lawful obligations of and lawful claims against the Contractor or any Subcontractor arising from the Contract:
  - .1 discharge such obligations of and satisfy such claims against the Contractor, and
  - .2 ensure the discharge of such obligations of and the satisfaction of such claims against Subcontractors.
- .2 The Contractor shall, when requested by The Owner, make a statutory declaration deposing to the existence and condition of any obligations and claims referred to in clause 10.4.1.
- .3 If a third party sends written notice to The Owner of an undischarged obligation or unsatisfied claim referred to in clause 10.4.1, The Owner may, 30 days

after giving written notice to the Contractor, and surety where applicable,:

- .1 pay any amount that is due and payable to the Contractor pursuant to the Contract directly to the obligees of and the claimants against the Contractor or the Subcontractor, and
- .2 where security for payment of claims has been provided in the form of a security deposit, The Owner may deduct such amount from the security deposit, or
- .3 where a security deposit has not been provided or insufficient monies are available in the security deposit, The Owner may deduct such amount, or portion thereof, from the amount payable to the Contractor under the Contract.
- .4 Clause 10.4.3 shall apply only when written notice of the obligation or claim is sent to Owner not later than 45 days after the last day on which the labour, equipment, material or services giving rise to such obligation or claim were provided.

### 11. RELEASE FROM PERFORMANCE

- 11.1 **Frustration:** If any circumstance outside the control of both The Owner and the Contractor arises after the award of the Contract which renders it impossible or unlawful for either party to fulfill his contractual obligations, then The Owner or the Contractor may terminate the Contract by giving notice to the other party and, upon such notice, the Contract shall, except as to the rights of the parties under this clause and to the operation of clause 15., terminate, but without prejudice to the rights of either party in respect of any antecedent breach thereof.
- 11.2 **Removal of Construction Equipment on Termination:** If the Contract is terminated pursuant to clause 11.1, the Contractor shall remove from the Site all Construction Equipment.
- 11.3 **Payment if Contract Terminated**
  - .1 If the Contract is terminated pursuant to clause 11.1, the Contractor shall be paid by The Owner, insofar as such amounts or items have not already been covered by payments on account made to the Contractor, for all Work executed prior to the date of termination at the rates and prices provided in the Contract and in addition:
    - .1 the cost of Products reasonably ordered for the Work which have been delivered in acceptable condition to the Contractor or of which the Contractor is liable to accept delivery, such Products becoming the property of The Owner upon such payments being made by him,
    - .2 the amount of any expenditure reasonably incurred by the Contractor in the expectation of completing the whole of the Work insofar as such expenditure has not been covered by any other payments referred to in this clause,
    - .3 such proportion of the cost as may be reasonable, taking into account payments made or to be made for work executed, for



removal of Construction Equipment under clause 11.2.

provided that against any payment due from The Owner under this clause, The Owner shall be credited with any amounts which, at the date of termination, were recoverable by The Owner from the Contractor.

- .2 Any amount payable under this clause shall be determined by The Owner.

## **12. SUSPENSION AND TERMINATION BY OWNER**

### **12.1 Suspension of Work**

- .1 The Contractor shall, on the instructions of The Owner, suspend the progress of the Work or any part thereof for such time and in such manner as The Owner may consider necessary and shall, during such suspension, properly protect and secure the Work or such part thereof so far as is necessary in the opinion of The Owner. Clause 12.2 shall apply unless such suspension is

- .1 otherwise provided for in the Contract, or
- .2 necessary by reason of some default of or breach of contract by the Contractor or for which he is responsible, or
- .3 necessary by reason of normal weather conditions on the Site, or
- .4 necessary for the proper execution of the Work or for the safety of the Work or any part thereof, except to the extent that such necessity arises from any act or default by The Owner,

in which case such suspension shall be at the Contractor's expense.

### **12.2 Owner's Determination Following Suspension**

- .1 Where, pursuant to clause 12.1, this clause applies The Owner shall determine
  - .1 any extension of time to which the Contractor is entitled under clause 6.4, and
  - .2 the amount, which shall be added to the Contract Price, in respect of the cost incurred by the Contractor by reason of such suspension.

- 12.3 **Suspension Lasting More Than 91 Days:** If the progress of the Work or any part thereof is suspended on the written instructions of The Owner and if permission to resume work is not given by The Owner within a period of 91 days after the date of suspension then, unless such suspension is the Contractor's responsibility pursuant to clauses 12.1.1.1 to 12.1.1.4, the Contractor may give notice to The Owner requesting permission, within 28 days from the receipt thereof, to proceed with the Work or that part thereof in regard to which progress is suspended. If, within such time, such permission is not granted, the Contractor may elect to treat the suspension, where it affects only part of the Work, as an omission of such part under clause 8.1 by giving a further notice to The Owner to that effect, or, where it affects the whole of the Work, treat the suspension as an event of default by The Owner and terminate the Contract in accordance with the provisions of clause 14., in which case the provisions of clauses 14.2 and 14.3 shall apply.

## **12.4 Termination of Contract**

- .1 The Owner may terminate the Contract at any time by giving a notice of termination to the Contractor. When such a notice is received by the Contractor he shall, subject to the provisions of such notice, forthwith cease all operations in performance of the Contract.
- .2 If The Owner terminates the Contract pursuant to clause 12.4.1 The Owner shall be under the same obligations to the Contractor in regard to payment as if the Contract had been terminated under the provisions of clause 14..

## **13. DEFAULT OF CONTRACTOR**

### **13.1 Default**

- .1 If the Contractor:
  - .1 is deemed by law unable to pay his debts as they fall due, or becomes insolvent, or
  - .2 enters into voluntary or involuntary bankruptcy, liquidation or dissolution (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or
  - .3 if any act is done or event occurs with respect to the Contractor or his assets which, under any applicable law, has a similar effect to any of the foregoing, or if he
  - .4 has contravened clause 2.1, or
  - .5 has repudiated the Contract,

then The Owner may, upon written notice, enter upon the Site and the Work and immediately terminate the Contractor's right to continue with the Work.

- .2 If The Owner determines, that, in his opinion, the Contractor without reasonable excuse:
  - .1 has failed to commence and proceed with the Work or any part thereof in accordance the provisions of the Contract, or
  - .2 has failed to comply with a notice issued pursuant to clause 6.7 or an instruction issued pursuant to clause 6.12 within 14 days after receiving it, or
  - .3 despite previous warning from The Owner, in writing, is otherwise persistently or flagrantly neglecting to comply with any of his obligations under the Contract, or
  - .4 has contravened clause 2.2, or
  - .5 has failed to attain Substantial Performance of the Work or part or parts of the Work within the Contract Time or Times pursuant to clause 6.3,

then The Owner may, after giving 14 days notice to the Contractor, and unless the Contractor has within such period remedied the default, enter upon the Site and the Work and terminate the Contractor's right to continue with the Work in whole or in part.

- .3 If The Owner terminates the Contractor's right to continue with the Work, in whole or in part, pursuant to clause 13.1.1 or clause 13.1.2, such termination shall not release the Contractor from any of his

obligations or liabilities under the Contract, and shall not affect the rights and authorities conferred on The Owner by the Contract, and The Owner may complete the Work or part thereof, or may contract with any Other Contractor to complete the Work or part thereof. The Owner or such Other Contractor may use for such completion so much of the Construction Equipment, Temporary Work and Products as he or they may think proper.

### 13.2 Valuation at Date of Termination

.1 The Owner shall, as soon as practicable after any entry and termination by The Owner pursuant to clause 13.1, determine:

- .1 what amount (if any) had, at the time of such entry and termination, been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract, and
- .2 the value of any unused or partially used Products, any Construction Equipment and any Temporary Work.

13.3 **Payment After Termination:** If The Owner terminates the Contractor's right to continue with the Work in whole or in part under clause 13.1, he shall not be liable to pay to the Contractor any further amount in respect of the Contract until the expiration of the warranty period and thereafter until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any) and all other expenses incurred by The Owner have been determined. The Contractor shall then be entitled to receive only such sum (if any) as The Owner may determine would have been payable to him upon due completion by him after deducting the said amount. If such amount exceeds the sum which would have been payable to the Contractor on due completion by him, then the Contractor shall, upon demand, pay to The Owner the amount of such excess and it shall be deemed a debt due by the Contractor to The Owner and shall be recoverable accordingly.

13.4 **Assignment of Benefit of Agreement:** The Contractor shall, if so instructed by The Owner within 14 days of the entry and termination referred to in clause 13.1, assign to The Owner the benefit of any agreement for the supply of any goods or materials or services and/or for the execution of any work for the purposes of the Contract, which the Contractor may have entered into.

## 14. DEFAULT OF OWNER

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14.1 **Failure of Owner to Pay:** If The Owner fails to pay to the Contractor any amount due under the Contract within 28 days after the expiry of the time stated in the Payment Conditions within which payment is to be made, the Contractor may terminate the Contract by giving notice to The Owner. Such termination shall take effect 14 days after the giving of such notice unless payment is received within such period.

14.2 **Removal of Construction Equipment:** Upon the termination of the Contract referred to in clause 14.1, the Contractor shall remove promptly from the Site all Construction Equipment.

14.3 **Payment on Termination:** In the event of termination pursuant to clause 14.1 The Owner shall be under the same obligations to the Contractor in regard to payment as if the Contract had been terminated under the provisions of clause 11., but, in addition to the payments specified in clause 11.3, The Owner shall pay to the Contractor the amount of any loss or damage, including reasonable profit, to the Contractor directly arising out of or in connection with or by consequence of such termination.

### 14.4 Contractor May Suspend Work

- .1 As an alternative to termination under clause 14.1 but without prejudice to the Contractor's entitlement to terminate under clause 14.1, the Contractor may, after giving 14 days' prior notice to The Owner, suspend work or reduce the rate of work.
- .2 If the Contractor suspends or reduces the rate of work pursuant to clause 14.4.1 and thereby suffers delay or incurs cost The Owner shall determine
  - .1 any extension of time to which the Contractor is entitled under clause 6.4, and
  - .2 the amount of such costs, which shall be added to the Contract Price.

14.5 **Resumption of Work:** When the Contractor suspends work or reduces the rate of work pursuant to clause 14.4.1 and The Owner subsequently pays the amount due, the Contractor's entitlement under clause 14.1 shall, if notice of termination has not been given, lapse and the Contractor shall resume normal working as soon as is reasonably possible.

## 15. FORCE MAJEURE

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### 15.1 Force Majeure Event:

- .1 If a Force Majeure Event occurs then notwithstanding any other provision of this Contract:
  - .1 To the extent that and for so long as either Party is prevented by the Force Majeure Event from performing any obligation under this Contract, that Party is relieved from liability due to its inability to perform or delay in performing that obligation; and
  - .2 If the Force Majeure Event wholly or substantially prevents the Contractor from proceeding with the Work then the times by which the Contractor shall obtain Substantial Performance of the Work or Total Performance of the Work as applicable shall be adjusted for the period of the Force Majeure Event.
- .2 Upon either Party becoming aware of the occurrence of a Force Majeure Event that prevents that Party from performing any obligation under this Contract, that Party shall in a timely manner give the other Party notice of the Force Majeure Event, including reasonable details of the anticipated effects on performance of this Contract, and thereafter the Contractor shall, on an ongoing basis, notify The Owner of its plans for remedying or mitigating the effects of the Force Majeure Event.

- .3 If the Contractor anticipates that the Force Majeure Event will delay the times by which the Contractor shall obtain Substantial Performance of the Work or Total Performance of the Work as applicable, but is of the opinion the delay can be avoided or mitigated through extraordinary measures, the Contractor may propose to The Owner that such extraordinary measures be taken by the Contractor at The Owner's expense.

**END OF SECTION**

## **ADDENDUM A-01**

<b>Project:</b>	<b>Drumheller Flood Mitigation and Resiliency</b>
<b>Addendum:</b>	<b>A-01</b>
<b>Date:</b>	
<b>Location:</b>	<b>224 Centre Street Drumheller, Alberta</b>

### **To All Bidders:**

<p>1. <b>General</b></p> <p>1.1. This addendum shall be read in conjunction with the Specifications prepared for the Request for Tender –</p>
<p><b>1. A –</b></p>
<p><b>A.</b></p>

**End of Addendum 01**

## 1. SUPPLEMENTARY CONDITIONS

- .1 This Supplementary Condition modifies the following Alberta Transportation standard documents, as specified herein:
  - .1 Section 00630 - Payment Conditions.
- .2 Provisions which are not so modified shall remain in full force and effect.

## 2. SECTION 00630 – PAYMENT CONDITIONS

Add article 14 - Diesel Fuel Cost Adjustment

## 3. DIESEL FUEL COST ADJUSTMENT

### .1 GENERAL

- .1 The Owner will make adjustments to the monthly progress payments due to the Contractor when the Owner determines that the Monthly Price Index for low sulphur diesel fuel has increased or decreased in excess of 15% of the Base Price Index.
- .2 The Monthly Price Index will be published on the Government of Alberta web site <https://www.alberta.ca/unit-prices-and-cost-adjustments.aspx> .
- .3 This section only applies to low sulphur diesel fuel, for the category of Work and at the consumption rates specified herein.
- .4 The Base Price Index that applies to the Contract is **\$ 145.31**.

### .2 DEFINITIONS

- .1 Monthly Price Index (MPI):

The Monthly Price Index will be based on the average Edmonton and Calgary Rack Rates for low sulphur diesel as published by the Oil Price Information Service (OPIS). The MPI will be calculated as the average of the first 3 Mondays of each month. New MPI's will be established each month by the Owner. In the event of a statutory holiday, the Rack Rate from the next working day will be used to determine the MPI.

- .2 Base Price Index (BPI):

The Base Price Index specified for this Contract will be the most current MPI, as determined solely by the Owner, prior to the initial tender advertising date.

- .3 Monthly Diesel Price Index (MDPI):

The Monthly Diesel Price Index is the MPI published by the Owner for the month in which Work is performed. The MDPI will be effective from the 26th day of the previous month to the 25th day of the current month.

**.3 DIESEL FUEL CONSUMPTION RATES**

- .1 For the purpose of the diesel fuel cost adjustment, the following category of Work and diesel fuel consumption rate will be used:

Category of Work	Diesel Fuel Consumption Rate (CR) <sup>(1)</sup>
Common Excavation, Borrow Area Excavation, Topsoil and Subsoil Stripping, Zone 1A Impervious Fill for Dike - Supply and Place, Designation 4 – Gravel Surfacing Aggregate – Supply and Place and Riprap Bedding Gravel 5A – Supply and Place (excludes Topsoil and Subsoil Placement)	1.6 litres/m <sup>3</sup>

Note 1: The specified consumption rates include overhaul and truck haul. No adjustments to the specified consumption rates will be made for Contractor’s choice of equipment, type of fuel, construction methodologies, efficiencies, or haul distances. No diesel fuel price adjustments will be made to Lump Sum Items.

**.4 CALCULATION OF DIESEL FUEL COST ADJUSTMENT**

- .1 The Owner will calculate the diesel fuel cost adjustment for the months in which the specified category Work is performed.
- .2 The Owner will compute the ratio of Monthly Diesel Price Index / Base Price Index each month the specified category of Work is performed. If the ratio falls between 0.85 and 1.15, inclusive, no fuel cost adjustment will be made for that month. If the ratio is less than 0.85 a credit to the Owner will be computed. If the ratio is greater than 1.15 additional payment to the Contractor will be computed. Diesel Fuel Cost Adjustments will be computed as follows:

- .1 Diesel Fuel Price Decrease: When the MDPI is less than 85% of the Base Price Index, a diesel fuel de-escalation assessment will be calculated. This assessment will be deducted from any monies due the Contractor on the monthly progress payment.

$$P.R. = (0.85 - (MDPI / BPI)) \times (Q) \times (BPI) \times (CR)$$

where:

P.R. = Price Rebate

Q = the monthly quantity of the specified category of Work performed, as determined by the Owner and as reported on the monthly progress estimate

CR = the diesel fuel consumption rate for the specified category of Work.

- .2 Diesel Fuel Price Increase: When the MDPI is more than 115% of the Base Price Index, a diesel fuel escalation assessment will be calculated. This assessment will be added to any monies due the Contractor on the monthly progress payment.

$$P.I. = ((MDPI / BPI) - 1.15) \times (Q) \times (BPI) \times (CR)$$

where:

P.I. = Price Increase

Q = the monthly quantity of the specified category of Work performed, as determined by the Owner and as reported on the monthly progress estimate

CR = the diesel fuel consumption rate for the specified category of Work.

- .3 The Price Rebate or Price Increase will be authorized by means of a Change Order.

## **.5 CONTRACTOR'S OPTION TO PARTICIPATE**

- .1 The Contractor shall have the option to participate or opt-out of the Minister's diesel fuel cost adjustment process.
- .2 If the Contractor wishes to opt-out of the Owner's diesel fuel cost adjustment process, the Contractor shall state its intent in writing to the Owner prior to execution of the Contract.
- .3 If the Contractor does not state its intent in writing to the Owner prior to execution of the Contract, the Owner will deem that the Contractor's intent was to participate in the diesel fuel cost adjustment process and no further changes will be considered.
- .4 The Contractor will not be permitted to either opt-in or opt-out of the diesel fuel cost adjustment process after the Owner's execution of the Contract.

## **.6 CONCLUSION OF DIESEL FUEL COST ADJUSTMENT**

- .1 The calculation of Price Rebates and Price Increases on diesel fuel costs will only be considered for the category of Work specified and performed prior to the date of Substantial Performance of the Work.
- .2 For any of the category of Work specified and performed after the date of Substantial Performance of the Work, the Owner will process payments without applying any diesel fuel cost adjustments.

## **.7 FINAL PAYMENTS**

- .1 If the Contractor fulfills the prerequisites to Substantial Performance by the specified date, the Owner will determine the difference between the cumulative monthly estimated quantities for the category of Work specified and the final quantities for that same Work. An average Monthly Diesel Price Index will be calculated by averaging the Monthly Diesel Price Indexes for all months in which the category of Work specified was performed. This average Monthly Diesel Price Index will be applied to the quantity differences for such work.

- .2 If the Contractor does not fulfill the prerequisites to Substantial Performance by the specified date, diesel fuel price adjustments will not be applied to any difference between the estimated and final quantities of the category of Work specified.

**END OF SECTION**



## 1.0 GENERAL

### 1.1 WORK OF THIS CONTRACT

- .1 The main items of Work of this Contract include the following:
  - .1 Raising of existing Dike C – North Drumheller Grove Plaza Dike with impervious fill.
  - .2 Constructing concrete block retaining wall on the landside of the dike raise.
  - .3 Remove and replace existing riprap on the Dike water side face.
  - .4 Relocating existing chain link fence to property line.
  - .5 Constructing timber stairs and handrail from Dike C to Travelodge.
  - .6 Raising two (2) existing manholes.
  - .7 Installing one (1) new manhole.
  - .8 Relocating one (1) existing catch basin and installing one (1) new catch basin.
  - .9 Install an asphalt pathway near Gordon Taylor Bridge to reconnect the existing bike pathway system to the bridge.
  - .10 Installing a rock retaining wall c/w handrail on the water side edge of the asphalt pathway.
  - .11 Replacing an outfall inlet grate at the downstream most outfall.
  - .12 Constructing a emergency access ramp and turnaround to the dike crest near the downstream end of the dike.
  - .13 Landscaping including topsoil and seeding.
- .2 The Site of the Work of this Contract is located in Sections NE and NW 11, Township 29, Range 20, West of 4th Meridian, in the community of Drumheller, Alberta.
- .3 The municipal address is: 105 and 240 Grove Place, Drumheller, Alberta.

### 1.2 CONTRACT TIME

- .1 The Contract will commence on the date on which the contract has been signed by both parties.
- .2 Upon receipt of the Letter of Acceptance, promptly, and without undue delay, commence work at the Site.
- .3 Attain Substantial Performance of the Work by **November 30, 2022** except for the following:
  - .1 Fill placement is to be completed by November 15, 2022.
  - .2 Seeding as specified in Clause 1.3.4.
- .4 Refer to the contract documents of the Assignable Contract for contract time provisions specified for the Assignable Contract.

### **1.3 WORK RESTRICTION/MILESTONE DATES**

- .1 Contractor shall adhere to all applicable Town of Drumheller Community Standards Bylaws. In particular, No. 06.19, section 'Prohibited Noise', item 3.38, which states that equipment can not be operated between 10:00 pm and 7:00 am on a Week and from 10:00 pm to 9:00 am on a weekend. for working hours.
- .2 As a Class C water body, construction operations in the Red Deer River are prohibited between the dates of April 16 and June 30 of any year.
- .3 Attain Substantial Completion of the Work by **November 30, 2022**, subject to material availability.
- .4 Attain Total Performance of the Work by **December 15, 2022**.
- .5 Attain Warranty Performance of the Work by December 15, 2024

### **1.4 REFERENCE STANDARD DOCUMENTS**

- .1 Not Used

### **1.5 RELATED WORK BY OWNER**

- .1 The following work will be performed by The Owner utilizing his own forces:
  - .1 Quality Assurance testing of fill placement (by Engineer).
- .2 Allow The Owner every opportunity to introduce and store Owner's materials or products.
- .3 Co-ordinate and connect the Work of this Contract to accommodate The Owner's work.

### **1.6 BORROW AREAS**

- .1 The Contractor shall source their own borrow areas for supply of Zone 1A Impervious Fill and Retaining Wall Reinforced Fill Zone material as described in Section 02330 – Earthwork Materials.
- .2 The location(s), excavation layout(s), excavation methods, scheduling, and sequencing of Borrow Area Excavation to provide suitable Impervious Fill Zone 1A and Retaining Wall Reinforced Fill Zone materials is the sole responsibility of the Contractor.
- .3 The Contractor is responsible to obtain all applicable permits (may include Alberta Transportation, Historical and Paleontological Resources, etc.), agreements, access rights, and approvals necessary to source borrow material. The Contractor is to comply with any specific conditions required by the applicable landowner(s).
- .4 Where there are conflicts with existing utilities at the borrow source(s) the Contractor is responsible for obtaining required agreements with each utility company and protection of the utility throughout any borrow development.
- .5 The chosen borrow material(s) must be pre-qualified by the Contactor and Owner/Engineer of Record as outlined in Section 02330 – Earthwork Materials. Only the pre-qualified borrow materials may be used for the project. If at any point in the project the Contractor requires material from a different borrow source, the new borrow area material must be pre-qualified for use by the Contactor and Owner/Engineer of Record.

- .6 The Contractor must allow access to the designated borrow areas to The Owner's selected 3<sup>rd</sup> party testing agency and consultants to complete Quality Assurance testing at their discretion.
- .7 For Contractor supplied topsoil, earthwork materials, and aggregates from non-designated sources, locate the source, obtain access rights, pay royalties, and fulfil any other conditions.

## **1.7 USE OF THE SITE**

- .1 The Site Limits are specified in the Contract Documents.
- .2 Approximate locations of existing utility lines within the Site that are known to The Owner are specified in the Contract Documents.
- .3 Construction boundaries and easements to allow for construction of the dike and drainage swales are specified in the Contract Documents. These boundaries and easements are subject to the following conditions:
  - .1 Construction near ATCO leases and utility boxes (Utility boxes: S103586, S8669, and S115614), requires notification to ATCO and an ATCO representative may be required to be on site during construction.
- .4 The Owner has negotiated temporary work spaces with the landowners at 101 – 105 and 240 Grove Place for use during dike construction. The locations of these temporary work spaces are provided in Schedule A, in the contract information documents. The size and negotiated rents of the temporary work spaces are summarized below. The successful proponent will be provided with contact information for the landowners and will be responsible for finalizing the temporary work space agreements.
  - .1 101 – 105 Grove Place: 35,162 square feet at \$3,000 per month
  - .2 240 Grove Place: 33,504 square feet at \$5,000 per month, for a minimum of five months
- .5 Use of the areas within the Site described below are subject to the following conditions:
  - .1 Return temporary construction access and laydown area and any other areas disturbed by contractors' construction activities, to pre-construction conditions or better.
- .6 Assume responsibility for the care and protection of the existing work within the Site.

## **1.8 PUBLIC ROADS**

- .1 Determine the condition and availability of public roads, clearances, restrictions, bridge load limits, bond requirements, conditions of use, and other limitations that may affect ingress to and egress from the Site.
- .2 For information and requirements of local haul routes the Contractor shall contact the following: Information on local Town of Drumheller road bans can be obtained by calling Roadata Services at 1-88-830-7623

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 PERFORMANCE OF WORK COVERED BY ALLOWANCES**

- .1 The Owner will determine who will perform the Work covered by the allowances.
- .2 If not specified, The Owner will determine the manner in which prices are obtained for Work covered by the allowances.
- .3 When requested or specified, assist the Owner by identifying potential Suppliers and Subcontractors and obtaining prices for Work covered by the allowances.
- .4 Work and expenditures from the allowances will only be made when authorized in writing by The Owner.

### **1.2 CONTRACTOR'S RESPONSIBILITIES**

- .1 The Contractor's responsibilities for Work covered by the allowances shall be the same as for other Work of this Contract.
- .2 On notification in writing of the selection of a Supplier or Subcontractor by The Owner, execute a contract for the Products or Work with the designated Supplier or Subcontractor.

### **1.3 SCHEDULING WORK COVERED BY ALLOWANCES**

- .1 For Work covered by the allowances, including the allowance[s] for unforeseen work:
  - .1 perform the Work within the Contract Time; and
  - .2 include the Work in the construction schedule.
- .2 The Owner will supply the Contractor with required documentation or information within the time specified or, where such time is not specified, in sufficient time to permit the construction schedule to be maintained.

### **1.4 ALLOWANCES: ECO PLAN**

- .1 The amount of the allowance includes all costs. Do not include in the Contract Price any separate costs in excess of the allowance amount.
- .2 Work will be performed under the allowance and included in the Contract Price.

### **1.5 ALLOWANCES: UNFORESEEN WORK**

- .1 The amount of the allowance includes all costs. Do not include in the Contract Price any separate costs in excess of the allowance amount.
- .2 Work performed under the allowance will be authorized by Change Order and valued in accordance with Section 00725 – General Conditions, clause 8.3 – Valuation of Changes in the Work.
- .3 Allow the amount specified in the Schedule of Prices for unforeseen work.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**



**CONTRACT CHANGE ORDER No.** \_\_\_\_\_

Project: **Flood Mitigation Program** Date: \_\_\_\_\_

Contractor: \_\_\_\_\_

Contract Title: \_\_\_\_\_

Reference No.: \_\_\_\_\_ File No.: \_\_\_\_\_

Change Order No.: \_\_\_\_\_

Change Order Title: \_\_\_\_\_

**Description of Change in Scope of Work:**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_

**Reason For Change**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_

**Change to Contract:**

Addition to Contract (out of Scope)	\$ _____	(excluding GST)
Deduction from Contract (regular work)	\$ _____	(excluding GST)
Original Contract Amount		(excluding GST)
Total Current Contact Amount		(excluding GST)
Total Amount Invoiced to Date		(excluding GST)
Revised Substantial Performance date:	_____	

**Confirmation:**

Submission:	_____	_____
	Date	Contractor
Accepted:	_____	_____
	Date	Flood Resiliency Director- Deighen Blakely
Approved:	_____	_____
	Date	Town of Drumheller - Darryl Drohomerski

## 1.0 GENERAL

### 1.1 MEASUREMENT SYSTEM

- .1 This section specifies the measurement rules that will generally be used for payment purposes unless otherwise specified in the Contract Documents. In case of conflict between the method of measurement specified in this section and the requirements specified in Section 01280 – Measurement Schedule, the latter will govern.
- .2 Work will be measured in the International System of Units (SI) in accordance with CAN/CSA–Z234.1–89 Canadian Metric Practice Guide.
- .3 When used in the Contract, the following abbreviations and symbols have the meaning assigned to them.

<b>Abbreviation/Symbol</b>	<b>Meaning</b>
µm.....	micrometre or micron
mm.....	millimetre
m.....	metre
v.m.....	vertical metre
mm <sup>2</sup> or mm2.....	square millimetre
m <sup>2</sup> or m2.....	square metre
ha.....	hectare
kPa.....	kilopascal
MPa.....	megapascal
m <sup>3</sup> or m3.....	cubic metre
l (or where clarity is needed L).....	litre
L.S.....	lump sum
g.....	gram
kg.....	kilogram
N.....	newton
kN.....	kilonewton
t.....	tonne
no.....	number (quantity)
min.....	minute (time)
h.....	hour
d.....	day
wk.....	week
%.....	percent
>.....	greater than
≥.....	greater than or equal to
<.....	less than
≤.....	less than or equal to
\$.....	Canadian dollars
°.....	degree (angle)
°C.....	degree Celsius



## 1.2 METHOD OF MEASUREMENT

- .1 Unless otherwise indicated in the Contract Documents:
  - .1 earthwork materials will be measured net in place after compaction, with no allowance for bulking, shrinkage, compression, foundation settlement, or waste;
  - .2 products will be measured net, with no allowance for waste;
  - .3 dimensions used in calculating quantities will be rounded to the nearest unit of dimension as follows:

<b>Quantity</b>	<b>Dimension</b>
Volume of earth.....	cubic metre
Length of pipe.....	metre
Area of land.....	square metre
  - .4 the survey station line system adopted will be at 10 linear metres spacing for measuring quantities, respectively;
  - .5 contours are based on LiDAR and ground survey captured in May 2018 and are approximate only. Actual ground elevations and location co-ordinates will be determined in the field during the course of the Work for measurement purposes; and
  - .6 measurement and payment will not be made for work carried out beyond measurement and payment lines and limits as shown on the Drawings and specified in the Contract Documents.
- .2 When boundaries between different items of Work are not specified in the Contract Documents, such boundaries will be established by The Owner.
- .3 Mass:
  - .1 Mass will be measured by weigh scale or by estimated or theoretical mass taken from reference documents, as specified.
  - .2 Mass will be measured to 3 decimal places.
- .4 Length:
  - .1 Length will be measured at the item centreline or mean chord.
  - .2 Items to be measured by linear dimension will be measured parallel to the base or foundation upon which such items are placed.
  - .3 Items to be measured by station will be measured horizontal to the base or foundation upon which such items are placed.
  - .4 Centre line for pipes, ducts, culverts, and similar items will be the line equidistant between inside faces of pipe walls.
- .5 Area:
  - .1 For rectangular and regular shaped objects, area will be measured using mean length and width or radius.
  - .2 For irregular objects, area will be measured by the sum of squares, triangles, and circles, etc., as selected by The Owner.

- .6 Volume:
  - .1 Unless otherwise indicated, volume will be measured using mean length, width, and height or thickness.
  - .2 Excavation and fill volumes will be computed using survey data input to CAD – Civil 3D software program; which computes volumes using the triangulation method of comparing pre and post construction digital elevation surface models.
- .7 Time:
  - .1 Construction Equipment to be paid for on a time basis will be measured in hours of actual working time, and necessary travelling time, when under its own power to the nearest tenth thereof.
  - .2 Hauling equipment to be paid for on a time basis will be measured in hours of actual working time to the nearest tenth thereof.
- .8 Number of items will be measured on a per item basis.
- .9 When standard manufactured items are identified by their physical characteristics, such characteristics will be considered as nominal. Unless more stringently controlled by specified tolerances, manufacturing tolerances established by the industry involved will be accepted.

### **1.3 MEASUREMENT COMPUTATION**

- .1 Formulae and computer programs used for measurement computation will be as specified or, when not specified, as selected by The Owner.

### **1.4 MEASUREMENT OF WORK**

- .1 Unless otherwise specified, The Owner will measure the Work for the purpose of determining payment to the Contractor.
- .2 The Owner will request the Contractor to attend with The Owner in making measurements.
- .3 If the Contractor does not attend pursuant to clause 1.4.2, measurements made or approved by The Owner will be considered to be the correct measurement for such part of the Work.
- .4 The Owner will prepare survey records and drawings for payment purposes as the Work progresses. The Owner will request the Contractor to attend, within 14 days, to examine and verify such records and drawings. If the Contractor does not attend to examine and verify such records and drawings, they will be considered to be correct.
- .5 If, after attending pursuant to clause 1.4.2 or 1.4.4, the Contractor disagrees with such measurements or records or drawings, they will nevertheless be considered correct until the Contractor notifies The Owner, in writing, of the aspects in which they are considered incorrect. On receipt of such notice, The Owner will review the measurements or records or drawings and either confirm or vary them.

## **1.5 QUANTITIES**

- .1 Unless otherwise indicated, quantities specified in the Schedule of Prices for Unit Price Work are estimated quantities and will not be considered as actual quantities of Work to be performed. Subject to the Contract terms, unit prices stated in the Schedule of Prices will be applied to actual quantities of Work performed as measured in accordance with the Contract Documents.
- .2 When it is stated that the Contractor will be paid only for the quantity specified for an item of Work, such quantity will be considered as a fixed quantity and the Contractor will be paid for the quantity specified, regardless of the actual quantity performed. If a change in the Work directed by The Owner results in a change in a fixed quantity, the quantity will be adjusted in accordance with the Contract Documents and payment will be made for the adjusted quantity.

## **1.6 SCHEDULE OF PRICES**

- .1 The Schedule of Prices is divided into items for purposes of measurement and payment of Work. Price each item in accordance with the methods of measurement specified in the Contract.
- .2 Item names in the Schedule of Prices identify the work covered by the respective item, but do not define the size or nature of the unit.
- .3 Read item names in the Schedule of Prices as part of the item scope, measurement, and payment requirements to which they apply in the Measurement Schedule.
- .4 For each price specified in the Schedule of Prices include all costs and charges required to perform the Work including overhead charges and profit, and all costs of all related Work for which payment is not specified elsewhere.
- .5 Subject to the provisions of the Contract Documents, the total amount of the Schedule of Prices shall cover all of the Contractor's obligations under the Contract and all matters and things necessary for performance of the Work in accordance with the Contract Documents.
- .6 Payment will be made only for items specified in the Schedule of Prices. Costs and charges not directly provided for in the Schedule of Prices will be deemed to be included therein.
- .7 Work or material included in any one item will not also be measured for payment under another item. No item will be paid for more than once.
- .8 Omissions or errors in any item including quantities in the Schedule of Prices will not invalidate the Contract nor release the Contractor from any of his obligations or liabilities under the Contract.

## **1.7 LUMP SUM ITEMS**

- .1 Breakdown of Lump Sum Items
  - .1 If requested, submit to The Owner a breakdown of each Lump Sum item included in the Schedule of Prices, within 21 days after the commencement date of the Contract.
  - .2 Provide sufficient details as may be required by The Owner to identify the principal components of the Work and to permit ready valuation of Work performed.

- .2 Lump Sum Items Paid in Accordance with a Schedule
  - .1 When an interim payment is to be a specified percentage of a lump sum item, and is calculated based on the ratio of the value of Work completed to the interim date, and the Contract Bid Amount, that specified percentage will be included in the calculation of the value of the Work completed to that interim date.

**1.8 PROVISIONAL ITEMS**

- .1 Provisional items are included in the schedule of prices to obtain unit costs for the items should it be determined by the Owner or Owner's Representative that the materials are not suitable for reuse.
- .2 The amount of the provisional items includes all costs. Do not include in the Contract Price any separate costs in excess of the allowance amount.
- .3 Provisional items are not to be included in the total contract price unless approved in writing.
- .4 Work performed under the provisional items will be authorized by the Owner by Change Order.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 MEASUREMENT SCHEDULE**

- .1 Schedule: See next page.
- .2 Quantity Calculations – Scheduled Lump Sum items.
  - .1 When an interim payment is to be a specified percentage of a lump sum item and is calculated based on the ratio of the value of Work completed to the interim date, and the Contract Bid Amount, that specified percentage will be included in the calculation of the value of the Work completed to that interim date.

