



## TENDER

L – 31/26

**Manitou Drive Watermain and Sewer Extension**

**Submission Deadline: 2:00:00 p.m., local Brandon time, Thursday,  
October 01, 2026.**

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## **TENDER DOCUMENTS**

The City of Brandon Standard Construction Specifications which includes the General Conditions of the Contract (Revision 2014-04-14) and the specific Sections referred to in the Contract Documents under; Division 1 General Requirements and Division 2 Site Work form part of the Tender Documents and are applicable to the Work.

These documents are available in electronic form from the City of Brandon Procurement Services, Purchasing & Tenders internet site at <https://purchasing.brandon.ca/>.

It is the sole responsibility of the Bidder to ensure they are in the possession of complete and current sets of Tender Documents including all Addenda shall be used in the preparation of the Tender. The City assumes no responsibility for errors or misinterpretations resulting from the use of incomplete or outdated Tender Documents.

## **INSTRUCTIONS TO BIDDERS**

### **IB1. DEFINITIONS**

IB1.1 All terms used in the Tender Documents shall have the meanings ascribed to them in GC1

### **IB2. INVESTIGATION**

IB2.1 The Bidder is responsible for:

- .1 examining the Tender Documents and all documents included or referenced herein;
- .2 investigating the nature of the Work to be done;
- .3 investigating all conditions, whether at the Site or elsewhere, that might affect their Tender or their performance of the Work.

IB2.2 The Bidder may view the Site without making an appointment.

IB2.3 The Bidder shall not be entitled to rely on any information or interpretation provided by the City at the Site investigation unless that information or interpretation is provided by the Procurement Specialist in writing.

IB2.4 The City has included available test-hole information in Appendix A. The information was obtained from investigations completed near existing Brookwood wastewater sewer infrastructure and was not prepared specifically for the Work under this Contract. The City does not represent that the information describes conditions throughout the Site. Bidders shall make their own interpretation of the information and assess the effect of subsurface and groundwater conditions on their Tender.

### **IB3. ENQUIRIES**

IB3.1 If the Bidder finds errors, discrepancies or omissions in the Tender Documents, or is unsure of the meaning or intent of any provision therein, the Bidder shall promptly notify the Procurement Specialist.

IB3.2 Enquiries shall be received in writing at least seven (7) calendar days prior to the Submission Deadline. Enquiries received after this date may not be responded to.

IB3.2.1 The deadline for enquires will remain at seven (7) calendar days prior to Thursday, October 01, 2026 regardless of whether an extension of the Submission Deadline occurs. An extension of the Submission Deadline will not result in an extension in the timeline for enquiries.

IB3.3 Any enquiries shall be directed to:

The City of Brandon  
Procurement Specialist  
Procurement Services  
Main Floor - City Hall  
410-9th Street  
Brandon, Manitoba  
R7A 6A2

E-mail address: [purchasing@brandon.ca](mailto:purchasing@brandon.ca)

IB3.4 Responses to enquiries that, in the judgment of the Procurement Specialist, require a correction to or a clarification of the Tender Documents will be provided by issuing an addendum in accordance with IB5.

IB3.5 Responses to enquiries that, in the judgment of the Procurement Specialist, do not require a correction to or a clarification of the Tender Documents will be provided by the Procurement Specialist or designate only to the Bidder who made the enquiry.

IB3.6 The Bidder shall not be entitled to rely on any response or interpretation received unless that response or interpretation is provided by the Procurement Specialist or designate in writing.

**IB4. SUBSTITUTES**

IB4.1 Where in the Tender Documents a Product is specified by trade name, manufacturer's name or catalogue reference, the Bidder shall be prepared to supply and install only such item unless a substitute is approved by an addendum in accordance with IB5.

IB4.2 Requests for approval of a substitute will not be considered unless received in writing by the Procurement Specialist in accordance with IB3.3 at least seven (7) calendar days prior to the Submission Deadline.

IB4.2.1 The deadline for the receipt of requests for approvals will remain at seven (7) calendar days prior to Thursday, October 01, 2026 regardless of whether an extension of the Submission Deadline occurs. An extension of the Submission Deadline will not result in an extension in the timeline for receipt of requests for approval of substitute.

IB4.3 A request for approval of a substitute must:

- .1 include two (2) sets of complete descriptive literature and performance data (complete with drawings, manufacturer's data, specifications, and other relevant information relating to the construction and performance of the item);
- .2 include information on construction projects where the proposed substitute has been used (complete with contact information for the owner and engineer of record for the project);
- .3 identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- .4 identify any anticipated cost or time savings that may be associated with the substitute;
- .5 certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule;
- .6 certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule.

IB4.4 No later claim by the Contractor for an addition to the Contract Price because of any changes in the Work necessitated by the use of an approved substitute will be considered.

- IB4.5 The Procurement Specialist or designate, after assessing the request for approval of a substitute, may in their sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative,” or may refuse to grant approval of the substitute.
- IB4.6 If the Procurement Specialist or designate approves a substitute as an “approved equal,” the approved equal may be used in place of the specified item.
- IB4.7 If the Procurement Specialist or designate approves a substitute as an “approved alternative,” any Bidder bidding that approved alternative shall submit a base bid based upon the use of the specified item but may also indicate an alternative price based upon the approved alternative. Such alternative bids will be subject to any conditions or evaluations stipulated in the approval.
- IB5. **ADDENDA**
- IB5.1 The Procurement Specialist may, at any time before the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Tender Documents, or clarifying the meaning or intent of any provision therein.
- IB5.2 The Procurement Specialist may, at any time before the Submission Deadline, issue an addendum cancelling the invitation to Tender.
- IB5.3 The Procurement Specialist may, at any time before the Submission Deadline originally specified on the Tender Documents cover page or amended by a prior addendum, issue an addendum extending the Submission Deadline.
- IB5.4 Addenda will be issued in the form of written Addenda.
- IB5.4.1 The City will make reasonable efforts to forward addenda to all registered recipients of the Tender Documents however the Bidder is responsible for ensuring that they have received and reviewed all addenda.
- IB5.4.2 Addenda will be available on the City of Brandon Procurement Services internet site at <https://purchasing.brandon.ca/>. The Bidder is responsible for monitoring the City website ensuring that they have received and reviewed all addenda.

IB5.5 The Bidder shall acknowledge receipt of addenda on the Tender Form. Failure to acknowledge receipt of an addendum may render a Tender non-compliant.

**IB6. TENDER SUBMISSION**

IB6.1 The Tender Submission shall include the following:

- .1 Tender Form;
- .2 Bid Bond;
- .3 Consent of Surety or Agreement to Bond.

**Tender Form**

IB6.2 The Bidder shall submit their Tender on the original or unaltered copies of the Tender Form provided herein.

IB6.3 The Bidder shall complete the Tender Form, making all required entries.

IB6.3.1 All entries shall be made clearly by typing or printing legibly in ink in the spaces provided.

IB6.3.2 The Bidder shall initial and date each and every correction, change, erasure, adjustment or alteration they make on the Tender Form.

IB6.4 The Tender Form shall be completed in accordance with the following requirements:

- .1 if the Bidder is a sole proprietor carrying on business in their own name, their name shall be inserted;
- .2 if the Bidder is carrying on business under a name other than their own, the business name and the name of the owner of such business name shall be inserted;
- .3 if the Bidder is a partnership, the full name of the partnership shall be inserted;
- .4 if the Bidder is a corporation, the full name of the corporation shall be inserted.

IB6.4.1 If a Tender is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with IB6.4 above.

- IB6.5 The Tender Form shall be signed in accordance with the following requirements:
- .1 if the Bidder is a sole proprietor carrying on business in their own name, it shall be signed by the Bidder;
  - .2 if the Bidder is carrying on business under a name other than their own, it shall be signed by the registered owner of the business name;
  - .3 if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
  - .4 if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, shall be affixed.
- IB6.5.1 The name and official capacity of each individual signing the Tender Form shall be printed below their signature.
- IB6.6 The Bidder shall state a price for each item of the Work identified on the Tender Form.
- IB6.6.1 Prices on the Tender Form shall be in Canadian currency. The Bidder must clearly identify any proposed alternative currency in their Tender Submission.
- IB6.6.2 Prices on the Tender Form shall be in Canadian funds and shall be the total cost to the City of Brandon, including all duty, freight and cartage, Federal and Provincial taxes (Goods and Services Tax (GST) and Retail Sales Tax (RST) shall be shown as a separate amount where applicable) and all charges governmental or otherwise paid, and profit and all compensation which shall be due to the Contractor for the Work and all details necessarily connected with the completion of the Work and all risks and contingencies connected therewith.
- IB6.7 The quantities for which payment will be made to the Contractor are to be determined by the Work successfully performed and completed by them, to be measured as specified in the applicable Specifications.