### **2.0 PRODUCTS – NOT USED**

### **3.0 EXECUTION – NOT USED**

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
1.1	<p><b>GENERAL REQUIREMENTS</b> Mobilization and Demobilization</p>	<p>01390 01391 01411 01510 01520 01552 01580 01742</p>	<p>.1 Scope: Mobilization includes supplying and transporting to the site, labour, equipment, products and incidentals; providing and maintaining temporary facilities and controls, including site offices, utilities, safety and security measures, temporary steel construction fencing, layout survey, sign fabrication; the supply, installation and maintenance of signposts; sign installation and maintenance; , and other construction necessary for Contractor's methods carried out during the performance of the Contract and which does not remain as part of the Permanent Work; and all related work and materials for which payment is not included elsewhere.</p> <p>Demobilization includes removing and transporting from the Site, removal and disposal of the signs and signposts at construction completion, labour equipment, products, and other items not required to remain upon Total Performance of the Work; cleaning up of the Site; and all related work and materials for which payment is not included elsewhere.</p> <p>Mobilization and Demobilization include interim and partial mobilization and demobilization activities required to perform the Work of the Contract.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>25% of the Lump Sum value on completion of 5% of the contract bid amount;</p> <p>25% of the Lump Sum value on completion of 25% of the contract bid amount;</p> <p>25% of the Lump Sum value on completion of 50% of the contract bid amount; and</p> <p>Final 25% of the Lump Sum value after issuance of the Construction Completion Certificate.</p>
1.2	Staging Area Preparation and Restoration	<p>01510 002234 002315 002330 002910 002924</p>	<p>.1 Scope: Includes but is not limited to all work required to coordinate the temporary workspace with landowners, prepare the temporary workspace for use during construction, such as topsoil stripping; clearing; excavating; installation of construction access; maintenance of the Staging Area during construction; payment of rentals and all work to restore the temporary workspace to original condition or better after construction is complete, including regrading, topsoiling, and seeding to the approval of The Owner's Representative.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
1.3	Existing and Temporary Access Roads Preparation	01552 01742	<p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% of the Lump Sum value on completion of 5% of the contract bid amount; and</p> <p>50% of the Lump Sum value after issuance of the Construction Completion Certificate and when all measures have been removed and the staging area restored.</p> <p>.1 Scope: Includes all work required to design, prepare, install, maintain during construction, and post construction to restore back to original condition or better the construction access roads, pathways, trails, and parking areas required for and used by Contractor-generated traffic. Includes providing surface protection measures, barriers, detours, signage, flag persons, and other measures to safely regulate traffic; preparing submittals, obtaining approvals, and paying all levies required by The Town; conducting video surveys or other means accepted by The Owner's Representative to document pre-construction conditions; providing temporary protection measures; and all other work and materials to complete this item for which payment is not included elsewhere.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% of the Lump Sum value following installation of temporary access roads and traffic control;</p> <p>25% of the Lump Sum value after issuance of the Construction Completion Certificate; and</p> <p>25% of the Lump Sum value after issuance of the Final Acceptance Certificate and when all measures have been removed and the existing accesses restored.</p>
1.4	Preparation and Implementation of the Traffic Accommodation Plan	01552	<p>.1 Scope: Includes preparation and revision of a traffic accommodation plan to be approved by the Town, providing and implementing barriers, detours, signage, flag persons, and other measures to safely regulate traffic for the duration of the project; preparing submittals, obtaining approvals, and paying all levies required by The Town, coordinating with the Town's paving program; and all related work and materials for which payment is not included elsewhere.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
1.5	Utility Locates	01510	<p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% of the Lump Sum value on completion of an approved traffic control plan and the completion of the installation of traffic regulation measures; and</p> <p>50% of the Lump Sum value after issuance of the Construction Completion Certificate and when all measures have been removed.</p> <p>.1 Scope: Includes confirming the number, type, location, and elevation of all existing utility lines. Contact the appropriate Utility to locate all lines, conduits, and other such structures; stake and flag all existing service line locations and elevations and maintain staking and flagging throughout project.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% of the Lump Sum value on completion of 5% of the contract bid amount; and</p> <p>50% of the Lump Sum value after issuance of the Construction Completion Certificate and when all measures have been removed and the staging area restored.</p>
1.6	Construction Care of Water	002240	<p>.1 Scope: Design, supply, install, construct, operate, monitor, maintain and remove temporary care of water provisions, sediment removal provisions, turbidity control measures such as silt fences, and all related work and materials for which payment is not included elsewhere according to contractor's ECO Plan.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% of the Lump Sum value on completion of installation care of water measures including isolation; and</p> <p>50% of the Lump Sum value after issuance of the Construction Completion Certificate and when all measures have been removed.</p>



ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
1.7	Environmental Monitoring During Construction	01390 01391 002240 002930	<p>.1 Scope: Includes monitoring construction for compliance with Construction Care of Water, Siltation and Erosion Control Plans, other environmental regulations, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% of the Lump Sum value on completion of 50% of the contract bid amount;</p> <p>25% of the Lump Sum value on completion of 75% of the contract bid amount; and</p> <p>Final 25% of the Lump Sum value after issuance of the Construction Completion Certificate.</p>
1.8	2-Year Warranty	01775 01790 01795	<p>.1 Scope: Maintenance and operation of all installed materials for a period of 2 years from the start date of the Construction Total Performance. The maintenance includes monitoring, watering vegetation, installing, and repairing wildlife fencing, replacing vegetation that does not survive, repairing defects to the earthworks and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% paid after Year 1; and</p> <p>50% of the Lump Sum value upon issuance of the Final Acceptance Certificate.</p>
2.1	<p><b>ALLOWANCES</b></p> <p>ECO Plan and Siltation and Erosion Control Plan and Implementation</p>	01390 01391 002240 002930	<p>.1 Scope: Prepare and submit for approval by The Owner's Representative an ECO Plan prepared in accordance with Section 01390, including a Siltation and Erosion Control Plan (SECP) based on the plan provided in the Drawings. This item also includes the implementation and execution of the ECO Plan, supply, maintenance, monitoring, and removal of all temporary SECP measures including silt fences, storm inlet control, dust control, and stabilized gravel, as well as any required updates to the ECO Plan and SECP. This item does not include turbidity curtains, berms, or silt fences used for turbidity control measures, or permanent SECP measures such as erosion control matting or erosion control wattles.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
3.1	<p><b>SITE WORK</b></p> <p>Clearing and Mulching</p>	002232 002315	<p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>25% of the Lump Sum paid after receipt of an approved ECO Plan and SECP Plan;</p> <p>25% of the Lump Sum value on completion of 50% of the contract bid amount;</p> <p>25% of the Lump Sum value on completion of 75% of the contract bid amount; and</p> <p>Final 25% of the Lump Sum value after issuance of the Construction Completion Certificate and when all SEC measures have been removed.</p> <p>.1 Scope: Includes all labour, equipment and materials needed to clear and mulch vegetation within the dike footprint; remove, load, haul, and dispose of logs, brush, stumps, roots and any deleterious material not to be repurposed as part of the Works at an appropriate off-Site waste disposal facility; protecting and treating trees and shrubs that are to remain; levelling, grading, and finishing of cleared areas; place the mulched material along the dike corridor within the temporary workspace and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>100% of the Lump Sum value on completion of clearing and mulching.</p>
3.2	Remove, Salvage and Replace Existing Retaining Wall	002220	<p>.1 Scope: Includes all labour, equipment, and materials required to remove, load, haul, stockpile and reinstall the existing concrete lock block retaining wall shown on the Drawings, as directed by The Owner's Representative, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be by linear metre of wall removed, salvaged and reinstalled, as determined by surveyed length and as verified by The Owner's Representative.</p> <p>.3 Payment: Unit Price per metre.</p>
3.3	Remove and Relocate Existing Chain Link Fence	002220 002822	<p>.1 Scope: Includes all labour, equipment, and materials required to remove, salvage, load, haul, temporarily store, and</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
3.4	Topsoil Stripping and Stockpiling	002234	<p>reinstall the existing chain link fence shown on the Drawings, and all related work and materials for which payment is not included elsewhere. If the removed fence materials are unsuitable for reuse, as determined by The Owner's Representative, new fence material will be supplied as per Provisional Item 4.1.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>50% paid after removal of existing chain link fence; and 50% of the Lump Sum value after installation of the chain link fence along the property line.</p> <p>.1 Scope: Includes all labour, equipment, and resources required to strip and stockpile existing material from the existing dike crest and side slopes and the drainage ditch as per the Drawings, storage of materials, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be cubic metres of stripped soil, as determined by surveyed area and depth. Depth to be verified by The Owner's Representative.</p> <p>.3 Payment: Unit Price per cubic metre.</p>
3.5	Zone 1A Impervious Fill for Dike - Supply and Place	002315 002330 002331	<p>.1 Scope: Includes all labour, equipment, and resources required to investigate, test, verify suitable quality, provide submittals and quality control, supply and place, and compact Zone 1A Impervious fill to the design lines, grades and elevations as shown on the Drawings and in the Contract Documents; and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be cubic metres of suitable Zone 1A fill, as determined by survey and finished grade lines, grades, slopes and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per cubic metre.</p>
3.6	Designation 4 – Gravel Surfacing Aggregate – Supply and Place	002315 002330 002331	<p>.1 Scope: Includes all labour, equipment and resources required to investigate, test, verify suitable quality, provide submittals and quality control, supply, size, screen, load, haul, temporary stockpile, re-handle, prepare receiving surfaces, and place Designation 4 – Gravel Surfacing Aggregate to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p>

ITEM NO.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
3.7	Remove, Salvage and Replace Zone 6B Riprap	002220 002315 002330 002373	<p>.2 Measurement: Shall be cubic metre of gravel placed, as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents or as adjusted by The Owner's Representative.</p> <p>.3 Payment: Unit Price per cubic metre.</p> <p>.1 Scope: Includes all labour, equipment and resources required to remove, salvage, load, haul, temporarily store, move, and reinstall Class 1 Riprap to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>100% of the Lump Sum value on completion of removing, salvaging, and replacing Zone 6B riprap to the satisfaction of The Owner or The Owner's Representative.</p>
3.8	Riprap Bedding Gravel 5A – Supply and Place	002330 002373	<p>.1 Scope: Includes all labour, equipment and resources required to investigate, test, verify suitable quality, provide submittals and quality control, supply, size, screen, load, haul, temporary stockpile, re-handle, prepare receiving surfaces, and place Riprap Bedding Gravel 5A to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be cubic metre of gravel placed, as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents or as adjusted by The Owner's Representative.</p> <p>.3 Payment: Unit Price per cubic metre.</p>
3.9	Topsoil Placement	002910 002930	<p>.1 Scope: Includes all labour, equipment and resources required to prepare receiving surfaces, dump, spread, grade, compact, rake, shape, and trim Topsoil, stockpiled and supplied to the finished grade surface to achieve the lines, grades, and elevations shown on the Drawings and in the Contract Documents as approved/directed by The Owner or The Owner's Representative.</p> <p>.2 Measurement: Shall be cubic metres of Topsoil placed, as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per cubic metre.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
3.10	Manhole (1200 mm) – Supply and Install	002315 002330 002331 002613	<p>.1 Scope: Includes all labour, equipment, and materials required to supply and install new 1200 mm concrete manholes as shown in Drawings, including excavating to achieve grade, disposing of excavated material offsite at a suitable facility and backfilling with Zone 1A Impervious Fill, grading to create suitable bedding, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be by manhole installed as inspected by The Owner’s Representative.</p> <p>.3 Payment: Unit Price per each.</p>
3.11	1S Manhole Extension – Supply and Install	002315 002330 002331 002613	<p>.1 Scope: Includes all labour, equipment, and materials required to supply and install concrete manhole extension as shown in Drawing C-503, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be by vertical metre of manhole extended as inspected by The Owner’s Representative.</p> <p>.3 Payment: Unit Price per vertical metre.</p>
3.12	375 mm Precast Concrete Pipe – Supply and Install	002315 002330 002331 002617	<p>.1 Scope: Includes all labour, equipment, and materials required to supply and install new 375 mm precast concrete pipe at new manhole, as shown in Drawing C-503, including excavating to achieve grade, disposing of excavated material offsite at a suitable facility, backfilling with Zone 1A Impervious Fill, grading to create proper bedding, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be metre of pipe placed, as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents or as adjusted by The Owner’s Representative.</p> <p>.3 Payment: Unit Price per metre.</p>
3.13	Catch Basin (900 mm) – Supply and Install	002315 002330 002331 002617	<p>.1 Scope: Includes all labour, equipment, and materials required to supply and install new 900 mm concrete catch basin as shown in Drawing C-503, including excavating to achieve grade, disposing of excavated material offsite at a suitable facility, backfilling with Zone 1A Impervious Fill, grading to create proper bedding, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be by catch basin installed as inspected by The Owner’s Representative.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
3.14	Catch Basin – Relocate	002220 002315 002330 002331 002617	<p>.3 Payment: Unit Price per each.</p> <p>.1 Scope: Includes all labour, equipment, and materials required to salvage, load, haul, temporarily store, move, and reinstall existing concrete catch basin as shown in Drawing C-503, including excavating to remove existing catch basin and to achieve grade, disposing of excavated material offsite at a suitable facility, backfilling with Zone 1A Impervious Fill, grading to create proper bedding, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be by catch basin relocated as inspected by The Owner’s Representative.</p> <p>.3 Payment: Unit Price per each.</p>
3.15	300 mm PVC DR 35 Pipe – Supply and Install	002315 002330 002331 002615	<p>.1 Scope: Includes all labour, equipment, and materials required to supply and install new 300 mm PVC DR 35 pipe at existing manhole, as shown in Drawing C-503, including excavating to achieve grade, disposing of excavated material offsite at a suitable facility, backfilling with Zone 1A Impervious Fill, grading to create proper bedding, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be metre of pipe placed, as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per metre.</p>
3.16	Remove and Dispose of Existing Asphalt Pathway	002220 002315	<p>.1 Scope: Includes all labour, equipment, and materials required to remove, haul, and dispose of existing asphalt pathway and all related work and materials for which payment is not included elsewhere. Asphalt is to be disposed off site at a suitable facility.</p> <p>.2 Measurement: Shall be metre of removed pathway, as determined by survey, and as specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per metre.</p>
3.17	Remove and Dispose of Silt	002315	<p>.1 Scope: Includes all labour, equipment, and materials required to remove, haul, and dispose of silt accumulated on existing riprap. Silt is to be disposed off site at a suitable facility.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
3.18	Replace Existing Outfall Inlet Gate		<p>.2 Measurement: Shall be cubic metre of silt removed and disposed of, as determined by survey, and as specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per cubic metre.</p> <p>.1 Scope: Includes all labour, equipment, and materials required to remove, haul, and dispose of existing outfall inlet grate and install a new inlet grate, and all related work and materials for which payment is not included elsewhere. Existing inlet grate is to be disposed off site at a suitable facility.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>100% of the Lump Sum value on completion of removing and disposing of the existing inlet grate and the installation of a new inlet grate to the satisfaction of The Owner or The Owner's Representative.</p>
3.19	Final Grading	002331 002332	<p>.1 Scope: Includes all labour, equipment, and materials required to conduct a final site grading, and all related work and materials for which payment is not included elsewhere.</p> <p>2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>100% of the Lump Sum value after issuance of the Construction Completion Certificate and when all measures have been removed and the staging area restored.</p>
4.1	<p><b>DIKE C LANDSCAPING</b></p> <p>Asphalt Path – Supply and Install</p>		<p>.1 Scope: Includes all labour, equipment and resources needed to quality control test, prepare receiving surfaces, and install asphalt path on Dike C to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be the in-place square metres of asphalt as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per square metre.</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
4.2	Timber Steps and Handrail at Travelodge Retaining Wall – Supply and Install		<p>.1 Scope: Includes all labour, equipment and resources needed to install timber steps and handrail to Dike C, including supply of timber, preparing a subsurface, pouring a concrete base and installing the timber blocking to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Payment: Lump Sum paid in accordance with the schedule below. The total amount of such payments shall not exceed the amount bid for this item.</p> <p>100% of the Lump Sum value after construction of the timber steps and handrail.</p>
4.3	Precast Unit Retaining Wall. Maximum 1.0m Height – Supply and Install		<p>.1 Scope: Includes all labour, equipment and resources needed to install the precast unit retaining wall, including excavation and disposal of excavated soil, preparation of a base, supplying and compacting gravel levelling pad, placing and compacting impervious fill and placing planting soil to the grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be the in-place linear metre retaining wall by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price linear metre.</p>
4.4	Guardrail at Precast wall and stairs – Supply and Install		<p>.1 Scope: Includes all labour, equipment and resources needed to install the guardrail, including supply and installation of sleeve-it and concrete base, steel plate, rails, rebar and posts, and welding to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be the in-place linear metre guardrail by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price linear metre.</p>
4.5	Rock Wall (Maximum 1.5 m Height Including Unit Rock Course Below Grade) – Supply and Install		<p>.1 Scope: Includes all labour, equipment and resources needed to install the rock wall, including supply and installation of the rock wall to the lines and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be the in-place linear metre rock wall by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p>



ITEM NO.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
4.6	Guardrail at Rock Wall – Supply and Install		<p>.3 Payment: Unit Price linear metre.</p> <p>.1 Scope: Includes all labour, equipment and resources needed to install the guardrail, including supply and installation of sleeve-it and concrete base, steel plates, posts, caps and timber to the lines, grades, and elevations as shown on the Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be the in-place linear metre guardrail by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price linear metre.</p>
4.7	Seed Mix 2A – Supply and Place	002924	<p>.1 Scope: Includes all labour, equipment, and materials required to seed test, supply, protect seed mix 2A, prepare receiving surfaces, and placement of seed mix 2A, as shown on Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be square metres of the in-place seeded area as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per square metre.</p>
4.8	Seed Mix 2B – Supply and Place	002924	<p>.1 Scope: Includes all labour, equipment, and materials required to seed test, supply, protect seed mix 2B, prepare receiving surfaces, and placement of seed mix 2B, as shown on Drawings and in the Contract Documents.</p> <p>.2 Measurement: Shall be square metres of the in-place seeded area as determined by survey and the finished grade lines, grades, slopes, and elevations specified in the Contract Documents.</p> <p>.3 Payment: Unit Price per square metre.</p>
5.1	New Chain Link Fence Material – Supply and Install	002220 002822	<p>.1 Scope: Includes all new materials required to restore chain link fence in the event that the removed fence material is unsuitable for reuse, as determined by The Owner's Representative, and all related work and materials for which payment is not included elsewhere.</p> <p>.2 Measurement: Shall be by metre of chain link fence supplied and installed as measured and verified by The Owner or Owner's Representative.</p>

ITEM NO.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
5.2	Topsoil Supply	002315 002330 002910	<p>.3 Payment: Unit price per metre of chain link fence material supplied and installed.</p> <p>.1 Scope: In the event that the stripped topsoil is not to the satisfaction of The Owner's Representative topsoil will be supplied to achieve the lines, grades, and elevations shown in the Drawings. Includes all labour, equipment and resources required for supplying additional topsoil, including quality control, from off-site sources, preparing all submittals, paying royalties, excavating, sorting, loading, hauling per Contract Documents. It is the responsibility of the Contractor to determine a suitable topsoil source location. Material that does not meet requirements of topsoil delivered to site will not be compensated for. Overages in topsoil delivered to site will not be compensated for.</p> <p>.2 Measurement: Shall be cubic metres of suitable topsoil, as determined by survey of final bank cubic metres installed.</p> <p>.3 Payment: Unit Price per cubic metre.</p>
5.3	Topsoil Disposal	002234	<p>.1 Scope: In the event that the stripped topsoil is greater in quantity than that needed to achieve the lines, grades, and elevations shown in the Drawings, the Contractor will be responsible for disposing of the excess topsoil off site at a suitable facility. Includes all labour, equipment and resources required to dispose of excess topsoil off-site, paying royalties, excavating, sorting, loading, hauling per Contract Documents. It is the responsibility of the Contractor to determine a suitable topsoil disposal location.</p> <p>.2 Measurement: Shall be cubic metres of topsoil disposed of, as determined by the difference in volumes of stockpiled and placed topsoil.</p> <p>.3 Payment: Unit Price per cubic metre.</p>
5.4	Zone 6A Riprap – Supply and Place	002330 002331	<p>.1 Scope: In the event that the salvaged riprap is not to the satisfaction of The Owner's Representative or is insufficient in quantity to achieve the lines, grades, and elevations shown in the Drawings, Zone 6A riprap will be supplied. Includes all labour, equipment and resources required for supplying additional riprap, including quality control, from off-site sources, preparing all submittals, paying royalties, excavating, sorting, loading, hauling per Contract Documents. It is the responsibility of the Contractor to determine a suitable riprap source location. Material delivered to site that does not meet the riprap requirements will not be</p>

ITEM No.	ITEM NAME	SECTION	SCOPE, MEASUREMENT AND PAYMENT
			compensated for. Overages in riprap delivered to site will not be compensated for. .2 Measurement: Shall be cubic metres of suitable riprap, as determined by survey of final bank cubic metres installed. .3 Payment: Unit Price per cubic metre.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 COORDINATION**

- .1 Co-ordinate all construction activities to provide efficient and orderly construction of each and every part of the Work.
- .2 Where construction of one part of the Work is dependent on construction of other parts, schedule and co-ordinate construction activities in the sequence needed to obtain the best results.
- .3 Where availability of space is limited, co-ordinate construction of different parts of the Work to provide maximum accessibility for maintenance, service, and repair.
- .4 Make adequate provisions to accommodate Work scheduled for later construction by Other Contractors or by The Owner's own forces.

### **1.2 COMMUNICATION: EQUIPMENT**

- .1 Provide suitable telephone and computer equipment at the Contractor's office, specified in Section 01520 Construction Facilities, for receiving communications by voice and email.
- .2 Provide suitable computer equipment and software at the Contractor's office specified in this section for exchange of electronic data by email of the following types of documents:
  - .1 Letters and Memos Microsoft® Word
  - .2 Document Readers Adobe Acrobat® Reader
  - .3 Schedules Microsoft® Project or Microsoft® Excel
  - .4 Drawings AutoCAD®
  - .5 Communication Microsoft® Outlook
  - .6 Quantities and Calculations Microsoft® Excel

### **1.3 COMMUNICATION METHODS**

- .1 Communications will be sufficiently given by any one of the following methods:
  - .1 Delivered personally to the Contractor, the Contractor's Representative, or left at the Contractor's address as specified in this section.
  - .2 Mailed at any post office to the Contractor's address as specified in this section.
  - .3 Couriered to the Contractor's address as specified in this section.
  - .4 Transmitted by facsimile to the Contractor's facsimile number as specified in this section.
  - .5 Transmitted by Internet to the Contractor's e-mail address as specified in this section.

#### **1.4 CONTRACT ADMINISTRATION**

- .1 Co-ordinate scheduling and timing of administrative procedures with other construction activities to avoid delays and provide orderly progress of the Work. Administrative procedures include the following:
  - .1 Preparation and monitoring of schedules.
  - .2 Co-ordination of construction and removal of temporary facilities.
  - .3 Co-ordination, review, and processing of submittals.
  - .4 Participation in project meetings.
  - .5 Following Contract acceptance procedures.
  - .6 Preparation of change order proposals.

#### **1.5 CONTRACTOR'S ADDRESS FOR CORRESPONDENCE**

- .1 Submit the name, address, telephone number, and e-mail address to be used for correspondence with the Contractor within 10 days of the date of commencement of the Contract. Update whenever information changes during the Contract.

#### **1.6 OWNER'S ADDRESS FOR CORRESPONDENCE**

- .1 The Owner will provide to the Contractor the name, address, telephone number, facsimile number, and e-mail address to be used for correspondence with The Owner within ten (10) days of the date of commencement of the Contract. This information will be updated as required during the Contract.

#### **1.7 CONTRACTOR'S REPRESENTATIVES AND SITE MANAGEMENT**

- .1 Submit an organization chart showing the names, positions, telephone numbers, and responsibilities and levels of authority for the Contractor's Representatives and site management organization, within 10 days of the date of commencement of the Contract, and update whenever information changes during the Contract.

#### **1.8 OWNER'S REPRESENTATIVES AND ASSISTANTS**

- .1 The Owner will provide to the Contractor an organization chart showing the names, positions, telephone numbers, and responsibilities and levels of authority for The Owner's Representative and assistants, within ten (10) days of the date of commencement of the Contract and will update whenever information changes during the Contract.

#### **2.0 PRODUCTS – NOT USED**

#### **3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 ADMINISTRATIVE RESPONSIBILITIES**

- .1 The Owner will be responsible for administrative requirements for the following Contract meetings:
  - .1 Pre-construction; and
  - .2 Construction Progress.
- .2 The Contractor shall be responsible for administrative requirements for the following Contract meetings:
  - .1 Workplace Orientation;
  - .2 Safety; and
  - .3 Weekly site meetings.
- .3 The Owner or the Contractor may request additional meetings related to installation of equipment, commissioning progress, warranty, dispute resolution, and/or environmental issues. Unless otherwise specifically requested by the Contractor, The Owner will be responsible for administrative duties related to these meetings. The agenda for these meetings may be combined with that of the construction progress meetings.

### **1.2 ADMINISTRATIVE REQUIREMENTS**

- .1 The administrative requirements for Contract meetings include the following:
  - .1 Scheduling and administering the weekly meetings throughout the progress of the Work.
  - .2 Preparing the agenda for the meetings.
  - .3 Distributing to the relevant attendees written notice of each meeting and the proposed agenda at least four (4) days in advance of the meeting date.
  - .4 Presiding at the meetings.
  - .5 Recording the minutes including attendance, significant proceedings and decisions, and action required by the parties.
  - .6 Reproducing and distributing copies of the minutes within seven (7) days after each meeting to the meeting participants and affected parties not in attendance.
- .2 Representatives of the Contractor, Subcontractors, and Suppliers shall attend meetings as necessary and be authorized to act on behalf of the party each represents.

### **1.3 PRE-CONSTRUCTION MEETING**

- .1 Frequency: Within fifteen (15) days after award of the Contract and prior to commencement of activities at the Site.
- .2 Purpose: To review personnel assignments, responsibilities, schedules, submissions, and administrative and procedural requirements.

- .3 Attendees:
  - .1 Contractor's Representatives: Senior management, site superintendent, major Subcontractors, and others as necessary.
  - .2 Owner's Representatives: As determined by The Owner.
- .4 Agenda may include the following:
  - .1 Appointment of representatives of participants in the Work.
  - .2 Schedule of the Work and progress scheduling.
  - .3 Schedule of submittals.
  - .4 Requirements for temporary facilities, site signage, offices, storage sheds, utilities, and fences.
  - .5 Schedule of equipment delivery.
  - .6 Site safety and security.
  - .7 Change proposals, change orders, approvals required, costing and mark-up percentages permitted, time extensions, overtime, and administrative requirements.
  - .8 Products and materials provided by The Owner.
  - .9 Record documents.
  - .10 Maintenance manuals.
  - .11 Takeover procedures, acceptance, and warranties.
  - .12 Monthly progress claims, administrative procedures, and holdbacks.
  - .13 Inspection and testing.
  - .14 Insurance and transcripts of policies.
  - .15 Environmental management principles.
  - .16 Mobilization to the Site.

#### **1.4 CONSTRUCTION PROGRESS MEETINGS**

- .1 Frequency: Weekly during the course of the Work.
- .2 Purpose: To monitor construction progress, to identify problems and actions required for their solution, and to expedite the Work.
- .3 Attendees:
  - .1 Contractor's Representatives: site superintendent and, when so requested by The Owner, Subcontractors, Suppliers, and other parties involved in the Work.
  - .2 Owner's Representatives: As determined by The Owner.
- .4 Agenda may include the following:
  - .1 Review and approval of minutes of the previous meeting.
  - .2 Review of the Work progress since the previous meeting.
  - .3 Field observations, problems, and conflicts.

- .4 Problems that impede the construction schedule.
- .5 Off-site fabrication delivery schedules.
- .6 Corrective measures and procedures to regain the Contract schedule.
- .7 Revisions to the construction schedule.
- .8 Progress and schedule for the succeeding work period.
- .9 Submittal schedules.
- .10 Adherence to quality standards.
- .11 Change proposal effects on the construction schedule and Contract Time.
- .12 Contentious items of the Work.
- .13 Contract closeout issues.
- .14 Safety and security issues.
- .15 Environmental issues.
- .16 Landowner and stakeholder issues.
- .17 Other business.

## **1.5 WORKPLACE ORIENTATION MEETINGS**

- .1 Frequency: As required for all new workers prior to commencement of Work on the Site per Contractor's COR Safety Program.
- .2 Purpose: To familiarize new workers with site conditions, rules, regulations, safety, and security requirements.
- .3 Attendees: All new Contractor and Owner's personnel scheduled to work on the Site.
- .4 Agenda may include the following:
  - .1 Covid-19 protocols.
  - .2 Project description including areas of work and other concurrent construction contracts.
  - .3 Hazardous areas including open excavations, construction equipment traffic, blasting, and chemical or explosive storage, etc.
  - .4 Safety equipment to be worn by workers, including areas with special requirements.
  - .5 Traffic routes on the Site.
  - .6 Evacuation procedures.
  - .7 First aid procedures.
  - .8 Excavation or work permit procedures.
  - .9 WHMIS (Workplace Hazardous Materials Information System) requirements for handling and storage of chemicals.
  - .10 Fire safety rules and regulations.
  - .11 Rules and regulations regarding wildlife, environmental concerns, drugs, alcohol, etc.



**1.6 SAFETY MEETINGS**

- .1 Frequency: Per Contractor's COR Safety Program, no less than weekly during the course of the Work for each area of work. Safety Meetings may form part of the Weekly meeting agenda.
- .2 Purpose: To review safety concerns and implement preventive safety measures.
- .3 Attendees: Contractor's and Owner's personnel for each area of work.
- .4 Agenda may include the following:
  - .1 Review and discussion of safety concerns, accidents, and "near misses".
  - .2 Remedial or preventive actions to be taken.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **4.0 GENERAL**

### **4.1 FORMAT OF SCHEDULE**

- .1 Base the format of the construction schedule on the following:
  - .1 Horizontal bar chart of sufficient size to clearly indicate all required information.
  - .2 Time divided into months, weeks, and days. Identify the first workday of each week.
  - .3 Space for revisions.

### **1.1 QUALITY OF SCHEDULE**

- .1 Provide a separate bar for each activity.
- .2 Indicate the start and completion dates for each activity, and the work restriction and Milestone Dates, and the Contract Time specified in Section 01110 – Summary of Work.
- .3 Indicate the projected percentage of completion for each activity as of the first day of each month.

### **1.2 SUBMITTALS**

Provide the following submittals.

- .1 Construction schedule:
  - .1 Within ten (10) days of receipt, the Owner will either return the submitted construction schedule to the Contractor with no exceptions taken or require revisions to the construction schedule. Provide a revised construction schedule within five (5) days of receiving the Owner's comments, if any.
  - .2 An initial construction schedule for the Owner's review within 15 days after the date of commencement of the Contract.
  - .3 Progress revisions within fifteen (15) days after receiving notice to do so from the Owner.

### **1.3 USE OF THE CONSTRUCTION SCHEDULE**

- .1 Adhere to, and require that all Subcontractors and Suppliers adhere to, the construction schedule.

### **1.4 PROGRESS REVISIONS**

- .1 Revise the construction schedule upon request by the Owner if, in the Owner's opinion:
  - .1 the progress of the Work is substantially different from the latest construction schedule and the date of Substantial Performance of the Work appears to be in jeopardy;

- .2 the Work is being performed in a sequence that is not in keeping with the general work sequence of the latest construction schedule; or
- .3 a revision is necessary to reflect a required adjustment to the Contract Time that has been authorized by the Owner.

.2 Outline methods to be used to complete the Work within the Contract Time.

**5.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 DEFINITIONS**

- .1 “Administrative Submittals” means data presented for review to ensure administrative requirements of the Contract are met.
- .2 “Shop Drawings” means technical data specifically prepared for work of this Contract including drawings, diagrams, schedules, templates, patterns, and similar information not in standard printed form.
- .3 “Product Data” means standard printed information describing materials, products, equipment, and systems not specifically prepared for work of this Contract. Product Data consisting of manufacturers’ standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations, and descriptive data will be accepted in lieu of Shop Drawings provided that:
  - .1 information not applicable to the work of this Contract is deleted; and
  - .2 standard information is supplemented with information specifically applicable to the Work of this Contract.
- .4 “Samples” means cuts or containers of materials or partial sections of manufactured or fabricated components that are physically identical to products proposed for use.
- .5 “Field Samples” means volumes of materials as specified, which are physically representative of the materials proposed for use.

### **1.2 SCHEDULE OF SUBMITTALS**

- .1 Submittals required for the Agreement are specified in each section of the Procurement Documents and are summarized in the Submittal Summary Form at the end of this Section.
- .2 Additional submittals required but not specified in other sections of the contract are appended to this section. Submit these submittals prior to commencement of Work at the Site.

### **1.3 SUBMITTAL PREPARATION**

- .1 Determine and verify the following:
  - .1 Field measurements.
  - .2 Field construction criteria.
  - .3 Catalogue numbers and similar data.
  - .4 Compliance with the Contract Documents.
- .2 Co-ordinate each submittal with requirements of the Work and the Contract Documents.
- .3 Notify The Owner, in writing, on the submittal and at the time of submission, of any deviations from the requirements of the Contract Documents.

#### **1.4 SUBMITTAL REQUIREMENTS**

- .1 Make submittals within the times required by the Contract Documents and sufficiently in advance of the date that reviewed submittals will be required, and in such sequence as to cause no delay in the Work.
- .2 Make submittals in the form specified or in a form considered as an industry standard.
- .3 Provide a transmittal letter with each submittal containing the following:
  - .1 Date.
  - .2 Project Name.
  - .3 Contract Name.
  - .4 Tender Number.
  - .5 Contractor's name and address.
  - .6 Number of each Shop Drawing, Product Data, and Sample submitted.
- .4 Include in the submittals the following:
  - .1 Date and revision dates.
  - .2 Project Name.
  - .3 Contract Name.
  - .4 Tender Number.
  - .5 Name of:
    - .1 Contractor.
    - .2 Subcontractor.
    - .3 Supplier.
    - .4 Manufacturer.
    - .5 Name of detailer when details are not prepared by the Contractor, Subcontractor, or Supplier.
    - .6 The Contractor's stamp, signed, certifying its review of the submittal, verification of field measurements, and compliance with the Contract Documents, or that deviations, if incorporated, will be compatible with other elements of the Work.

#### **1.5 REVIEW OF SUBMITTALS**

- .1 The Owner will review each submittal within ten (10) working days of receipt of the submittal unless specified otherwise in the Contract Documents. Owner review time of submittals shall be factored into consideration for construction execution and shall not be reason for claiming delay.
- .2 Make corrections or changes to reviewed submittals and resubmit as specified for the initial submission.

- .3 Until a reviewed submittal is received, and does not require re-submittal, do not proceed with the Work related to the submittal.
- .4 The Owner's review of any submittal does not relieve the Contractor from responsibility for errors and omissions, nor deviations from the requirements of the Contract Documents.

#### **1.6 REPRODUCTION OF SUBMITTALS**

- .1 After review of the submittal, The Owner will reproduce the number of copies of the submittal that The Owner requires and return the reviewed reproducible documents.

#### **2.0 PRODUCTS – NOT USED**

#### **3.0 EXECUTION – NOT USED**

#### **4.0 SUBMITTAL LOG**

The log provided below is a summary of the submittals required for the Work. It may not be exhaustive. It is the Contractor's responsibility to make certain that all required submittals are prepared and approved in time for the Work to proceed without delay.