### **Bid Bond and Consent of Surety/Agreement to Bond**

IB6.8 The Bidder shall provide:

- .1 a Bid Bond written on Canadian Construction Documents Committee Form CCDC 220 or similar form acceptable to the City in the amount of ten percent (10%) of the Total Tender Amount and endorsed in the name of the City of Brandon as obligee.
- .2 a Consent of Surety or Agreement to Bond in a form acceptable to the City, stating that, if the Bidder is awarded the Contract, the Surety will provide a Performance Bond in the amount of fifty percent (50%) of the Contract Price and a Labour and Material Payment Bond in the amount of fifty percent (50%) of the Contract Price.

IB6.9 The Bid Bond and the Consent of Surety or Agreement to Bond shall be submitted in a digital format meeting the following criteria:

- .1 The version submitted by the Bidder must have valid digital signatures and seals.
- .2 The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures; all digital seals; with the surety company, or an approved verification service provider of the surety company.
- .3 The version submitted must be viewable, printable and storable in standard electronic file formats acceptable to the City, and in a single file. Allowable formats include pdf.
- .4 The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- .5 The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding IB6.9.1.

IB6.10 Bonds failing the verification process will not be considered to be valid and the Tender Submission shall be determined to be non-responsive in accordance with IB13.1.1.

IB6.11 Bonds passing the verification process will be treated as original and authentic.

- IB6.12 Further information regarding e-bonding can be referenced on the Surety Association of Canada website at the following link:  
<https://suretycanada.com/SAC/Surety-Bonds/E-Bonding.aspx>.
- IB6.13 The Bid Bond and the Consent of Surety or Agreement to Bond shall be issued by the same surety or bonding company licensed to conduct the business of a surety in the Province of Manitoba. Each document shall incorporate by reference the Contract and be signed by both the Contractor and the Surety, and the Surety shall affix its corporate seal on each document.
- IB6.14 The Bid Bond and the Consent of Surety or Agreement to Bond of all Bidders will be released when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein.

**IB7. SUBMISSION OF TENDERS**

**Submission Deadline**

- IB7.1 The Bidder shall submit their Tender Submission before the Submission Deadline specified on the Tender Documents cover page, or subsequently specified by addendum.
- IB7.2 Tenders determined by the City to have been received after the Submission Deadline will not be accepted.
- IB7.3 The Bidder shall submit their Tender Submission by online bidding platform delivery (e-submission).

**Online Bidding Platform Delivery (E-submission)**

- IB7.4 The Bidder shall submit their Tender Submission via the City's online bidding platform by the "Submit Online Bid" link for the Tender opportunity on the City's Purchasing & Tenders website: <https://purchasing.brandon.ca>.
- IB7.5 The procedure for submitting an electronic Tender Submission can be viewed on the City's Purchasing & Tenders website or by clicking [here](#). Failure to follow the procedure as indicated may result in a Tender Submission not being received. Any failure or delay in the transmission or storage of an electronic Tender Submission is the sole responsibility of the Bidder and not of the City.

- IB7.6 The City will ONLY accept electronic Tender Submissions uploaded to the City's online bidding platform as a bona fide Tender. Electronic Tender Submissions sent via e-mail will **not** be accepted. If a Bidder encounters issues uploading an electronic Tender Submission, contact the City's Procurement Services Department at 204-729-2251.
- IB7.7 A Tender Submission will only be considered to have been submitted once it has been received by the City in the online bidding platform. The time the electronic Tender Submission is received by the City, will be determined by the City's server time, which is linked to National Institute of Standards & Technology time. Bidders are advised the time the electronic Bid Submission is received is based on when the Bid Submission is received by the City's server.
- IB7.8 A confirmation webpage will display advising the Tender Submission was submitted successfully and a confirmation email will be sent. Bidders should not consider their Tender Submission to have been submitted if the confirmation webpage does not display and a confirmation email is not received.
- IB7.9 Bid Submissions received via the online bidding platform are held securely and are inaccessible by Procurement Services staff until after the stipulated closing date and time.
- IB7.10 The Tender Submission must be received by the City before the stipulated closing time. Late Tender Submissions will be automatically rejected by the online bidding platform.
- IB7.11 The Bidder must submit a Bid Bond and Consent of Surety in digital format in accordance with IB6.9.

**IB8. CHANGES TO A TENDER**

- IB8.1 The City will not accept revisions to, amendments to, or requests to change or correct a submitted Tender. A Bidder who wants to make an adjustment to their Tender prior to the Submission Deadline shall supersede their previous Tender with another complete Tender including a Bid Bond and a Consent of Surety or Agreement to Bond.

IB8.2 If the Bidder delivers more than one Tender, each Tender delivered in accordance with these Instructions to Bidders and received by the City prior to the Submission Deadline shall be deemed to have been submitted in the chronological order received, and each such Tender delivered by the same Bidder shall be considered to supersede and replace, in its entirety, any and all previous Tenders submitted by the same Bidder.

**IB9. WITHDRAWAL OF A TENDER**

IB9.1 A Bidder may withdraw their Tender without penalty by giving notice to the Procurement Specialist in accordance with IB3.3 at any time before the Submission Deadline.

IB9.2 The time and date of receipt of any notice withdrawing a Tender shall be the time and date of receipt as determined by the City.

IB9.3 A written notice withdrawing a Tender shall be signed by the person(s) whose signature(s) appear on the Tender Form of the Tender Submission.

IB9.4 The City shall retain the Tender until after the Submission Deadline and open the Tender to verify that the name and signature of the person requesting the Tender be withdrawn is the same as the name and signature of any of those appearing on the Tender. If the name and signature are the same, the City will declare the Tender withdrawn.

IB9.5 Requests made orally in person or by telephone to withdraw a Tender will not be considered.

**IB10. IRREVOCABLE OFFER**

IB10.1 The Tender(s) submitted by the Bidder shall be irrevocable for the time period specified on the Tender Form.

IB10.2 If a Tender is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Tender and the Contract, when awarded, shall be both joint and several.

IB10.3 The acceptance by the City of any Tender shall not release the Tenders of the other Bidders and these Bidders shall be bound by their offers on such Work for the time period specified in on the Tender Form.

IB10.4 A Bidder who withdraws their Tender after the Submission Deadline but before their offer has been released or has lapsed shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the City considers appropriate in the circumstances. The City, in such if, shall be entitled to all rights and remedies available to it at law.

**IB11. OPENING OF TENDERS**

IB11.1 Tenders will be opened and read publicly in the City of Brandon, Council Chambers, City Hall, 410 – 9<sup>th</sup> Street, Brandon, Manitoba at 2:30 p.m. local Brandon time on the day of the Submission Deadline.

IB11.2 The amount read aloud in connection with each Tender as the Total Tender Amount is unverified and shall not constitute the Total Tender Amount, but is subject to review, verification and adjustment, by the City in accordance with the Tender Documents.

**IB12. INTERVIEWS, CLARIFICATIONS AND ADDITIONAL INFORMATION**

IB12.1 The City shall have the right to interview any Bidder and/or request clarifications and additional information from any Bidder.

IB12.2 The Bidder shall submit, upon request by the Procurement Specialist or designate, proof satisfactory to the City that the Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them):

- .1 are in good standing under The Corporations Act, C.C.S.M. c. C225, or properly registered under The Business Names Registration Act, C.C.S.M. c. B110, or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; and
- .2 are financially capable of carrying out the terms of the Contract; and
- .3 have successfully carried out work similar in nature, scope and value to the Work; and
- .4 are fully capable of performing the Work required to be in strict accordance with the terms of the Contract.

IB12.3 The Bidder shall submit, upon request by the Procurement Specialist or designate, proof satisfactory to the City that any proposed Goods meet the requirements of the Specifications.

IB12.4 The Bidder shall provide, on the request of the Procurement Specialist or designate, access to the Bidder's equipment and facilities to confirm to the City's satisfaction that the Bidder's equipment and facilities are adequate to perform the Work.

### **IB13. EVALUATION OF TENDERS**

IB13.1 The award of this Contract shall be based on:

- .1 compliance by the Bidder with the requirements of the Tender (pass/fail);
- .2 Total Tender Amount

IB13.2 The City shall have the right to determine whether or not any or all parts of any Tender is substantially compliant with the requirements of the Tender Documents.

IB13.3 The City may, at its sole discretion, determine that all or any part of any Tender is not substantially compliant with the requirements of the Tender Documents if the Tender Submission is incomplete, obscure, conditional, or contains material alterations or other irregularities, or if the Tender contains material deficiencies.

IB13.4 The City may, at its sole discretion, waive technical deficiencies and minor non-compliances in any Tender it determines to be substantially compliant with the requirements of the Tender Documents.

IB13.5 The City shall have the right to reject any or all parts of any Tender that it has determined is not substantially compliant with the requirements of the Tender Documents.

### **IB14. AWARD OF CONTRACT**

IB14.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

IB14.2 The City shall have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and their Tenders are determined to be compliant.

IB14.2.1 Without limiting the generality of IB14.2, the City shall have no obligation to award a Contract if:

- .1 the prices exceed the available funds for the Work;
- .2 the prices are materially in excess of the prices received for similar work in the past;
- .3 the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- .4 only one Tender is received; or
- .5 in the judgment of the City, the interests of the City would best be served by not awarding a Contract.

IB14.3 If an award of Contract is made by the City, the award will be made to the responsible and qualified Bidder submitting the lowest compliant Tender as determined in accordance with IB13.

#### **IB15. CONTRACT DOCUMENTS**

IB15.1 The City will prepare and issue Contract Documents to the successful Bidder.

IB15.2 The successful Bidder shall execute and return the Contract Documents in the manner and within the time stipulated by the City.

IB15.3 If the successful Bidder does not execute and return the Contract Documents as instructed, the Bidder may be deemed by the City to be in default of their obligations under the Tender Documents, whereupon the acceptance of the Tender by the City shall be null and void, and the City shall be entitled to all rights and remedies available at law.

#### **IB16. CONFLICT OF INTEREST**

IB16.1 By responding to this Tender, Bidders declare that no Conflict of Interest exists, or is reasonably expected to exist in the future.

IB16.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- .1 other commitments;
- .2 relationships;
- .3 financial interests; or
- .4 involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Tenders or award of the Contract; or
  - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- .5 contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Tender process or the Work; or
  - .6 knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other Bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

IB16.3 For the purposes of this Tender, Conflict of Interest also includes, but is not limited to, any situation or circumstance where:

- IB16.3.1 in relation to the Tender Submission, the Bidder has an unfair advantage or engages in conduct, directly or indirectly, that may give it an unfair advantage, including but not limited to:
- .1 having, or having access to, confidential information of the City in the preparation of its Tender Submission that is not available to other Bidders;
  - .2 communicating with any person with a view to influencing preferred treatment in the Tender process, including but not limited to the lobbying of decision makers involved in the Tender process; or
  - .3 engaging in conduct that compromises, or could be seen to compromise, the integrity of the open and competitive Tender process or render that process non-competitive or unfair; or

IB16.3.2 In relation to the performance of its contractual obligations under a Contract for the Work, the Bidder's other commitments, relationships or financial interests

- .1 could, or could be seen to, exercise an improper influence over the objective, unbiased and impartial exercise of its independent judgement; or
- .2 could, or could be seen to, compromise, impair or be incompatible with the effective performance of its contractual obligations.

IB16.4 In connection with its Tender Submission, the Bidder or employee of the Bidder shall:

- .1 avoid any perceived, potential or actual Conflict of Interest in relation to the tendering period and Work if awarded;
- .2 upon discovering any perceived, potential or actual Conflict of Interest at any time during the tendering period, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Procurement Specialist;
- .3 provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential, or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest; and
- .4 comply with any requirements prescribed by the City to resolve any Conflict of Interest during the tendering period, or following the project award.

IB16.5 The City may, at its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon compliance to the City's requirements to resolve said Conflict of Interest.

IB16.6 The City may disqualify a Bidder where any conduct, circumstance, situation, relationship or association is determined by the City, in its sole discretion, to constitute a perceived, potential or actual Conflict of Interest and:

- .1 the Bidder has failed to disclose the Conflict of Interest;
- .2 the Bidder or its employees or subcontractors fails to comply with any requirements prescribed by the City to resolve a Conflict of Interest; or

- .3 the City determines, in its sole discretion, that the Conflict of Interest cannot be resolved.

IB16.7 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

**IB17. MATERIALS DELIVERY**

IB17.1 The Bidder shall confirm delivery of Goods and Products required to complete the Work can be achieved within the Contract Time stipulated in the Contract Documents.

IB17.2 The Bidder shall advise the Procurement Specialist during the tendering period of any known supply chain delays for any Goods and Products required to complete the Work.

IB17.2.1 Requests submitted after the tendering period will not be considered.

THE CITY OF BRANDON  
ENGINEERING DEPARTMENT

**TENDER FORM**

Contract Title: **Manitou Drive Watermain and Sewer Extension**

To: The Procurement Specialist, City of Brandon

I/We \_\_\_\_\_  
(name of Bidder)

the undersigned, hereby offer to furnish, execute and complete in a satisfactory and skillful manner, in accordance with the Tender Documents, all the Work required for the above Contract for the consideration of the Unit Prices set forth in the Unit Price Schedule, attached hereto.

I/We understand that the description of the Work in this Tender Form is in short form and the Work included in each item is as described in the Tender Documents which shall be deemed, in their entirety, to form a part of this Tender notwithstanding that not all parts thereof are necessarily attached to or accompany this Tender Form.

I/We further agree that, if awarded the Contract, we will commence the Work as specified and achieve Final Completion of the Work on or before **December 04, 2026**.

I/We further agree our Tender as provided herein shall remain binding and irrevocable for a period of sixty (60) calendar days following the Submission Deadline.

I/We further agree to enter into a written Agreement, of the form and content attached hereto, for the execution of the Work, if required to do so within a period of sixty (60) calendar days following the Submission Deadline.

Accompanying this Tender are a Bid Bond, payable to the City of Brandon in the amount of ten percent (10%) of the Total Tender Amount, and a Consent of Surety or Agreement to Bond.

I/We further agree that if I/We fail or decline to enter into a written Agreement in accordance with the terms of the Tender Documents, the City shall be entitled to all rights and remedies available to it at law, including the right to retain our Bid Bond as liquidated damages and not as a penalty.

I/We further agree that the City has the right to reject any or all Tenders, to waive any and all informalities, or to accept any Tender that it considers is in the best interest of the City.

## UNIT PRICE SCHEDULE

This is a Unit Price Tender and, if there is any discrepancy between the Unit Prices and the extended amounts, the Unit Prices shall be considered as representing the intention of the Bidder. Separate prices shall be submitted for each item set forth on the Unit Price Schedule. The quantities shown in the Unit Price Schedule are estimates only and have been listed for the purpose of comparing Tenders on a uniform basis. The final quantities may be considerably greater or considerably less than these quantities. No variation in the quantities actually executed shall give rise to any claim against the City.