**END OF SECTION**

**Drumheller Resiliency and Flood Mitigation  
Dike C – North Drumheller Grove Plaza Dike Project  
Contractor Submittal Table**

**Tender No. 2022-06-21-C  
KWL File No. 3446.004**

Item No.	Submittal Name/Description	Submission Timing	Specification Reference	Submitted	Approved
1	Construction schedule	15 days after commencement of the contract. Revision to be submitted 5 days after receiving The Owner's comments. Schedule revisions within 15 days after receiving notice from The Owner.	Section 01321 Bar Chart Construction Schedule		
2	ECO Plan	7 calendar days prior to the pre-construction meeting	Section 01390 ECO Plan		
3	Certificate of Recognition (COR), TLC, or COREL	Prior to commencing work at the site	Section 01411 Work Site Safety		
4	WCB clearance letter	Prior to commencing work at the site	Section 01411 Work Site Safety		
5	Safety plan (including safety policy, procedures, and education program)	10 days prior to commencing work at the site	Section 01411 Work Site Safety		
6	Name of person responsible for supervision of safety plan	Prior to commencing work at the site	Section 01411 Work Site Safety		
7	Names of workers qualified as first aiders	Prior to commencing work at the site	Section 01411 Work Site Safety		
8	List of accidents, including lost time injuries, incurred during the month	At the end of each month	Section 01411 Work Site Safety		
9	Completed incident forms and reports	As soon as possible	Section 01411 Work Site Safety		
10	Traffic accommodation strategy	7 days prior to pre-construction meeting	Section 01552 Existing and Temporary Roads		
11	Plans showing temporary access, haul roads, detours, drainage structures, and bridges required for execution of work	10 days prior to commencement of the work at the site	Section 01552 Existing and Temporary Roads		
12	Video survey report	14 days prior to commencement of work at the site	Section 01552 Existing and Temporary Roads		
13	Daily records of temporary construction signing	Weekly, or as requested by The Owner	Section 01552 Existing and Temporary Roads		
14	Plan showing proposed haul roads	7 days prior to pre-construction meeting	Section 01552 Existing and Temporary Roads		
15	Shutdown plan (if required)	14 days prior to scheduled shutdown	Section 01552 Existing and Temporary Roads		
16	Names of workers responsible for monitoring and maintaining traffic control devices	Pre-construction meeting	Section 01552 Existing and Temporary Roads		
17	Complete description of product installation procedures	When requested by The Owner	Div 01 Section 01601 Products and Execution		
18	Design calculations for products to be installed	When requested by The Owner	Div 01 Section 01601 Products and Execution		
19	Product list	Within 15 days of commencement of contract	Div 01 Section 01601 Products and Execution		
20	In progress contract record drawings	Monthly	Section 01785 Contract Record Drawings		
21	Completed contract record drawings	Before or with the request for inspection for Substantial Performance	Section 01785 Contract Record Drawings		

**Contractor Submittal Table**

Item No.	Submittal Name/Description	Submission Timing	Specification Reference	Submitted	Approved
22	4 copies of the following operation and maintenance data: contractor designed system data, installation instructions, operating instructions, equipment identification, maintenance instructions and schedules, spare parts list, suppliers and contactors lists, tag directory, drawings list, shop drawings, product data, MSDS, certifications, warranties and bonds, reports	Prior to requesting the inspection for Substantial Performance	Section 01790 Operation and Maintenance Data		
23	Draft copy of the operation and maintenance manual	Prior to requesting the inspection for Substantial Performance	Section 01790 Operation and Maintenance Data		
24	3 copies and 1 digital copy of the final operation and maintenance manual	Prior to requesting the inspection for Total Performance	Section 01790 Operation and Maintenance Data		
25	Commissioning plan	30 days prior to starting the final commissioning	Section 01810 Commissioning		
26	Commissioning reports	10 days after completion of final commissioning	Section 01810 Commissioning		
27	Copy of manifest or proof of receipt of material from disposal facility, if applicable	Within 14 days of disposal at disposal facility	Section 002111 Environmental Site Remediation of Hydrocarbons		
28	Copies of permits or licences for off-site disposal of materials, equipment, or debris	Prior to off-site disposal	Section 002220 Demolition, Salvage, and Removal		
29	Work plan outlining the beneficial re-use of mulched materials, if mulching is proposed for the site	10 days prior to commencing mulching	Section 002232 Site Clearing and Grubbing		
30	Stripping plan	15 days prior to commencing stripping operations	Section 002234 Topsoil and Subsoil Stripping		
31	Care of water plan	10 days prior to commencing work at the site	Section 002240 Care of Water		
32	Copy of each permit obtained	Upon Owner's request	Section 002240 Care of Water		
33	Water quality tests	Upon Owner's request	Section 002240 Care of Water		
34	List of proposed source(s) where borrow area excavation will be conducted	10 days prior to commencing borrow area excavation	Section 002315 Excavation		
35	Borrow area excavation plan for each borrow area	10 days prior to commencing borrow area excavation	Section 002315 Excavation		
36	Revised borrow area excavation plan, if changes are proposed	5 days prior to changing borrow area excavation operations	Section 002315 Excavation		
37	List of proposed source(s) for each type of imported material and required quality control testing data	15 days prior to delivery to the site	Section 002330 Earthwork Materials		
38	Samples of each type of material imported to the site for testing purposes	Upon Owner's request	Section 002330 Earthwork Materials		
39	Results of quality control tests of imported material	15 days prior to delivery to the site	Section 002330 Earthwork Materials		
40	Results of quality control tests of newly placed materials or reworked existing fill materials	Within 48 hours of field testing or sampling	Section 002330 Earthwork Materials		
41	Specifications for the proposed compaction equipment	7 days prior to commencing fill placement	Section 002331 Fill Placement		
42	Quality control test results of compacted materials	Within 48 hours of testing	Section 002331 Fill Placement		
43	Manufacturer's written instructions for installing anchors and repair of galvanized damaged coating	Prior to performing work	Section 002822 Chain Link Fencing		
44	Summary report from soil specialist	7 days prior to purchase and importation of material to site	Section 002910 Topsoil and Subsoil Placement		
45	Certificate of Analysis for each lot of seeds to be supplied	15 days prior to delivery of seeds to site	Section 002924 Hydroseeding		



**Contractor Submittal Table**

Item No.	Submittal Name/Description	Submission Timing	Specification Reference	Submitted	Approved
46	Seed mix composition expressed as a percentage of each seed species by dry mass, for each seed mix specified	15 days prior to delivery of seeds to site	Section 002924 Hydroseeding		
47	Calibration certificate for seeding equipment	15 days prior to commencing seeding	Section 002924 Hydroseeding		
48	Product data	30 days prior to delivery of materials to site	Section 002930 Soil Erosion Protection		
49	Manufacturer's written instructions for handling, storing, and installing materials	Prior to performing work	Section 002930 Soil Erosion Protection		
54	Shop drawings of outfall inlet grate	20 days prior to fabrication	Section 005505 Metal Fabrications		
55	Details of CSA welding certification of the outfall inlet grate fabricator	30 days prior to fabrication	Section 005505 Metal Fabrications		

## **1.0 GENERAL**

### **1.1 RELATED SPECIFICATIONS**

- .1 Section 01391 Environmental Protection.
- .2 Alberta Transportation Erosion and Sediment Control Manual June 2011

### **1.2 ENVIRONMENTAL LEGISLATION**

- .1 The Owner will obtain the environmental approvals, permits, licences, and authorizations required for the Project.
- .2 The Contractor shall familiarize itself with all applicable federal and provincial legislation and regulations concerning environmental protection and shall conduct its activities in accordance with such legislation and regulations, including, but not necessarily limited to, the provincial Historical Resources Act, Environmental Protection and Enhancement Act and Water Act and the federal Fisheries Act and Navigable Waters Protection Act.
- .3 Comply with the conditions of all environmental approvals, permits, licences and authorizations issued for the Contract. Obtain any further environmental approvals, permits, licences and authorizations for temporary work as may be required for the Contract.
- .4 Provide The Owner with written confirmation of Contractor's full compliance with all approvals, permits, licences and authorizations before the full amount of holdback will be released.
- .5 The Contractor shall also familiarize itself with all applicable Codes of Practice issued by Alberta Environment and shall conduct its activities in accordance with such Codes of Practice, including, but not necessarily limited to, the Code of Practice for Asphalt Paving Plants and the Code of Practice for Pits, both under the Environmental Protection and Enhancement Act and the Code of Practice for Watercourse Crossings and the Code of Practice for Outfall Structures on Water Bodies under the Water Act.
- .6 In the event of conflicting statements between the various Acts, Authorizations, Permits, and Codes of Practice, the more stringent requirement shall apply.
- .7 Keep on Site, copies of approvals, permits, licences and authorizations. Make these documents readily available to authorized persons at the Site. Keep documents on Site until the date of Warranty Performance of the Work or at such earlier dates accepted by The Owner.

### **1.3 ECO PLAN**

- .1 The contractor shall prepare and implement a project and site-specific Environmental Construction Operations (ECO) Plan in accordance with the Environmental Construction Operations (ECO) Plan Framework Municipal Version 2020 edition (available at <https://www.calgary.ca/uep/esm/contractor-environmental-responsibilities/eco-plans.html>) except for Section 2.3 Erosion and Sediment Control and Section 2.4 Municipal Tree Protection. The Contractor's ECO Plan shall incorporate a Siltation and Erosion Control Plan (SECP) that includes site specific details of implementation and maintenance of erosion control measures.

- .2 Prepare the ECO Plan specific to the Work and the Site. Ensure effective implementation of the ECO Plan by assigning responsibility for the implementation, and maintenance of the work prescribed by the ECO Plan, including temporary erosion control measures, to one individual, herein called the work zone representative. The work zone representative shall be identified at the pre-construction meeting.
- .3 The ECO Plan shall not cover any permanent or long term environmental, or erosion control devices or work specified in the Contract.
- .4 Submit the ECO Plan to The Owner at least seven (7) calendar days prior to the pre-construction meeting. The Owner will review the ECO Plan and communicate any concerns to the Contractor at least three (3) calendar days prior to the pre-construction meeting. Address any issues or concerns regarding the proposed ECO Plan to the satisfaction of The Owner prior to the commencement of the Work.
- .5 Finalized ECO Plans shall be agreed to by all parties and shall be signed by the Contractor's 'Principal-In-Charge' and the Contractor's work zone representative before the commencement of Work. When the Contractor's work zone representative changes, the new work zone representative shall provide a letter of acknowledgment to The Owner indicating that the new work zone representative has reviewed the ECO Plan and will comply with its requirements.
- .6 The finalization of the ECO Plan to the mutual satisfaction of The Owner and the Contractor does not constitute an approval or assurance from The Owner that the "temporary environmental control measures" detailed in the ECO Plan are sufficient to ensure compliance with all applicable legislation, regulations, or conditions of approval. The Contractor is ultimately responsible to ensure all measures, used on the Work, are sufficient to ensure compliance with all applicable authorities. This may mean increasing the number of installations, providing alternate devices, or modifying procedures.
- .7 The Owner's Environmental Consultant will perform periodic quality assurance checks of the site to ensure compliance with the ECO Plan. Frequency of quality assurance checks will be as required, based on the experience of the Owner and Owner's Environmental Consultant.
- .8 If at any time during the performance of the Work of the Contract, it is determined that the devices or procedures detailed in the ECO Plan (any specific measures, locations or quantities proposed) are inappropriate or insufficient, The Owner will notify the Contractor in writing and the Contractor shall modify the ECO Plan accordingly.
- .9 The Owner may suspend work in cases where in The Owner's opinion the Contractor fails to comply with procedures stated in the ECO Plan. If the Contractor fails to adhere to finalized ECO Plans, The Owner may make other arrangements to have the Work done and deduct the cost thereof from any money owing to the Contractor.
- .10 The cost of preparing the ECO Plan and the performance of all Work necessary to ensure compliance with the ECO Plan and applicable legislation, regulations or conditions of approval including removing and disposing of material from silt containment ponds and sediment barriers will be included and paid for in the Works as an allowance.

#### **1.4 GENERAL ENVIRONMENTAL PROTECTION REQUIREMENTS**

- .1 Advise The Owner as soon as possible of any accidents.
- .2 Conduct accident investigations.

#### **1.5 DISPOSAL OF WASTE MATERIALS**

- .1 Do not release, dump, spill or dispose of any substance into the environment that causes or could cause impairment of or damage to the environment or human health or safety. Mitigate to ensure compliance with all regulatory legislation, any wastes arising from the work and any other substances that causes or could cause impairment of or damage to the environment or human health or safety, and should Contractor fail to do so, The Owner may, without further notice, arrange the clean-up of such wastes and other substance at the expense of the Contractor.
- .2 Remove and dispose of any inert solid waste materials resulting from the work in accordance with Alberta Environment's Construction, Renovation and Demolition Waste Reduction Guidelines and as determined by The Owner prior to Total Performance of the Work or other time scheduled in the Contract Documents. The Contractor may temporarily store such material in interim stockpiles on the disturbed land.
- .3 Where applicable, dispose of waste materials at the Drumheller Landfill.

#### **1.6 REPORTING PROCEDURES FOR SPILLS OF DELETERIOUS OR HAZARDOUS MATERIALS**

- .1 During the construction, any release of silt or other deleterious substance into a body of water or watercourse Contractor shall immediately report to The Owner, Alberta Environment and the Federal Department of Fisheries and Oceans (1-800-222-6514).
- .2 In the event of the release of silt or other deleterious substance into a body of water or watercourse, the Contractor shall take all reasonable measures to contain the release and repair any damage at its expense.
- .3 Spills or releases of hazardous materials and any other substances that cause or could cause impairment of or damage to the environment or human health or safety shall also be immediately reported to The Owner, Alberta Environment and, if a body of water or watercourse is involved, The Owner, Alberta Environment and the Federal Department of Fisheries and Oceans (1-800-222-6514). Take all reasonable measures to contain the spill and cleanup and any such work shall be performed in accordance with the applicable legislation and regulations at the Contractors' expense.

#### **1.7 WEED CONTROL & CLUBROOT MANAGEMENT PLAN & WHIRLING DISEASE**

- .1 Whirling Disease

Whirling disease is caused by *Myxobolus cerebralis*, a microscopic parasite of salmonid fish, including trout and whitefish. This disease can cause high levels of mortality in some fish.

To prevent the spread of Whirling Disease in Alberta, all equipment that may come in contact with the stream environment (water, sediment, aquatic flora and fauna) must arrive

and depart the worksite clean, dry and disinfected. Care should be taken to ensure water from cleaning does not re-enter any nearby waterways through runoff, ditches, or storm drains. The contractor must comply with all decontamination conditions contained in regulatory approvals and as per the latest Alberta Government guidelines:

(<https://www.alberta.ca/stop-whirling-disease.aspx>). As part of the ECO Plan the Contractor shall detail their proposed Whirling Disease control measures for all instream work and work within the riparian area.

## .2 Clubroot Management Plan

Clubroot, caused by *Plasmodiophora brassicae*, is a serious disease of cruciferous crops (i.e., mustards, canola, etc.) which can result in reduced to severe yield losses. Clubroot was declared a pest under Alberta's Agricultural Pests Act in April 2007. Enforcement of the Act is the responsibility of the Agricultural Service Board located in each municipality.

The Contractor shall carry out his or her operations in accordance with the provisions in the attached Weed Control and Clubroot Management Plan and the Best Management Practices outlined in the Alberta Clubroot Management Plan which is available on-line at the following location:

[http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/agdex11519](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex11519)

As part of the ECO Plan, the Contractor shall detail his or her proposed Clubroot control measures for soil disturbance work at locations involving Clubroot infected soils. Details shall include proposed equipment cleaning procedures as well as any control measures recommended by the Municipality's Agricultural Fieldman.

Soil disturbance work shall not commence until the Contractor's ECO Plan has been reviewed and accepted by the Consultant.

All costs associated with the implementation of Clubroot control measures, including those required by the applicable Agricultural Service Board, will be considered incidental to the Work and no separate or additional payment will be made.

## .3 Black Knot Fungus

To control the spread of black knot fungus, caused by *Dibotryon morbosum* or *Apiosporina morbosa*, contractors must develop and implement a site-and species-specific weed management plan, as per Alberta Weed Control Act and Weed Control Regulations. A localized weed survey is to be conducted between June and August at construction sites and along equipment movement corridors to identify any weed species present. All equipment entering the project site must be cleaned before arrival to prevent the spread of weed species. Removing and destroying wood infected with black knot fungus is the only way to control the disease once it is present. If black knot fungus is identified, the diseased wood must be immediately removed and destroyed, by burying it at the Drumheller Landfill, to prevent the spread of spores. The Contractor must notify the landfill 24 hours in advance of transporting diseased wood or materials to site.

As part of the ECO Plan the Contractor shall detail their proposed Black Knot Fungus control measures for removal and hauling of any black knot found on Site.

All costs associated with the implementation of Black Knot Fungus control measures will be considered incidental to the Work and no separate or additional payment will be made.

#### .4 Dutch Elm Disease

To control the spread of Dutch Elm Disease, caused by *Ophiostoma ulmi* or *Ophiostoma nova-ulmi*, European Elm Bark Beetle (*Scolytus multistriatus*) and Native Elm Bark Beetle (*Hylurgopinus rufipes*), contractors must develop and implement a site-and species-specific weed management plan, as per Alberta Weed Control Act and Weed Control Regulations.

The Contractor shall carry out his or her operations in accordance with the provisions in the attached Alberta Government Dutch Elm Disease Prevention and Control Plan and the Best Management Practices outlined in the Alberta Dutch Elm Disease Prevention and Control Plan Management Plan which is available on-line at the following location:

<http://www.alberta.ca/dutch-elm-disease.aspx>

<http://www.alberta.ca/dutch-elm-disease-prevention-what-you-can-do.aspx>

Removing and destroying wood infected with Dutch Elm Disease / European Elm Bark Beetle / Native Elm Bark Beetle is the only way to control the disease once it is present. If Dutch Elm Disease / European Elm Bark Beetle / Native Elm Bark Beetle is identified, the diseased wood must be immediately removed and destroyed, by burying it at the Drumheller Landfill, to prevent spread. The Contractor must notify the landfill 24 hours in advance of transporting diseased wood or materials to site.

As part of the ECO Plan, the Contractor shall detail his or her proposed Dutch Elm Disease/ European Elm Bark Beetle / Native Elm Bark Beetle control and removal measures. Details shall include any control measures recommended by the Municipality's Agricultural Fieldman.

All costs associated with the implementation of Dutch Elm Disease / European Elm Bark Beetle / Native Elm Bark Beetle control measures will be considered incidental to the Work and no separate or additional payment will be made.

## **1.8 CONTROL OF SURFACE WATER RUN-OFF**

- .1 All exposed areas resulting from construction activities will require erosion control devices. Extra erosion and sediment control materials shall be on site during the construction period should a precipitation or snowmelt event occur at a vulnerable time.
- .2 If runoff or sediment laden water from the area disturbed by the construction exists, it should be diverted to a settling pond, sediment trap, or through a vegetated area to minimize erosion and sedimentation of the waterbody and/or storm drain inlets. All flow diversion will be conducted such that it does not adversely affect the land and in a manner such that it will not disturb sediments in the waterbody.
- .3 Stabilize all disturbed areas, including exposed soils and slopes, by:
  - .1 Immediately installing temporary erosion control measures to remain in place until vegetation or other long-term erosion control methods are fully established and functioning.
  - .2 Installing and placing long-term erosion control measures including, but not limited to, slope stabilization and re-vegetation.
- .4 The Contractor is required to have a Flood Emergency Response Plan as part of their ECO Plan. All supervisors must have access to this plan throughout the duration of the project.

## **1.9 ASSUMED INSTREAM REGULATORY CONDITIONS**

- .1 Instream activity is not anticipated for the proposed works.
- .2 If instream activity is deemed necessary, for the purposes of bidding, assume the following regulatory conditions for instream work must be met. Once permit approvals have been obtained, the permit conditions will replace these assumptions. In the event that the following assumptions are substantially different than permit conditions, a Change will be issued.
  - .1 All mitigation measures outlined in Contract Documents including report "Fall Riverine Habitat Inventory of the Red Deer & Rosebud Rivers in 08/09/10/11-29-20 W4M and 20/29-28-19 W4M".
  - .2 Isolation plan as outlined in Contract Documents including report "Fall Riverine Habitat Inventory of the Red Deer & Rosebud Rivers in 08/09/10/11-29-20 W4M and 20/29-28-19 W4M".
  - .3 Turbidity Monitoring Plan as outlined in Contract Documents including report "Fall Riverine Habitat Inventory of the Red Deer & Rosebud Rivers in 08/09/10/11-29-20 W4M and 20/29-28-19 W4M".

**END OF SECTION**

## 1.0 GENERAL

### 1.1 SURFICIAL AQUATIC RESOURCES

#### .1 Physical:

- .1 Unless otherwise provided for in the Contract Documents, do not divert, alter, or disrupt water flows in rivers, streams, and other surface bodies of water.
- .2 Conform to the Environmental Construction Operations (ECO) Plan as specified in Section 01390 – ECO Plan.
- .3 Prevent bark, slash, wood chips, sawdust, ashes, organic debris, topsoil, fuel and lubricants, or other substances harmful to aquatic life from entering a river, stream, or other surface bodies of water.
- .4 Do not perform construction operations within the wetted perimeter of a river, stream, and other surface bodies of water unless such work is part of the Permanent Work or Temporary Work.
- .5 Do not deepen by excavation or place fill material on the river or stream bed or other surface bodies of water unless such work is part of the Permanent Work or Temporary Work.
- .6 Temporary crossings not allowed.
- .7 Use Construction Equipment with bio-friendly hydraulic fluids, free from external oil and grease when operating in, or within the wetted perimeter, of a river, stream, and other surface bodies of water.
- .8 Use clean granular fill with less than 10% fines passing the 80 µm sieve size when exposed to a river or stream for Temporary Work such as cofferdams, causeways, and access ramps. Fine-grained soils may be used, provided only clean granular fill is exposed to the body of water at any time during construction and restoration operations.
- .9 Remove Temporary Work, including culverts and bridges, and reclaim river and stream banks and beds, and other disturbed areas, prior to attaining Substantial Performance of the Work unless specified otherwise.
- .10 Silt Fence Management:
  - .1 Be responsible for, and maintain, the fabric in silt fences until the date of Warranty Performance of the Work.
  - .2 Inspect the fabric, posts, and pins, in the silt fencing at intervals appropriate to weather events. Based on inspections, maintain the fencing to perform for the purpose intended.
  - .3 Remove silt accumulations and dispose of silt on Site, at locations acceptable to The Owner.
  - .4 Removal and disposal of silt materials collected at silt fabric fencing will be considered incidental to the Work.
  - .5 Unless otherwise specified in the Contract Documents, or otherwise requested by The Owner, remove temporary silt fencing within 30 days after the date of Warranty Performance of the Work.



.2 Biological:

- .1 Protect fish and fish habitat in rivers, streams, and other surface bodies of water located within the Site in accordance with the Contract Documents and Regulatory Requirements.
- .2 As a Class C water body, construction operations in the Red Deer River are prohibited between the dates of April 16 and June 30 of any year.
- .3 Any work completed within close proximity to any bodies of water, require an environmental monitor, prior to work being completed, during the work being completed and after the work being completed. The environmental monitor must be a qualified professional and is to be subcontracted by the Contractor.

**1.2 GROUND WATER RESOURCES**

.1 Physical:

- .1 Do not change ground water levels in wells located on adjacent lands.

.2 Biological:

- .1 Do not change ground water quality in adjacent landowner wells.

**1.3 TERRESTRIAL RESOURCES**

.1 Wildlife:

- .1 Within 7 days prior to the start of tree clearing, wildlife habitat and bird nesting surveys will be completed by a The Owner's Qualified Professional. Results will be forwarded to The Contractor. All work must be undertaken in compliance with the *Migratory Birds Convention Act* (Zone B4, with a regional nesting period of mid-April to late August).
- .2 Maintain setback distances between construction operations and the habitat of birds or wildlife, as designated by the Qualified Professional.
- .3 Do not allow pets on the Site.
- .4 Do not allow firearms, hunting, or shooting on the Site.
- .5 Prevent livestock from entering the Site by:
  - .1 installing new fences specified in the Contract Documents; and
  - .2 installing temporary fences as necessary.
- .6 Do not harass wildlife.

.2 Vegetation:

- .1 Remove or control existing and new adverse vegetation that affects adjacent landowners and their croplands, construction operations, or the function of the Permanent Work.
- .2 Do not import any materials to the Site that are contaminated with weed seeds. Clean dirty construction and reclamation equipment to prevent importing weed seeds.
- .3 Notify The Owner prior to commencing adverse vegetation control measures.
- .4 Be responsible for damage to crops, both on and off the Site, resulting from the Contractor's use of herbicides, or other adverse vegetation control measures.

- .5 Maintain records of the types and amounts of herbicides purchased, delivered, stored, mixed, and used, and the means of disposal of all excess. Maintain the records current and accurate and make them available for review by The Owner.
  - .6 Comply with standards and practices of the Industrial Vegetation Management Association of Alberta.
- .3 Vegetation and Weed Control:
- .1 Remove or control existing and new adverse vegetation that affects adjacent landowners and their croplands, construction operations, or the function of the Permanent Work.
  - .2 Do not import any materials to the Site that are contaminated with weed seeds. Clean dirty construction and reclamation equipment to prevent importing weed seeds.
  - .3 Notify The Owner prior to commencing adverse vegetation control measures.
  - .4 Be responsible for damage to crops, both on and off the Site, resulting from the Contractor's use of herbicides, or other adverse vegetation control measures.
  - .5 Maintain records of the types and amounts of herbicides purchased, delivered, stored, mixed, and used, and the means of disposal of all excess. Maintain the records current and accurate and make them available for review by The Owner.
  - .6 Monitor the site for early detection of weed growth during the growing season.
  - .7 Control weeds once by mechanical equipment before they go to seed, but not before.
- .4 Waste Management:
- .1 Remove construction waste, including demolition waste, from the Site unless otherwise specified. Dispose of such waste at the waste disposal facility identified in the ECO Plan.
  - .2 Do not burn, bury, or otherwise discharge construction or demolition waste on the Site unless specified otherwise.
  - .3 When practical, minimize the amount of waste generated from construction operations and demolitions by salvaging materials for recycling. Salvage and segregate metal, plastic, paper, cardboard, and glass and transfer them to the nearest appropriate collection facility.
- .5 Hazardous Materials:
- .1 Transport hazardous materials to and from the Site in accordance with Regulatory Requirements.
  - .2 Use and store hazardous materials in accordance with Regulatory Requirements.
  - .3 Remove spilled hazardous materials, including hazardous liquid wastes, in accordance with Regulatory Requirements, and reclaim land and other property. Report spills to Alberta Environment and The Owner.
  - .4 Dispose of hazardous waste materials, including hazardous liquid wastes, in accordance with Regulatory Requirements.

- .6 Handling of Construction Equipment Fuels and Lubricants:
  - .1 Employ persons qualified to handle Construction Equipment fuels and lubricants.
  - .2 Carry the following protection materials in all fuel and service vehicles:
    - .1 10 kg of suitable sorbent material.
    - .2 30 m<sup>2</sup> of 6 mil polyethylene.
    - .3 A shovel.
    - .4 An empty fuel barrel with the lid removed.
  - .3 Prevent handling and fuelling operations from contaminating the ground, surface water, and ground water. Use containment berms and an impermeable base course or other system to contain spilled fuel.
  - .4 Clearly mark and barricade fuel storage areas and non-portable transfer lines. Use markers that are visible under all weather conditions.
  - .5 Store waste Construction Equipment lubricants in a tank or closed container and dispose of off-Site in accordance with the Regulatory Requirements.

#### **1.4 HISTORICAL AND ARCHAEOLOGICAL RESOURCES**

- .1 Complete all work in compliance with *Historical Resources Act* Approval #4956-20-0069-003
- .2 Protect known heritage resources specified in the Contract Documents with the specified fencing and marking devices.
- .3 Protect new heritage resources found during the Contract Time. Flag an area of 15 m beyond the edge, and surrounding, a newfound heritage resource, and report the finding immediately to the Owner.
- .4 Additional work required to protect newfound heritage resources will be authorized by Change Order and valued in accordance with Section 00725 – General Conditions, clause 8.3 – Valuation of Changes in the Work.

#### **1.5 SOCIO-ECONOMIC**

- .1 Air Pollution:
  - .1 Prevent the discharge of atmospheric contaminants from construction operations in accordance with Regulatory Requirements.
  - .2 Do not operate equipment, including Construction Equipment, that shows excessive emissions of exhaust gases until corrective repairs or adjustments are made.
  - .3 Control dust on the Site, and prevent dust from the Site from damaging crops, orchards, cultivated fields, and dwellings, or causing a nuisance to persons. Be responsible for damages from dust caused by construction operations.
    - .1 Dust abatement shall be achieved by watering, application of dust abatement materials chosen from the Alberta Transportation Recognized Product List; or through the use of biodegradable soil stabilizers approved by the Owner.

Dust suppressant materials shall be applied, as required, by method subject to the approval of the Owner. The completed treatment shall provide a smooth and relatively dust free surface.

The Contractor shall perform the Work in accordance with the materials supplier's recommended application rates, and methods of roadway preparation and placing of material unless otherwise directed by the Owner.

All costs associated with dust abatement, regardless of number of applications, or required maintenance will be considered incidental to the Work, and no separate or additional payment will be made.

.2 Noise:

- .1 Do not exceed noise levels of 120 decibels in the daytime and 100 decibels at night, on weekdays and weekends. At the Contractor's option, provide noise barriers to maintain acceptable noise levels outside the barriers.
- .2 Perform blasting, drilling, jackhammering, pile driving, and other operations producing high-intensity impact noise between the hours of 9:00 am and 5:00 pm on weekdays except Statutory Holidays. Adhere to other work restrictions specified in the Contract Documents.
- .3 Contractor shall adhere to all applicable Town of Drumheller Community Standards Bylaws. In particular, No. 06.19, section 'Prohibited Noise', item 3.38, which states that equipment can not be operated between 10:00 pm and 7:00 am on a Week and from 10:00 pm to 9:00a m on a weekend for working hours.

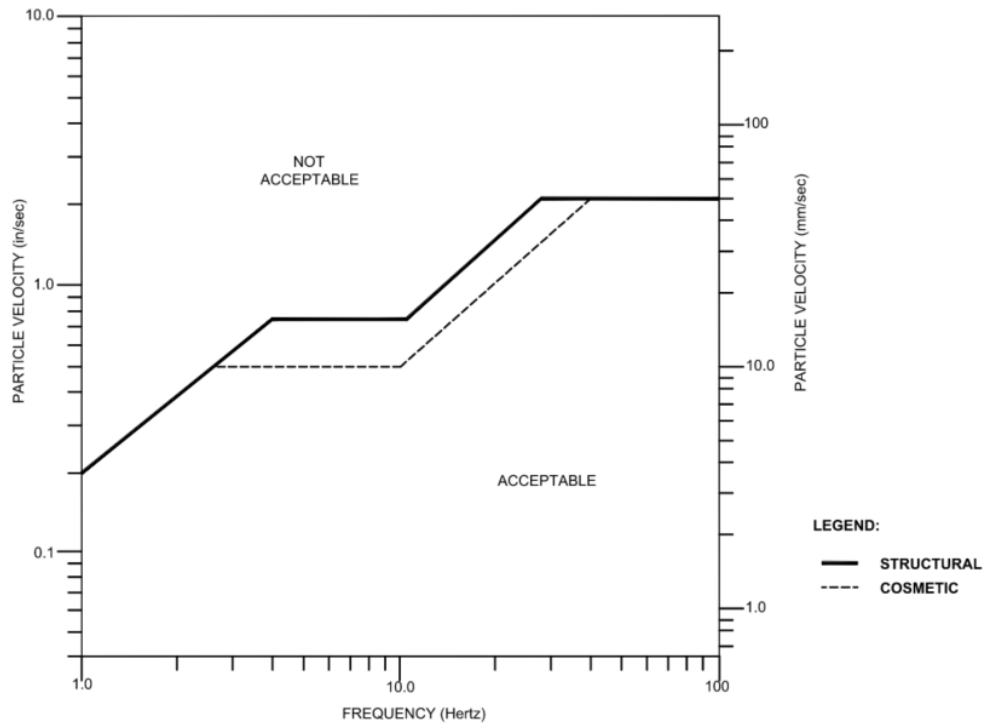
.3 Light:

- .1 Direct all stationary floodlights to shine downward at an angle less than horizontal. Provide shielding for all floodlights and do not direct at residences.

**1.6 VIBRATION:**

- .1 This section provides the minimum requirements for vibration monitoring control to be completed by the Contractor and Owner's Representative during all phases of the construction activities. Contractor is advised that the ground vibration may restrict the construction practices.
  - .1 The purpose of the construction vibration monitoring program is to assess possible impacts that construction activities might have on adjacent facilities in order to protect these facilities from vibration induced damage during all phases of the work. The facilities include, but are not limited to, adjacent residential buildings within proximity of the Work.
  - .2 The Contractor shall be responsible for the following requirements:
    - .1 The Contractor shall sign off on the Vibration Monitoring Plan prepared by the Town and work with the Owner's Representative to ensure that construction vibrations do not exceed the levels described below. The Owner's Representative shall monitor the vibration levels generated at any stage during construction.
    - .2 All Areas: Conduct construction activities so that vibration levels at a distance of 30m from construction limits or at nearest affected building (whichever is closer) do not exceed the cosmetic threshold as listed in the Figure below.

**FIGURE 1: STRUCTURAL AND COSMETIC THRESHOLDS FOR VIBRATION (USBM & OSMRE)**



- .3 The Owner's Representative shall be responsible to complete the following:
  - .1 Prepare and deliver notices to all adjacent residential buildings within 30m of construction activities notifying them of a public pre-construction meeting for property owners within the zone of influence (30m of proposed dike), which shall be arranged by the Consultant. This meeting is an opportunity to inform property owners of the construction and provide notice of the potential for construction vibrations, discuss the methodology and inform residents of the limits to vibration levels. Residents will also be informed that exterior inspections will be taking place on all buildings within 30m of the dike footprint. Residents will also be advised that they can request interior inspections if they desire.
  - .2 Owner's Representative will complete exterior inspections on all residential buildings within 30m of the dike footprint. Owner's Representative will also complete interior inspections for all residents that request one. A report shall be prepared and delivered to the Town summarizing all inspections.
  - .3 The Owner's Representative, or retained Vibration Monitoring Firm, shall prepare a Vibration Monitoring Plan that adheres to the Vibration Monitoring Requirements listed in this specification. The Vibration Monitoring Plan shall be submitted to the Town for Review and Approval. The Contractor shall also sign off on the Vibration Monitoring Plan.

- .4 The Owner's Representative, or qualified Vibration Monitoring Firm, shall implement the vibration monitoring plan during construction of the dike and shall work with the Town and Contractor to ensure the plan is followed and that vibration impacts are minimized as much as possible.
- .5 Prepare and submit weekly vibration monitoring reports to the Town as described in the Vibration Monitoring Plan.
- .6 Complete post-construction damage inspections for any building owners that report damages during the construction of the berms. Owner's Representative shall prepare and submit a report summarizing the post-construction damage inspections to the Town.

.2 Vibration Monitoring Requirements

- .1 This section provides the details of the Vibration Monitoring Requirements that will be implemented by the Owner's Representative, or third party, and the Contractor during the construction of the dikes.
  - .1 Ensure construction vibrations remain below the Cosmetic threshold level shown on Figure 1 above.
  - .2 During the first stage of work a comprehensive vibration monitoring test section shall be developed, which monitors the construction activities which could create noticeable vibrations and identifies those key construction activities which create the largest vibrations and warrant closer monitoring during the project. The results of the test section shall be used to modify the Contractor's procedures, if required, to maintain vibrations below the alert levels at the adjacent buildings / facilities. The frequency of ongoing monitoring for the remainder of the project will depend on the Contractor's ability to maintain vibrations below the alert level. As a minimum, periodic vibration monitoring shall be carried out every two days during the key construction activities, to provide a record of vibration measurements in each stage / area of work.
  - .3 The results of the vibration monitoring during the first stage of work will be used to determine the frequency of required monitoring for the remainder of the project. The Owner's Representative will provide the Town with a recommendation on the level and frequency of monitoring moving forward.
  - .4 Vibration monitors shall be capable of measuring PPV levels triaxially in three directions over a frequency range of 1 to 100 Hz. The monitors shall be Instantel Blastmate Series III or Minimate Plus seismographs or equivalent equipment. The Vibrations monitor shall be capable of recording peak triaxial PPV values in at least 5-minute interval histogram plots. The method of coupling the geophones to the ground shall be described in the vibration monitoring plan. The vibration monitors shall be calibrated and a proof of calibration shall be submitted to the consultant prior to mobilization to site.
  - .5 The Owner's Representative shall be responsible for protection and maintenance of the vibration monitoring instruments. The Contractor shall cooperate with the Owner's Representative to maintain the monitoring instruments.

- .6 The Owner's Representative shall be notified of any vibration-related complaint that is received. The Contractor shall investigate the complaint and prepare an assessment and proposed solution for review by the Owner's Representative. The activity that created the complaint shall be halted until an appropriate solution / resolution has been agreed to and implemented.
- .7 The post-construction vibration monitoring summary report shall be submitted to the Town three weeks after the completion of the construction activities.

**2.0 PRODUCTS - NOT USED**

**3.0 EXECUTION - NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 REGULATORY RESPONSIBILITY**

- .1 Conform to Regulatory Requirements and pay all fees and give all notices required by them.
- .2 Obtain approvals necessary for the Work and the Contract from the regulatory agencies having jurisdiction, except those approvals obtained by The Owner as identified in this section.
- .3 The Owner will obtain the approvals necessary for the Project that involve agreement between The Owner and the regulatory agency having jurisdiction.