## PRICE SUMMARY

Project Subtotals

|                                                    |                 |
|----------------------------------------------------|-----------------|
| <b>Manitou Drive Watermain and Sewer Extension</b> | <b>\$</b> _____ |
|----------------------------------------------------|-----------------|

|                        |          |
|------------------------|----------|
| Goods and Services Tax | \$ _____ |
|------------------------|----------|

|                            |                 |
|----------------------------|-----------------|
| <b>TOTAL TENDER AMOUNT</b> | <b>\$</b> _____ |
|----------------------------|-----------------|

## UNIT PRICES

### Project: Manitou Drive Watermain and Sewer Extension

| Class of Labour, Plant and Material |                                        | Unit of Measurement | Estimated Quantity | Unit Price<br>\$0.00 | Extension<br>\$0.00 |
|-------------------------------------|----------------------------------------|---------------------|--------------------|----------------------|---------------------|
| <b>WATERMAIN</b>                    |                                        |                     |                    |                      |                     |
| 1.                                  | 450mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m.              | 37                 |                      |                     |
| 2.                                  | 300mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m.              | 205                |                      |                     |
| 3.                                  | 150mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m               | 8                  |                      |                     |
| 4.                                  | 450mm Gate Valve                       | each                | 1                  |                      |                     |
| 5.                                  | 300mm Gate Valve                       | each                | 3                  |                      |                     |
| 6.                                  | 150mm Gate Valve                       | each                | 2                  |                      |                     |
| 7.                                  | Hydrant Assembly                       | each                | 2                  |                      |                     |
| 8.                                  | 300x150 PVC Hydrant Tee                | each                | 2                  |                      |                     |
| 9.                                  | 450x300x300x300 PVC Cross              | each                | 1                  |                      |                     |
| 10.                                 | 450mm PVC WM Plug                      | each                | 1                  |                      |                     |
| 11.                                 | 300mm PVC WM Plug                      | each                | 3                  |                      |                     |
| 12.                                 | Water Connection – 19mm service        | each                | 1                  |                      |                     |
| 13.                                 | Hydrostatic Testing & Disinfection     | lump sum            | 1                  |                      |                     |
| 14.                                 | Bedding Sand                           | lin.m               | 250                |                      |                     |
| 15.                                 | Bedding Gravel (Provisional)           | lin.m               | 250                |                      |                     |
| <b>PROVISIONAL WATERMAIN</b>        |                                        |                     |                    |                      |                     |
| 16.                                 | 300mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m               | 44                 |                      |                     |
| 17.                                 | 300mm PVC WM 45 Bend                   | each                | 2                  |                      |                     |
| 18.                                 | Connect to Existing 300 PVC W.M.       | each                | 1                  |                      |                     |
| 19.                                 | Bedding Sand                           | lin.m               | 44                 |                      |                     |
| 20.                                 | Bedding Gravel (Provisional)           | lin.m               | 44                 |                      |                     |
| <b>WASTEWATER SEWER</b>             |                                        |                     |                    |                      |                     |

(Bidder to initial)

**Project: Manitou Drive Watermain and Sewer Extension**

| Class of Labour, Plant and Material                        | Unit of Measurement | Estimated Quantity | Unit Price<br>\$0.00 | Extension<br>\$0.00 |
|------------------------------------------------------------|---------------------|--------------------|----------------------|---------------------|
| 21. 375mm PVC DS, 5-8m Depth, CI2 Backfill                 | lin.m.              | 98                 |                      |                     |
| 22. Connect to existing 375mm DS                           | each                | 1                  |                      |                     |
| 23. 375mm PVC DS Plug                                      | each                | 1                  |                      |                     |
| 24. Sewer Service – 100mm                                  | each                | 1                  |                      |                     |
| 25. Sewer Cleaning, CCTV Inspection and Deflection Testing | lin.m               | 98                 |                      |                     |
| PROVISIONAL WASTEWATER SEWER                               |                     |                    |                      |                     |
| 26. 375mm PVC DS, 5-8m Depth, CI2 Backfill                 | lin.m               | 11                 |                      |                     |
| 27. 1200mm Type A WWS Manhole c/w Frame & Standard Cover   | vert.m              | 6.3                |                      |                     |
| MISCELLANEOUS                                              |                     |                    |                      |                     |
| 28. Mobilization                                           | lump sum            | 1                  |                      |                     |
| 29. Traffic Management                                     | lump sum            | 1                  |                      |                     |
| PROJECT SUBTOTAL:                                          |                     |                    |                      |                     |
| <b>Manitou Drive Watermain and Sewer Extension</b>         |                     |                    | \$                   |                     |

Carry forward Project Subtotals to the Price Summary on page 23.

I/We hereby acknowledge receipt of the following Addenda to the Tender Documents:

Addenda No. \_\_\_\_\_ Date received \_\_\_\_\_ Signed \_\_\_\_\_

Addenda No. \_\_\_\_\_ Date received \_\_\_\_\_ Signed \_\_\_\_\_

Addenda No. \_\_\_\_\_ Date received \_\_\_\_\_ Signed \_\_\_\_\_

SIGNED, SEALED AND DELIVERED this \_\_\_\_\_ day of \_\_\_\_\_ a.d. 2026

\_\_\_\_\_  
Authorized Signatory  
(Signature of Bidder & corporate seal)

\_\_\_\_\_  
Witnessed by  
(Signature of Witness)

\_\_\_\_\_  
(Print here the name and official capacity of  
individual whose signature appears above)

\_\_\_\_\_  
(Print here the name and official capacity of  
individual whose signature appears above)

\_\_\_\_\_  
Authorized Signatory  
(Signature of Bidder & corporate seal)

\_\_\_\_\_  
Witnessed by  
(Signature of Witness)

\_\_\_\_\_  
(Print here the name and official capacity of  
individual whose signature appears above)

\_\_\_\_\_  
(Print here the name and official capacity of  
individual whose signature appears above)

Address of Bidder:

Address of Witness:

\_\_\_\_\_  
Telephone & Facsimile Numbers

\_\_\_\_\_  
Telephone & Facsimile Numbers

Contact Email Address: \_\_\_\_\_

## **CONTRACT DOCUMENTS**

## AGREEMENT

THIS AGREEMENT, which is made in duplicate,

this \_\_\_\_\_ day of \_\_\_\_\_, 2026 a.d. by and between:

---

(hereinafter called the Contractor)

and

### THE CITY OF BRANDON

(hereinafter called the City)

WITNESSETH THAT; whereas the Contractor has represented to the City that they are skilled in the performance of the Work described in the Contract Documents, and will be able to perform the same in accordance therewith;

NOW THEREFORE; The Contractor and the City undertake and agree that;

### THE WORK

The Contractor will;

- a) provide all the materials, unless otherwise indicated, perform all of the Work, finish in a good and skillful manner and fulfil all the obligations called for by the Contract Documents for the following Work:

#### **Manitou Drive Watermain and Sewer Extension**

which have been executed in duplicate by both parties and which were prepared by the City Engineer of the City of Brandon acting as and referred to as the Engineer;

- b) perform such additional Work, under the terms of this Contract, which may be ordered by the Engineer;

- c) achieve Final Completion of the Work of this Contract as certified by the Engineer by **December 04, 2026**;
- d) pay to the City as liquidated damages and not as penalty, the sum of \$1,500.00 ( One Thousand Five Hundred dollars) for each calendar day past the above stated date of Final Completion of the Work that Final Completion of the Work has not been achieved;
- d) maintain the Work against any and all defects or deficiencies that may arise during the warranty period.

### **CONTRACT PRICE**

The Contract Price is \$ \_\_\_\_\_ GST inclusive in Canadian funds, which price shall be subject to adjustments as may be determined in accordance with the Contract.

### **PAYMENT**

Subject to holdbacks in accordance with the Contract, the City will:

- a) pay the Contractor in lawful tender of Canada, for the specified materials and services, the amount that is stipulated above subject to such additions and deductions provided for in the Contract Documents.
- b) make payments on the basis of the Engineer's Certificates, in accordance with the Contract.
- c) upon Substantial Performance of the Work, as certified by the Engineer, pay to the Contractor any unpaid balance of hold back monies then due.
- d) when all the Work under the Contract has been performed and Final Completion of the Work has been certified by the Engineer, pay to the Contractor any unpaid balance of the Contract Price then due.

### **CONTRACT DOCUMENTS**

The following documents for

#### **Manitou Drive Watermain and Sewer Extension**

together with this Agreement, constitute the Contract and include:

Unit Price Schedule;

General Conditions;  
Supplemental Conditions;  
Specifications;  
Addenda;  
Performance Bond;  
Labour and Materials Payment Bond; and

## The City of Brandon Drawings:

Drawing No. WD-1473     Manitou Drive Watermain and Sewer Extension

## SUCCESSION

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

## ADDRESSES FOR NOTICES

All communications in writing between the parties or between them and the Engineer shall be delivered or sent to the individual or the member of the Firm or to an officer of the Corporation for whom they are intended to the address listed below:

The City at: 410-9th Street  
Brandon, Manitoba  
R7A 6A2

Facsimile no. 204-725-3235

The Contractor at: \_\_\_\_\_  
\_\_\_\_\_

Facsimile no.

IN WITNESS WHEREOF; This Agreement has been executed by the parties hereto on the day and year first above written.

THE CITY

THE CONTRACTOR

The City of Brandon

\_\_\_\_\_

\_\_\_\_\_  
Alexia Stangherlin, P.ENG.  
City Engineer  
(Signature & Seal of City)

\_\_\_\_\_  
Authorized Signatory  
(Signature & Seal of Contractor)

\_\_\_\_\_  
For the City witnessed by  
(Signature of Witness)

\_\_\_\_\_  
For the Contractor witnessed by  
(Signature of Witness)

Name and Address of Witness

Name and Address of Witness

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Telephone

## UNIT PRICE SCHEDULE

### Project: Manitou Drive Watermain and Sewer Extension

| Class of Labour, Plant and Material |                                        | Unit of Measurement | Estimated Quantity | Unit Price<br>\$0.00 | Extension<br>\$0.00 |
|-------------------------------------|----------------------------------------|---------------------|--------------------|----------------------|---------------------|
| <b>WATERMAIN</b>                    |                                        |                     |                    |                      |                     |
| 1.                                  | 450mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m.              | 37                 |                      |                     |
| 2.                                  | 300mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m.              | 205                |                      |                     |
| 3.                                  | 150mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m               | 8                  |                      |                     |
| 4.                                  | 450mm Gate Valve                       | each                | 1                  |                      |                     |
| 5.                                  | 300mm Gate Valve                       | each                | 3                  |                      |                     |
| 6.                                  | 150mm Gate Valve                       | each                | 2                  |                      |                     |
| 7.                                  | Hydrant Assembly                       | each                | 2                  |                      |                     |
| 8.                                  | 300x150 PVC Hydrant Tee                | each                | 2                  |                      |                     |
| 9.                                  | 450x300x300x300 PVC Cross              | each                | 1                  |                      |                     |
| 10.                                 | 450mm PVC WM Plug                      | each                | 1                  |                      |                     |
| 11.                                 | 300mm PVC WM Plug                      | each                | 3                  |                      |                     |
| 12.                                 | Water Connection – 19mm service        | each                | 1                  |                      |                     |
| 13.                                 | Hydrostatic Testing & Disinfection     | lump sum            | 1                  |                      |                     |
| 14.                                 | Bedding Sand                           | lin.m               | 250                |                      |                     |
| 15.                                 | Bedding Gravel (Provisional)           | lin.m               | 250                |                      |                     |
| <b>PROVISIONAL WATERMAIN</b>        |                                        |                     |                    |                      |                     |
| 16.                                 | 300mm PVC WM, 0-4m Depth, CI2 Backfill | lin.m               | 44                 |                      |                     |
| 17.                                 | 300mm PVC WM 45 Bend                   | each                | 2                  |                      |                     |
| 18.                                 | Connect to Existing 300 PVC W.M.       | each                | 1                  |                      |                     |
| 19.                                 | Bedding Sand                           | lin.m               | 44                 |                      |                     |
| 20.                                 | Bedding Gravel (Provisional)           | lin.m               | 44                 |                      |                     |
| <b>WASTEWATER SEWER</b>             |                                        |                     |                    |                      |                     |

**Project: Manitou Drive Watermain and Sewer Extension**

| Class of Labour, Plant and Material                        | Unit of Measurement | Estimated Quantity | Unit Price<br>\$0.00 | Extension<br>\$0.00 |
|------------------------------------------------------------|---------------------|--------------------|----------------------|---------------------|
| 21. 375mm PVC DS, 5-8m Depth, CI2 Backfill                 | lin.m.              | 98                 |                      |                     |
| 22. Connect to existing 375mm DS                           | each                | 1                  |                      |                     |
| 23. 375mm PVC DS Plug                                      | each                | 1                  |                      |                     |
| 24. Sewer Service – 100mm                                  | each                | 1                  |                      |                     |
| 25. Sewer Cleaning, CCTV Inspection and Deflection Testing | lin.m               | 98                 |                      |                     |
| PROVISIONAL WASTEWATER SEWER                               |                     |                    |                      |                     |
| 26. 375mm PVC DS, 5-8m Depth, CI2 Backfill                 | lin.m               | 11                 |                      |                     |
| 27. 1200mm Type A WWS Manhole c/w Frame & Standard Cover   | vert.m              | 6.3                |                      |                     |
| MISCELLANEOUS                                              |                     |                    |                      |                     |
| 28. Mobilization                                           | lump sum            | 1                  |                      |                     |
| 29. Traffic Management                                     | lump sum            | 1                  |                      |                     |
| PROJECT SUBTOTAL:                                          |                     |                    |                      |                     |
| <b>Manitou Drive Watermain and Sewer Extension</b>         |                     |                    | \$                   |                     |

## GENERAL CONDITIONS

### GC1. DEFINITIONS

- GC1.1 Where used in these *General Conditions* and in the other documents forming part of the Tender Documents and the Contract Documents:
- .1 “Agreement” means the portion of the Contract Documents by that name.
  - .2 “Bidder” means any person submitting a Tender for the Work.
  - .3 “Instructions to Bidders” means the portion of the Tender Documents by that name which sets out the terms and conditions governing the tendering process.
  - .4 “Business Day” means any day, other than a Saturday, Sunday, or a statutory or civic holiday as observed by the City.
  - .5 “Change in Work” means an addition, deletion or modification to the Contract as awarded and includes modifications to the quantity or nature of Work, the manner of performance of any part of the Work, price, time or schedule.
  - .6 “Change Order” means a written order issued by the City that sets out a Change in Work.
  - .7 “City” means the City of Brandon of the Province of Manitoba as continued under The Brandon Charter, SM 1989-90, c. 71, and any subsequent amendments thereto.
  - .8 “City Manager” means the City Manager of the City of Brandon as appointed by the Council of the City of Brandon, or their designate.
  - .9 “Contract” means the obligations and rights of the City and the Contractor as set forth in the Contract Documents.
  - .10 “Contract Documents” means the combined documents consisting of the executed Agreement between the City and the Contractor, these General Conditions of the Contract, the Supplemental Conditions, the Specifications, the Drawings, all Addenda, the Performance Bond, the Labour and Material Payment Bond, The City of Brandon Construction Vehicles & Equipment Rentals Firm Price Listing, and any other document referred to in, or connected with such formal Agreement as may be authorized by the City. It shall also include all modifications and

amendments thereto incorporated in the Contract Documents before the execution of the Agreement, and subsequent amendments thereto made pursuant to the provisions of the Contract and agreed upon between the parties, and all the Contractor's Specifications and Contractor's Drawings, if approved and signed by the Engineer.

- .11 "Contract Price" means the total of the products of the Contract Unit Prices and their respective quantities plus any lump sum items included in the Agreement.
- .12 "Contract Time" means the time stipulated in the Contract Documents for the performance of the Work from commencement to Final Completion.
- .13 "Contract Unit Price" means any amount set forth in the Unit Price Schedule in the Agreement, and as described in the Specifications for the performance of an item of Work.
- .14 "Contractor" means the person who has undertaken the performance of the Work under the terms of the Contract.
- .15 "Contractor's Specifications and Contractor's Drawings" means all drawings, diagrams, illustrations, schedules, performance charts, brochures and other data that are prepared or provided by the Contractor, Subcontractor, or Supplier and that illustrate some portion of the Work.
- .16 "Drawings" means the portion of the Contract Documents by that name which illustrates the physical or functional characteristics of the Work, or any part thereof.
- .17 "Engineer" means the City Engineer of the City of Brandon and includes any person duly authorized to perform on their behalf any of these functions under the Contract.
- .18 "Final Completion of the Work" means that the entire Work, except those items arising from the provisions of GC20 Warranty, have been performed in accordance with the Contract.
- .19 "Goods" means any tangible personal property to be supplied as a deliverable under the Contract whether by purchase, hire, hire-purchase or otherwise, but does not include the Contractor's tools and equipment, or incidental materials or supplies expended in the course of the Work.