### **1.2 VARIATIONS BETWEEN THE CONTRACT DOCUMENTS AND THE REGULATORY REQUIREMENTS**

- .1 If the Contract Documents are at variance with Regulatory Requirements, notify The Owner in writing, requesting direction, immediately after such variance becomes known.
- .2 The Owner may make Changes in the Work due to Regulatory Requirements, and such changes will be authorized by Change Order and valued in accordance with Section 00725 – General Conditions, clause 8.3 – Valuation of Changes in the Work.
- .3 If the Contractor fails to notify The Owner in writing and obtain The Owner’s direction related to variations in Regulatory Requirements and performs work knowing it to be contrary to Regulatory Requirements, the Contractor accepts responsibility for correcting violations thereof, and bears the costs, expenses, and damages attributable to the Contractor’s failure to comply with the provisions of such Regulatory Requirements.

### **1.3 ALBERTA BUILDING CODE**

- .1 Conform to and perform work in accordance with the Alberta Building Code, except as otherwise indicated in the Contract Documents.

### **1.4 OWNER OBTAINED APPROVALS**

- .1 The Owner has obtained or will obtain the approvals listed below.
  - .1 Environmental Protection and Enhancement Act (EPEA):
    - .1 Instrument: Approval not required.
    - .2 Agency: Alberta Environment.
  - .2 Historical Resources Act:
    - .1 Instrument: Approval.
    - .2 Agency: Alberta Culture and Status of Women.
    - .3 Activity: To alter historical resources with mitigation.
  - .3 Municipal Government Act:
    - .1 Instrument: Approval.
    - .2 Agency: Municipal Authority.
    - .3 Activity: To close roads and road allowances.



- .4 Public Lands Act:
  - .1 Instrument: Temporary Field Authorization.
  - .2 Agency: Alberta Environment.
  - .3 Activity: Authorization to temporarily access public lands for the development of the Project.
- .5 Water Act:
  - .1 Instrument: Notification.
  - .2 Agency: Alberta Environment.
  - .3 Activity: To construct the Project
- .6 Fisheries Act:
  - .1 Instrument: Authorization Not Required
  - .2 Agency: Fisheries and Oceans Canada
- .7 Navigable Waters Act:
  - .1 Instrument: Authorization Not Required
  - .2 Agency: Transport Canada

**2.0 PRODUCTS - NOT USED**

**3.0 EXECUTION - NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 WORK SITE SAFETY – THIS CONTRACTOR IS “PRIME CONTRACTOR”**

- .1 For the purposes of the Occupational Health and Safety Act (Alberta), and for the duration of the Work of this Contract:
  - .1 be the “prime contractor” for the “work site”; and
  - .2 do everything that is reasonably practicable to establish and maintain a system or process that complies with the Act and its regulations, and as required to provide for the health and safety of all persons at the “work site.”
- .2 Direct all Subcontractors, Sub-subcontractors, Other Contractors, employers, workers, and any other persons at the “work site” on safety related matters, to the extent required to fulfil “prime contractor” responsibilities pursuant to the Act, regardless of:
  - .1 whether or not any contractual relationship exists between the Contractor and any of these entities; and
  - .2 whether or not such entities have been specifically identified in this Contract.

### **1.2 CERTIFICATE OF RECOGNITION (COR)**

- .1 Maintain a valid COR, Temporary Letter of Certification (TLC) or Certificate of Recognition Equivalency Letter (COREL) for the duration of the Work of this Contract.

### **1.3 SAFETY REQUIREMENTS**

- .1 Establish and maintain a system or process to provide for the safety for all persons at the Site during the Contract Time, including:
  - .1 the development and implementation of satisfactory safety plans for all aspects of work and the co-ordination of all plans;
  - .2 the establishment of a safety committee; and
  - .3 conducting safety meetings and workplace orientation meetings.
- .2 Communicate and co-operate on safety matters with The Owner and Occupational Health and Safety.
- .3 Comply with federal, provincial, and municipal legislation, including the Workplace Hazardous Materials Information System.
- .4 Rectify unsafe conditions and be responsible for all related costs and delays.
- .5 Advise The Owner as soon as possible of all accidents.
- .6 Investigate any accident that causes injury, and complete accident forms and prepare accident reports.
- .7 Provide and maintain a first aid room and equipment as required by the Occupational Health and Safety Regulations.

- .8 Maintain first aid supplies, space, and trained personnel on Site as required by the Occupational Health and Safety Regulations.
- .9 Have at least one qualified first aider on Site for each work shift.

#### **1.4 SUBMITTALS**

Provide the following submittals.

- .1 The Certificate of Recognition (COR), TLC or COREL prior to commencing Work at the Site.
- .2 WCB Clearance Letter prior to commencing Work at the Site.
- .3 The Contractor's safety plan, including the Contractor's safety policy, safety procedures, and a safety education program, at least ten (10) days prior to commencing Work at the Site.
- .4 The name of the person responsible for supervision of the Contractor's safety plan at the Site prior to commencing Work at the Site.
- .5 The names of workers qualified as first aiders prior to commencing Work at the Site including monthly updates.
- .6 At the end of each month, a list of accidents including lost time injuries incurred for the month, and a cumulative summary of all accidents and total lost time including a comparison with the total work time since the start of the Contract.
- .7 Completed incident forms and reports as soon as possible.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 QUALITY CONTROL**

- .1 The Contractor will perform quality control testing as part of the Works.
- .2 Establish and maintain an effective quality control system including quality control procedures and testing to ensure compliance with the requirements of the Contract Documents.
- .3 Conduct tests incorporated in the quality control system and as required in the Specifications.
- .4 Engage qualified personnel, professional engineers, and independent CSA certified materials engineering and testing companies to carry out designs and to perform tests when required by the Specifications.
- .5 The Contractor must provide quality control testing documentation to The Owner or Owner's Representative within 48 hours of quality control testing.
- .6 Quality documentation verifying conformance of materials and installation is required prior to acceptance for payment.

### **1.2 QUALITY ASSURANCE**

- .1 The Owner will perform quality assurance testing and inspection as The Owner deems appropriate. No such testing by The Owner or its representatives shall relieve the Contractor of its responsibility to construct the work in accordance with the drawings and specifications.
- .2 Co-operate with The Owner and provide assistance required by The Owner for testing, inspection, and sampling; provide access including off-Site locations; and provide equipment and labour to obtain samples.
- .3 Final acceptance of all work and products will be based on quality assurance testing.
- .4 If the quality assurance testing identifies quality deficiencies, the extent of removal and replacement of potentially deficient materials will be at the discretion of The Owner and will include, at least, all related materials placed after The Owner's previous quality assurance testing indicated acceptable quality.
- .5 If the quality assurance testing identifies ongoing quality deficiencies, submit to The Owner in writing, proposed revisions to the quality control procedures and testing that will prevent quality deficiencies. Continue the work only when the proposed quality control revisions have been reviewed with no exceptions taken by The Owner and implemented by the Contractor.

**2.0 PRODUCTS - NOT USED**

**3.0 EXECUTION - NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 CONTRACTOR'S GENERAL RESPONSIBILITIES FOR EXISTING UTILITIES**

- .1 The approximate location and elevation of service lines known to the Owner are indicated in the Contract Documents. Confirm the number, type, location, and elevation of all existing service lines. Contact the appropriate Utility to locate all lines, conduits, and other such structures. Notify the Owner if any service lines have been omitted from or are incorrectly specified in the Contract Documents.
- .2 Identify, stake, and flag all existing service line locations and elevations. Maintain staking and flagging.
- .3 Notify the appropriate Utility prior to carrying out operations in the vicinity of the service lines. Comply with the requirements of, and co-operate fully with, each Utility for the location and protection of the service lines during the Work.
- .4 Be responsible to the Utility for any claims resulting from damage to the service lines as a result of the Contractor's construction operations.
- .5 Promptly notify the Utility and the Owner in the event of any damage or interruption to any services caused by the Contractor's construction operations. Co-operate with the Utility in the restoration of service as promptly as possible and bear all costs arising from the damage or interruption.
- .6 There will be no separate payment for locating and protection of utilities; all costs associated with this work shall be considered incidental to this Contract.
- .7 The Contractor shall not have any claim for compensation or damages against the Owner for any stoppage, delays, inconvenience, or damages sustained by him due to any interference to the presence, adjustment, obtaining crossing agreements, or any coordination with any utility.

### **1.2 UTILITY CONTACTS**

- .1 **ATCO ELECTRIC**  
Phone No.: 1-800-668-5506  
Mr. Greg Smith, Operation Supervisor  
Atco Electric  
610-12 Street S.W.  
Drumheller, AB T0J 0Y0  
Email: greg.smith@atco.com  
Phone: 403 820-7503  
Cell: 403 820-3593

.2 TELUS  
Phone No.: 587-876-0715  
Mr. Roger Medavarapu, Area Manager  
Drumheller, AB T0J 0Y0  
Email: roger.medavarapu@telus.com

.3 APEX UTILITIES  
Phone No.: 1-866-222-2067  
Email: customercare@apexutilities.com

.4 TOWN OF DRUMHELLER  
Phone No.: 403-823-6300  
224 Centre Street  
Drumheller, AB T0J 0Y4

### **1.3 TEMPORARY UTILITIES**

.1 Provide the specified temporary utilities and as otherwise required in order to execute the Work expeditiously. Remove the temporary utilities from the Site upon completion of the Work unless specified otherwise.

### **1.4 TEMPORARY SANITATION FACILITIES**

.1 Provide separate sanitation facilities for male and female workers on the Site in accordance with the requirements of the local health authorities and following Covid-19 protocols. Provide any additional facilities required to suit construction operations or to satisfy the requirements of the local health authorities.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 GENERAL**

- .1 Provide and maintain temporary buildings required to perform the Work.
- .2 Locate temporary buildings within the specified area.

### **1.2 SITE OFFICE**

- .1 Provide a Contractor's Site office located at 220 Grove Place, Drumheller, Alberta. Within the office, provide a furnished room for holding Contract meetings.

### **1.3 FIRE PROTECTION**

- .1 Provide and maintain appropriate temporary fire protection equipment during the performance of the Work as required by Regulatory Requirements.

### **1.4 TEMPORARY FENCING**

- .1 Provide and maintain appropriate temporary fencing during the performance of the Work as required to isolate active construction areas.
- .2 Provide and maintain appropriate temporary fencing around riprap stockpiles.

### **1.5 PROJECT IDENTIFICATION / GRANT SIGNS**

Project identification / grant signage will be supplied by The Owner for posting at the project location. The Contractor is responsible for maintaining the signs for the duration of construction and may relocate them as required.

### **1.6 CONSTRUCTION ADVISORY SIGNS**

The Contractor shall be required to supply and install one (1) Construction Advisory Sign. The sign shall be located at a key point within the Town of Drumheller for public awareness and information, as directed by The Owner or Owner's Representative. The Construction Advisory Sign shall include the name of the project and contact information for the Contractor and Town of Drumheller. The sign shall be installed three (3) weeks prior to construction start-up at a location as directed by The Owner or Owner's Representative and shall remain in place for the duration of construction.

Plywood edges must be sealed. All edges, front and back are to be primed using high quality exterior primer and one coat of green (Pantone 349c) exterior enamel paint. Reflective sheeting (ASTM D 4956-01 – Type 1) is to be added to the information panel area prior to adding textual information.

Signs shall be fabricated using aluminum or exterior 12 mm MDO plywood (crezan) and installed using 100 mm x 150 mm wooden posts. Sign shall be installed minimum 1.50 m above natural ground measured to the bottom of sign board.

The Contractor shall be responsible for the design and fabrications of the Construction Advisory Signs. All drawings shall be stamped and signed by a Professional Engineer registered in the Province of Alberta. One (1) copy of the general sign layout and associated shop drawings shall be submitted to The Owner or Owner's Representative for review a minimum of two (2) weeks in advance of scheduled fabrication.

Sign Placement, installation and maintenance shall be in accordance with Standard Specification 7.1, Traffic Accommodation and Temporary Signing.

The Contractor shall be fully responsible for the posting of a 24-hour telephone contact number for public information. The telephone number and sign lettering shall be of sufficient size to permit reading while travelling at 50 km/hr (i.e., For Construction Information Call xxx-xxx-xxxx).

There will be no separate or additional payment for all costs associated with the Public Information call number and shall be considered incidental to Work.

Payment for advisory signs will be included in the Mobilization and Demobilization line item, and will include full compensation for sign fabrication; the supply, installation and maintenance of signposts; sign installation and maintenance; removal and disposal of the signs and signposts at construction completion; and all labour, materials, equipment, tools and incidentals necessary to complete the Work to the satisfaction of The Owner or Owner's Representative.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**



## **1.0 GENERAL**

### **1.1 TRAFFIC ACCOMMODATION STRATEGY**

- .1 Traffic Accommodation applies to road systems and trail networks. All accommodation must consider both vehicle and pedestrian impacts and mitigations. Heavy hauling may not be permissible on some roads.
- .2 Provide a Traffic Accommodation Strategy detailing the measures proposed to safely accommodate the travelling public. The minimum requirements are specified in the Department manual: "Traffic Accommodation in Work Zones" (Latest Edition); Any Contract specific requirements, in excess of the minimum requirements, will be identified in this Section 01552.
- .3 Provide a Traffic Accommodation Strategy consisting of drawings detailing the haul roads and the configuration of temporary construction signs and other traffic control devices at the Site and provide written confirmation of the methods or procedures being used by the Contractor to address specific traffic safety related issues or situations at the Site.
- .4 When road and/or trail detours are required, ensure the Traffic Accommodation Strategy includes detailed drawings identifying the corresponding proposed traffic accommodation measures.
- .5 Ensure any issues or concerns regarding the Contractor's proposed Traffic Accommodation Strategy are addressed to the mutual satisfaction of the Contractor and The Owner prior to the commencement of the Work.
- .6 Coordinate with the Town's paving program as required.
- .7 The Contractor shall have no claim against The Owner resulting from The Owner's failure to accept the Contractor's Traffic Accommodation Strategy submission.
- .8 The Contractor is responsible for all costs to address concerns raised by The Owner during the review of the Contractor's Traffic Accommodation Strategy submission.
- .9 The Owner is responsible for all Road Closure bylaw applications.

### **1.2 REQUIREMENTS FOR TRAFFIC ACCOMMODATION**

- .1 Unless otherwise specified, accommodate public traffic on a 24-hour per day basis using any means at the Contractor's discretion, subject to the minimum requirements of the "Traffic Accommodation in Work Zones" (Latest Edition).
- .2 Make suitable provisions, including the use of detours, to accommodate all vehicular and pedestrian traffic safely and with a minimum of inconvenience.
- .3 Provide, install, maintain, and protect traffic control devices such as signs, barriers, fences and lights at the Contractor's expense and in accordance with Section 1.6 "Temporary Construction Signing".
- .4 Install, maintain, and protect at the Contractor's expense, any additional traffic control devices deemed necessary by The Owner.

- .5 Provide the required number of flag persons, during all periods of active equipment operations which may affect normal traffic operations.
- .6 Control the Contractor's operations to ensure normal school bus operations are not interfered with.
- .7 Ensure uninterrupted access is provided to developments along the Site.
- .8 Obtain prior approval from The Owner before changing or disrupting existing accesses and road crossings.
- .9 Carry out construction operations in one continuous operation at road crossings, intersections and entrances for the Site.
- .10 Provide and use such other methods or equipment necessary to accommodate public traffic safely.
- .11 Promptly make any modifications to the traffic accommodation operations deemed necessary by The Owner. The Owner may suspend Work in accordance with Section 00725 – General Conditions, Clause 12.1, Suspension of Work, in cases where the Contractor fails to adequately provide for the safety of the public, for recurring safety issues or when the Contractor fails to comply with orders issued by The Owner regarding traffic accommodation operations.
- .12 Remove or cover all traffic control devices when not essential for the safe accommodation of public traffic, in order to eliminate unnecessary inconvenience to the traffic.
- .13 Coordinate traffic accommodation measures with those of other forces at or adjacent to the Work, as required, to accommodate public traffic safely and conveniently. This shall not relieve the Contractor of his responsibility for the safe accommodation of traffic over the whole of the Site.

### **1.3 PUBLIC HIGHWAYS AND ROADS**

- .1 Comply with all requirements of the road authority having jurisdiction over public roads used by the Contractor in the execution of the Work including but not limited to road bans and Traffic Accommodation Strategy approvals.
- .2 Determine the condition and availability of public highways and roads, clearances, restrictions, bridge load limits, bond requirements, and other limitations that may affect ingress to and egress from the Site.
- .3 Coordinate with the Owner to determine permissible Haul Roads. Comply with applicable load regulations during hauling of materials and equipment over public highways, roads, or bridges. Minimize interference with local traffic.
- .4 Coordinate with the Town's paving program as required.
- .5 Before commencing the Work, conduct a detailed video and photographic survey, in the presence of The Owner, of the following facilities that are to be used. This survey establishes the restoration standard for such facilities. Submit a report to The Owner that summarizes the existing conditions and includes the photographs and video report.
  - .1 Public sidewalks, pathways, highways, roads, and bridges.

- .2 Existing access roads including local roads and dike access roads upstream and downstream of the Site.

#### **1.4 TEMPORARY ROADS**

- .1 Design and construct all temporary roads including access, haul and detour roads, temporary parking areas, and drainage structures required for construction operations.
- .2 Provide detours required for the execution of the Work.
- .3 Confine construction traffic to the limits of temporary roads and avoid disturbances to adjacent lands.
- .4 Contain hauled material in vehicles, and keep routes clear of mud, fallen rock, and debris resulting from construction operations.
- .5 Control dust, remove snow, and maintain road surfaces daily or at frequent intervals depending upon weather or traffic and as required by The Owner.
- .6 Reclaim all temporary roads when they are no longer required. Scarify, grade to original contours, cultivate, replace topsoil, and seed to grass.

#### **1.5 TYPICAL DRAWINGS**

- .1 Drawings detailing minimum requirements for temporary signing and other traffic control devices for typical rural highway situations are contained in Section II of the Department manual entitled "Traffic Accommodation in Work Zones" (Latest Edition).
- .2 Develop any drawings necessary to address non-typical rural or urban highway situations and include in the Traffic Accommodation Strategy.

#### **1.6 TEMPORARY CONSTRUCTION SIGNING**

- .1 Materials
  - .1 Supply all signing materials including signposts, weighted stands, brackets and any required mounting hardware and miscellaneous materials required for the erection of temporary construction signs.
  - .2 Provide signs, barricades and other traffic control devices conforming to the requirements for shape, colour and size specified in the Department manual entitled "Traffic Accommodation in Work Zones" (Latest Edition). Ensure the orange portion of all signs, barricades and other traffic control devices are fully reflectorized using High Brightness, Retroreflective, Non-Metallized, Prismatic Sheeting Material which incorporates durable, transparent, fluorescent pigment and meets the brightness requirements as specified in ASTM D4956 Type VIII sheeting. Unless otherwise approved by The Owner, ensure the orange coloured reflective sheeting supplied by the Contractor is one of the Proven Products for "Temporary Orange Work Zone/Construction Signs" listed on the Alberta Transportation Products List on the Department's web site.
  - .3 Ensure all other colours of sheeting material are Type III or Type IV high intensity retroreflective sheeting meeting or exceeding the minimum requirements as specified in ASTM-D4956.

- .4 Larger construction signs or oversized signs may be used where conditions require greater visibility in order to be effective. Use larger or oversized signs in special circumstances where more than average attention value is required from the sign.
- .2 Equipment
  - .1 Supply all equipment for Traffic Accommodation.
- .3 Erection of Signs
  - .1 Do not commence work on the Site until all necessary temporary construction signs and all other traffic control devices as proposed in the traffic accommodation strategy are in place.
  - .2 When signs require frequent moves, portable type signs, mounted on weighted stands, may be used. Place portable signs on the shoulder of the road such that the face of the sign is fully visible to oncoming traffic and the bottom of the sign is not less than 300 mm above the road surface. Provide securely weighted stands and erect in a manner to ensure against being blown over by prevailing winds or gusts from passing vehicles.
  - .3 Ensure non-portable signs are conspicuously posted, and erected at right angles to the road, with the bottom of the sign at a height of 1,500 mm above the road surface, and not less than 2,000 mm or more than 6,000 mm from the nearest traffic lane.
  - .4 Erect traffic signs and devices close to the construction work adjacent to the road, or the road work, in progress. Move them to remain close to the work with the progress of the construction.
  - .5 Mark objects within or immediately adjacent to the road which constitute a hazard to traffic with alternating black and orange stripes attached directly to the object or erected immediately in front of it.
  - .6 Ensure the use of signs is held to a minimum to prevent confusion.
  - .7 Install "STOP" signs on all subsidiary roads (local, district, municipal, service or approach) intersecting a primary highway detour route.
  - .8 Post speed zones, where required, as indicated on the applicable drawing contained in the "Traffic Accommodation in Work Zones" (Latest Edition).
- .4 Maintenance and Removal of Signs
  - .1 Replace, repair or clean without delay any poorly maintained, defaced, damaged or dirty construction signs. Take special care to ensure that construction materials and dust are not allowed to obscure the face of a sign.
  - .2 Cover or remove signs not in effect and remove all construction signs after the Work is completed.
- .5 Modifications to Temporary Construction Signing
  - .1 The Contractor is responsible for the supply and proper placement of temporary construction signs. However, in the case of potential danger to the traveling public or other circumstances where The Owner determines that signing is inadequate, The Owner will require changes to the Contractor's operations to remedy the situation. These changes may involve the use of different types and/or sizes of signs, modifying

the number or locations of signs, and any other modifications or additions required to protect the safety of the travelling public.

## **1.7 REMOVAL AND SALVAGE OF EXISTING SIGNS AND GUIDEPOSTS**

- .1 Salvage any existing signs and guideposts which must be removed during the execution of the Work. Maintain critical signs necessary for the protection of traffic such as railroad crossing signs or stop signs.

## **1.8 FLAG PERSONS**

- .1 General
  - .1 Provide flag persons when construction operations or Site conditions cause interruption, delay, or hazard to the traveling public or anyone on the Site. Provide and equip responsible flag persons as necessary for the direction and control of traffic. Ensure that flag persons are instructed in and use proper traffic control procedures appropriate for the prevailing conditions.
  - .2 Ensure flag persons are certified from a recognized training program on traffic control procedures. The Owner will recognize traffic control programs administered by the Alberta Construction Safety Association; however, The Owner reserves the right to accept or reject certification from any other institute.
- .2 Safety Apparel
  - .1 Coveralls
    - .1 Ensure flag persons are dressed in coveralls which meet the Class 3 Level 2 requirements of CSA Z96-02, High Visibility Safety Apparel. Each pair of coveralls shall have a permanent label affixed certifying compliance with Class 3 Level 2 of CSA Z96-02.
    - .2 The colour of the coveralls shall be fluorescent yellow green with silver retroreflective striping. The retroreflective striping shall be a minimum of 50 mm wide and shall be sewn onto a 100 mm wide fluorescent red-orange background material. Ensure flag person safety apparel are kept clean and in good condition at all times. Replace faded, torn and/or dirty coveralls, or coveralls without CSA certification labels.
  - .2 Headgear
    - .1 Prior to commencement of the Work, identify and assess existing and potential hazards at the Site. Where there is a foreseeable risk of injury to a worker's head, flag person's shall wear fluorescent orange protective hardhats meeting the requirements of CSA Standard Z94.1-92.
    - .2 Where no foreseeable risk of head injury exists, flag persons will be permitted to wear any type of fluorescent orange headgear.
- .3 Nighttime Operations
  - .1 During hours of darkness, equip flag persons with handheld red traffic signal wands of sufficient brightness to be clearly visible to approaching traffic. In addition, illuminate flagging stations by overhead lighting; and mark signs indicating hazardous conditions and signs requiring increased attention with flashers.

## **1.9 DETOURS**

- .1 Design, construct, maintain and remove all detours required for the Work. Where necessary, provide any Environmental Authorizations, temporary relocation of any utilities and reclamation of the disturbed areas to a similar condition as existed prior to the disturbance. Do not construct Detours without the prior authorization of The Owner.
- .2 Design, construction, maintenance, graveling, dust abatement, detour removal, reclamation and utility relocation will be considered incidental to the Work.

## **1.10 ROAD MAINTENANCE**

- .1 Obtain any necessary approvals from the agency having jurisdiction to haul materials or equipment over the proposed haul routes. Abide by all road restrictions and maintenance requirements established by the road or bridge authority having jurisdiction, including all roads and portions of the highway within the Site.
- .2 When Contract generated Traffic disturbs public highways, roads, and bridges, maintain and repair the roads and bridges at the Contractor's expense. In addition to the requirements of the road agency having jurisdiction, keep the disturbed areas of travelled lanes well graded and free of potholes, maintain surfacing gravel and replace when required, and control dust using water or other dust abatement material approved by The Owner. Following completion of the Work, restore the road to a condition as good as existed prior to the commencement of work.
- .3 Carry out winter snow removal and ice control for traffic accommodation for public highways, roads, and bridges within the Site.
- .4 If the Contractor fails to promptly maintain the public highways, roads, and bridges The Owner may make other arrangements to have the Work done and deduct the cost thereof from any money owing to the Contractor.

## **1.11 PROLONGED SHUT DOWN**

- .1 Prior to any prolonged shut-down of construction, ensure that any disturbed road surface is restored to a condition suitable for traffic operations and acceptable to The Owner. Carry out winter snow removal and ice control for traffic accommodation for public highways, roads, and bridges within the Site during the period of prolonged shut-down.
- .2 Prior to commencing any prolonged shut-down of the Work, host a meeting between the Contractor and The Owner for the purpose of developing a "Shutdown Plan" based on the specific needs and requirements of the Site. The "Shutdown Plan" shall outline the Contractor's methods and procedures for monitoring and maintaining the Site during the shutdown period and will outline any responsibilities of the other parties.
- .3 Notwithstanding the above, no component of the shut-down plan will negate the Contractor's responsibilities for the Contract.

## **1.12 MONITORING TRAFFIC ACCOMMODATION AT THE SITE**

- .1 To ensure the traffic accommodation strategy is performing as intended; monitor and maintain traffic accommodation measures at the Site on a regular basis. Designate a specific individual or individuals to perform this function to ensure any issues arising are addressed in a consistent and timely manner.
- .2 The worker(s) carrying out the traffic accommodation monitoring shall be qualified, trained and experienced in traffic control and must be knowledgeable in the operation of the traffic control devices and other related equipment. Provide these workers with vehicles equipped with revolving warning lights and suitable communication devices to contact others for assistance if and when required.
- .3 Monitor all traffic control devices, temporary signing, and road conditions during periods of inactivity. Ensure the frequency of inspection is commensurate with the traffic volumes on the highway or road. For all detours, consecutive inspections will not be more than 6 hours apart, unless otherwise agreed by the Owner. Document all site inspections by the Contractor and make this information available for The Owner's review upon request.
- .4 The traffic accommodation measures will be monitored by the Owner. If, in the opinion of The Owner, traffic is being unduly hindered, the Contractor may be required to modify his traffic accommodation measures.

## **1.13 COMPLIANCE**

- .1 In cases where the Contractor is not in compliance with the specifications and, in the opinion of the Owner there is imminent danger to the travelling public, the Owner has the authority to order the immediate suspension of Work. Such orders must be made in writing.
- .2 In other cases where the Contractor is not in compliance with the specifications but, in the opinion of the Owner the infraction is not causing imminent danger to the travelling public, the Owner will use the following escalating process to address the situation:
  - .1 Issue verbal instructions requiring the Contractor to correct the infraction.
  - .2 Issue a written warning instructing the Contractor to correct the infraction.
  - .3 Issue a written order instructing the Contractor to suspend Work until the infraction is corrected to the satisfaction of The Owner.

## **1.14 SUBMITTALS**

Provide the following submittals.

- .1 Submit the Traffic Accommodation Strategy to The Owner seven (7) days prior to the pre-construction meeting for the Contract or to a schedule as agreed upon by The Owner. The Owner will review the Traffic Accommodation Strategy and communicate any concerns to the Contractor within 3 days of the pre-construction meeting.
- .2 Plans showing the location of temporary access and haul roads and detours, drainage structures, and bridges required for execution of the Work, at least ten (10) days prior to commencement of the Work at the Site.

- .3 Video Survey Report at least fourteen (14) days prior to commencement of the Work at the Site.
- .4 Daily Records of Temporary Construction Signing.
  - .1 Record the location of all temporary construction signs and any other traffic control devices used at the Site on a daily basis and as the Work Area changes. Record this information on a form suitable to The Owner and submit it to The Owner on a weekly basis or when requested.
- .5 Plan showing the location of the proposed haul roads seven (7) days prior to the pre-construction meeting. The Owner will review the haul routes and communicate any concerns to the Contractor within three (3) days of the pre-construction meeting.
- .6 If required for a pro-longed shutdown period, submit a Shutdown Plan at least fourteen (14) days prior to the scheduled shutdown.
- .7 Names of those workers who will be responsible for monitoring and maintaining the traffic control devices at the pre-construction meeting.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**



## **1.0 GENERAL**

### **1.1 REFERENCES**

References are made to standards as listed in the Specifications.

- .1 Conform to these standards, in whole or in part, as required in the Specifications.
- .2 Conform to the latest date of issue of the standards in effect on the date of the submission of bids, except where another date or issue is specified.

### **1.2 SUBMITTALS**

Provide the following submittals.

- .1 When requested by The Owner, a complete description of the procedures for installing the product.
- .2 When requested by The Owner, appropriate design calculations for the products to be installed.
- .3 Products List, complete with the product name, model number, manufacturer's name, and applicable Specification section for each item listed, within fifteen (15) days of the date of commencement of the Contract. A form of Products List is appended to this section.

### **1.3 DELIVERY, STORAGE, AND HANDLING**

- .1 Inspect each shipment of products and timely replace any missing or damaged items.
- .2 Handle and store products in a manner to prevent damage, alteration, deterioration, and soiling, and in accordance with the manufacturer's written instructions when applicable.
- .3 Store packaged or bundled products in original and undamaged condition with the manufacturer's seal and label intact. Do not remove products from packaging or bundling until required in the Work.
- .4 Store products subject to damage from weather in weatherproof enclosures.

## **2.0 PRODUCTS**

### **2.1 PRODUCT QUALITY**

- .1 Provide products that conform to the Contract Documents, are new, not damaged, or defective, and of the best quality (compatible with the Specifications) for the purpose intended. If requested by The Owner, furnish evidence as to the type, source, and quality of products provided.
- .2 Defective products, whenever identified prior to the completion of the Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility from the Contractor but provides a precaution against oversight or error.
- .3 Unless otherwise indicated in the Contract Documents, maintain uniformity of manufacture for any particular or like items.

- .4 Do not place permanent labels, trademarks, or nameplates on products in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

### **3.0 EXECUTION**

#### **3.1 PRODUCT CONTROL**

- .1 Maintain an inventory of all products delivered to the Site and placed in temporary storage.
- .2 Record the use of products during the course of construction.
- .3 When requested by The Owner, provide inventory records for verification of quantities.

#### **3.2 INSTALLATIONS STANDARDS**

- .1 Unless otherwise specified in the Contract Documents, install products in accordance with the manufacturer's instructions. Do not rely on labels or enclosures provided with the products. Obtain written instructions directly from the manufacturers.
- .2 Notify The Owner, in writing, of conflicts between the Contract Documents and the manufacturer's instruction, so that The Owner may establish a course of action.

#### **3.3 REMEDIAL WORK**

- .1 Repair or replace the parts or portions of the Work identified by The Owner as defective or unacceptable.
- .2 Retain specialists familiar with the products affected to perform remedial work in a manner that neither damages nor endanger any portion of the Work.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 DEFINITIONS**

- .1 “Proprietary Specification” means a specification that lists one or more proprietary names of products or manufacturers and may also include descriptive language, references to standards, or lists performance requirements, or any combination thereof.
- .2 “Non–proprietary Specification” means a specification that uses descriptive language, references to standards, or lists performance requirements, or any combination thereof, but does not include proprietary names of products or manufacturers.
- .3 “Substitute Product” means a product not specified by proprietary name that may be acceptable in place of a product which is specified by proprietary name.
- .4 “Substitute Manufacturer” means a manufacturer not specified by proprietary name that may be acceptable in place of manufacturer which is specified by proprietary name.
- .5 “Substitution” means a Substitute Product or Substitute Manufacturer.

### **1.2 PRODUCT OPTIONS**

- .1 For products specified by Non–proprietary Specification:
  - .1 select any product by any manufacturer that meets the requirements of the Contract Documents.
- .2 For products specified by Proprietary Specification:
  - .1 select any product or manufacturer named; or
  - .2 select a substitute product or manufacturer in accordance with clause 1.3.
- .3 For products specified by Proprietary Specification and accompanied by words indicating that substitutions will not be accepted:
  - .1 select any product or manufacturer named; Substitutions will not be permitted.

### **1.3 SUBSTITUTIONS**

- .1 Where Substitute Products are permitted, unnamed products will be authorized by The Owner, subject to the following:
  - .1 Substitute Products shall be the same types as, be capable of performing the same functions as, and meet or exceed the standards of quality and performance of the named product(s). Substitute Products shall not require revisions to the Contract Documents nor to work of Other Contractors.
- .2 Where Substitute Manufacturers are permitted, unnamed manufacturers will be authorized by The Owner, subject to the following:
  - .1 Substitute Manufacturers shall have capabilities comparable to those of the named manufacturer(s). Substitute Manufacturers shall not require revisions to the Contract Documents nor to work of Other Contractors.

- .3 Do not order or install Substitutions without The Owner's authorization.
- .4 If, in The Owner's opinion, a Substitution does not meet the requirements of the Contract Documents, provide a product that, in The Owner's opinion, does meet the requirements of the Contract Documents.

#### **1.4 CHANGES TO AUTHORIZED PRODUCTS AND MANUFACTURERS**

- .1 Do not change products or manufacturers, authorized by The Owner for use in performance of the Work, without The Owner's written authorization.
- .2 Submit requests to change authorized products and manufacturers to The Owner in writing, including the product data indicated in clause 1.5.

#### **1.5 PRODUCT DATA**

- .1 When requested by The Owner, submit complete data substantiating compliance of a product with the requirements of the Contract Documents. Include the following:
  - .1 Product identification, including the manufacturer's name and address.
  - .2 Manufacturer's literature providing product description, applicable reference standards, and performance and test data.
  - .3 Samples, as applicable.
  - .4 Name and address of projects where the product has been used and the date of each installation.
  - .5 For Substitutions and requests for changes to authorized products, include, in addition to the above, the following:
    - .1 Itemized comparison of the substitution with the named product(s). List significant variations.
    - .2 Availability of maintenance services and sources of replacement products and parts.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 SURVEY REFERENCE POINTS**

- .1 Primary horizontal and vertical survey reference points have been established by The Owner as specified in the Contract Documents. The Owner is responsible for the accuracy of the primary survey reference points.
- .2 Locate, confirm, and protect primary reference points prior to starting Work on the Site. Preserve permanent reference points during construction.
- .3 Make no changes to or relocations of the primary survey reference points without prior written authorization of The Owner.
- .4 Report to The Owner when a reference point is lost or damaged or requires relocation because of the Work.
- .5 Replace damaged reference points in accordance with the original survey control.

### **1.2 CONTRACTOR SURVEY WORK**

- .1 The Contractor is responsible for the site layout survey.
- .2 The Owner or Owner's Representative is responsible for surveys to confirm quantities on behalf of the Owner for progress payment purposes.
- .3 Employ qualified construction surveyors to perform survey work.
- .4 Record survey data in accordance with standard survey methods in a form acceptable to The Owner.
- .5 Establish secondary survey reference points required for laying out and staking the Work and for checking tolerances. Be solely responsible for the accuracy of the secondary survey reference points and the layout, staking, and checking of the Work.
- .6 Establish lines, grades, and elevations, and locate and lay out the Work.
- .7 Provide final grade staking of each line, grade or elevation required for The Owner's checking of the work and for measurement for payment purposes, as defined in Section 01280 – Measurement Schedule, for checking by The Owner. Maintain final grade stakes in place until The Owner has authorized their removal.
- .8 Provide such assistance as may be required by The Owner for carrying out surveys in clause 1.3.
- .9 Establish and maintain survey reference points in all work areas, including elevations and locations relative to established stationing and offset systems or otherwise required by The Owner. Provide reference points within 50 m horizontal distance and 2 m vertical distance of all locations where testing, observations of conditions, or other similar activities are undertaken by The Owner, such that The Owner can establish the location and elevations at those locations.
- .10 The Owner will carry out surveys for the purpose of measuring the Work for payment.

**1.3 OWNER SURVEY REQUIREMENTS**

- .1 The Owner may carry out surveys, as The Owner deems necessary, to check the accuracy of the Contractor's layout, stakes, and measurement.

**1.4 SUBMITTALS**

Provide the following submittals.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 GENERAL**

- .1 Perform final cleaning operations prior to the request for inspection for Substantial Performance.
- .2 Remove surplus products, tools, construction machinery, and equipment not required for the performance of the remaining Work prior to the request for inspection for Substantial Performance.
- .3 Remove waste products and debris resulting from the Work of the Contractor and leave the Work clean and suitable for use by The Owner.
- .4 Repair, patch, and touch-up marred surfaces to match adjacent finishes.
- .5 Leave all surfaces in a neat, levelled condition.
- .6 Excavate and dispose of contaminated soils from equipment service and maintenance areas.
- .7 Excavate and dispose of excess soils including impervious, random, granular, and riprap materials.
- .8 Clean up and dispose of all foreign matter including wire, posts, logs, branches, roots, rocks, and construction debris.

### **2.0 PRODUCTS – NOT USED**

### **3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 SUMMARY OF PROCESS**

- .1 A Contract acceptance process will be used to facilitate The Owner's acceptance of the Work. The process can be summarized as follows:
  - .1 Substantial Performance of the Work:
    - .1 Fulfilment of prerequisites to Substantial Performance.
    - .2 Inspection for Substantial Performance.
    - .3 Issuance of a Certificate of Substantial Performance of the Work.
  - .2 Total Performance of the Work:
    - .1 Fulfilment of prerequisites to Total Performance.
    - .2 Inspection for Total Performance.
    - .3 Issuance of a Certificate of Total Performance of the Work.
  - .3 Warranty Performance of the Work:
    - .1 Fulfilment of prerequisites to Warranty Performance.
    - .2 Inspection for Warranty Performance.
    - .3 Issuance of Certificate of Warranty Performance of the Work.

### **1.2 SUBSTANTIAL PERFORMANCE OF PART OF THE PERMANENT WORK**

- .1 When utilization of part of the Permanent Work is required and Substantial Performance of part of the Permanent Work is a condition of such utilization, the applicable requirements specified in this section will apply to the part of the Permanent Work to be utilized.

### **1.3 PREREQUISITES TO SUBSTANTIAL PERFORMANCE**

- .1 Prior to requesting The Owner's inspection for Substantial Performance carry out the following:
  - .1 Complete all works shown on The Drawings and in the Contract Documents, with the exception of landscaping (topsoiling, seeding, matting).
  - .2 Perform Commissioning.
  - .3 Obtain and submit evidence of compliance with Regulatory Requirements, including:
    - .1 Health and Safety records.
    - .2 ECO Inspection and Maintenance records.
  - .4 Remove from the Site temporary facilities along with construction tools, equipment, mock-ups, and similar items.
  - .5 Complete final clean-up.
  - .6 Submit Contract Record Documents.
  - .7 Submit Operation and Maintenance Data.



- .8 Submit product warranties and extended warranties when specified in the Contract Documents.
- .9 Provide spare parts and maintenance products.
- .10 Make final change-over of locks and transmit keys to The Owner.
- .11 Complete installation of architectural finish items, including all mechanical and electrical covers and trims.
- .12 Correct all Contract Deficiencies that may affect operation of the facility.
- .13 Complete the Work and have it ready for the purpose intended.
- .14 Review the Contract Documents and inspect the Work to confirm that prerequisites to Substantial Performance have been fulfilled and that the Work is ready for inspection for Substantial Performance.

#### **1.4 INSPECTION FOR SUBSTANTIAL PERFORMANCE**

- .1 Submit a written request to The Owner for inspection for Substantial Performance, certifying that prerequisites have been fulfilled and specifying known exceptions in the form of a list of items to be completed, corrected, or submitted.
- .2 The Owner will, within a reasonable time after receipt of the Contractor's request:
  - .1 proceed with the inspection; or
  - .2 advise the Contractor that prerequisites are not adequately fulfilled.
- .3 Results of The Owner's inspection for Substantial Performance will form the Substantial Performance Contract Deficiency List (SPC Deficiency List).

#### **1.5 SUBSTANTIAL PERFORMANCE OF THE WORK**

- .1 Following the inspection, The Owner will:
  - .1 issue a Certificate of Substantial Performance of the Work stating the effective date of Substantial Performance, with a copy of the SPC Deficiency List attached (A form of a Certificate of Substantial Performance is appended to this section); or
  - .2 advise the Contractor that prerequisites to Substantial Performance are not fulfilled and repeat the inspection for Substantial Performance as necessary.
- .2 Upon issuance of a Certificate of Substantial Performance of the Work, The Owner will assume responsibility for care, custody, and control of the Work, including responsibility for the following:
  - .1 Dike operation, including all systems and equipment.

#### **1.6 PREREQUISITES TO TOTAL PERFORMANCE**

- .1 Prior to requesting The Owner's inspection for Total Performance carry out the following:
  - .1 Maintenance of the dike including all landscaping works
  - .2 Perform the entire Work, including the correction of all Contract Deficiencies, except those items arising from the warranty provisions of the Contract Documents.

- .3 Removal of all ESC and ECO plan items
- .4 Review the Contract Documents and inspect the Work to confirm that prerequisites to Total Performance have been met and that the Work is ready for inspection for Total Performance.

### **1.7 INSPECTION FOR TOTAL PERFORMANCE**

- .1 Submit a written request to The Owner for inspection for Total Performance, including a copy of The Owner's most recent SPC Deficiency List, and certify that each Contract Deficiency has been corrected or otherwise resolved in a manner agreed to between The Owner and the Contractor. List known exceptions, if any, in the request.
- .2 The Owner will, within a reasonable time after receipt of the Contractor's request:
  - .1 proceed with the inspection; or
  - .2 advise the Contractor that prerequisites are not adequately fulfilled.

### **1.8 TOTAL PERFORMANCE OF THE WORK**

- .1 Following the inspection, The Owner will:
  - .1 issue a Certificate of Total Performance of the Work, stating the effective date of Total Performance (A form of a Certificate of Total Performance is appended to this section); or
  - .2 advise the Contractor of Contract Deficiencies that must be corrected prior to issuance of a Certificate of Total Performance of the Work.

### **1.9 PREREQUISITES TO WARRANTY PERFORMANCE**

- .1 The prerequisites to Warranty Performance are:
  - .1 Total Performance of the Work;
  - .2 expiry of the 2-year warranty period; and
  - .3 correction of items arising from the warranty period required by the Contract Documents.

### **1.10 INSPECTION FOR WARRANTY PERFORMANCE**

- .1 Just prior to the end of the warranty period, The Owner will conduct an inspection for Warranty Performance.

### **1.11 WARRANTY PERFORMANCE OF THE WORK**

- .1 Following the inspection, The Owner will:
  - .1 issue a Certificate of Warranty Performance of the Work (A form of a Certificate of Warranty is appended to this section); or
  - .2 advise the Contractor of items that must be corrected prior to issuance of the Certificate of Warranty Performance of the Work.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## SUBSTANTIAL COMPLETION CERTIFICATE

DATE ISSUED:	DATE OF SUBSTANTIAL PERFORMANCE:
TOWN BUSINESS UNIT:	PROJECT TITLE:
TOWN REPRESENTATIVE:	PURCHASE ORDER NUMBER:
CONTRACTOR:	DESIGN PROFESSIONAL (IF APPLICABLE):
<p>This <i>Substantial Completion Certificate</i> acknowledges that <i>The Town</i> has received a <i>Certificate of Substantial Performance</i> from the <i>Contractor</i>, and that, in the opinion of the <i>Contractor</i>, <i>Substantial Performance</i> of the <i>Work</i> has been achieved. In addition, the <i>Contractor</i> has satisfied all requirements.</p> <p>By executing this form, <i>The Town Representative</i> acknowledges that <i>Substantial Performance</i> of the <i>Work</i>, as per the <i>Builders' Lien Act</i>, has been achieved and that all liens have been discharged against the <i>Project</i>.</p>	

### WARANTY PERIOD

WARANTY PERIOD COMMENCEMENT:	Upon issuance of Substantial Completion Certificate (see DATE ISUED above)
WARRANTY PERIOD TERMINATION:	Upon issuance of the Final Acceptance Certificate by the Town Representative, anticipated
WARRANTY PERIOD DURATION:	

### AMOUNT PAYABLE AT SUBSTANTIAL PERFORMANCE

STATUTORY HOLDBACK TO BE RELEASED:	
GST:	
<b>TOTAL PAYABLE AT SUBSTANTIAL PERFORMANCE:</b>	
TOWN REPRESENTATIVE'S COMMENTS:	

### TOWN REPRESENTATIVE AUTHORIZATION

RECOMMENDED BY THE TOWN			
DESIGN PROFESSIONAL (if applicable)			
	PRINT NAME	SIGNATURE	DATE
TOWN REPRESENTATIVE			
	PRINT NAME	SIGNATURE	DATE
<p>Note: In the event that there is a conflict in the defined terms, the meanings as ascribed in the Agreement shall prevail.</p>			

## CERTIFICATE OF TOTAL PERFORMANCE

---

Tender Number

---

Contract Number

---

Contractor

---

Address

---

*Town of Drumheller*

---

*224 Centre Street Drumheller AB T0J 0Y4*

---

Owner

---

Address

This Certificate of Total Performance is issued pursuant to clause \_\_\_\_\_ Section \_\_\_\_\_ - General Conditions and clause \_\_\_\_\_ Section \_\_\_\_\_ - Contract Acceptance Procedures of the Contract Documents.

The Work performed under the Contract has been reviewed, and to the best of the Town of Drumheller's knowledge meets the requirements for Total Performance of the Work. Pursuant to clause \_\_\_\_\_ of Section \_\_\_\_\_ – General Conditions, any review, comment, consent, acceptance or approval, or lack thereof, by the Town of Drumheller shall not relieve the Contractor of any of its responsibilities or liabilities under the Contract.

---

Effective date of  
Warranty Performance

---

Signature

### CONSULTANT'S RECOMMENDATION

I have reviewed the Certificate and recommended it for authorization by the Town of Drumheller.

---

Consultant Firm

---

Date

---

Name of Representative

---

Signature

### TOWN OF DRUMHELLER'S AUTHORIZATION

I authorize this Certificate of Substantial performance of the Work.

---

Name of Representative

---

Date

---

Signature of Town of Drumheller's Authorized Representative

## CERTIFICATE OF WARRANTY PERFORMANCE

---

Tender Number

---

Contract Number

---

Contractor

---

Address

---

*Town of Drumheller*

---

*224 Centre Street Drumheller AB T0J 0Y4*

---

Owner

---

Address

This Certificate of Warranty Performance is issued pursuant to clause \_\_\_\_\_ Section \_\_\_\_\_ - General Conditions and clause \_\_\_\_\_ Section \_\_\_\_\_ - Contract Acceptance Procedures of the Contract Documents.

The Work performed under the Contract has been reviewed, and to the best of the Town of Drumheller's knowledge meets the requirements for Warranty Performance of the Work. Pursuant to clause \_\_\_\_\_ of Section \_\_\_\_\_ – General Conditions, any review, comment, consent, acceptance or approval, or lack thereof, by the Town of Drumheller shall not relieve the Contractor of any of its responsibilities or liabilities under the Contract.

---

Effective date of  
Warranty Performance

---

Signature

### CONSULTANT'S RECOMMENDATION

I have reviewed the Certificate and recommended it for authorization by the Town of Drumheller.

---

Consultant Firm

---

Date

---

Name of Representative

---

Signature

### TOWN OF DRUMHELLER'S AUTHORIZATION

I authorize this Certificate of Substantial performance of the Work.

---

Name of Representative

---

Date

---

Signature of Town of Drumheller's Authorized Representative

## **1.0 GENERAL**

### **1.1 DESIGNATION OF CONTRACT RECORD DOCUMENTS**

- .1 At the commencement of the Work, The Owner will provide the following documents to be designated and retained as Contract Record Documents:
  - .1 One copy of the Specifications.
  - .2 Two complete sets of the Drawings.
  - .3 One set of all addenda issued.
- .2 Maintain one record copy of the following:
  - .1 Change Orders and other modifications to the Contract.
  - .2 Reviewed Shop Drawings, Product Data, and Samples.
  - .3 Field–test records.
  - .4 Inspection certificates.
  - .5 Manufacturers' certificates.
  - .6 Final survey data.

### **1.2 MAINTENANCE OF CONTRACT RECORD DOCUMENTS**

- .1 Store Contract Record Documents in the Contractor's Site office apart from documents used for construction. Provide files, racks, and secure storage.
- .2 Label each document "CONTRACT RECORD" in large, neatly printed letters.
- .3 Maintain Contract Record Documents in a clean, dry, and legible condition. Do not use these documents for construction purposes.
- .4 Keep Contract Record Documents available for inspection by The Owner. Revise the content of the documents as required prior to final submittal.
- .5 Maintain Contract Record Documents as work progresses. Record information for each area of work within fourteen (14) days after completion.

### **1.3 RECORDING INFORMATION ON CONTRACT RECORD DOCUMENTS**

- .1 Record information on the Contract Record Documents provided by The Owner.
- .2 Use coloured erasable pencils OR electronic means to record information.
- .3 Use a different colour to record information pertaining to each major system.
- .4 Record changes and variations from the Drawings concurrently with construction progress. Do not cover any work until the required information is recorded.
- .5 Legibly mark Contract Record Drawings to record actual construction, including the following:
  - .1 Measured dimensions, depths, elevations, and horizontal co-ordinates of foundation excavations and fill surfaces, including the interfaces of fill zones.

- .2 Measured dimensions, elevations, and horizontal co-ordinates of structure components and foundations.
- .3 Measured depths, elevations, and horizontal co-ordinates of underground utilities and appurtenances. Reference locations to permanent surface improvements.
- .4 Measured depths, elevations, and horizontal co-ordinates of internal utilities and appurtenances covered in construction. Reference to visible and accessible features of construction.
- .5 Measured depths, elevations, and horizontal co-ordinates of instrumentation installed in foundations and structures.
- .6 Field changes of dimensions and details.
- .7 Changes to equipment layout and services.
- .8 Details not on the original Drawings.
- .9 References to related Shop Drawings and modifications.
- .6 Legibly mark the Specifications to record actual construction including the following:
  - .1 Manufacturer trade name and catalogue number of each product actually installed particularly optional and substitute items.
  - .2 Changes made by addenda and Change Orders.
- .7 Maintain other documents including manufacturer's certifications, inspection certifications, field test records required by individual Specification sections.
- .8 All records kept by the contractor are to be made available for review and inspection by the Owner or its representatives at all times.

#### **1.4 SUBMITTALS**

Provide the following submittals.

- .1 Contract Record Drawings at least monthly throughout the course of the Work as the information becomes available or the information is received. The Owner's Representative will check the Contract Record Drawings and confirm the accuracy of the information by field notes, surveys, photographs, or other field observation methods and return the Contract Record Drawings to the Contractor after review for ongoing revisions. No failure of The Owner or its representative shall relieve the contractor of its responsibility to construct the work in accordance with the drawings and specifications.
- .2 Completed Contract Record Documents before or with the request for inspection for Substantial Performance.

#### **2.0 PRODUCTS – NOT USED**

#### **3.0 EXECUTION – NOT USED**

**END OF SECTION**



## 1.0 GENERAL

### 1.1 DESCRIPTION OF TYPES OF OPERATION AND MAINTENANCE DATA

- .1 The following documents are designated as Operation and Maintenance Data.
- .2 For systems designed by the Contractor, Contractor Designed System Data includes the following:
  - .1 System Design and Performance Criteria.
  - .2 System and Controls Descriptions.
  - .3 System and Controls Schematics.
  - .4 Operating Instructions.
  - .5 Equipment Data.
  - .6 Other data as required by The Owner.
- .3 Installation Instructions includes the manufacturer's printed instructions describing the recommended installation procedures, and photographs, video footage, and computer software.
- .4 Operating Instructions includes the manufacturer's printed instructions describing proper operation, and photographs, video footage, and computer software.
- .5 Equipment Identification includes the nameplate information for each piece of equipment, in a form, and with content acceptable to The Owner.
- .6 Maintenance Instructions includes the manufacturer's printed instructions describing the manufacturer's recommended maintenance and photographs, video footage, and computer software.
- .7 Spare Parts Lists includes parts lists and the manufacturer's recommended maintenance products and spare parts.
- .8 Suppliers and Contractors List includes a list of Contractor, Subcontractors, and Suppliers who supplied and installed equipment, systems, materials, or finishes, organized by the Division of Specifications and system, and company names, addresses, and telephone numbers.
- .9 Tag Directory includes a directory identifying tag number and equipment description and location.
- .10 Drawings List includes a list of Drawings.
- .11 Shop Drawings includes the final reviewed Shop Drawings.
- .12 Product Data includes the manufacturer's product data for equipment, systems, materials, and finishes, and photographs, video footage, and computer software.
- .13 Material Safety Data Sheets (MSDS) includes the MSDS for all relevant products.

- .14 Certifications includes the following:
  - .1 Copies of inspection reports prepared by authorities having jurisdiction.
  - .2 Certified copies of test reports prepared by independent testing agencies.
  - .3 Any other certificates required by the Contract Documents.
- .15 Warranties and Bonds include The Owner's copy of manufacturer's warranties, maintenance bonds, and service contracts.
- .16 Reports includes the following:
  - .1 Documentation certifying the performance of tests required by the Contract Documents and the results of those tests.
  - .2 Documentation of other material, equipment, or system related information required by the Contract Documents.

## **1.2 SUBMITTALS**

Provide the following submittals.

- .1 Four (4) copies of the following Operation and Maintenance Data prior to requesting the inspection for Substantial Performance:
  - .1 Contractor Designed System Data.
  - .2 Installation Instructions.
  - .3 Operating Instructions.
  - .4 Equipment Identification.
  - .5 Maintenance Instructions including schedules.
  - .6 Spare Parts Lists.
  - .7 Suppliers and Contractors Lists.
  - .8 Tag Directory.
  - .9 Drawings List.
  - .10 Shop Drawings.
  - .11 Product Data.
  - .12 MSDS.
  - .13 Certifications.
  - .14 Warranties and Bonds.
  - .15 Reports.
- .2 One (1) draft copy of the operation and maintenance manual prior to requesting inspection for Substantial Performance.
- .3 Three (3) copies and one (1) digital copy of the completed operation and maintenance manual prior to requesting inspection for Total Performance.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 SOURCE OF SUPPLY**

- .1 Provide spare parts manufactured by the original equipment manufacturer.
- .2 Provide maintenance products identical to those installed.
- .3 Provide special tools as required by the equipment manufacturer.
- .4 Provide Material Safety Data Sheets (MSDS) for all relevant products.

### **1.2 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver the required items to the Site and store in temporary locations determined by the Contractor.
- .2 Deliver and store items in original factory packaging with the manufacturer's seal and labels, complete with tags identifying their function and associated equipment.
- .3 Identify, on the carton or package, the name of the item, colour, or part number, as applicable. Identify the equipment, the system, and the location and area for which each item is intended.
- .4 Maintain an inventory list of all items delivered. For each item, record the name of the item, quantity, location where stored, and include all relevant MSDS.
- .5 Be responsible for stored items until Substantial Performance of the Work is attained.
  - .1 Protect stored items against theft or damage.
  - .2 Store products that would be damaged by freezing, in heated and ventilated rooms.
  - .3 Store items subject to damage from the weather in weatherproof enclosures.
  - .4 Provide the manufacturer's instructions for long-term storage and shelf life.
- .6 Handle items as necessary, until stored in the long-term storage locations designated by The Owner.

### **1.3 INSPECTION**

- .1 Prior to requesting The Owner's inspection for Substantial Performance:
  - .1 Verify that the inventory list includes all items required by the Contract Documents.
  - .2 Verify that items on the inventory list are in their designated storage locations.
  - .3 Inspect all the items to verify that specified requirements are met and that they are in serviceable condition.
  - .4 Arrange for delivery of all missing items.
  - .5 Arrange for replacement of items not meeting the specified requirements or not in appropriate condition.
  - .6 Provide The Owner with a copy of the inventory list indicating the status of all required items. Include relevant MSDS.

- .2 Review the inventory list with The Owner during The Owner's inspection for Substantial Performance.
- .3 For items not delivered prior to attaining Substantial Performance of the Work, submit a duplicate copy of the delivery slip and obtain The Owner's signature upon delivery. The Owner will only accept responsibility for care, custody, and control of items properly received, stored in the designated long-term storage locations, and signed for.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 DEFINITIONS**

- .1 “Commissioning” means a series of activities including start-up and testing of equipment and systems and instructing The Owner on operation and maintenance that bring the Work to a fully operational state. Completion of Commissioning is a prerequisite to Substantial Performance of the Work.
- .2 “Initial Commissioning” means the partial commissioning of the systems and equipment under the specified conditions except as indicated in Final Commissioning. Completion of Initial Commissioning is a prerequisite to Substantial Performance of the Work.
- .3 “Final Commissioning” means the completion of the commissioning of the systems and equipment under the specified conditions once available and providing a completed installation that meets the operational requirements specified in the Contract Documents. Completion of Final Commissioning is a prerequisite to Total Performance of the Work.

### **1.2 GENERAL COMMISSIONING REQUIREMENTS**

- .1 Perform the following services during Commissioning:
  - .1 Develop a Commissioning plan outlining the activities to be conducted and the schedule for their completion.
  - .2 Provide a qualified supervisor to oversee all work.
  - .3 Comply with standards set out by the certifying association under whose standard services will be provided.
  - .4 Provide access to all equipment and services. Co-operate with the Owner.
  - .5 Provide all instrumentation, equipment, and materials required for Commissioning.
  - .6 Undertake all pre-start inspections, preparations, checks, and tests.
  - .7 Advise The Owner in writing, at least five (5) days prior to performing the specified operational testing. Perform testing in the presence of The Owner and where required, in the presence of the manufacturer’s representative.
  - .8 Conduct operational tests, record results, and note all deficiencies.
  - .9 Diagnose deficiencies, determine causes, and take corrective actions. Document each deficiency, cause, and corrective action taken.
  - .10 Repeat Commissioning activities as required to verify that deficiencies have been corrected.
  - .11 Demonstrate the operation of the systems and equipment to The Owner’s personnel.
  - .12 Provide training for The Owner’s personnel.
  - .13 Complete Commissioning records.

### **1.3 COMMISSIONING RECORDS**

- .1 Provide Commissioning reports including systems and equipment checklists for all commissioning activities.
- .2 Provide equipment checklists to facilitate installation and servicing of equipment. Prepare equipment checklists in a form acceptable to The Owner, and include the following:
  - .1 Name of the company and the personnel performing the inspection, including the date and time.
  - .2 Equipment manufacturer and model number.
  - .3 Safety devices.
  - .4 Operating characteristics.
- .3 Complete the checklist for each piece of equipment as it is inspected and checked for proper installation and servicing prior to start-up.
- .4 Provide Commissioning reports in a form acceptable to The Owner, and include the following:
  - .1 Completed equipment checklists.
  - .2 Name, address, and telephone number of the company and the names of the personnel performing the Commissioning, and the date, time, and site conditions during Commissioning.
  - .3 Equipment start-up tests and records performed by the manufacturer and the Contractor.
  - .4 Operational testing and adjusting records.
  - .5 Deficiency records including diagnosis, causes, and corrective actions taken.

### **1.4 TRAININGS**

- .1 Demonstrate operation, and maintenance of each item of equipment.
- .2 Train The Owner's personnel at the established times and location on all phases of the operation and maintenance.
- .3 Provide all instruction aids.
- .4 The Owner will provide a list of personnel to receive training and will schedule and co-ordinate their attendance with the Contractor.

### **1.5 SUBMITTALS**

Provide the following submittals.

- .1 A Commissioning plan at least 30 days prior to starting the Final Commissioning.
- .2 Commissioning reports no later than 10 days after the Final Commissioning is completed.

**2.0 PRODUCTS – NOT USED**

**3.0 EXECUTION – NOT USED**

**END OF SECTION**



## **1.0 GENERAL**

### **1.1 INTENT**

- .1 This section specifies requirements for the excavation and remediation of hydrocarbon contaminated soil if discovered on the Site. The Contractor shall excavate, load, haul and dispose of any contaminated soils or material to an approved Off-Site disposal facility.

### **1.2 DEFINITIONS**

- .1 Landfarming: is an ex-situ bioremediation technology in which the contaminated soil is excavated and positioned in specified layers in a treatment area that will control leaching of contaminants. The soil is periodically turned over or tilled to aerate the contaminant and optimize the rate of contaminant degradation.
- .2 ALLU Bucket: an attachment that is installed in place of the bucket on a loader or excavator. ALLU Bucket's bucket has rotating drums that are controlled by the operator which break up and aerate the excavated contaminated material in a separate pile after ALLU Bucket treatment.

### **1.3 TESTING OF MATERIALS**

- .1 At the discretion of The Owner, any fill materials may be tested before placement to confirm suitability for intended uses.
- .2 Submit fill material samples to The Owner for Standard Proctor Density Testing at least 7 days prior to placement.

## **2.0 PRODUCTS**

### **2.1 FILL MATERIALS**

- .1 Refer to Section 02330 Earthwork Materials for fill material specifications.

## **3.0 EXECUTION**

### **3.1 SITE PREPARATION**

- .1 Notify Alberta One Call and locate all member-company utilities including sewer, power, gas, telephone and others. Utilize a private utility locator to verify the Alberta One Call locates and identify the locations of any private utilities or services. Locate all utilities before proceeding with the excavation.
- .2 Coordinate with utility company to remove or relocate utility lines as required to safely undertake the Work of this Contract.
- .3 Expose existing utility lines in the work area by hand excavation or hydrovac to confirm location before machine digging within 600 mm of lines.
- .4 Remove surface obstructions in the work area.

- .5 Prior to commencement of site excavation activities, install temporary chain-link fence, 1.8 m high, to secure the excavation area. The chain link fence should provide access for vehicles and equipment but must be locked when no work is occurring onsite.
- .6 Attach signs to temporary fencing on four sides of the excavation prior to the commencement of the soil excavation. Signs must indicate that site access is restricted to;
  - .1 authorized personnel only,
  - .2 identify safety requirement (i.e., hard hat, safety boots, etc.),
  - .3 provide a telephone number for inquiries and emergency contact.
- .7 Confirm stockpile area for clean overburden and topsoil with Owner's representative.

### 3.2 EXCAVATE AND STOCKPILE UNCONTAMINATED TOPSOIL AND OVERBURDEN

- .1 Saw, cut and remove asphalt or concrete required for excavation and dispose at approved location or landfill.
- .2 Direct runoff away from, or around, excavation.
- .3 Strip topsoil, uncontaminated overburden including granular materials and stockpile separately on site in area indicated on drawings. Do not mix materials.
- .4 Remediate soil to comply with the criteria established in the Risk Management Guidelines for Petroleum Storage Tank Sites dated October 2001 (or latest edition). Remediation criteria for this site is based on:
  - .1 Soil Type: Fine grained
  - .2 Land Usage: Residential
- .5 Remediate soil to meet or exceed the following minimum remediation criteria:

#### **Remediation Criteria for Generic Hydrocarbon and Lead**

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<b>Parameter</b>	<b>Concentration (mg/kg)</b>
Benzene	0.046
Toluene	0.52
Ethylbenzene	0.073
Xylenes	0.99
F1 (C6-C10)	210
F2 (C10 – C16)	150
F3 (C16 – C34)	1,300
F4 (C34 – C50)	5,600
Lead	140

---

### **3.3 ALLU BUCKET TREATMENT OF HYDROCARBON CONTAMINATED MATERIAL – NOT USED**

- .1 Prepare ALLU Bucket Treatment Area
  - .1 Construct ALLU Bucket treatment area in location shown on drawings.
  - .2 Construct ALLU Bucket treatment area to accommodate all material to be treated.
- .2 Excavate Hydrocarbon Impacted Soil and Treat to Remediation Criteria
  - .1 Excavate to elevation and dimensions as indicated by Owner.
  - .2 Transport hydrocarbon impacted soil to ALLU Bucket treatment area. Stockpile within bermed area.
  - .3 Treat material to criteria using the ALLU Bucket process until it meets specified criteria. Replace and compact treated material in excavation.
  - .4 Pass hydrocarbon impacted soil through ALLU Bucket treatment and stockpile within bermed area to contain runoff, pending direction from The Owner. The Owner will sample and analyze treated soils to confirm hydrocarbon concentrations using an independent laboratory on a regular turnaround basis to determine if additional ALLU Bucket treatment passes are required. No payments will be made for standby time while waiting for the results of the confirmation samples. Ensure that treated material meets applicable criteria.
  - .5 Assist Owner in collection of representative soil and water samples for the base and walls of the excavation.
  - .6 Direct surface run off away from hydrocarbon impacted soil stockpiles.

### **3.4 LANDFARM TREATMENT OF HYDROCARBON CONTAMINATED MATERIAL – NOT USED**

- .1 Prepare Landfarm Treatment Area
  - .1 Construct Landfarm Treatment Area in location shown on drawings.
  - .2 Construct Landfarm Treatment Area to accommodate all soil to be treated.
- .2 Excavate Hydrocarbon Impacted Soil and Treat to Criteria
  - .1 Excavate to elevations and dimensions as indicated by Owner.
  - .2 Transport hydrocarbon impacted material to Landfarm Treatment Area.
  - .3 Spread material within bermed area to a thickness not exceeding 300 mm
  - .4 Disc material, turn and mix materials regularly at intervals not to exceed 5 days until material meets the required criteria.
  - .5 The Owner will sample and analyze treated soils to confirm hydrocarbon concentrations using independent laboratories on a regular turnaround basis. There will be no standby time while waiting for the results of the confirmation samples.

- .6 Assist Owner in collection of representative soil and groundwater samples from the walls and base of the excavation.
- .7 Treated material that has met required criteria may be stockpiled or replaced in clean excavation.

### **3.5 EXCAVATE AND DISPOSE OFF SITE HYDROCARBON CONTAMINATED MATERIAL**

- .1 Excavate to elevations and dimensions indicated by Owner.
- .2 Transport Hydrocarbon impacted material to a disposal area or landfill approved by The Owner.
- .3 Supply a copy of the manifest or proof of receipt of material, acceptable to The Owner, from the disposal facility.

### **3.6 BACKFILL EXCAVATED AREAS**

- .1 Backfill all excavation areas, and fill to required sub-grade elevations using the treated soils, clean overburden, and additional imported materials as specified in Section 02330 Earthwork Materials.
- .2 Ensure backfill areas are free of debris, snow, ice and water. Do not backfill over porous, wet or spongy sub-grade surfaces.
- .3 Place backfill material in excavation in maximum 200 mm lifts to facilitate optimum compaction and compact using mechanical methods. Do not use hydraulic methods, vehicles or other equipment not designed for compacting.
- .4 Maintain optimum moisture content of materials being compacted, as required attain a specified compaction density of 97% of the Standard Proctor Density  $\pm 2\%$  of optimum.
- .5 Use care in backfilling to avoid damage or displacement of services.
- .6 Surface to be graded to ensure drainage away from backfilled areas.

### **3.7 RESTORE TREATMENT AREA**

- .1 Remove all material from site to disposal location acceptable to The Owner.

### **3.8 COLLECTION AND TREATMENT OF GROUNDWATER**

- .1 The Owner will determine the method of collection, treatment or disposal of groundwater:
  - .1 Use equipment and techniques authorized by The Owner.
  - .2 The collection, treatment or disposal of groundwater will be valued in accordance with Section 00725 – General Conditions, clause 8.3 - Valuation of Changes in the Work.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 SUBMITTALS**

- .1 Submit copies of permits or licenses for off-Site disposal of materials, equipment, and debris.

### **1.2 WORK SEQUENCING**

- .1 Commence demolition or salvage work as specified in Section 01110 – Summary of the Work.
- .2 Sequence demolition of materials and construction of the new materials such that existing areas remain free draining at all times.

### **1.3 RECYCLABLE MATERIALS**

- .1 Unless specified otherwise in this section, all equipment and materials indicated or specified to be permanently removed from the Site become the property of the Contractor. Maximize the recycling of such equipment and materials, consistent with proper economy and expeditious performance of the Work.

## **2.0 PRODUCTS – NOT USED**

## **3.0 EXECUTION**

### **3.1 GENERAL**

- .1 Prior to commencing demolition or salvage, inspect the Site and verify with The Owner items designated for demolition, salvage, and removal.
- .2 Locate and protect existing utility lines, survey reference points, instrumentation and other facilities that are to remain in place before commencing the Work.
- .3 If any Utility service lines are connected to the items to be demolished or salvaged, confirm with the Utility that the service lines are not in operation, or make arrangements with the Utility to shut down the service lines.
- .4 All work is to conform with Regulatory Requirements, including safety requirements established by the Occupational Health and Safety Act (Alberta).
- .5 At the end of each shift, leave the work in a safe and stable condition, so that no part of it is in danger of toppling, falling or sliding. Site safety and security is the responsibility of the Contractor.
- .6 Do not use blasting to perform demolition work. Burning of disposal materials is not permitted on site.
- .7 Demolish and remove the pipes when and as specified in the Contract Documents.

- .8 Perform work in a manner that prevents the loss or damage of materials specified for salvage. Repair or replace damaged materials as required by The Owner or The Owner's Representative.

**3.2 EXCAVATION AND BACKFILL**

- .1 Provide excavations of sufficient width and depth to permit demolition and salvage, and subsequent placement of fill materials as specified in the Contract Documents.
- .2 Perform excavations in accordance with Section 02315 – Excavation and Section 02316 – Excavation (as applicable) and backfill in accordance with Section 02331 - Fill Placement.

**3.3 DEMOLITION AND REMOVAL OF STRUCTURES**

- .1 Demolish and remove the following existing structures:

Existing Structure	Approximate Station
Asphalt Pathway	0+000 to 0+040
Lock block retaining wall	0+090 to 0+118

**3.4 MATERIALS TO BE SALVAGED BY THE CONTRACTOR AND RE-USED (IF SUITABLE FOR RE-USE)**

- .1 Remove the following structures and salvage for re-use.

Existing Structure	Approximate Station
Manhole slab, lid, frame & cover	0+045
Catch basin barrel, slabs, lid, frame & cover	0+068
Manhole slab, lid, frame & cover	0+191
Inlet Structure	0+255
Chain link fence	0+200 to 0+296
Riprap	0+042 to 0+190

- .2 Salvage the following materials (if required) and re-use as directed by The Owner.
  - .1 The concrete manhole and catch basin slabs, barrels, lids, frames & covers should be reviewed by The Owner to determine if they can be salvaged and reincorporated into the Work.
  - .2 The chain link fence located at approximate station 0+200 to 0+296 should be reviewed by The Owner to determine if it can be salvaged and reincorporated into the Work.
- .3 Neatly roll, bundle, or crate salvaged materials and store in an orderly fashion at the storage area specified in the Contract Documents. Collect smaller items, such as bolts, in suitable containers and label the containers accordingly. Provide raised platforms so that stored materials are not in direct contact with the ground.

### **3.5 SALVAGE OF RIPRAP**

- .1 Excavate existing riprap when and as specified in the Contract Documents, and place in stockpiles.
- .2 Sort, blend in deficient sizes, reload and place the riprap in the Work. Riprap gradation and placement is to conform to Section 02330 – Earthwork Materials and Section 02373 – Riprap and Riprap Bedding Placement.

### **3.6 DISPOSAL**

- .1 Remove demolished materials and dispose of at an appropriate recycling facility, or at an appropriate off-Site waste disposal facility.

### **3.7 CLEAN-UP**

- .1 Finish the demolition work areas to a leveled and neat condition.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 NOTE**

- .1 Refer to Section 01391 – Environmental Protection (clause 1.3) for vegetation management specifications.
- .2 If tree clearing is required, the Contractor must notify The Owner or Owner's Representative seven days in advance of the clearing, to allow for the completion of a bird nest survey.

### **1.2 SUBMITTALS**

- .1 Submit a Work Plan outlining the beneficial re-use of mulched clearing materials if mulching is to be proposed on-site.

## **2.0 EXECUTION**

### **2.1 PREPARATION**

- .1 Protect trees, shrubs, and other vegetation within the specified site clearing and grubbing areas that are designated to remain in place, against unnecessary cutting, breaking, and any other damage.
- .2 Protect from damage, fences, roadways, and other existing site improvements within the specified site clearing and grubbing areas that are designated to remain in place.
- .3 Protect survey reference points from damage.
- .4 All equipment entering the project site must be cleaned before arrival to prevent the spread of weed species.