- .20 “Materials” means any information, data, research, documents, photographic images, computer programs (and related object and source codes and electronic files) and any other intellectual property whether disclosed to the Contractor by the City or otherwise produced or developed by the Contractor specifically for the Work.
- .21 “Other Contractor” means any person employed by or having a contract directly or indirectly with the City otherwise than through the Contractor, or is employed by or having a contract with a third party having the City's permission to do work on City owned property.
- .22 “Plant” means all material and/or equipment and/or items brought to or constructed upon the Site by the Contractor for the performance of the Work, but does not include material, equipment or other items that are to form part of the permanent Work.
- .23 “Prime Contractor” means the prime contractor as defined in The Workplace Safety and Health Act, C.C.S.M. c. W210.
- .24 “Procurement Specialist” means the Procurement Specialist of the City of Brandon Procurement Services and includes any person duly authorized by them to perform on their behalf any of their functions under the Contract.
- .25 “Products” means any tangible or intangible personal property to be supplied by the Contractor as a deliverable under the Contract whether by purchase, hire, hire-purchase, licence or otherwise.
- .26 “Site” means lands, buildings or other places owned, occupied or used by the City and designated by the City for the delivery and/or installation of Products, or the provision of Services.
- .27 “Specifications” means the portion of the Contract Documents by that name which sets out the written description of the physical or functional characteristics of the Work, or any part thereof.
- .28 “Street” means any public highway as defined in The Municipal Act, C.C.S.M. c. M225.
- .29 “Subcontractor” means a person having a contract with the Contractor or another Subcontractor of the Contractor for the execution of a part or parts of the Work or who furnishes material called for in the Contract Documents.

- .30 “Submission Deadline” means the time and date set out in the Tender Documents for final receipt of Tenders.
- .31 “Substantial Performance of the Work” shall have the meaning attributed to it in The Builders’ Liens Act, C.C.S.M. c. B91, or if the Act is not applicable, shall mean when the Work is substantially complete and ready for use, or is being used for the purpose intended.
- .32 “Supplemental Conditions” means the portion of the Contract Documents by that name which sets out terms and conditions specific to the Contract, and supplements or modifies the General Conditions.
- .33 “Tender” means the offer contained in the Tender Submission.
- .34 “Tender Documents” means the Instructions to Bidders, the Tender Form, the Contract Documents and all addenda.
- .35 “Tender Form” means the portion of the Tender Documents by that name.
- .36 “Tender Submission” means that portion of the Tender Documents and other items that must be completed or provided by the Bidder and delivered to the City by the Submission Deadline to constitute a compliant Tender.
- .37 “The City of Brandon Construction Vehicles & Equipment Rentals Firm Price Listing” means the document of that name which is available for viewing at the City of Brandon Finance Department, Main Floor 410-9<sup>th</sup> Street, Brandon, MB.
- .38 “Work” means the carrying out and the doing of all things, whether of a temporary or permanent nature, that are to be done by the Contractor pursuant to the Contract and includes the furnishing of all labour, superintendence, services, transportation, materials, Plant, equipment and articles necessary or incidental to the proper performance of the Contract.
- .39 “Working Day” means any calendar day, (one midnight to the following midnight), other than a Sunday or a Statutory or Civic Holiday, on which, in the opinion of the Engineer, atmospheric and/or Site conditions are such that the Contractor is able to work at least four (4) hours during the period between 7:00 a.m. Brandon time or the time the Contractor’s operations normally commence, whichever is the earlier, and 7:00 p.m. Brandon time. A Sunday or Statutory Holiday will be considered a

Working Day if the Contractor elects to perform any Work that, in the opinion of the Engineer, requires the attendance of the Engineer.

GC1.2 Where used in these General Conditions and in the other documents forming part of the Tender Documents and the Contract Documents:

- .1 “person” includes a natural person, or an artificial person including a partnership, corporation, joint venture, consortium, association, or any combination thereof,
- .2 “shall” and “must” are imperative and “may” is permissive and empowering;
- .3 the commonly understood name of a country, place, person, entity or thing has the same meaning as any formal or extended designation;
- .4 words in the singular include the plural, and words in the plural include the singular;
- .5 gender-specific terms include all genders and the neuter;
- .6 a reference to a statute, by-law or regulation is a reference to the statute, by-law or regulation as amended;
- .7 a reference to a statute, by-law or regulation that has been repealed and replaced is, with respect to a later transaction, matter or thing, a reference to the provisions of the new statute, by-law or regulation that relate to the same subject-matter as the former statute, by-law or regulation.

## **GC2. INTERPRETATION**

GC2.1 The Contract has been entered into in the Province of Manitoba and shall be governed by and construed and enforced in accordance with the laws of the Province of Manitoba.

GC2.2 If any of the provisions of the Contract are found by a court of competent jurisdiction to be null or void, the remainder of the Contract shall continue in full force and effect provided that the substantive intent of the Contract is not thereby compromised.

GC2.3 The City and the Contractor acknowledge and agree that the Contractor is an independent contractor and neither the Contractor, nor any officer, servant or

agent of the Contractor shall be deemed to be an employee, agent, representative or servant of the City.

GC2.4 If the Contractor as defined herein consists of more than one person, their liability to perform the covenants herein contained to be performed by the Contractor shall be joint and several.

GC2.5 No acceptance of Work, payment of money, or failure on the part of the City to enforce compliance by the Contractor with any term of this Contract, nor any act or omission of the City or of any officer or employee of the City, shall be taken as a waiver of any of the provisions of this Contract, it being understood that any provision hereof may only be waived by express waiver in writing authorized by the proper officers of the City. No express waiver of any provision of this Contract shall impliedly waive any other provision of this Contract.

GC2.6 It is intended in all matters herein that both the City and the Contractor shall act promptly.

### **GC3. SUCCESSORS AND ASSIGNS**

GC3.1 The Contract shall enure to the benefit of and be binding on the respective heirs, executors, administrators, and successors and permitted assigns of the City and the Contractor.

GC3.2 The Contractor shall not assign the Contract, either in whole or in part, without the written consent of the City. The Contractor shall not assign any monies due to them hereunder, except to a bank or financial institution acceptable to the City.

GC3.3 The Contractor shall not be relieved of any liabilities or obligations relating to the Contract because of the consent of the City to any assignment. The Contractor shall have the same responsibilities as though no assignment had been made.

### **GC4. NOTICES**

GC4.1 All notices, requests, orders, decisions, consents, approvals, statements, authorizations, documents or other communications required or permitted to

be given under the Contract shall be in writing and shall be delivered by hand, by mail or by facsimile transmission (fax).

- GC4.1.1 In the event of a postal dispute or threat of a postal dispute, all notices required to be given hereunder shall be personally delivered or forwarded by facsimile.
- GC4.2 All notices, requests, orders, decisions, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required elsewhere in the Contract Documents, shall be delivered or sent to the attention of the Engineer at the address or facsimile number identified in the Agreement.
- GC4.3 All notices, requests, orders, decisions, consents, approvals, statements, authorizations, documents or other communications to the Contractor, except as expressly otherwise required elsewhere in the Contract Documents, shall be delivered or sent to the address or facsimile number identified in the Agreement or delivered by hand to the Contractor's superintendent at the Site.
- GC4.4 Either party may, by giving notice, designate another address or addresses at which it will accept delivery of notices, requests, orders, decisions, consents, approvals, statements, authorizations, documents or other communications.
- GC4.5 Any notices, requests, orders, decisions, consents, approvals, statements, authorizations, documents or other communications given as provided herein shall:
- .1 if delivered by hand, be deemed to have been received on the day of receipt;
  - .2 if forwarded by mail, be deemed to have been received on the earlier of the day it was received or the second Business Day on which mail is delivered by Canada Post following the date of mailing;
  - .3 if forwarded by facsimile transmission, be deemed to have been received on the day of transmission, if a Business Day, or if not a Business Day, on the first Business Day following the day of transmission.

## **GC5. CONTRACTOR DECLARATION**

- GC5.1 The Contractor declares that in bidding for the Work and in entering into the Contract, they have investigated for themselves the Site, the character of the Work to be done and all conditions including the location of any utility that can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility, that might affect their Tender or their performance of the Work, or that, not having so investigated, they willingly assume all risk for conditions now existing or arising in the course of the Work that could have been determined through such investigation.
- GC5.2 The Contractor declares that in bidding for the Work and in entering into the Contract, they did not and do not rely upon information furnished by the City or any of its servants or agents respecting the character or nature of the surface and subsurface conditions at the Site, or the location, character, quality or quantity of the materials to be removed, or to be employed in the construction of the Work, or the character of the Plant needed to perform the Work or the general and local conditions and shall verify all matters concerning access to the Site, power supplied, location of existing services, utilities, materials necessary for the completion of the Work and all other matters that could in any way affect the performance of the Work under the Contract other than information furnished in writing for or in connection with the Tender or the Contract by the Procurement Specialist or by the Engineer.
- GC5.3 The Contractor declares that in bidding for the Work and in entering into the Contract, they do so in good faith and:
- .1 that to the best of their knowledge, there are no potential conflicts of interest pursuant to:
    - .1 The Municipal Act, C.C.S.M. c. M225;
    - .2 The Municipal Council Conflict of Interest Act, C.C.S.M. c. M255; or
    - .3 the City of Brandon City Council Code of Conduct;
  - .2 that to the best of their knowledge, no officer or employee of the City has any direct or indirect pecuniary interest in the Contract that has not been disclosed to and approved by the authority having jurisdiction;
  - .3 they have not participated in any collusive scheme or combine;

and shall forfeit all claims under the Contract as well as refund to the City any monies paid to them, beyond their actual proven expenses for Work done, if GC5.3.1 or GC5.3.2 are shown to be false.

- GC5.4 The Contractor declares that, in submitting a Tender for the Work and in entering into the Contract, they have been given an opportunity to obtain independent legal and other professional advice in connection with the Tender and the Contract.

## **GC6. CONTRACT DOCUMENTS**

- GC6.1 The Contract Documents shall constitute the entire agreement between the City and the Contractor. There are no representations, warranties, covenants or agreements other than those contained in the Contract Documents.
- GC6.2 The Contract Documents are complementary and what is called for by any one shall be binding as if called for by all.
- GC6.3 Headings and titles in the Contract Documents are inserted for convenience only and shall not be considered in any construction or interpretation of the Contract.
- GC6.4 The City will provide the Contractor, without charge, sufficient copies of the Contract Documents to perform the Work, to a maximum of five (5) copies unless otherwise stated in the document.
- GC6.5 The Contract Documents are the property of the City, and shall not be copied, reproduced or revised in any manner, or used in any other work without the written authorization of the City. Any copies of the Contract Documents and any information media furnished by the City shall not be reused and, with the exception of the one set of executed Contract Documents, shall be returned to the City upon Final Completion of the Work.

## **GC7. INCONSISTENCIES**

- GC7.1 The City shall have the right at any time to correct errors or omissions in the Contract Documents or to issue additional Drawings and Specifications at any time to further detail or explain the Work, all without in any way affecting or vitiating the Contract.

**GC7.2** If there is a conflict within the Contract Documents:

- .1 the order of priority of documents, from highest to lowest, shall be:
  - .1 the Agreement between the City and the Contractor;
  - .2 the Supplemental Conditions;
  - .3 the General Conditions;
  - .4 Division 01 of the Specifications;
  - .5 the remainder of the Specifications;
  - .6 the Drawings.
- .2 Drawings of larger scale shall govern over those of smaller scale of the same date.
- .3 dimensions shown on Drawings shall govern over dimensions scaled from Drawings.
- .4 later dated documents shall govern over earlier documents of the same type.

**GC7.3** In the case of an obvious clerical error, the interpretation most consistent with the Contract as a whole will be accepted.

**GC7.4** The Contractor shall not be responsible for verifying that the Contract Documents are in compliance with the applicable laws, ordinances, rules, regulations, codes and orders relating to the Work. If the Contractor has knowledge that the Contract Documents are at variance therewith, or if the Contract Documents or any part thereof appear indefinite, not clear, contradictory, contain errors or omissions the Contractor shall, prior to proceeding with the Work, promptly refer such part or parts to the Engineer for interpretation and/or clarification.

**GC8. SITE**

**Site Conditions**

**GC8.1** Although the Drawings may indicate the location of existing surface and underground works and services, the City does not warrant the completeness or accuracy of the information or assume responsibility for discrepancies between the Drawings and the actual locations of the works and services.

**GC8.2** The Contractor shall promptly refer any substantial difference in the character or nature of the surface or subsurface conditions at the Site, or the location,

character, quality or quantity of the materials to be removed than the conditions set out in the Contract Documents or other information furnished in writing for or in connection with the Contract by the Engineer for resolution in the manner prescribed in GC16 Change in Work.

### **Use of the Site**

GC8.3 The Contractor shall not be entitled to exclusive possession of the Site. The City shall have the right, for itself, its agents, representatives and Other Contractors, to occupy any portion of the Site or the Work, at any time and for so long a time as the Engineer may by notice to the Contractor require, provided such entry, occupation and use does not prevent or otherwise interfere with the Contractor's performance of the Work. Such entry, occupation and use shall not be considered to be an acceptance of the Work by the City nor shall it relieve the Contractor of their duty to complete the Work.

## **GC9. INDEMNIFICATION**

GC9.1 The Contractor shall indemnify and save harmless the City, its officers, agents, servants and employees, from and against all costs, damages, losses or expenses arising from actions, suits, claims, demands and proceedings, by whomsoever brought, made or taken as a result of an act or omission of the Contractor, their Subcontractor(s), and their employees or agents in the performance or purported performance of the Work, and more particularly from:

- .1 accidental injury to or death of any person whether retained by or in the employ of the Contractor or not, arising directly or indirectly by reason of the performance of the Work, or by reason of any trespass on or damage to property;
- .2 damage to any property owned in whole or in part by the City, or that the City by duty or custom is obliged, directly or indirectly, in any way or to any degree, to construct, repair or maintain;
- .3 damage to, or trespass or encroachment upon, property owned by persons other than the City;
- .4 failure to promptly secure a discharge of a claim for lien served upon the City pursuant to The Builders' Liens Act;

- .5 failure to pay a Workers Compensation assessment, or federal or provincial taxes;
  - .6 unauthorized use of any design, device, material or process covered by letters patent, copyright, trademark or trade name in connection with the Work;
  - .7 inaccuracies in any information provided to the City by the Contractor.
- GC9.2 The Contractor shall be responsible for all such claims except such claims in which the injury or damage are solely a result of an act or omission of the City.
- GC9.3 If the City or the Contractor is served with a claim or notice, the party so served shall immediately inform the other party with notice in the manner provided herein.
- GC9.4 The City shall have the right, acting reasonably and upon notice to the Contractor, to settle any such action, proceeding, claim or demand and charge the Contractor with the amount so paid or to be paid in effecting a settlement.
- GC9.5 The Contractor shall pay to the City the value of all legal fees and disbursements required to settle any such claim or to defend the City against any such claim, action, proceeding, claim or demand.
- GC9.6 If the Contractor fails to make any payment required to be made to the City pursuant to GC9.4 and GC9.5, the City shall be entitled to deduct the amount of such payment from any payment required to be made by the City to the Contractor under the Contract or take whatever other remedies against the Contractor that the City may have at law.

## **GC10. BONDING**

- GC10.1 Prior to the execution of the Contract, the Contractor shall, at their own expense, provide and deliver to the City:
- GC10.1.1 A Performance Bond written on Canadian Construction Documents Committee Form CCDC 221 or similar form acceptable to the City, conditioned on the faithful performance of the terms of the Contract, including corrections after final payment provided for in GC20 hereof, and the payment of all obligations arising under the Contract, in the amount of

fifty percent (50%) of the Contract Price. The Performance Bond shall remain in full force and effect for at least twelve (12) months after the date of the Certificate of Final Completion of the Work.

GC10.1.2 A Labour and Material Payment Bond on Canadian Construction Documents Committee Form CCDC 222 or similar form acceptable to the City, covering payment for all labour and materials used or reasonably required in the performance of the Contract, conditioned on the faithful performance of the terms of the Contract for the amount of fifty percent (50%) of the Contract Price.