### **2.2 REMOVAL**

- .1 Remain in compliance with the Migratory Birds Convention Act and the Alberta Wildlife Act.
- .2 Remove all logs, trees, brush, stumps, roots, and other deleterious material from the specified areas except for trees or vegetation designated to be preserved.
- .3 Remove all roots (greater than 50 mm in diameter) and other deleterious materials to 1 m below the ground surface.
- .4 Remove tree branches that extend into the specified clearing area and which hang within 6 m of the finished grade, by cutting them off close to the trunk.
- .5 For trees that are designated to remain, cut only roots or branches that interfere with the Permanent Work and treat the roots or branches with a non-toxic horticultural emulsion authorized by The Owner.
- .6 Finish the cleared areas to a neat and levelled condition.



## 2.3 DISPOSAL

- .1 Load, transport, and dispose of debris at an approved off-Site waste disposal facility.
- .2 Mulching on-site may be considered with prior approvals obtained from The Owner. Mulching will only be considered where the beneficial re-use of the resultant materials can be demonstrated by the Contractor.

## 2.4 SUPPLEMENTARY – ENVIRONMENTAL

- .1 The following environmental specifications are not anticipated to be required in this contract but are to be adhered to as applicable to a Change.
- .2 Black Knot Fungus: To control the spread of black knot fungus, caused by *Dibotryon morbosum* or *Apiosporina morbosa*, contractors must develop and implement a site-and species-specific weed management plan, as per Alberta Weed Control Act and Weed Control Regulations. A localized weed survey is to be conducted between June and August at construction sites and along equipment movement corridors to identify any weed species present. All equipment entering the project site must be cleaned before arrival to prevent the spread of weed species. Removing and destroying wood infected with black knot fungus is the only way to control the disease once it is present. If black knot fungus is identified, the diseased wood must be immediately removed and destroyed, by burying it at the Drumheller Landfill, to prevent the spread of spores. The Contractor must notify the landfill 24 hours in advance of transporting diseased wood or materials to site.
- .3 Dutch Elm Disease: To control the spread of Dutch Elm Disease, caused by *Ophiostoma ulmi* or *Ophiostoma nova-ulmi*, European Elm Bark Beetle (*Scolytus multistriatus*) and Native Elm Bark Beetle (*Hylurgopinus rufipes*), contractors must develop and implement a site-and species-specific weed management plan, as per Alberta Weed Control Act and Weed Control Regulations.

The Contractor shall carry out his or her operations in accordance with the provisions in the attached Alberta Government Dutch Elm Disease Prevention and Control Plan and the Best Management Practices outlined in the Alberta Dutch Elm Disease Prevention and Control Plan Management Plan which is available on-line at the following location:

<http://www.alberta.ca/dutch-elm-disease.aspx>

<http://www.alberta.ca/dutch-elm-disease-prevention-what-you-can-do.aspx>

Removing and destroying wood infected with Dutch Elm Disease / European Elm Bark Beetle / Native Elm Bark Beetle is the only way to control the disease once it is present. If Dutch Elm Disease / European Elm Bark Beetle / Native Elm Bark Beetle is identified, the diseased wood must be immediately removed and destroyed, by burying it at the Drumheller Landfill, to prevent spread. The Contractor must notify the landfill 24 hours in advance of transporting diseased wood or materials to site.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 DEFINITIONS**

- .1 "Topsoil" is the soil material as described below.
  - .1 Earthwork material with an organic content.
  - .2 The uppermost part of the soil, ordinarily moved in tillage, or its equivalent in uncultivated soils, and normally ranging in depth from 50 mm to 450 mm. For Dike C, the depth of topsoil is to be confirmed by Owner's Representative.
- .2 "Subsoil" is the soil material identified as the weathered soil material found beneath the topsoil. The subsoil thickness is to be considered the layer of soil that is found to be excessively desiccated, weathered, oxidized and/or contains a noticeable fraction of organics.
- .3 "Unsuitable Organic Soils" are soils that contain organic materials and are not suitable for use as earthwork materials or as Topsoil and Subsoil. These soils would include soils that contain too much organic matter for earthwork materials, are contaminated, or do not meet the requirements of Soil Quality Criteria Relative to Disturbance and Reclamation.

### **1.2 REFERENCES**

Provide Topsoil and Subsoil stripping in accordance with the following standards (latest revision) except where specified otherwise.

- .1 Alberta Transportation
  - .1 Pre-Disturbance Assessment Procedures for Borrow Excavations for Road Construction.

### **1.3 SUBMITTALS**

Provide the following submittals.

- .1 A stripping plan at least 15 days prior to commencing stripping operations that indicates the limits of stripping in each area; the schedule for such work; and, the methods and procedures that will be used for stripping and handling stripped materials; and for preventing wind and water erosion.

### **1.4 PRE-DISTURBANCE ASSESSMENT BY THE OWNER AND THE CONTRACTOR**

- .1 The Owner or The Owner's Representative are to complete a pre-disturbance assessment with the Contractor prior to commencing with topsoil and subsoil stripping at the Dike C project location. This assessment is to define the areas of allowable disturbance, the controls that will be utilized to prevent disturbance beyond these limits and the thickness to topsoil and subsoil deposits.
- .2 The installation of controls at the identified disturbance limits, at the Dike C project location, is to be the responsibility of the Contractor.

## **2.0 EXECUTION**

### **2.1 PREPARATION**

- .1 Locate and protect utility lines, survey reference points, instrumentation, culverts, and all other existing facilities before commencing stripping operations.

### **2.2 STRIPPING**

- .1 Do not strip any area without prior authorization of The Owner.
- .2 Do not disturb grassed or natural areas and do not drive on undisturbed areas except for performance of the stripping operation. Stay on: temporary access and haul roads, and detours; and construction facilities, lay down and parking areas.
- .3 Strip Topsoil and Subsoil in an unfrozen condition.
- .4 Strip Topsoil from the areas where Common Excavation and Fill Placement are required.
- .5 Strip Topsoil from temporary access and haul roads; detours; construction facilities; lay down; parking and site office areas; and stockpile areas including Topsoil stockpiles; and any other areas as required by The Owner or Owner's Representative.
- .6 Within Fill Placement areas, strip Subsoil after the Topsoil has been removed.
- .7 Strip Topsoil and Subsoil to the depths specified in the Contract Documents or as established by The Owner or Owner's Representative.
- .8 Strip Topsoil and Subsoil separately to prevent admixing.
- .9 Sequence, stagger, and conduct stripping and excavation operations so that undesirable materials do not become mixed with Topsoil or Subsoil.
- .10 Any Topsoil or Subsoil materials that are found to be contaminated are to be stockpiled separately and are not to be mixed with uncontaminated Topsoil or Subsoil stockpiles.
- .11 Use equipment with precise depth control when stripping shallow or variable depths of material, to limit overexcavation.
- .12 Suspend stripping operations during rain, snow, wet ground conditions, high winds, or other conditions that may result in contamination or loss of material.
- .13 Drain surface water away from the stripped areas to prevent ponding and infiltration in fill placement areas.

### **2.3 REMOVAL OF UNSUITABLE ORGANIC SOILS**

- .1 Excavate Unsuitable Organic Soil in accordance with Section 002315 - Excavation. The Owner or Owner's Representative will determine the extent of Unsuitable Organic Soil.
- .2 Dispose of Unsuitable Organic Soil at the Contractor's off Site waste disposal area or at locations established by The Owner, and bury under a minimum cover of 1 m of mineral soil.

## **2.4 STOCKPILING**

- .1 Stockpile Topsoil from Common Excavation, Structure Excavation, and fill placement areas adjacent to the stripped area and within the Site Limits as authorized by The Owner or Owner's Representative.
- .2 Stockpile Topsoil from temporary access and haul roads; detours; construction facilities, lay down, parking, and site office areas, and stockpile areas except for Topsoil stockpiles adjacent to the stripped area and within the Site Limits as authorized by The Owner or Owner's Representative.
- .3 Stockpile Subsoil from the Dike C project location excavation areas adjacent to the stripped area and within the Site Disturbance Limits, or in the temporary construction laydown, as authorized by The Owner or Owner's Representative.
- .4 Separately stockpile Topsoil and Subsoil.
- .5 Maintain a minimum separation of 3 m between stockpiles of differing materials.
- .6 Provide erosion control measures as indicated in the ECO Plan in Section 01390 – ECO Plan to prevent soil loss from the Topsoil and Subsoil stockpiles due to wind or water erosion. Where Topsoil is to be stockpiled for periods exceeding 1 growing season, protect the stockpile from erosion by providing a cover crop or other measures as authorized by The Owner or Owner's Representative.
- .7 Do not interfere with drainage courses with stockpiled material. Keep stockpiles a minimum distance of 30 m from a river, stream, lake, reservoir or other surface bodies of water.
- .8 Do not stockpile material at slopes steeper than 3H:1V.
- .9 Maintain stockpiles in a condition meeting the above requirements.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 NOTES**

- .1 Instream activity is not anticipated for the construction of Dike C.

### **1.2 RELATED SPECIFICATIONS**

- .1 Division 01 Section 01390 ECO Plan.
- .2 Division 01 Section 01391 Environmental Protection.

### **1.3 REGULATORY REQUIREMENTS**

- .1 Comply with the conditions of the permits for the Project obtained by The Owner under the Fisheries Act and the Water Act as specified in Section 01410 – Regulatory Requirements.
- .2 Make arrangements with The Owner, landowners, or other agencies that may be affected by disposal of water, snow, or ice. Obtain any permits required in addition to those obtained by The Owner.

### **1.4 SITE CONDITIONS**

- .1 The Site is located in an area where chinook winds, accompanied by sudden temperature changes, are prevalent. The resulting temperature fluctuations often result in significant snowmelt runoff during relatively short periods of time.
- .2 Red Deer River conditions that may influence care of water provisions are specified in Section 01110 – Summary of Work.
- .3 The Site is located where groundwater may be present. Refer to *Geotechnical Design and Recommendations – Drumheller Resiliency and Flood Mitigation Program Package C* as prepared by Wood Environment and Infrastructure Solutions, a division of Wood Canada Ltd. dated (May 27, 2021).

### **1.5 DESIGN OF CARE OF WATER PROVISIONS**

- .1 Design temporary care of water measures including cofferdams, sumps, pumping systems, pipelines, channels, flumes, drains, and other protective and dewatering works to permit construction of the Work in a manner that allows for constructability and maintains environmental compliance.
- .2 Include provisions for handling groundwater, rainstorm runoff, snow, snowmelt, and ice and high stream flows that may enter the Work areas in the design of the care of water measures.
- .3 Design dewatering systems that are capable of lowering and maintaining the groundwater level a minimum of 1 m below ground surface on the excavation slopes and base to permit construction of the Work to be conducted in the dry, and on a stable foundation, with no loss of foundation materials or materials from excavated surfaces.
- .4 Design care of water provisions so that they do not interfere with dike function.

## **1.6 SUBMITTALS**

Provide the following submittals.

- .1 A care of water plan, including Site specific drawings, outlining the care of water provisions designed as specified in clause 1.4 at least 10 days prior to commencing Work at the Site.
- .2 A copy of each permit obtained (in addition to those obtained by The Owner) upon The Owner's request.
- .3 Water quality tests upon The Owner's request.

## **1.7 QUALITY CONTROL**

- .1 Test the water quality turbidity at 20 m upstream and 20 m downstream of the proposed Site to establish its quality prior to commencement of any Work at the Site.
- .2 Carry out water quality testing daily during dewatering or other care of water operations to compare to the water quality prior to commencement of the Work.
- .3 Submit water quality test results to The Owner upon request.
- .4 Take necessary measures to ensure the water quality is made equal to or better than that which occurred prior to commencement of the Work.

## **1.8 QUALITY ASSURANCE**

- .1 Sampling by The Owner
  - .1 The Owner may elect to perform turbidity sampling at its sole discretion and at any time during the execution of the Work.

## **2.0 PRODUCTS – NOT USED**

## **3.0 EXECUTION**

### **3.1 GENERAL**

- .1 Provide, operate, and maintain all necessary cofferdams, channels, flumes, drains, well points, wells, sumps, pumps, pipelines, and other temporary diversion and protection works.
- .2 Provide, operate, and maintain all cold weather protective works including enclosures, insulation, and heating systems.
- .3 Have at the Site at all times, at least one standby pump for each category of pump being used for care of water.
- .4 Provide standby power sufficient for operation of all required care of water equipment.
- .5 Inspect care of water pump and pipeline systems at regular intervals not exceeding 12 hours and verify that the pumps are operating, there is sufficient fuel, and cold weather protection is adequate. If required, decrease the time interval between inspection check to correspond

with the type and nature of weather and the work in progress, to the satisfaction of The Owner.

- .6 Repair damage to any part of the Work caused by water, snow, or ice due to failure of the care of water measures. Perform additional excavations and fill placement made necessary by water, snow, or ice.
- .7 When no longer required, remove cofferdams, sumps, channels, drains, and other protective, dewatering, and temporary diversion works and finish to a leveled and neat condition.

### **3.2 ENVIRONMENTAL PROTECTION**

- .1 Do not use care of water measures that cause pollution.
- .2 Do not cause damage to property or nuisance on roads, or injury to the public or to wildlife due to discharge of water from the care of water measures.
- .3 Provide and maintain sediment ponds or other means to remove sediment from the water prior to allowing it to enter or return into the watercourse. Dispose of sediments in waste disposal areas.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 DEFINITIONS

- .1 “Common Excavation” means the excavation of on-Site soils required by the Contract Documents, excluding Topsoil and Subsoil Stripping, Borrow Area Excavation, Structure Excavation, and Rock Excavation.
- .2 “Topsoil and Subsoil Stripping” means the excavation of Topsoil and Subsoil defined in Section 02234 – Topsoil and Subsoil Stripping.
- .3 “Borrow Area Excavation” means the excavation for the Contractor to provide suitable fill materials as specified in Section 02330 – Earthworks Materials. Supply of suitable fill material and associated borrow area excavation is the sole responsibility of the Contractor.
- .4 “Structure Excavation” means the excavation of on-Site soil materials including trenching required by the Contract Documents to demolish and remove an existing structure or to construct a new structure.
- .5 The Owner will classify the above excavations. Co-operate with The Owner and conduct the excavation operations in a manner that will permit classifying by The Owner.

### 1.2 SUBMITTALS

Provide the following submittals.

- .1 A list of the proposed source(s) where Borrow Area Excavation will be conducted to supply suitable materials, as outlined in Section 02330 – Earthwork Materials, at least 10 days prior to commencing Borrow Area Excavation.
- .2 A Borrow Area Excavation Plan for each borrow area at least 10 days prior to commencing Borrow Area Excavation. Indicate the following on the plan:
  - .1 A schedule of the proposed excavation sequence, volumes, and corresponding material utilization locations.
  - .2 The proposed borrow area access/egress locations and ramp configurations.
  - .3 The proposed depths of excavation and side slopes.
  - .4 The anticipated temporary stockpiling requirements.
  - .5 The proposed material working and conditioning procedures in the borrow area, if applicable.
  - .6 The proposed care of water measures providing for drainage of the borrow area and control of sediment transport.
  - .7 The proposed measures to separate materials from the borrow area that are suitable for use as different materials.
  - .8 The proposed measures to provide ongoing safety and stability in the borrow area.



- .9 The proposed measures to protect suitable fill materials within the borrow area from becoming frozen.
- .10 The proposed restoration and final grading of the borrow area.
- .3 The revised plan, if changes to the Borrow Area Excavation Plan are proposed, at least 5 days prior to changing Borrow Area Excavation operations.

## **2.0 PRODUCTS – NOT USED**

## **3.0 EXECUTION**

### **3.1 EXCAVATION - GENERAL**

- .1 Sequence, schedule and perform excavation and fill placement operations to make the best use of all excavated material, and to minimize the volume of Borrow Area Excavation.
- .2 Locate and protect utility lines, survey reference points, instrumentation, fencing, and other facilities, unless otherwise specified in Section 02220 – Demolition, Salvage, and Removal.
- .3 Remove and dispose of all snow, surface ice, organics, excess water, debris or deleterious materials prior to starting the excavation.

### **3.2 EXCAVATION LINES**

- .1 Excavate to the lines, grades, slopes, and elevations specified in the Contract Documents, unless established otherwise by The Owner or The Owner's Representative.
- .2 The Owner or Owner's Representative will determine if unsuitable bearing soils are encountered at the specified subgrade level. Carry the excavation deeper to remove unsuitable bearing soils and replace excavated soil with Impervious Fill Zone 1A material as directed by The Owner or Owner's Representative.
- .3 Fill unauthorized over-excavation to the lines, grades, slopes, and elevations specified in the Contract Documents using materials as directed by The Owner or Owner's Representative. Unauthorized over-excavation beyond the lines, grades, slopes and elevations specified in the Contract Documents will not be compensated for. Required filling of unauthorized over-excavation will not be compensated for and shall be completed per Section 02331 – Fill Placement.

### **3.3 PROTECTION**

- .1 Protect excavations throughout the Work by temporary shoring, bracing, or other suitable methods, if required, to provide safe working conditions and to prevent cave-ins and loose soil from falling into the excavations.
- .2 Remove boulders, loose rock, soil blocks, and other fragments that may slide or roll into excavated areas, which, in the opinion of The Owner, Owner's Representative or the Contractor, are unsafe or appear to endanger persons, work, or property. Site safety remains the responsibility of the Contractor.
- .3 In cold weather, protect excavated surfaces against which fill materials will be placed from becoming saturated, freezing, or otherwise becoming unsuitable by sequencing

stripping/excavation activities to minimize the exposed area, by using a temporary layer of soil or insulating materials, or other means authorized by The Owner or Owner's Representative. Remove protection only when the Contractor is ready to place fill.

- .4 In cold weather, protect excavated subgrade surfaces against which structures or pipes will be placed from becoming saturated, freezing, or otherwise becoming unsuitable. Use a temporary layer of soil, insulating materials, heating and hoarding, or other means authorized by The Owner or Owner's Representative. Remove protection only when the Contractor is ready to install the structure or to place fill.
- .5 In cold weather, protect borrow area materials from freezing by sequencing Subsoil stripping to minimize the exposed areas and by placing a temporary layer of soil on exposed areas. Remove protection only when the Contractor is ready to place materials excavated from borrow areas.

### **3.4 COMMON EXCAVATION**

- .1 Provide Common Excavation at the locations, and to the lines, grades, slopes, and elevations specified in the Contract Documents.
- .2 Load, haul, and dump all Common Excavation materials at the appropriate fill placement zones, waste disposal areas or other locations as directed by The Owner or Owner's Representative.
- .3 Do not place any Common Excavation materials in waste disposal areas that can be worked to meet the specified requirements for Impervious Fill Zone 1A, unless otherwise directed by The Owner or Owner's Representative..
- .4 Sequence and schedule the Common Excavation and fill placement operations so as to maximize the quantity of Impervious Fill Zone 1A that is incorporated within the fill zones.
- .5 If necessary, temporarily stockpile materials derived from Common Excavations that are suitable for use in the Impervious Fill Zone 1A. Rehandle if required, and incorporate these materials in appropriate fill zones prior to obtaining similar materials from the Borrow Area Excavation.
- .6 At the end of each workday, the base of the Common Excavation areas are to be prepared to a smooth surface and are to be graded to ensure that ponding of water will not occur within the dike footprint. Positive drainage conditions are to be maintained throughout construction. Provide dewatering measures, if required, to remove accumulated water from Common Excavation areas.

### **3.5 BORROW AREA EXCAVATION**

- .1 The location(s), excavation layout(s), excavation methods, scheduling, and sequencing of Borrow Area Excavation to provide suitable Impervious Fill Zone 1A materials is the sole responsibility of the Contractor. Impervious Fill Zone 1A are to be pre-qualified as outlined in Section 02330 – Earthwork Materials. The Contractor is responsible to obtain all required permits and approvals to conduct Borrow Area Excavation, as may be required.
- .2 Conduct the Borrow Area Excavation in accordance with the Borrow Area Excavation Plan to provide Impervious Fill Zone 1A.

- .3 Excavate materials in a manner that provides for positive drainage and avoids ponding of water from rainfall and snowmelt, run-off, or seepage in the borrow area. When excavation operations are suspended, trim excavation surfaces to a smooth, even condition at a minimum 1% drainage gradient.
- .4 Maintain excavation side slopes in the borrow area in a safe and neat condition at all times. Do not excavate side slopes steeper than 2H:1V.
- .5 Load, haul, and dump borrow area materials at the appropriate fill placement locations in accordance with the authorized Borrow Area Excavation Plan.
- .6 Temporarily stockpile unsuitable fill materials.
- .7 Regrade finished side slopes within the borrow area to 3H:1V.

### **3.6 STRUCTURE EXCAVATION**

- .1 Where the demolition of existing structures is specified in the Contract Documents, provide Structure Excavations of sufficient size and depth to permit the complete removal of the structure, and the subsequent backfill with Impervious Fill Zone 1A materials specified in the Contract Documents.
- .2 For new structures, provide Structure Excavations at the locations, and to the lines, grades, slopes, and elevations specified in the Contract Documents, as established by The Owner or Owner's Representative, or as required by the Contractor to permit subsequent construction and backfill with Impervious Fill Zone 1A materials specified in the Contract Documents.
- .3 If required, temporarily stockpile materials derived from Structure Excavations that are suitable for use as Impervious Fill Zone 1A. Rehandle if required, and incorporate these materials in appropriate fill zones prior to obtaining similar materials from borrow areas.

### **3.7 EXCAVATION TOLERANCES**

- .1 Provide finished excavation surfaces that are smooth, regular, and uniform.
- .2 For finished excavation surfaces, a deviation measured normal to the excavated surface of +/-100 mm will be permitted between the finished excavated surface and the lines, grades, slopes, and elevations specified in the Contract Documents or as established by The Owner or Owner's Representative. Limit the maximum rate of change in deviation from the specified grade of any surface to a ratio of height to length of 1:50. The height and length of the gradual irregularity will be measured normal and parallel, respectively, to the specified grade.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 GENERAL

- .1 This section is a reference section specifying the quality of earthwork materials. Requirements for the inclusion of such materials in the Work are specified elsewhere in the Contract Documents.
- .2 Quality Control testing and its associated costs is an optional item within the proposed works. The responsibility of Quality Control testing shall be determined by The Owner at the time of contract negotiations.
- .3 Quality Assurance testing and its associated costs are to be the responsibility of The Owner and Owner's selected testing agency.

### 1.2 DEFINITIONS

- .1 "Effective Particle Size ( $D_e$ )" of rock particles is calculated as follows:

$$D_e = \sqrt[3]{\frac{M}{523.6 \times G_s}}$$

Where  $D_e$  = Effective particle size measured in metres.

$M$  = Particle mass measured in kilograms.

$G_s$  = Specific gravity of particle = 2.60 unless otherwise measured.

- .2 "Percent Passing by Mass" means the cumulative mass of particles that are finer than a specified size expressed as a percentage of the total mass of the sample.

### 1.3 REFERENCES

Provide earthwork materials in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D422 Standard Method for Particle Size Analysis of Soils
  - .2 ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>) (Standard Proctor)
  - .3 ASTM D1140 Standard Test Methods for Amount of Material in Soils Finer than the No. 200 (75µm) Sieve.
  - .4 ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (Lab Moisture Content)

- .5 ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- .6 ASTM D3080 Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions.
- .7 ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .8 ASTM D4647 Standard Test Methods for Identification and Classification of Dispersive Clay Soils by the Pinhole Test.
- .9 ASTM D5084 Standard Test Methods for Measurement of Hydraulic Conductivity (Permeability) 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 D7928 Standard Test Methods for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis.
- .2 California Division of Highways
  - .1 CAL. 206 Method of Test for Specific Gravity and Absorption of Coarse Aggregate.
  - .2 CAL. 229 Method of Test for Durability Index.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-8.2-M Sieves, Testing, Woven Wire, Metric.
- .4 Canadian Standards Association (CSA)
  - .1 CAN/CSA-A23.1/A23.2 Concrete Materials and Methods of Concrete Construction.
- .5 Prairie Farm Rehabilitation Administration (PFRA)
  - .1 Unified Soils Classification System as Modified by PFRA.

#### 1.4 SUBMITTALS

Provide the following submittals.

- .1 A listing of the proposed source(s) for each type of imported material at least, along with required quality control testing data, at least 15 days prior to delivery to the Site.
- .2 Samples, of suitable quantities of each type of imported material at the Site when requested by The Owner or Owner's Representative for testing purposes prior to placement.
- .3 Results of quality control tests of imported materials taken at the source at least 15 days prior to delivery of such materials to the Site.
- .4 Copies of quality control test results of newly placed materials and reworked existing fill materials are to be provided within 48 hours of field testing or sampling.

## 1.5 QUALITY CONTROL

### .1 General

- .1 Provide a quality control program to ensure that the specified requirements will be consistently attained throughout the Work. Provide the following quality control testing, and any additional testing or measures as required by the Contractor, Owner or Owner's Representative. Quality control testing at the borrow source shall be completed in accordance with the prescribed minimum frequencies outlined in the following table. The frequency of quality control testing may be increased as deemed necessary by The Owner or Owner's Representative until the Contractor consistently meets the specified requirements.
- .2 The Contractor is responsible for the procurement and supply of all required materials meeting the parameters outlined in clause 2.0 of this Section. The Contractor shall provide one (1) of each quality control test for each material to be considered for pre-qualification at least 7 days prior to the proposed delivery to Site. The Owner's testing agency will also complete their own pre-qualification quality assurance testing on the proposed materials.

Earthwork Material	Tests	Minimum Testing Frequency
Impervious Fill Zone 1A	Atterberg Limits	1 per source for pre-qualification and 1 per 1000 m <sup>3</sup> placed or portion thereof
	Grain Size Analysis	1 per source for pre-qualification and 1 per 1000 m <sup>3</sup> placed or portion thereof
	Dispersivity (Pinhole)	1 per source for pre-qualification and 1 per 15000 m <sup>3</sup> placed or portion thereof
	Standard Proctor	1 per source for pre-qualification and 1 per 10000 m <sup>3</sup> placed or portion thereof
	Lab Moisture Content	1 per source for pre-qualification and 1 per 1000 m <sup>3</sup> placed or portion thereof
Random Fill Zone 2A	N/A -Not Used	N/A -Not Used
Fine Filter Zone 3A	N/A -Not Used	N/A -Not Used
Coarse Filter Zone 3B	N/A -Not Used	N/A -Not Used
Drain Rock	Grain Size Analysis	1 per source for pre-qualification and as required by QA thereafter
Alberta Transportation Designation 4	Grain Size Analysis	1 per source for pre-qualification and 1 per 500 m <sup>3</sup> placed or portion thereof
	Soundness	1 per source
N/A -Not Used	N/A -Not Used	N/A -Not Used
Road Gravel Zone 4B	N/A -Not Used	N/A -Not Used
Gravel Fill Zone 4C	N/A -Not Used	N/A -Not Used
Fine Riprap Bedding Zone 5A	Grain Size Analysis	1 per source and 1 per 500 m <sup>3</sup> placed or portion thereof
	Soundness	1 per source
Riprap Zone 6B	Specific Gravity	1 per source
	Absorption	1 per source
	Durability Index	1 per source

Notes: Perform specific gravity, absorption, and durability index testing of riprap materials within 180 days of the start of production. Perform gradation testing of Riprap Zone 6B as specified in Section 02373 – Riprap and Riprap Bedding Placement.

- .3 Conduct testing in accordance with the standards listed in clause 1.3 as determined by The Owner or Owner's Representative.
  - .4 Engage an independent CSA certified and qualified earthworks materials testing laboratory, with a permit to Practice in the Province of Alberta to sample and test earthwork materials, in accordance with the contractor's quality control program.
  - .5 Do not import any materials to the Site that may be contaminated with "Prohibited Noxious" or "Noxious" weeds under the Weed Control Act. Engage an independent agrologist to inspect the proposed sources of imported material and verify that they are not contaminated.
  - .6 Transport only suitable materials meeting the specifications to the Site. Transportation and/or placement of unsuitable materials to Site will not be compensated for. If material transported to site is deemed unsuitable, it shall be removed from site and disposed of at the Contractor's expense.
- .2 Sources of Sand, Gravel and Rock Materials
- .1 Conduct quality control tests, in addition to those specified in clause 1.5.1, at the source to confirm that it can provide materials that will meet the specified durability requirements prior to commencing processing operations.
  - .2 During processing of sand and rock materials, test materials from the discharge conveyor belt to verify that the material meets the specified gradation requirements. Notify The Owner at least 48 hours prior to starting production of materials intended for incorporation in the Work.
  - .3 The pre-qualification quality control laboratory testing for processed aggregates is to have been completed within 30 days of applying for pre-qualification.
  - .4 Promptly notify The Owner and Owner's Representative if any test fails to meet the specified requirements, and immediately take corrective measures as required to produce materials that are in accordance with the Contract Documents.
  - .5 Dispose of or, where appropriate, reprocess any material which does not meet the requirements of the Contract Documents. The disposal or reprocessing of out of spec material will be performed at the expense of the Contractor.

## **1.6 QUALITY ASSURANCE**

- .1 The Owner may perform testing to assure conformance to the specified requirements at the borrow source and after the materials have been placed in its final specified location. The Owner's testing does not relieve the Contractor of the responsibility to meet the specified project requirements.
- .2 The Owner or Owner's Representative may reject earthwork materials at the source, in the transport vehicle, in the stockpile or in place.
- .3 Samples of earthworks materials may be taken by The Owner's selected testing agency for quality assurance testing. Testing will be conducted in accordance with the standards listed in clause 1.3 as determined by The Owner or Owner's Representative. One (1) of each quality assurance test will be completed for each source at the time of pre-qualification and

as required thereafter by The Owner or Owner's Representative. The frequency of quality assurance testing will be as deemed necessary by The Owner or Owner's Representative. The Contractor is to co-operate with The Owner's testing agency and Owner's Representative during sampling and testing. Load and dispose of sampled materials when no longer required by The Owner or Owner's Representative.

## **1.7 OWNER SUPPLIED MATERIALS – NOT USED**

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

Provide materials in accordance with the following.

- .1 Gradations for earthworks materials except riprap: in accordance with ASTM D6913 and ASTM D7928. Specified sieve sizes are based on the nominal sieve opening sizes, in millimetres, under the Canadian Metric Sieve Series in accordance with CAN/CGSB-8.2-M.
- .2 Impervious Fill Zone 1A:
  - .1 Native soils obtained from Borrow Area Excavations , as supplied by the contractor, that are free from organic materials, contamination, deleterious materials, and frozen materials.
  - .2 Inorganic, locally available clay/silt as classified by the Unified Soils Classification system with greater than 40% fine content ( $\leq 0.075$  mm), a liquid limit less than 50% ( $LL < 50\%$ ) and a plastic limit greater than 8% ( $PL > 8\%$ ). Do not use highly dispersive materials, high plasticity clays with a liquid limit greater than 50%, or high plasticity clay shales with a liquid limit greater than 50% as Impervious Fill Zone 1A.
  - .3 Within 1,000 mm of structures and 600 mm of pipes, remove stones larger than 80 mm from the Impervious Fill Zone 1A.
- .3 Waste Fill:
  - .1 Native soils from Site excavations that does not meet the requirements for Impervious Fill Zone 1A material shall be considered as Waste Fill and disposed of accordingly, at the expense of the Contractor. Refer to Section 02332 – Waste Fill Placement.
  - .2 Excess material from the Site, that meets the requirements for Impervious Fill Zone 1A material shall be stockpiled at a location provided by The Owner or Owner's Representative. Do not incorporate excess quantities of Impervious Fill Zone 1A in Waste Fill until specified Impervious Fill Zone 1A placements have been completed, and authorization to proceed has been provided by The Owner or Owner's Representative.
  - .3 Topsoil shall not be considered Waste Fill. Subsoil can be considered a waste fill material or can be used for final grading above the Impervious Fill Zone 1A or outside the dike footprint. Refer to Section 02234 – Topsoil and Subsoil Stripping for topsoil management specifications.



.4 Sand and Gravel Fill:

.1 General:

- .1 Sound, hard particles, free from silt and clay lumps, soft shale, deleterious materials, organic matter, and foreign substances.
- .2 Graded as specified with a smooth gradation curve with no excess or deficiency of any particular grain size within the required range.
- .3 Where blending is required, thoroughly mix the sand and gravel fill materials in a manner that produces a homogeneous fill of the specified gradation prior to placing the material into the Work or stockpiles.
- .4 Crush, screen, wash, or otherwise process sand and gravel products as required to achieve specified gradations except where specified otherwise.

.2 Drain Rock:

- .1 Drain rock shall be washed, graded, crushed, durable rock with a gradation that falls completely within the upper and lower bounds of the envelope defined by straight lines drawn directly between the following points plotted on a standard semi-log soil grain size distribution plot.

.2 20 mm Drain Rock

<b>Sieve Size</b>	<b>Percent Passing by Mass</b>
25 mm	100%
20 mm	0% – 100%
10 mm	0% – 5%
5 mm	0%

.3 40 mm Drain Rock

<b>Sieve Size</b>	<b>Percent Passing by Mass</b>
40 mm	100%
5 mm	0% – 10%
2.5 mm	0% – 5%
80 µm	0%

.3 Alberta Transportation Designation 4, Class 25mm:

- .1 Reasonably well graded gravel and sand with a gradation that falls completely within the upper and lower bounds of the envelope defined by straight lines drawn directly between the following points plotted on a standard semi-log soil grain size distribution plot:

<b>Sieve Size</b>	<b>Percent Passing by Mass</b>
25 mm	100%
10 mm	30% – 77%
5 mm	15% – 55%
1.25 mm	0% – 30%

80µm 0% – 12%

.2 Less than 12% loss of weight after 5 cycles in accordance with the requirements of CAN/CSA-A23.2–9A.

.4 Fine Riprap Bedding Zone 5A:

.1 Well graded gravel and sand with a gradation that falls completely within the upper and lower bounds of the envelope defined by straight lines drawn directly between the following points plotted on a standard semi-log soil grain size distribution plot:

<b>Sieve Size</b>	<b>Percent Passing by Mass</b>
40 mm	100%
20 mm	85% – 100%
10 mm	70% – 95%
5 mm	55% – 85%
2.5 mm	40% – 70%
1.25 mm	30% – 55%
630µm	20% – 40%
315µm	10% – 25%
160µm	0% – 10%
80µm	0% – 5%

.2 Less than 12% loss of weight after 5 cycles in accordance with the requirements of CAN/CSA-A23.2–9A.

.5 Riprap:

.1 General

.1 Sound, hard, durable particles free from silt, clay, shale, sandstone, flaky particles, topsoil, organic matter, and other deleterious materials.

.2 Meet the following minimum requirements for soundness and durability.

<b>Method of test</b>	<b>Requirements</b>
California Division of Highways, CAL. 206	Minimum Specific Gravity: = 2.60 Maximum Absorption: = 2%
California Division of Highways, CAL 229	Minimum Durability Index: = 52 Durability Index may be less than 52 if DAR* > 23
*Durability Absorption Ratio (DAR) = $\frac{\text{Durability Index}}{\text{Absorption \%} + 1\%}$	

.3 Ratio of maximum dimension to minimum dimension of individual pieces not to exceed 3.0.

- .2 Riprap Zone 6B:
  - .1 With the following gradation:

<b><u>Effective Particle Size</u></b>	<b><u>Percent Passing by Mass</u></b>
500 mm	100%
400 mm	50% – 90%
300 mm	5% - 20%
150 mm	Less than 2%

### **3.0 EXECUTION**

#### **3.1 STOCKPILING OF SAND, GRAVEL, AND ROCK MATERIALS AT THE SOURCE**

- .1 Temporarily stockpile all sand, gravel, and rock materials that have been processed by washing methods for a minimum of 48 hours to permit drainage of excess water. Do not place recently washed materials on top of or with drier stockpiled materials.
- .2 Drain Rock must be handled such that it remains clean, without incorporating dirt and fines, throughout stockpiling, transport and installation.
- .3 Use equipment and methods that minimizes the amount of material handling, and that do not cause segregation or material breakdown.
- .4 Do not stockpile materials where contamination with the underlying soils can occur.
- .5 Stockpiles shall be constructed in a manner which minimizes segregation of material.
- .6 For gravel materials, construct temporary stockpiles by first distributing material over the entire base and then by building upwards in successive layers which do not exceed a thickness of 2 m per layer. Construct each layer working from the outer edges toward the centre of the stockpile. Complete each layer over the entire area before starting the subsequent layer. Keep traffic on the materials to a minimum during stockpiling. Do not push or dump gravel material over the edges or down the faces of the stockpile.
- .7 Keep stockpiles neat and regular in form.
- .8 Do not construct stockpiles that are more than 6 m in height.
- .9 Maintain a minimum clearance of 5 m between stockpiles of each material.
- .10 Replace stockpiled material that becomes contaminated, damaged or lost.

#### **3.2 PLACEMENT**

- .1 Refer Section 02331 – Fill Placement for subgrade preparation, placement of earthwork materials, and field testing of earthwork materials.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 GENERAL

- .1 This section specifies placement requirements for fill materials specified in Section 02330 – Earthwork Materials, except for Waste Fill, Riprap and Riprap Bedding.

### 1.2 REFERENCES

Provide fill placement in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D698 Standard Test Methods for Moisture–Density Relations of Soils and Soil Aggregate Mixtures Using 5.5 lb (2.49 kg) Rammer and 12” (305 mm) Drop.
  - .2 ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
  - .3 ASTM D4253 Standard Test Methods for Maximum Index Density of Soils Using a Vibratory Table.
  - .4 ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

### 1.3 DEFINITIONS

- .1 “Authorized Fill Placement” means the placement of fill materials, as requested by The Owner or Owner’s Representative, to replace Authorized Structure Over-Excavation.

### 1.4 SUBMITTALS

Provide the following submittals.

- .1 Specifications for the proposed compaction equipment at least 7 days prior to commencing fill placement.
- .2 Copies of quality control test results of compacted materials within 48 hours of testing.

### 1.5 QUALITY CONTROL

- .1 Perform quality control tests of fill materials at the borrow source(s) as specified in Section 02330 – Earthwork Materials.
- .2 Transport only suitable materials to the Site. Transportation of unsuitable materials to Site will not be compensated for. If material is transported (and/or placed) to site is deemed to be unsuitable it shall be removed from Site and disposed of at the Contractor’s expense.

- .3 Provide a quality control program to ensure that the specified requirements will be consistently attained throughout the Work. Provide the following quality control testing at the site, and any additional testing or measures as required by the Contractor, Owner, and/or Owner's Representative, during fill placement. Quality control testing at the Site shall be completed in accordance with the prescribed frequencies outlined below. The frequency of quality control testing may be increased as deemed necessary by The Owner or Owner's Representative until the Contractor consistently meets the specified requirements for fill placement. The quality control testing outlined below is in addition to the quality control testing required at each borrow source per Section 02330 – Earthworks Materials.
- .1 Standard Proctor Tests:
- Impervious Fill Zone 1A: As required based on material variability or as required by The Owner or Owner's Representative. Contractor should account for a minimum of 1 on-site test per borrow source.
- Alberta Transportation Designation 4: As required based on material variability or as required by The Owner or Owner's Representative.
- .2 Moisture Density Relations (Proctors) Tests:
- Frequency: Minimum of 1 test for each type of material or borrow source, and additional tests based on material and volume as follows:
- Impervious Fill Zone 1A: 1 test per 1,000 m<sup>3</sup> for the first 10,000 m<sup>3</sup> placed and every 10,000 m<sup>3</sup> placed thereafter.
- .3 Maximum Vibrated Density (MVD) Tests:
- Frequency: Minimum of 1 test for each type of material or source, and additional tests based on material and volume as follows:
- Alberta Transportation Designation 4: 1 test per 500 m<sup>3</sup> for the first 2,000 m<sup>3</sup> placed and every 1,000 m<sup>3</sup> placed thereafter.
- .4 Field Density and Moisture Content Tests – Fill Placement in Embankments:
- Impervious Fill Zone 1A: Minimum of 2 tests for compacted material placed during 1 shift.
- Alberta Transportation Designation 4: 1 test per 250 m<sup>3</sup> of each type of compacted material placed during 1 shift.
- Conduct field density tests using nuclear densometer and moisture content tests by oven drying samples.
- .5 Field Density and Moisture Content Tests – Fill Placement Adjacent to Structures and Components Thereof:
- Impervious Fill Zone 1A: Minimum of 1 test for compacted material placed during 1 shift, and 1 test for every 2 lifts of compacted material placed.

Alberta Transportation Designation 4: Minimum of 1 test for each type of compacted material placed during 1 shift, and 1 test for every 2 lifts of each type of compacted material placed.

Conduct field density tests using nuclear densometer and moisture content tests by oven drying samples.

- .4 Conduct testing in accordance with the ASTM Standards listed in clause 1.2.1 as determined by The Owner or Owner's Representative.
- .5 Engage an independent CSA certified and qualified earthworks materials testing laboratory, with a permit to Practice in the Province of Alberta to sample and test fill materials.

## **1.6 QUALITY ASSURANCE**

- .1 The Owner or Owner's Representative may test fill materials at any time to assure suitability for the intended uses. The Owner's testing does not relieve the Contractor of the responsibility to meet the specified project requirements.
- .2 The Owner or Owner's Representative may perform any testing of fill material to assure conformance with the specified requirements after the material has been placed and compacted.
- .3 Density and moisture content tests may be performed by The Owner's selected testing agency during fill placement. Testing will be conducted in accordance with the ASTM Standards listed in clause 1.2.1 as determined by The Owner or Owner's Representative. Co-operate with The Owner's selected testing agency during sampling and testing. The frequency of density and moisture content testing will be determined by The Owner or Owner's Representative. It should be anticipated that, at a minimum, Quality Assurance field density and moisture content tests will be performed every 250 linear meters of dike per lift.
- .4 The Owner or Owner's Representative may reject fill material during excavation, at the borrow source(s), in the stockpiles, in the transport vehicle, or in place. Rejected material shall be disposed of accordingly, by the Contractor, at the Contractor's expense.

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

Provide materials in accordance with the following.

- .1 Fill Material: Includes Impervious Fill Zone 1A, Drain Rock and Alberta Transportation Designation 4. Refer to Section 02330 – Earthwork Materials for material specifications.

### **3.0 EXECUTION**

#### **3.1 PREPARATION**

- .1 Perform stripping as specified in Section 02234 – Topsoil and Subsoil Stripping.
- .2 Remove debris, organics, snow, ice, water, and loose material prior to starting fill placement. Do not place fill material when the material, the foundation, or the surface on which it would be placed is frozen or oversaturated.
- .3 Moisten if required, and scarify the foundation surface to a minimum depth of 200 mm to obtain a good bond prior to placing the first lift of fill.
- .4 Grade and compact the scarified foundation surface to the same density specified for the overlying fill.
- .5 Where soft subgrade areas are encountered, they are to be sub-cut and backfilled with suitable Impervious Fill Zone 1A material as per the direction of The Owner or Owner's Representative and in accordance with Fill Placement specifications outlined in Clause 3.3.
- .6 Where tension cracks have formed on the existing dike, the slope surface should be sub-cut to a level where no cracks are observed and backfilled with suitable Impervious Fill Zone 1A material as per the direction of The Owner or Owner's Representative and in accordance with Fill Placement specifications outlined in Clause 3.3. The location of tension cracks should be reviewed by The Owner or Owner's Representative prior to site stripping.
- .7 The Owner or Owner's Representative shall be onsite to witness the scarification, moisture conditioning, and recompaction of existing subgrade.
- .8 When required by The Owner or Owner's Representative, the Contractor shall supply and operate a loaded test vehicle of 8200 kg axle load to proof roll the prepared existing subgrade. Where proof rolling indicates areas that are defective, the Contractor shall remove and replace the material with suitable compacted material.

#### **3.2 PROTECTION**

- .1 Suspend fill placement operations at any time when, in the opinion of The Owner, work cannot be performed in accordance with the specifications on account of rain, flooding, cold weather, or other unsatisfactory conditions.
- .2 Immediately prior to any suspension in fill operations (including at the end of each work day), slope the fill surface to promote positive drainage (minimum 2% slope) and roll with rubber tire equipment or smooth cylindrical roller so as to leave the surface area in a smooth, even condition to minimize ponding and saturation of the subgrade and fill material.
- .3 Protect compacted fill and foundation surfaces that have been prepared for receiving fill from freezing by using a temporary layer of soil or insulating materials, or other means authorized by The Owner or Owner's Representative. Remove protection only when ready to place fill, and authorization is provided by The Owner or Owner's Representative.

- .4 If deemed necessary by The Owner or Owner's Representative, condition, rework, and recompact or remove and replace any portion of the fill or subgrade that has suffered a reduction in quality due to drying, frost, rain, or any other reason to the specified requirements before placing succeeding layers.
- .5 Where the fill or ground surfaces begins to rut or exhibit instability, reroute construction traffic away from or stabilize areas to the satisfaction of The Owner or Owner's Representative. Either strip the area of disturbed, rutted soils, and replace the stripped material with suitable Impervious Fill Zone 1A material, or scarify, moisture condition, and recompact the area of instability to achieve the required compaction.

### **3.3 FILL PLACEMENT**

- .1 Do not place fill material on any surface until the surface has been inspected by The Owner and/or The Owner's Representative. Rectify any defects, including any identified by The Owner and/or Owner's Representative. The Owner or Owner's Representative shall be onsite to witness the scarification, moisture conditioning, and recompaction of existing subgrade.
- .2 Provide Impervious Fill Zone 1A from pre-qualified Contractor supplied borrow sources or materials excavated from areas of Common Excavation, and Structure Excavation. Schedule, sequence, and conduct operations to make the best use of all excavated materials and to protect and prevent suitable materials from becoming unsuitable, and minimize the volume of Borrow Area Excavation.
- .3 Construct fill zones at the locations, and to the lines, grades, slopes, and elevations specified in the Contract Documents, or as established by The Owner, using fill materials that are placed, conditioned, and compacted to the specified requirements.
- .4 Overbuild final fill slopes and then trim them to the lines, grades, slopes, and elevations specified in the Contract Documents.
- .5 Maintain the top surface of fill zones approximately horizontal. During spreading and compaction, provide the surface of the fill zone with a gentle transverse gradient of 2% so that water from precipitation will drain freely toward the extremities of the fill zone but away from any filter materials. Maintain a smooth and even surface to minimize ponding water and saturation of the fill material.
- .6 Place and spread fill materials in continuous and approximately horizontal layers of uniform thickness in such a manner as to prevent segregation and stratification and to obtain a homogeneous mass.
- .7 Place, spread and compact fill materials in a continuous operation to avoid freezing of the materials before the specified compaction can be achieved.
- .8 Place and spread Impervious Fill Zone 1A for the dike in a direction parallel to the dike centreline to minimize the potential for formation of preferential seepage paths, except at retaining wall locations.
- .9 Use discs prior or during fill placement operations to mix or blend as required to obtain a consistent fill material, and to scarify, blend, and break up Impervious Fill Zone 1A materials to the full depth of the uncompacted lift. Use a heavy disc offset plough with 900 mm diameter discs with the offset or opening of the plough operated by hydraulic cylinder



- controlled by the operator. Replace discs that are worn by more than 25% of the depth of the serrations or notches when new.
- .10 Prior to fill placement on the existing dike, the existing dike slope shall be benched to provide an interlock between the existing and new embankment fill material. Stagger fill joints to minimize the potential for preferred seepage paths in any direction.
  - .11 Commence placement of fill materials at the lowest elevation of the dike, and progress in an upslope direction.
  - .12 Moisten each previously placed lift, if necessary, and work with discs to a minimum depth of 50 mm to provide a bonding surface prior to placing the overlying lift of fill material except when, in the opinion of The Owner, such work cannot be performed because of cold weather.
  - .13 Place fill materials in layers not exceeding the loose thickness specified in clause 3.6.
  - .14 Place fill material in equal thickness lifts on all sides of structures and pipes to minimize unbalanced loading.
  - .15 Apply compaction effort for a minimum horizontal distance of 600 mm on each side of joints in the fill zones.
  - .16 During placement and compaction operations, direct the movement of equipment to obtain uniform coverage. Scarify (disc) and re-compact areas of non-uniformly compacted ridges or troughs resulting from placement or spreading equipment.
  - .17 Unless otherwise authorized by The Owner or Owner's Representative, maintain no more than 1000 mm maximum difference in elevation between adjacent fill zones, and maintain the temporary slopes within fill zones no steeper than 5H:1V.
  - .18 Place, condition, and compact Authorized Fill Placement materials to the specified requirements for the fill material used. Authorized Fill Placement will be valued in accordance with Section 00725 – General Conditions, clause 8.3 - Valuation of Changes in the Work.

### **3.4 MOISTURE CONTROL**

- .1 Compact each layer of fill material within the moisture content limits specified in clause 3.6.
- .2 Add water to the fill material when its moisture content is below that specified. Use methods that permit water to be added in controlled amounts and which do not cause finer materials to be washed out. Work the water into the fill material until the specified moisture content is uniformly obtained throughout the material.
- .3 When the moisture content of the fill material exceeds the specified limits, dry the fill material prior to compaction by spreading, discing, and harrowing the fill material until the specified moisture content is uniformly obtained throughout the material.
- .4 Add sufficient quantities of water to sand and gravel fill materials during compaction, even when moisture content limits have not been specified, to achieve the required densities.

- .5 Do not add water to the fill material or perform drying operations such as spreading, discing, and harrowing when, in the opinion of The Owner or Owner's Representative, such work cannot be performed because of cold weather.
- .6 Mixing of suitable materials having different in situ moisture contents to obtain the required moisture content is permitted. Use discs or other methods to obtain a consistent material with the required uniformity of moisture content.

### **3.5 COMPACTION EQUIPMENT**

- .1 Use compaction equipment of the type, size, and efficiency capable of achieving the densities specified in clause 3.6.
- .2 Unless otherwise authorized by The Owner or Owner's Representative, use the following types of equipment to compact the corresponding fill materials:
  - .1 Self-propelled compactor for all fill material zones.
  - .2 Sheepsfoot roller for Impervious Fill Zone 1A. Use a sheepsfoot roller consisting of two or more non-vibratory drums with each drum at least 1500 mm in diameter and having a fully ballasted operating mass of at least 6000 kg/m of drum length. Provide individual roller drums between 1500 mm and 2000 mm in length, with the space between drums not exceeding 400 mm. Provide roller feet that are between 230 mm and 280 mm long with a minimum centre-to-centre spacing of 230 mm, and spread uniformly over the surface of the drum with at least 1 foot for each 60000 mm<sup>2</sup> (0.06 m<sup>2</sup>) of roller surface. The end area of each foot is not to exceed 6400 mm<sup>2</sup>. Tow the roller at a speed not exceeding 5 km/h, using equipment that does not leave compacted surfaces that prevent uniform penetration by the roller feet.
  - .3 Vibratory padfoot roller for Impervious Fill Zone 1A with a minimum operating mass of 10000 kg and capable of exerting a minimum vibratory centrifugal force of 230 kN. Use a vibratory padfoot roller in areas that are inaccessible to the sheepsfoot roller.
  - .4 Medium-duty vibratory smooth drum roller with a minimum operating mass of 4000 kg for Alberta Transportation Designation 4 Gravel.
- .3 In areas that are not accessible to the specified compaction equipment or which are within 1000 mm of structures and 600 mm of pipes, or other items susceptible to compaction induced damage, reduce the lift thickness, remove stones larger than 80 mm, and compact fill materials with hand operated pneumatic or mechanical tamping equipment.

### 3.6 COMPACTION SCHEDULE

- .1 Lift thickness, moisture content limits, and compaction requirements and densities to conform to the following:

Fill Material	Maximum Loose Lift Thickness <sup>(1)</sup> (mm)	Moisture Content Limits <sup>(2)</sup>	Minimum Number of Passes <sup>(3)</sup>	Density Limits <sup>(4)</sup>
Existing Subgrade/Fill	200	-1% to +2%	6	≥98% SPMDD
Impervious Fill Zone 1A	200	-1% to +2%	6	≥97% SPMDD
Drain Rock	300	N/A	4	N/A
Alberta Transportation Designation 4	100	±2%	4	≥100% SPMDD

- (1) For areas specified in clause 3.5.3, reduce loose lift thickness to 100 mm and compact each lift using pneumatic or mechanical hand tamping equipment.
- (2) Moisture content range above (+) or below (-) Optimum Moisture Content (ASTM D698). Moisture content as determined by ASTM D2216.
- (3) A single pass means the complete coverage of the fill lift, overlap required for complete coverage will not be considered to provide any portion of a subsequent or previous pass. Achieve both specified density and the specified minimum number of passes with compaction equipment.
- (4) Standard Proctor Maximum Dry Density (SPMDD) as determined by ASTM D698.

### 3.7 PLACEMENT TOLERANCES

- .1 Provide finished fill surfaces that are smooth, regular, and uniform.
- .2 For Impervious Fill Zone 1A, a deviation, measured normal to the finished surface, of +/- 50 mm will be permitted between the finished surfaces and the lines, grades, slopes, and elevations specified in the Contract Documents excluding the top of the dike. For the top of dike, a deviation measured normal to the finished surface, of 0 mm to + 50 mm will be permitted between the finished surface and the lines, grades, slopes, and elevations specified in the Contract Documents or as established by The Owner or Owner's Representative.
- .3 Provide Alberta Transportation Designation 4 to the specified minimum thickness and within a deviation of +25 mm of the lines, grades, slopes, and elevations specified in the Contract Documents.
- .4 Limit the maximum rate of change in deviation from the specified grade of any surface to a ratio of height to length of 1:50. The height and length of the gradual irregularity will be measured normal and parallel, respectively, to the specified grade.

### **3.8 FILL PROTECTION DURING WINTER STOPPAGE**

- .1 Winter stoppage is not anticipated for the proposed works unless required by unforeseen delays.
- .2 When stoppage in the placement of fill zones for winter is required by unforeseen delays, roll the fill surfaces smooth and grade to shed water to the outside of the fill zone. Place a 500 mm thick sacrificial layer of fill over the exposed fill material.
- .3 Upon authorization by The Owner or Owner's Representative, when ready to begin placement of fill in the spring, remove the sacrificial layer, along with 50 mm of the underlying fill material, taking all reasonable precautions to prevent contamination of the underlying fill material.
- .4 Dispose of the removed material in specified waste disposal areas.
- .5 The Owner or Owner's Representative will inspect the exposed fill surfaces to determine if remedial measures, in addition to the fill surface preparation measures specified in the Contract Documents, will be required before fill placement proceeds.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 REFERENCES**

Provide Waste Fill placement in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D698 Standard Test Methods for Moisture–Density Relations of Soils and Soil Aggregate Mixtures Using 5.5 lb (2.49 kg) Rammer and 12” (305 mm) Drop.

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

- .1 Waste Fill: Refer to Section 02330 – Earthwork Materials for material specifications.

## **3.0 EXECUTION**

### **3.1 WASTE FILL PLACEMENT**

- .1 Perform stripping as specified in Section 02234 – Topsoil and Subsoil Stripping.
- .2 Remove debris, snow, ice, and excess water prior to starting Waste Fill placement.
- .3 Receiving surfaces for Waste Fill may be frozen.
- .4 Excavate, Load, Haul and dispose of all Waste Fill from the Site to an approved Off-Site Owner provided Waste Fill site.
- .5 The area(s) receiving Waste Fill are to maintain positive drainage throughout the placement operations.
- .6 Waste Fill may include frozen material; however, temporarily stockpile large frozen particles that cannot be broken and placed to the specified loose lift thickness, and compacted as specified. Allow stockpiled frozen material to thaw prior to placing and compacting in its final location.
- .7 Spread the Waste Fill using a maximum loose lift thickness of 500 mm in order to eliminate large voids.
- .8 Compact each lift of Waste Fill to a minimum of 85% of the Standard Proctor Maximum Dry Density as determined by ASTM D698. Depending on the specific location the waste fill is being placed, a higher degree of compaction may be required during waste fill placement, as determined by The Owner or Owner’s Representative.
- .9 Place Waste Fill at an approved Off-Site Owner provided Waste Fill site or as directed by The Owner. Provide finished side slopes that are 3H:1V or flatter.

- .10 Regrade Waste Fill areas, after the previously placed Waste Fill materials have subsided, to provide a neat, uniform, and positively draining surface.
- .11 Permanent grade supported structures are not to be situated within waste fill placement areas.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 QUALITY CONTROL**

- .1 Perform quality control tests for riprap and riprap bedding as specified in Section 02330 – Earthwork Materials.
- .2 Transport only suitable materials meeting the specifications to the Site.

### **1.2 QUALITY ASSURANCE**

- .1 The Owner or Owner's Representative may perform testing to assure conformance to the specified requirements only after the materials have been placed. The Owner's testing does not relieve the Contractor of the responsibility to meet the specified project requirements.
- .2 The Owner or Owner's Representative may reject riprap and riprap bedding at the source, in the transport vehicle, in the stockpile, or in place.
- .3 If the existing riprap is deemed unsuitable by the Owner or Owner's Representative, and the supply of riprap is required, during the course of the Work, and prior to acceptance, provide assistance to The Owner or Owner's Representative in conducting the following quality assurance testing:

- .1 Load a 7 m<sup>3</sup> sample for each class of riprap, selected by The Owner or Owner's Representative, and transport to the on-Site test location as designated by The Owner or Owner's Representative. Weigh selected boulders from the sample to establish reference sizes for sorting. Sort all of the boulders in the sample into similar weight groups, and spread each weight group in a single row. The Owner will count the number of boulders in each weight group, compute the effective particle size ( $D_e$ ) and weight for each group, and determine the gradation for the sample.
  - .2 Provide a weigh scale capable of weighing each boulder individually. Calibrate the weigh scale at the start of the riprap placement operations, or as required by The Owner.
  - .3 Provide all necessary labour and equipment to load, weigh, sort and spread the riprap samples.
  - .4 If the tested riprap sample meets the specifications, incorporate the riprap in the Work at a location designated by The Owner or Owner's Representative for reference purposes.
  - .5 A minimum of 1 gradation test will be conducted for each class of riprap and for every 1000 m<sup>3</sup> of each class of riprap. The frequency of riprap testing may be increased as deemed necessary by The Owner or Owner's Representative until the Contractor consistently meets the specified requirements.
- .4 The Owner or Owner's Representative may take samples of riprap bedding for quality assurance testing. Cooperate with The Owner and/or Owner's Representative during testing.
  - .5

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

Provide materials in accordance with the following.

- .1 Riprap Zone 6B: If required if the existing riprap is determined to be unsuitable by the Owner or Owner's Representative. Refer to Section 02330 – Earthwork Materials for material specifications.
- .2 Riprap Bedding Gravel 5A: Refer to Section 02330 – Earthwork Materials for material specifications.

## **3.0 EXECUTION**

### **3.1 STOCKPILES**

- .1 Obtain prior authorization from The Owner for temporary stockpile locations on Site. Do not stockpile riprap in areas where contamination with the underlying soils can occur. Prepare stockpile areas by grading the area level, and diverting drainage from adjacent areas away from the stockpile locations.
- .2 Stockpile riprap and riprap bedding in a manner that minimizes segregation.



- .3 Stockpiled riprap must have temporary fencing around it to mitigate against public interaction during non-working times.

### **3.2 PLACEMENT**

- .1 Place riprap and riprap bedding at the locations, and to the lines, grades, slopes, and elevations specified in the Contract Documents.
- .2 Surfaces to receive riprap and riprap bedding may be frozen, but remove water, snow, ice, frozen lumps, and other deleterious materials from receiving surfaces.
- .3 Do not place riprap and riprap bedding until the receiving surfaces has been inspected by The Owner or Owner's Representative. Rectify defects, including any identified by The Owner or Owner's Representative, until the receiving surfaces meet the requirements of the Contract Documents.
- .4 Place riprap and riprap bedding by clam shell, dragline, backhoe, or similar lifting equipment. Do not end-dump and push riprap into place on the slopes.
- .5 Do not cause segregation, particle damage, breakdown, or excessive displacement of the previously placed riprap and riprap bedding. Replace or repair damaged or displaced material.
- .6 Obtain the specified distribution of the various sizes of particles throughout the mass by using selective loading at the source or stockpiles, by controlled dumping of successive loads during placing, or by other methods of placement.
- .7 Commence placement of riprap and riprap bedding from the toe of the slope and proceed up the slope.
- .8 Place riprap and riprap bedding to its full thickness in one operation. Compaction is not required.
- .9 Where riprap and riprap bedding interfaces with outfall headwalls, riprap and riprap bedding placement may be field fit to conform to site conditions. Riprap and riprap bedding thickness at these locations may be reduced from the prescribed minimum to provide smooth transitions between riprap, headwall structures and adjacent grades.
- .10 Place riprap in a closely packed arrangement such that the smaller rocks fill the voids between larger rocks and there are no unfilled spaces that would permit the escape of underlying layers of placed materials. Interlock particles and dress slopes as required.
- .11 Rearrange rocks to eliminate any tendency of the rocks to move or slide after placement.
- .12 Do not break individual riprap particles after placement.
- .13 Do not allow equipment to travel upon riprap and riprap bedding.
- .14 Provide a completed riprap surface that is smooth, regular, and uniform.

### **3.3 PLACEMENT TOLERANCES**

- .1 Place riprap within a tolerance of +100 mm of the specified thickness.

- .2 Place riprap within a tolerance of +100 mm of the specified elevation.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 REFERENCES**

Provide precast concrete manhole and catch basins in accordance with the following standards (latest revision) except where specified otherwise.

- .1 City of Calgary Standard Specifications Sewer Construction
- .2 Provide and install Precast Concrete Manholes and Catch basins in accordance with the Project Drawings and Contract Documents.

**END OF SECTION**

## 2.0 GENERAL

### 2.1 REFERENCES

- .1 Provide metal fabrications in accordance with the following standards (latest revision) except where specified otherwise.
- .2 American Society for Testing and Materials (ASTM)
  - .1 ASTM A53 Specification for Pipe, Steel, Black, and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2 ASTM A108 Specification for Steel Bars, Carbon, Cold Finished, Standard Quality.
  - .3 ASTM A276 Specification for Stainless Steel Bars and Shapes.
  - .4 ASTM A307 Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
  - .5 ASTM A320 Specification for Alloys, Steel Bolting Materials for Low-Temperature Service.
  - .6 ASTM A325M Specification for High-Strength Bolts for Structural Steel Joints (Metric).
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181 Ready-Mixed Organic Zinc-Rich Coating.
- .4 Canadian Standards Association (CSA)
  - .1 CSA-G40.21 Structural Quality Steel.
  - .2 CAN/CSA-G164 Hot-Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CAN/CSA-S16 Limit States Design of Steel Structures.
  - .4 CSA-W47.1 Certification of Companies for Fusion Welding of Steel Structures.
  - .5 CSA-W48 Filler Metals and Allied Materials for Metal Arc Welding.
  - .6 CSA-W59M Welded Steel Construction (Metal Arc Welding) (Metric Version).

## **2.2 SUBMITTALS**

- .1 Provide the following submittals.
- .2 Shop drawings at least 20 days prior to fabrication. Indicate material specifications, dimensions, weights, finishes, welds, and other details.
- .3 Details of CSA welding certification of the fabricator at least 30 days prior to fabrication.

## **2.3 DELIVERY, STORAGE, AND HANDLING**

- .1 Inspect each shipment of material and timely replace any damaged materials.
- .2 Unload, handle, and store materials in accordance with the manufacturer's written instructions. Do not damage the metal fabrications or shop-applied coatings. Do not store metal fabrications in direct contact with the ground.

## **3.0 PRODUCTS**

### **3.1 MATERIALS**

- .1 Provide materials in accordance with the following.
- .2 Steel:
  - .1 Steel sections and plates: In accordance with CSA-G40.21, Grade 300W.
  - .2 Hollow structural sections: In accordance with CSA-G40.21, Grade 350W.
  - .3 Steel pipe: In accordance with ASTM A53, [ ] weight [weight as specified in the Contract Documents].
  - .4 Welding materials: In accordance with CSA-W59. Welding electrodes: In accordance with CSA-W48. Welding electrodes for structural steel: E480XX.
  - .5 High strength steel bolts: In accordance with ASTM A325M, [galvanized finish.]
  - .6 Steel anchor bolts: In accordance with ASTM A307, [galvanized finish.]
  - .7 Stainless steel anchor bolts: In accordance with ASTM A276 Type 304.
  - .8 Stainless steel fasteners: In accordance with ASTM A320, Grade B8 Class 2 AISI 304, minimum yield strength 690 MPa, 321 HB hardness.
  - .9 Steel grating: Type 30–102 standard mesh galvanized grating. Size of [serrated] bearing bars [ ] [as specified in the Contract Documents].
  - .10 Steel studs: Nelson Studs in accordance with ASTM A108, minimum yield strength of 345 MPa.
- .3 Aluminium:
  - .1 Ladders: [MSU Model 1105 access ladders complete with Model 3104 double rail access handles as manufactured by MSU Mississauga Ltd.]
  - .2 Access hatches: [MSU Type M access hatches with padlock recess as manufactured by MSU Mississauga Ltd.]
- .4 [ ].

### 3.2 SHOP FABRICATION OF STEEL COMPONENTS

- .1 Employ a fabricator certified by the Canadian Welding Bureau in accordance with CSA-W47.1, Division 3, unless specified otherwise.
- .2 Fabricate in accordance with CAN/CSA-S16. Perform welding in accordance with CSA-W59 using welding electrodes in accordance with CSA-W48. Control and minimize distortion, and include stress relief measures to minimize residual stresses.
- .3 Do not conduct welding operations when the ambient temperature is below 0°C, or when the base metal temperature is below 0°C. Preheat and maintain the base metal at a minimum temperature of 25°C during welding.
- .4 Accurately fabricate metal fabrications true to line and free from warps, twists, bends, and open joints. Reject metal fabrications that have sharp kinks or bends.
- .5 Use approved dies or bending rolls for bends. When heating is required, avoid overheating the metal and use cooling methods that do not alter the original properties of the metal.
- .6 Do not carry out metal fabrications with welds other than those specified in the Contract Documents unless authorized by the Minister.
- .7 Structural steel may be gas-cut in accordance with the applicable portions of CAN/CSA-S16. Do not flame-cut any material without the authorization of the Minister.
- .8 Provide bolted connections in accordance with the applicable clauses of CAN/CSA-S16.
- .9 Provide holes for fasteners that are not more than 2 mm larger than the nominal diameter of bolts unless otherwise specified in the Contract Documents. Where the thickness of the material is greater than the nominal diameter of the bolt, sub-punch and ream or sub-drill and ream, or drill the holes for the fasteners. Poor matching of holes will be cause for rejection of the item of work.
- .10 Hot-dip galvanize metal fabrications, except stainless steel and aluminium items and steel items completely encased in concrete, in accordance with CAN/CSA-G164. Employ measures to minimize distortions due to galvanizing. Locate vent holes so they are not readily visible after the item is installed. Galvanize all items after fabrication, except parts that are bolted together are to be galvanized before final assembly. Galvanize to provide a zinc coating of not less than 610 g/m<sup>2</sup>.

## **4.0 EXECUTION**

### **4.1 GENERAL INSTALLATION**

- .1 Do not tack weld to aid fabrication or installation without authorization from the Minister
- .2 Perform repairs to welds or base metal by grinding or arc-air gouging followed by grinding. Do not use flame gouging or oxygen gouging.
- .3 Shop assemble matching parts of metal fabrications to verify the correctness of fabrication and matching of component parts. If required by the Minister, assemble the component parts at the Site prior to installation.
- .4 Accurately align and install metalwork true to the lines, grades, slopes, and elevations specified in the Contract Documents, and obtain proper matching of adjacent surfaces.
- .5 Install anchors and anchor bolts such that, after placement of the concrete, their position is within 3 mm of their specified location, and within 2 mm of their specified location with respect to other anchors and anchor bolts, which are to be subsequently connected to the same piece of metalwork. Provide templates for proper location of anchor bolts for equipment.
- .6 Install grounding as specified in Section [ ] – [ ].

#### **4.2 REPAIR OF DAMAGED GALVANIZED COATING**

- .1 Repair damaged galvanized surfaces with a zinc-rich paint that is in accordance with CAN/CGSB-1.181.
- .2 Power tool clean surfaces to be repaired to a bright metal surface. Apply multiple coats of zinc-rich paint in accordance with the manufacturer's written instructions to obtain a minimum dry film thickness of 50 microns or greater where required by the paint manufacturer.

**END OF SECTION**



## **1.0 GENERAL**

### **1.1 REFERENCES**

- .1 Provide polyvinyl chloride pipe in accordance with the following standards (latest revision) except where specified otherwise.
  - .1 City of Calgary Standard Specifications Sewer Construction
- .2 Provide and install Polyvinyl Chloride (PVC) Pipe in accordance with the Project Drawings and Contract Documents.

**END OF SECTION**

## 2.0 GENERAL

### 2.1 REFERENCES

Provide precast concrete pipe in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C361 Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
  - .2 ASTM C76: Standard Specification for Reinforced Concrete Culvert, Storm drain, and Sewer Pipe
- .2 Canadian Standards Association (CSA)
  - .1 CAN/CSA-A3000 Cementitious Materials Compendium.
  - .2 CSA A257: Standards for Concrete Pipe and Manhole Sections

### 2.2 SUBMITTALS

Provide the following submittals.

- .1 Structural design calculations and shop drawings for the precast concrete pipe and pipe bend, stamped and signed by a Professional Engineer registered with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, at least 20 days prior to manufacture.
- .2 Shop drawings showing dimensions and details of the pipe joint including the allowable installation tolerances for the joint gap between adjacent pipe units at least 20 days prior to manufacture.
- .3 Certified copies of the results of the tests specified in clause 1.3 prior to delivering any pipe to the Site.
- .4 Manufacturer's written instructions for unloading, handling, and storing materials prior to unloading.

## **2.3 QUALITY CONTROL**

- .1 During manufacture, perform the following tests in accordance with ASTM C361 for each diameter and class of pipe:
  - .1 Concrete compressive strength tests.
  - .2 Rubber gasket compound tests.
  - .3 Hydrostatic tests of at least 3 pipe units.
  - .4 Hydrostatic tests of at least 2 pipe joints.
- .2 Notify The Owner at least 5 days prior to performing any hydrostatic test.

## **2.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Inspect each shipment of material and timely replace any damaged material.
- .2 Unload, handle, and store pipe units in accordance with the manufacturer's recommendations, and in a manner that prevents damage. Replace damaged units.
- .3 Store rubber gaskets in a warm and dark location until immediately prior to use.

## **3.0 PRODUCTS**

### **3.1 MATERIALS**

Provide materials in accordance with the following.

- .1 Precast concrete pipe and pipe bend:
  - .1 In accordance with ASTM C361, Strength Class A, B, C, or D and Hydrostatic Pressure Class 75, 150, 225, or 375 as outlined in Table 1 of ASTM C361.
  - .2 Designed to resist the governing combination of loads and pressures, installation, and bedding conditions as specified below:
    - .1 Earth load based on the depth of cover and installation condition shown in the Contract Documents. Use a saturated unit weight of 21 kN/m<sup>3</sup> for the backfill.
    - .2 Live load due to a 35 Tonne truck or compaction equipment that will be used for backfilling, whichever is greater.
    - .3 Excavation, backfill, and bedding conditions as specified in the Contract Documents.
    - .4 Internal hydrostatic pressure of 3 m of head.
    - .5 External Hydrostatic pressure of 3 m of head with the pipe completely dewatered.

- .3 Concrete: Minimum compressive strength of 31 MPa at 28 days in accordance with ASTM C361 with Type HS or HSb Sulphate Resistant Cement in accordance with CAN/CSA-A3000.
- .4 Joints: Flexible, watertight, bell and spigot pipe joints complete with confined O-ring rubber gaskets in accordance with ASTM C361. At the joints, provide formed concrete surfaces, upon which the gasket will be in contact, that are free of airholes, chipped or spalled concrete, laitance, or other defects.
- .5 Gasket lubricants: As recommended by the manufacturer.
- .6 Clearly mark the pipe class, size, date of manufacture, and location of the minor axis of elliptical reinforcement, if provided, on each pipe.

## **4.0 EXECUTION**

### **4.1 EXCAVATION AND PREPARATION OF THE FOUNDATION**

- .1 Excavate the pipe foundation to the lines, grades, slopes, and elevations specified in the Contract Documents, and to a sufficient width to permit assembly of the pipe and the operation of compaction equipment adjacent to the pipe.
- .2 Provide care of water to permit the work to be carried out in the dry.
- .3 The Owner or Owner's Representative will identify unsuitable bearing soils when encountered at the earth foundation level. Perform excavation, as classified by The Owner or Owner's Representative to remove unsuitable bearing soils and replace with fill materials as directed by The Owner or Owner's Representative.
- .4 Compact the base of the excavation to provide a firm foundation of uniform density beneath the entire length of the pipe.
- .5 Construct the pipe bedding as specified in the Contract Documents. Shape the bedding to conform to the bell joint for uniform support.

### **4.2 INSTALLATION**

- .1 Install the pipe with the bell end of the pipe located upstream.
- .2 Inspect the sealing surfaces at the bell and spigot ends and the gasket for any damage or defects.
- .3 Install and join pipe units in strict accordance with the manufacturer's written instructions. Provide a uniform gap all around the pipe joint, and without any deflections at the joints unless specified otherwise. Maintain the gap within the manufacturer's specified tolerances.
- .4 Clean and lubricate the bell and spigot ends. Lubricate and fit the gasket properly so that it is uniformly stretched around the pipe. Do not twist, displace, or damage the gasket.
- .5 Install the pipe at the locations, of the sizes, and to the lines, grades, slopes, and elevations specified in the Contract Documents.
- .6 Provide a completed installation that is watertight, free of depressions, and drains freely.

- .7 When a laser beam is used to maintain grade, use manual survey methods to check the pipe invert at several intermediate locations and at the termination points.
- .8 Remove lifting hooks or pins from pipes as required by The Owner. Grout pockets at lifting points when no longer required. Use cement grout consisting of 1 part Type HS or HSb Sulphate Resistant Cement to 2 parts sand with sufficient water to produce a stiff paste.

#### **4.3 FILL AND BACKFILL**

- .1 Do not commence fill placement operations until the installed pipes have been inspected by The Owner or Owner's Representative. Rectify defects, including any identified by The Owner or Owner's Representative.
- .2 Provide fill as specified in the Contract Documents, so that direct and continuous contact between the pipe wall and the fill material is attained.
- .3 Within 600 mm of the pipe, remove stones larger than 80 mm from the fill material. Place fill in lifts not exceeding 100 mm in thickness, and compact using pneumatic or other mechanical hand tamping equipment.
- .4 Compact each lift of fill at the moisture content and to the density specified in Section 02331 – Fill Placement.
- .5 Prevent damage to the pipe during fill placement. Do not permit compaction equipment to come into direct contact with the pipe.
- .6 Bring fill up simultaneously and evenly on both sides of the pipe and in firm contact with the haunches of the pipe. Do not allow construction equipment to pass over the pipe until a minimum cover of 600 mm, or greater if necessary to prevent damage to the pipe, of compacted fill has been placed.
- .7 Prevent displacement of the pipe during fill placement operations or through floatation.
- .8 Maintain the interior of the pipes free of foreign material.

#### **4.4 INSTALLATION TOLERANCES**

- .1 The installation tolerance from the specified lines, grades, slopes, and elevations is +/-15 mm. Where departures occur that are within the specified tolerance, return to the specified lines, grades, slopes, and elevations gradually a rate of not more than 5 mm per metre length of pipe. For greater departures, remove and reinstall pipe.

#### **4.5 FIELD TESTING**

- .1 Air test each individual pipe joint for leakage at a pressure of 24 kPa (3.5 psi) using a testing device acceptable to The Owner or Owner's Representative.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 DETAIL DRAWINGS

- .1 The following detail drawings are appended hereto and form part of this section.

<u>Number</u>	<u>Title</u>
02822.1	Typical Chain Link Fence

### 1.2 REFERENCES

Provide chain link fencing in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
- .1 ASTM A53/A54M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
  - .2 ASTM A121 Standard Specifications for Metallic Coated Carbon Barbed Wire.
  - .3 ASTM A392 Standard Specification for Zinc-Coated Chain Link Fabric.
  - .4 ASTM F626 Standard Specification for Fence Fittings.
- .2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB - 1.181 Ready-Mixed Organic Zinc-Rich Coating.
  - .2 CAN/CGSB - 138.2 Steel Framework for Chain Link Fence.
  - .3 CAN/CGSB - 138.4 Gates for Chain Link Fence
- .3 Canadian Standards Association (CSA)
- .1 CAN/CSA-G164 Hot-Dip Galvanizing of Irregularly Shaped Articles.

### 1.3 SUBMITTALS

- .1 Manufacturer's written instructions for installing anchors and repair of galvanized damaged coating prior to performing the work.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Inspect each shipment of material and timely replace any damaged materials.
- .2 Store materials off the ground to protect against oxidation caused by ground contact.

## 2.0 PRODUCTS

### 2.1 MATERIALS

Provide materials in accordance with the following.

- .1 Pipe for posts, rails and braces:
  - .1 Seamless steel pipe fabricated in accordance with ASTM A53/A53M and CAN/CGSB-138.2, butt welded, hot-dipped zinc coated with not less than 610 g/m<sup>2</sup> of total surface area.
  - .2 Line posts, 60.3 mm O.D. pipes with 3.91 mm wall thickness, that supports the fencing at points where the fabric is continuous.
  - .3 Terminal posts, 88.9 mm O.D. pipes with 5.49 mm wall thickness, that are end posts, corner posts, straining posts, and gateposts, and positioned where fencing or fabric is discontinuous.
  - .4 Top rails, 42.2 mm O.D. pipes with 3.56 mm wall thickness, that are continuous at the line posts and pass through holes in the line post tops, and are joined with couplings.
  - .5 Braces, 42.2 mm O.D. pipes with 3.56 mm wall thickness, that extend from the terminal posts to the nearest line post along fabric attached to the terminal post.
  - .6 Galvanized steel or aluminum post tops that permit the passage of the top rail, with one cap for each post except where a combination post top cap and barbed wire supporting arm is required.
- .2 Chain link fence fabric:
  - .1 Zinc-coated steel wire fabric in accordance with ASTM A392, 3.55 mm diameter, woven into a 50 mm by 50 mm diamond mesh.
  - .2 Galvanized steel clamps, bands, clips, tension bars, [barbed wire arms] and bolts in accordance with ASTM F626, and of sufficient strength to maintain the integrity of the fence. Zinc coating to be 610 g/m in accordance with CAN/CSA-G164.
  - .3 Tension bars 5 mm by 20 mm, with lengths equal to the height of the fabric.
  - .4 Tension bands 20 mm in width and 3 mm in thickness.
  - .5 Tension wire at least 5 mm in diameter, single strand, galvanized steel wire in accordance with CAN/CGSB-138.2 with a zinc coating of 610 g/m<sup>2</sup>.
- .3 Barbed wire: Steel barbed wire, galvanized in accordance with ASTM A121, 4-point pattern with 3 strands of 2.5 mm wire, and 25 mm barbs spaced no more than 150 mm apart.
- .4 Fill Concrete: Minimum compressive strength of 20 MPa at 28 days using Type HS or HSb Sulphate Resistant Cement, with an air content between 4% and 7%, and a maximum slump of 100 mm.

- .5 Adhesive anchors: HY-150 System as manufactured by Hilti Ltd., Polyall Epoxy System as manufactured by Ucan Fastening Products Ltd., or Epcon Acrylic 7 System as manufactured by ITW Ramset/Red Head Ltd. Provide hot-dipped galvanized threaded rods, nuts, and washers.

## **2.2 SHOP FABRICATION**

- .1 Shop fabricate posts with base plates prior to galvanizing.

## **3.0 EXECUTION**

### **3.1 INSTALLATION**

- .1 Install fencing at the locations specified in the Contract Documents.
- .2 Space line posts no greater than 3000 mm apart, measured parallel to the ground.
- .3 Space straining posts at equal intervals not exceeding 150 m if the distance between the end posts or corner posts on straight continuous lengths is greater than 150 m.
- .4 Install additional straining posts at sharp changes in grade and where directed by The Owner or Owner's Representative.
- .5 Install a corner post where a change in alignment exceeds 10°.
- .6 Install end posts at each end of the fence. Install gateposts on both sides of gate openings.
- .7 Install a brace between the end posts and gateposts and nearest line post, placed in the centre of the panel, and parallel to the ground surface. Install braces on both sides of the corner posts and straining posts in a similar manner.
- .8 Install overhang tops and caps.
- .9 Install the top rail between posts and fasten securely to the posts and secure the waterproof caps and overhang tops.
- .10 Install the bottom tension wire, stretch tightly and fasten securely to the end posts, corner posts, gateposts, and straining posts with turnbuckles and tension bar bands. Provide 50 mm clearance between the bottom of the fence and the ground.
- .11 Lay out the fence fabric. Stretch tightly to the tension recommended by the manufacturer and fasten to the end posts, corner posts, gateposts, and straining posts with the tension bar secured to the post with tension bar bands spaced at 300 mm intervals. Place the knuckled selvedge at the bottom, with the twisted selvedge at the top.
- .12 Secure the fabric to top rails, line posts, and bottom tension wire with tie wires at 450 mm intervals. Give tie wires a minimum of 2 twists.
- .13 Install the barbed wire strands and clip securely to the lugs of each projection if required.



### **3.2 INSTALLATION IN THE GROUND**

- .1 Remove debris and grade the ground surface along the fence line to obtain a uniform gradient between posts.
- .2 Drill holes for setting posts as specified in the Contract Documents.
- .3 Place concrete in the postholes then embed the posts into the concrete to the specified depths. Extend concrete 50 mm above the ground level and slope to drain away from the posts. Brace to hold the posts in a plumb position and true to alignment and elevation until the concrete has set.
- .4 Allow the concrete to cure a minimum of 7 days at ambient temperatures above 10°C prior to installing the chain link fence fabric.

### **3.3 INSTALLATION ON CONCRETE STRUCTURES**

- .1 Install the adhesive anchors in accordance with the manufacturer's written instructions. Drill holes to the required diameter and embedment depth and clean out with a wire brush or compressed air free of oil. Cure the adhesive as specified by the manufacturer.

### **3.4 REPAIR OF DAMAGED GALVANIZED COATING**

- .1 Repair damaged galvanized surfaces using a zinc-rich paint that is in accordance with CAN/CGSB-1.181.
- .2 Power tool clean surfaces to be repaired to a bright metal surface. Apply multiple coats of zinc-rich paint in accordance with the manufacturer's written instructions to obtain a minimum dry film thickness of 50 microns or greater as required by the paint manufacturer.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 EXTENT OF TOPSOIL AND SUBSOIL PLACEMENT

- .1 Topsoil placement is required on exposed finished excavation surfaces, finished fill surfaces, ground areas affected by the Work, and other areas as specified in the Contract Documents or as designated by The Owner or Owner's Representative.
- .2 Subsoil placement is required on prepared surfaces as specified in the Contract Documents or as directed by The Owner or Owner's Representative, prior to placement of Topsoil. Subsoil removed from the Dike C project location should be assumed to be waste soil and is to be disposed of as specified within Section 02332 – Waste Fill Placement.
- .3 The Owner or Owner's Representative may adjust the placement thickness of Topsoil and Subsoil to best utilize the available materials.

### 1.2 REFERENCES

Provide Topsoil and Subsoil placement in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>))
  - .2 Alberta Transportation
    - .1 Field Guide for Erosion and Sediment Control available at:  
<https://open.alberta.ca/publications/field-guide-fpr-erosion-and-sediment-control-version-2>
    - .2 Post-Disturbance Reclamation Criteria and Assessment Procedures for Borrow Excavations for Road Construction.

### 1.3 SUBMITTALS

Provide the following submittals.

- .1 All imported Topsoil materials are to be deemed suitable for use as a growing medium prior to being imported to the Dike C project location. The Contractor is required to engage in independent agrologist or soil specialist to determine that the imported topsoil materials are suitable for the intended use. A summary report from the Contractor and soil specialist is to be provided to The Owner or Owner's Representative, a minimum of 7 days prior to purchase and importation of the material to the Dike C project location.

#### **1.4 INITIAL POST-DISTURBANCE ASSESSMENT BY THE OWNER**

- .1 Notify The Owner or Owner's Representative when reclamation work including Topsoil placement has been completed.
- .2 Within 10 days of such notification, The Owner or Owner's Representative will undertake an initial post-disturbance assessment including inspection of the on-Site areas, except for Contractor provided Borrow Areas. The post-disturbance assessment will be conducted in accordance with Alberta Transportation's Post-Disturbance Reclamation Criteria and Assessment Procedures for Borrow Excavations for Road Construction document, with the exception that the vegetation component of the assessment will not be carried out. The Owner or Owner's Representative will notify the Contractor of the results of the assessment, including any deficiencies, within 15 days of the post-disturbance inspection.
- .3 Contractor to repair any deficiencies and repeat the post-disturbance assessment at no cost to The Owner.

#### **1.5 POST-DISTURBANCE ASSESSMENT BY THE CONTRACTOR**

- .1 For each Contractor Provided Borrow Areas, conduct a post-disturbance assessment in accordance with Alberta Transportation's Post-Disturbance Reclamation Criteria and Assessment Procedures for Borrow Excavations for Road Construction document, with the exception that the vegetation component of the assessment will not be required.
- .2 Retain the same soil specialist who performed the pre-disturbance assessment as specified in Section 02234 – Topsoil and Subsoil Stripping to conduct the post-disturbance assessment of each Contractor Provided Borrow Area.
- .3 Prior to placement of any imported topsoil, the contractor is required to engage an independent agrologist or soil specialist to determine that the imported topsoil materials are suitable for intended use. A summary report from the contractor and soil specialist is to be provided to The Owner and Owner's Representative, a minimum of 7 days prior to the purchase and importation of the material to the Dike C location. Prior to placement of any imported topsoil, the contractor is required to engage an independent agrologist or soil specialist to determine that the imported topsoil materials are suitable for intended use. A summary report from the contractor and soil specialist is to be provided to The Owner and Owner's Representative, a minimum of 7 days prior to the purchase and importation of the material to the Dike C location.
- .4 Complete the post-disturbance assessments within 15 days of the completion of the reclamation work including Topsoil placement.
- .5 Repair any deficiencies and repeat the post-disturbance assessment at no cost to The Owner.

## **2.0 PRODUCTS**

### **2.1 MATERIALS**

Provide materials in accordance with the following:

- .1 Topsoil: Refer to Section 02234 – Topsoil and Subsoil Stripping for material specifications. Provide Topsoil from stockpiles of materials produced from required stripping operations and imported Topsoil.
- .2 Subsoil: Refer to Section 02234 – Topsoil and Subsoil Stripping for material specifications. Provide Subsoil from stockpiles of materials produced from required stripping operations and stockpiles of Owner supplied Subsoil. Subsoil removed from the Dike C project location should be assumed to be waste soil and is to be disposed of as specified within Section 02332 – Waste Fill Placement. Subsoils from the Dike C location may also be used for surficial grading in areas above the Impervious Fill Zone 1A material, outside of the dike footprint and where grade supported structures are not proposed to be installed.

## **3.0 EXECUTION**

### **3.1 PREPARATION - GENERAL**

- .1 Locate and protect utility lines, fencing, survey reference points, instrumentation, structures, culverts, and all other items before commencement of the Work.

### **3.2 PREPARATION – STOCKPILED TOPSOIL**

- .1 Control and eliminate all perennial grass and weeds including their root systems until native stockpiled topsoil is required for use. Stockpiled topsoil shall be reasonably free of all perennial grass and weed growth before being placed and spread on site.
- .2 Perform weed control, as necessary, in accordance with relevant government chemical pesticide application legislation. Obtain The Owners' approval for all pesticide applications.
- .3 Submit detailed pesticide applicator's log for verification after each application of approved pesticide.
- .4 Imported topsoil will require approval from an independent agrologist or soil specialist prior to delivery to site (responsibility of the contractor).

### **3.3 SUBSOIL PLACEMENT**

- .1 Remove snow, ice, excess water, and deleterious materials from surfaces to receive Subsoil. Do not commence Subsoil placement until The Owner or Owner's Representative has inspected the prepared surface areas. Rectify any defects identified by The Owner or Owner's Representative.
- .2 Prior to placement of subsoil, scarify foundation 500 mm deep once in the longitudinal direction and once in the perpendicular direction in areas with a width greater than 10 m or in a diagonal direction if the width is less than 10 m. Pick rocks 70 mm or larger.

- .3 Place Subsoil to a uniform thickness on prepared surfaces of the borrow areas as directed by The Owner or Owner's Representative, prior to placement of Topsoil.
- .4 Place Subsoil in an unfrozen condition in continuous horizontal lifts not exceeding 300 mm in thickness without voids or bridging of material. Spread and compact each lift to obtain a Standard Proctor Density of between 75% and 85% in accordance with ASTM D698.

### **3.4 SUBGRADE PREPARATION PRIOR TO TOPSOIL PLACEMENT**

- .1 Remove excess water from subgrade surfaces.
- .2 Grade the subgrade area to eliminate uneven areas and to provide proper drainage.
- .3 Prior to placement of Topsoil, scarify foundation 500 mm deep once in the longitudinal direction and once in the perpendicular direction, pick rocks 70 mm or larger.
- .4 If Subsoil was placed, disc/scarify the Subsoil area to a minimum depth of 100 mm but not deeper than thickness of Subsoil. Disc the entire subgrade area once in the longitudinal direction, and once in the perpendicular direction.
- .5 Remove roots, rocks greater than 70 mm in diameter, debris, and other deleterious materials that are on top of the subgrade.
- .6 Disc/scarify the subgrade area when lumps larger than 70 mm are prevalent.

### **3.5 TOPSOIL PLACEMENT**

- .1 Do not commence Topsoil placement until The Owner or Owner's Representative has inspected the prepared subgrade. Rectify any defects as required by The Owner or Owner's Representative.
- .2 Topsoil placement will not be allowed to proceed, if in the opinion of The Owner or Owner's Representative, there is inadequate soil moisture after seeding for germination and there will be insufficient time left in the growing season to allow the vegetation to root and thereby minimize soil erosion.
- .3 Place Topsoil in an unfrozen condition, in dry, calm weather.
- .4 Spread the Topsoil to provide a uniform thickness over the entire area as specified in the Contract Documents or as directed by The Owner or Owner's Representative.
- .5 Remove weeds, roots, rocks greater than 70 mm in diameter, debris, and other deleterious materials from the Topsoil.
- .6 Manually spread Topsoil around structures, culverts, fences, instruments, or other obstructions.
- .7 Grade the Topsoil to eliminate uneven areas, and to provide positive drainage.
- .8 Use the track weight of a crawler tractor or dozer to compact Topsoil.
- .9 Minimize traffic on placed Topsoil to prevent over-compaction. If Topsoil becomes over-compacted, rework to meet specified requirements.

- .10 Topsoil placement is not to be completed around areas of riprap bank stabilization work until which time riprap placement has been completed to avoid disturbing finished surface and subsequent rework.

### **3.6 FINISH GRADING (SURFACE PREPARATION) PRIOR TO SEEDING**

- .1 Fine grade Topsoil areas to remove humps and hollows.
- .2 Cultivate to a depth of 150 mm and in a direction perpendicular to the local drainage pattern. Harrow the Topsoil surface to produce a loose friable bed to a depth of not less than 25 mm prior to seeding.
- .3 Provide a finished Topsoil surface that is ready for seeding, and that does not require additional preparation of any kind.
- .4 Do not cover catch basins or manholes. Cut smooth falls to the catch basin rim, and finish flush. Provide smooth transitions at top and bottom of slopes.
- .5 Float and leave surfaces smooth, uniform, and sufficiently firm against deep foot printing with a fine loose texture. Finish surface shall be clean, even and free from irregular surface changes.
- .6 Grading work shall not be performed when moisture content of soil is such that excessive compaction will occur, or when soil is so dry that clods will not break readily, or dust will form in the air. Apply water as required to prevent the formation of airborne dust nuisance and to provide ideal soil moisture content for tilling.
- .7 Finish ditches and swales to ensure proper flow and drainage. Conduct final rolling operations to produce a hard, uniform and smooth cross-section.
- .8 Seeding will not be permitted on hardened, crusted or rutted soil.

### **3.7 SURFACE TRACKING PRIOR TO HYDROSEEDING/BROADCAST SEEDING**

- .1 Surface Tracking is the roughening of the Topsoil moving a tracked tractor or dozer, or other mechanical means acceptable to The Owner, up and down the slope leaving depressions perpendicular to the slope direction, to provide a serrated texture that will reduce erosion potential.
- .2 Perform Surface Tracking in accordance with Alberta Transportations B.M.P. #34 (a-c) of the Field Guide for Erosion and Sediment Control, except as modified herein.
- .3 Perform Surface Tracking prior to Hydroseeding or Broadcast Seeding.
- .4 During Surface Tracking, avoid turning movements or changes in directions that causes loosening or disturbance of the Topsoil. Limit the number of track passes to 1 or 2 times to avoid over compaction.

- .5 Surface Track the following areas:
  - .1 All cut and fill slopes with slopes steeper than 3H:1V with a vertical height greater than 1.5 m.
  - .2 All cut and fill slopes with a slope length greater than 8 m regardless of the actual slope.

### **3.8 CLEAN-UP**

- .1 Clean up, immediately, any soil or debris spilled onto roads, walkways, and other finished surfaces. Keep site clean and tidy at all times.
- .2 Dispose of roots, debris, and other deleterious materials at the specified waste disposal area or at an off-Site waste disposal facility.
- .3 Pick and dispose of any rocks greater than 70 mm diameter that appear prior to the date of Substantial Performance of the Work.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 REFERENCES**

Provide seeding in accordance with the following standards (latest revision) except where specified otherwise.

- .1 Government of Canada
  - .1 Seeds Act and Seeds Regulations
  - .2 Fertilizers Act and Fertilizers Regulations
- .2 Government of Alberta
  - .1 Weed Control Act and Weed Regulation.

### **1.2 SUBMITTALS**

Provide the following submittals.

- .1 The following test results at least 15 days prior to the delivery of seeds to the Site.
  - .1 Certificate of Analysis for each lot of seeds to be supplied with test results showing:
    - .1 germination rate, or when native seeds are specified and are not a part of the seed tables, the Tetrazolium results, and
    - .2 purity.
  - .2 Seed mix composition expressed as a percentage of each seed species by dry mass for each seed mix specified.
- .2 Calibration certificate for the seeding equipment.

### **1.3 QUALITY CONTROL**

- .1 Retain a Registered Seed Laboratory to conduct specified seed testing.
- .2 Calibrate seeding equipment at least 30 days prior to starting seeding operations.

### **1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Provide seed in standard containers clearly labelled with the following information:
  - .1 Name and address of manufacturer and supplier.
  - .2 Lot number.
  - .3 Net mass.
  - .4 Mixture Composition: Names and percentages of individual seed species.



- .2 Protect seed from direct sunlight, moisture, mould, and other detrimental conditions, while in transit and storage.
- .3 Provide fertilizer in standard containers clearly labelled with the following information:
  - .1 Supplier's name and address.
  - .2 Specified composition.
  - .3 Net mass.

## 2.0 PRODUCTS

### 2.1 MATERIALS

Provide materials in accordance with the following.

- .1 Seed Mix Composition:
  - .1 Common No. 1 Grade seeds in accordance with the Government of Canada Seeds Act and Seeds Regulations. Supply seed mixed by a conditioner and bulk storage facility approved by the authority responsible for Canada Seeds Act & Regulations.
  - .2 Seeds and seed mixtures subjected to moisture, mould, and detrimental conditions will not be accepted by The Owner.
- .2 Seed Mixes:
  - .1 **Seed Mix 2A** – Upland Areas (Wet side slopes of dike) - Application Rate of 58. kg / ha.

Site Characteristics	
Seeding Method	broadcast
Habitat Type	deciduous forest
Natural Subregion	Dry Mixedgrass

Botanical Name	Common Name	Target Cover	% of Seed Mix (PLS)	Kg Required (PLS)
Elymus lanceolatus / Agropyron dasystachyum	Northern Wheatgrass	15%	16%	9.30
Pascopyrum smithii /Agropyron smithii	Western Wheatgrass	20%	30%	17.36
Bouteloua gracilis	Blue Grama	10%	2%	0.88
Elymus trachycaulus/ Agropyron trachycaulum var.	Slender Wheatgrass	10%	10%	5.97
Elymus canadensis	Canada Wildrye	10%	14%	8.30
Nassella viridula/ Stipa viridula	Green Needlegrass	25%	27%	15.82
Koeleria macrantha	Junegrass	10%	1%	0.58
TOTAL		100%	100%	58.21

- .2 **Seed Mix 2B-** Upland Areas (Dry side slopes of dike)
  - .1 Reinstall native topsoil materials and add crop of *Lolium multiflorum* (Annual Ryegrass) at 10 kg / ha for areas outlined on drawings.
  - .3 Ensure seed mixture is free of any weed seeds listed as “Prohibited Noxious” or “Noxious” under the Weed Control Act and seeds of other species that will interfere with the growth of the specified seed mixture.
- .3 Fertilizers:
  - .1 Do not apply fertilizers where native seed mixes are applied.
- .4 Water: Free of impurities that would inhibit or adversely affect germination and growth of the seed.

### 3.0 EXECUTION

#### 3.1 PREPARATION

- .1 Do not perform work under adverse field conditions such as wind speeds over 10 km / h.
- .2 Provide prepared surfaces that are free of frost and standing water.

#### 3.2 APPLICATION

- .1 Complete seeding prior to June 1 or between September 15 and 30, or as approved by The Owner or Owner’s Representative.
- .2 Complete seeding per Landscaping Drawing specifications.

#### 3.3 MECHANICAL AND BROADCAST SEEDING OF NATIVE SEED MIXES

- .1 Sow at the rate indicated with Seed Mixes, during calm weather and when soil moisture content is adequate for germination.
- .2 For 2:1 or flatter areas to be seeded that are easily accessible apply seed using a mechanical dry spread “Brillion” Seeder that places seed at specified depth and rate and rolls in a single operation.
- .3 For steeper than 2:1 slopes or slopes that are not easily accessible use manually operated broadcast seeder.
- .4 Sow seed in two directions, 50% of seed in one direction and remaining 50% of seed at right angles to first seeding pattern, using same method of seeding.
- .5 Cover broadcasted seed by raking and chain harrowing.

#### 3.4 NOTIFICATION OF COMMENCEMENT OF WORK

- .1 Notify The Owner at least 48 hours prior to any seeding work. Do not commence seeding operations until all areas designated for seeding have been prepared to the satisfaction of The Owner or Owner’s Representative.

- .2 Do not commence seeding operations until The Owner and/or Owner's Representative has reviewed the Certificate of Seed Analysis and verified the specified seed mix composition supplied.

### **3.5 WEATHER CONDITIONS**

- .1 Do not proceed with the work when, in the opinion of The Owner or Owner's Representative, weather conditions are unsuitable. The Owner or Owner's Representative will not allow work to proceed when wind conditions are such that material is being carried beyond the designated work areas or that the material is not being uniformly applied.

### **3.6 PROTECTION**

- .1 Take care to prevent the contamination of structures, signs, guardrails, fences, utilities, and other installations from the seeding operations. Remove offending contamination using methods acceptable to The Owner or Owner's Representative.
- .2 Protect existing work, and the Work of the Contract, and repair any damage to such Work.

### **3.7 WATERING**

- .1 Water the seeded areas after seeding to achieve germination and a uniform stand of grass. The Owner will determine when watering will be required, and will provide the Contractor with at least 24 hours advance notice to commence watering seeded areas.
- .2 Apply water uniformly to seeded areas without causing displacement or erosion of the materials and soil.
- .3 Minimize travel on seeded surfaces.
- .4 Use watering equipment and techniques authorized by The Owner or Owner's Representative.
- .5 Watering of seeded areas will be valued in accordance with Section 00725 – General Conditions, clause 8.3 - Valuation of Changes in the Work.

### **3.8 RESEEDING**

- .1 At locations that fail to show a uniform stand of grass for any reason during the calendar year following the year of initial seeding, repair the defective locations as determined by The Owner or Owner's Representative. A uniform stand of grass will be considered as grass that shows no deterioration or exposed soil greater than 200 mm x 200 mm in size, and provides a minimum of 80 percent ground cover as determined by The Owner or Owner's Representative.
- .2 The Owner will inspect the seeded areas during the month of May of the calendar year following the year of initial seeding. Complete any required reseeding work prior to June 15 of that year. This date will be extended if, in the opinion of The Owner or Owner's Representative, the weather conditions prior to June 15 are not suitable for reseeding Work.

- .3 Meet all the requirements for initial seeding, including seeding method, seed compositions, and application rates, Surface Tracking as applicable.
- .4 Contractor will not be required to reseed any area more than once.

### **3.9 ADVERSE VEGETATION CONTROL**

- .1 Control adverse vegetation as specified in Section 01391 – Environmental Management.

**END OF SECTION**

## 1.0 GENERAL

### 1.1 REFERENCES

Provide soil erosion protection in accordance with the following standards (latest revision) except where specified otherwise.

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
  - .2 ASTM D4533 Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
  - .3 ASTM D4595 Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
  - .4 ASTM D4632 Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
  - .5 ASTM D4751 Standard Test Method for Determining Apparent Opening Size of a Geotextile.
  - .6 ASTM D4833 Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
- .2 City of Calgary Standard Specification Erosion and Sediment Control
- .3 Alberta Transportation Erosion and Sediment Control Manual BMPs

### 1.2 SUBMITTALS

Provide the following submittals.

- .1 Product data at least 30 days prior to delivering the materials to the Site.
- .2 Manufacturer's written instructions for handling, storing and installing materials prior to performing the work.

### 1.3 DELIVERY, STORAGE, AND HANDLING

- .1 Inspect each shipment of material and timely replace any damaged materials.
- .2 Handle and store products in accordance with the manufacturer's written instructions and protect them from damage, contamination, or deterioration. Store all packaged or bundled products in their original packaging. Do not remove products from the packaging or bundling until required.

## 2.0 PRODUCTS

### 2.1 MATERIALS

Provide materials in accordance with the following.

#### .1 Silt Fences:

- .1 Silt fence consisting of a woven polypropylene fabric having the following physical properties:

Property	Requirement	Test Method
Grab Tensile (MD/CD)	500 N	ASTM D4632
Grab Elongation (MD/CD)	25%	ASTM D4632
Trapezoidal Tear Strength	250 N	ASTM D4533
Puncture Strength	200 N	ASTM D4833
Apparent Opening Size	600 microns	ASTM D4751
Ultraviolet Resistance (min.)	70% retained at 500 hours	ASTM D4355

#### .2 Natural Fibre Blankets:

- .1 Blanket consisting of 100% agricultural straw layered between a leno woven jute top netting and woven jute bottom netting that are stitched together with biodegradable thread.
- .2 Blanket consisting of 75% agricultural straw and 50% coconut fibre layered between a leno woven jute top netting and woven jute bottom netting that are stitched together with biodegradable thread.
- .3 Blanket consisting of 100% coconut fibre covered on the top and bottom sides with 100% biodegradable woven natural organic fiber netting.

#### .3 Fibre Roll

- .1 Natural fibre roll wrapped in photo-degradable open-weave netting.

#### .4 Anchors:

- .1 Staples or other anchors as recommended by the blanket's manufacturer.
- .2 Mild steel J-pin anchors or rebar fitted with Atra clips for the honeycombed polyethylene cell confinement system.

## 3.0 EXECUTION

### 3.1 INSTALLATION - GENERAL

- .1 Install soil erosion protection at the locations and areas, and to the lines, grades, slopes, and elevations specified in the Contract Documents.
- .2 Install soil erosion protection materials in accordance with the manufacturer's written instructions.

- .3 Prepare receiving surfaces in accordance with the manufacturer's written instructions and have them inspected by The Owner or Owner's Representative prior to installing soil erosion protection materials. Rectify defects.
- .4 Do not allow any construction equipment or vehicles to travel on the soil erosion protection materials. Replace any materials that are damaged or displaced.

### **3.2 SILT FENCE / FIBRE ROLL**

- .1 Anchor the bottom of the fabric by excavating a 150 mm deep trench, placing the fabric, and backfilling as specified in the Contract Documents.
- .2 Anchor the bottom of the fibre roll by excavating a 50 mm to 75 mm trench, placing the roll and backfilling as specified in the Contract Documents.
- .3 Drive stakes into the ground as specified in the Contract Documents.
- .4 Install the fabric / fibre roll.
- .5 Inspect, maintain, remove and dispose silt fencing / fibre rolls as specified in Section 01391 – Environmental Management.

### **3.3 FIBRE BLANKETS**

- .1 Install blankets after Topsoil placement and seeding are completed.
- .2 Anchor the blanket at the top of the slope by excavating a trench, installing the blanket, and backfilling as specified in the Contract Documents. Unroll the blankets in a downslope direction.
- .3 Place blankets loosely and in full contact with the ground.
- .4 Overlap the side edges of adjacent blankets so that they are shingled from upstream to downstream. Provide a minimum overlap of 150 mm.
- .5 Overlap the bottom edge of the upslope blanket on top of the top edge of the lower blanket. Provide a minimum overlap of 300 mm.
- .6 Staple or anchor edges in accordance with the manufacturer's written instructions.

**END OF SECTION**

## **1.0 GENERAL**

### **1.1 REFERENCES**

- .1 Provide outfall inlet grate in accordance with the following standards (latest revision) except where specified otherwise.
  - .1 City of Calgary Stormwater Outfall Grating Standard Specifications
- .2 Provide and install Outfall Inlet Grate in accordance with the Project Drawings and Contract Documents.

### **1.2 SUBMITTALS**

- .1 Provide the following submittals.
- .2 Shop drawings at least 20 days prior to fabrication. Indicate material specifications, dimensions, weights, finishes, welds, and other details.
- .3 Details of CSA welding certification of the fabricator at least 30 days prior to fabrication.

### **1.3 DELIVERY, STORAGE, AND HANDLING**

- .1 Inspect each shipment of material and timely replace any damaged materials.
- .2 Unload, handle, and store materials in accordance with the manufacturer's written instructions. Do not damage the metal fabrications or shop-applied coatings. Do not store metal fabrications in direct contact with the ground.

### **1.4 SHOP FABRICATION OF STEEL COMPONENTS**

- .1 Employ a fabricator certified by the Canadian Welding Bureau in accordance with CSA-W47.1, Division 3, unless specified otherwise.
- .2 Fabricate in accordance with CAN/CSA-S16. Perform welding in accordance with CSA-W59 using welding electrodes in accordance with CSA-W48. Control and minimize distortion, and include stress relief measures to minimize residual stresses.
- .3 Do not conduct welding operations when the ambient temperature is below 0°C, or when the base metal temperature is below 0°C. Preheat and maintain the base metal at a minimum temperature of 25°C during welding.
- .4 Accurately fabricate metal fabrications true to line and free from warps, twists, bends, and open joints. Reject metal fabrications that have sharp kinks or bends.
- .5 Use approved dies or bending rolls for bends. When heating is required, avoid overheating the metal and use cooling methods that do not alter the original properties of the metal.
- .6 Do not carry out metal fabrications with welds other than those specified in the Contract Documents unless authorized by the Minister.
- .7 Structural steel may be gas-cut in accordance with the applicable portions of CAN/CSA-S16. Do not flame-cut any material without the authorization of the Minister.



- .8 Provide bolted connections in accordance with the applicable clauses of CAN/CSA-S16.
- .9 Provide holes for fasteners that are not more than 2 mm larger than the nominal diameter of bolts unless otherwise specified in the Contract Documents. Where the thickness of the material is greater than the nominal diameter of the bolt, sub-punch and ream or sub-drill and ream, or drill the holes for the fasteners. Poor matching of holes will be cause for rejection of the item of work.
- .10 Hot-dip galvanize metal fabrications, except stainless steel and aluminium items and steel items completely encased in concrete, in accordance with CAN/CSA-G164. Employ measures to minimize distortions due to galvanizing. Locate vent holes so they are not readily visible after the item is installed. Galvanize all items after fabrication, except parts that are bolted together are to be galvanized before final assembly. Galvanize to provide a zinc coating of not less than 610 g/m<sup>2</sup>.

## **2.0 EXECUTION**

### **2.1 GENERAL INSTALLATION**

- .1 Do not tack weld to aid fabrication or installation without authorization from the Owner or Owner's Representative
- .2 Perform repairs to welds or base metal by grinding or arc-air gouging followed by grinding. Do not use flame gouging or oxygen gouging.
- .3 Shop assemble matching parts of metal fabrications to verify the correctness of fabrication and matching of component parts. If required by the Owner or Owner's Representative, assemble the component parts at the Site prior to installation.
- .4 Accurately align and install metalwork true to the lines, grades, slopes, and elevations specified in the Contract Documents, and obtain proper matching of adjacent surfaces.
- .5 Install anchors and anchor bolts such that, after placement of the concrete, their position is within 3 mm of their specified location, and within 2 mm of their specified location with respect to other anchors and anchor bolts, which are to be subsequently connected to the same piece of metalwork. Provide templates for proper location of anchor bolts for equipment.

### **2.2 REPAIR OF DAMAGED GALVANIZED COATING**

- .1 Repair damaged galvanized surfaces with a zinc-rich paint that is in accordance with CAN/CGSB-1.181.
- .2 Power tool clean surfaces to be repaired to a bright metal surface. Apply multiple coats of zinc-rich paint in accordance with the manufacturer's written instructions to obtain a minimum dry film thickness of 50 microns or greater where required by the paint manufacturer.

**END OF SECTION**