GC10.2 All bonds shall be issued by the same surety or bonding company licensed to conduct the business of a surety in the Province of Manitoba. Each bond shall incorporate by reference the Contract and be signed by both the Contractor and the Surety, and the signature of the authorized agent of the Surety shall be notarized.

## **GC11. INSURANCE**

GC11.1 Without in any way limiting the liability of the Contractor under the Contract, the Contractor shall provide, maintain and pay the premiums for any insurance it is required by law to provide, and the minimum insurance coverages listed in the Supplemental Conditions.

GC11.2 Unless specified otherwise, the duration of each policy shall be from the date of commencement of the Work until ten (10) calendar days following the date of the Certificate of Final Completion of the Work.

GC11.3 If the Contractor returns to the Site of the Work for the purpose of GC20 Warranty, they shall provide and maintain insurance policies in such amounts as the Engineer may require.

GC11.4 All insurance policies shall be issued by an insurance company authorized to transact a business of insurance underwriting in the Province of Manitoba.

GC11.5 All deductibles shall be borne by the Contractor and shall be in amounts acceptable to the City.

GC11.6 The Contractor shall provide to the City at least thirty (30) calendar days written notice of any non renewal, cancellation, material change or amendment restricting coverage of any of the insurance policies.

GC11.7 The Contractor shall provide the City with a certified certificate of insurance for each insurance policy no later than the date of the execution of the Contract. If requested by the Engineer, the Contractor shall provide the originals or certified true copies of all contracts of insurance maintained by the Contractor.

GC11.8 If the Contractor fails to provide or maintain insurance as required by the Contract Documents, then the City shall have the right to provide and maintain such insurance. The Contractor shall pay the cost thereof to the City on demand or the City may deduct the cost from any amount which is due or may become due to the Contractor.

## **GC12. THE CONTRACTOR**

### **Contractor's Responsibilities**

GC12.1 The Contractor shall execute, maintain, and complete the Work, make good all damage thereto and imperfections therein and deliver the completed Work to the City in strict accordance with the provisions of the Contract Documents. The Contractor shall be responsible for any Work not explicitly set out in the Contract Documents but that may be reasonably implied as necessary for the proper completion of the Work. Except as otherwise provided for in the Contract Documents the Contractor shall be solely responsible for construction means, methods, techniques, sequences and procedures and shall coordinate, direct and supervise the Work so as to ensure conformance with the Contract Documents.

GC12.2 Until the issue of the Certificate of Final Completion of the Work, the Work shall be under the charge and care of the Contractor and they shall, at their own expense, do whatever is necessary to ensure that:

- .1 no person, property, livestock, right, easement or privilege is injured, damaged or infringed by reason of the Contractor's or any Subcontractor's activities in performing the Work;
- .2 pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted or endangered by the performance or existence of the Work or Plant. If any of the Contractor's Work causes interference with any existing public road, the Contractor shall provide and maintain the necessary detour roads and shall post such signs,

warnings and protection as may be required for public convenience and safety;

- .3 fire hazards in or about the Work or the Site are eliminated;
- .4 the health and safety of all personnel employed in the performance of the Work or otherwise is not endangered by the method or means of its performance, and the Work is in compliance with all laws, rules, regulations and practices required by the applicable construction and safety legislation;
- .5 adequate medical services are available to all personnel employed on the Work or its Site at all times during the performance of the Work;
- .6 adequate sanitation measures are taken and facilities provided with respect to the Work and the Site;
- .7 all survey posts, monuments or bars are protected and are not removed, defaced, altered or destroyed;
- .8 all stakes, buoys and marks placed on the Work or its Site by or under the authority of the Engineer are protected and are not removed, defaced, altered or destroyed;
- .9 good order and discipline is maintained at the Site at all times;
- .10 the Site, any existing facility thereon and the Work already performed are all secure and protected from the action of the elements. The Contractor shall provide and maintain all necessary guards, barriers, detour routes, fences, warnings flares or lights;
- .11 City owned Plant, material or equipment is not removed from the Site without the prior written consent of the Engineer.

GC12.3 The Contractor shall provide and pay for competent, suitably qualified personnel to execute the Work and unless stated otherwise in the Supplemental Conditions, the Contractor shall provide and pay for all Plant, labour, payroll, overhead, materials, supplies, equipment, machinery, transportation, tools, appliances, fuel, power, light, heat, telephone, water and all other facilities and incidentals necessary for the execution, testing, operation, completion and maintenance of the Work.

GC12.4 Unless stated otherwise in the Supplemental Conditions, all materials, products and equipment to be incorporated in the Work shall be new,

undamaged, fit for the purpose intended and shall meet or exceed the kind, quality and quantity of same specified in the Contract Documents. If required, the Contractor shall provide, at their own expense, evidence satisfactory to the Engineer that the foregoing requirement has been met.

- GC12.5 If the Contractor fails to notify the Engineer in writing to obtain direction and performs any Work knowing it contains errors or omissions, is contrary to any laws, ordinances, rules, regulations, codes and orders of any authority having jurisdiction, the Contractor shall be responsible for and shall correct any variation thereof and shall bear all costs, expenses and damages attributable to his failure to comply with the provisions of such laws, ordinances, rules, regulations, codes and orders.

**Prime Contractor**

- GC12.6 Unless expressly specified otherwise in the Supplemental Conditions, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act, C.C.S.M. c. W210.

**Superintendence**

- GC12.7 The Contractor shall employ a competent and responsible superintendent well skilled in the type of Work being undertaken, who shall direct and supervise the Work and be in attendance on the Site at all times while Work is being performed. The superintendent shall be the executive representative of the Contractor in their absence and directions on matters given to them verbally or in writing shall be deemed to be given to the Contractor. The presence of a superintendent on the Site shall not relieve the Contractor from their duty to personally supervise the Work. The Contractor shall inform the Engineer in writing of the name, address and telephone number of such superintendent prior to the commencement of the Work.
- GC12.8 If at any time the Engineer requires such superintendent to be replaced then the Contractor shall arrange for them to vacate their position and be removed from the Site within forty-eight (48) hours after receiving notice in writing from the Engineer to replace the superintendent with another superintendent. Any person so removed shall not be re-employed on the Work by the Contractor or by any Subcontractor. The Contractor shall not replace the superintendent without the prior written consent of the Engineer unless the superintendent

proves to be unsatisfactory to the Contractor and ceases to be in their employ.

**Subcontractor**

GC12.9 The Contractor shall notify the Engineer in writing of their intention to subcontract. Such notification shall identify the part of the Work, and the name and location of the place of business of each Subcontractor with whom it is intended to subcontract. The Contractor shall not employ any Subcontractor to whom the City may reasonably object, such objection being made by the Engineer notifying the Contractor in writing within six (6) calendar days of receipt by the Engineer of the above notification. The Contractor shall not, without the written consent of the Engineer, change a Subcontractor who has been engaged by them. The City reserves the right to order the Contractor to dispense with the services of a Subcontractor if such services are not satisfactory to the Engineer.

GC12.10 The Contractor with respect to Work to be performed under subcontract, shall:

- .1 enter into contracts or written agreements with their Subcontractors to bind and require them to incorporate the terms and conditions of the Contract Documents into all agreements and to perform their work in complete conformance with and subject to the terms and conditions of the Contract Documents; and
- .2 be as fully responsible to the City for acts and omissions of their Subcontractors and of persons directly or indirectly employed by them, as for the acts and omissions of persons directly employed by them; and
- .3 be responsible for conveying the interpretation or clarification of the Contract Documents, as given by the Engineer, to their Subcontractors.

GC12.11 Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the City. Neither the subcontracting nor shall the Engineer's consent to a subcontracting by the Contractor shall be construed to relieve the Contractor from any obligation under the Contract or to impose any liability upon the City.

GC12.12 The organization of the Specifications and Drawings into sections according to the type of work shall not control the Contractor in dividing the work among

Subcontractors. The Contractor shall be solely responsible for determining the division of the Work amongst their Subcontractors.

### **Other Contractors**

GC12.13 The City reserves the right to allow other contracts in connection with the Work. The Contractor shall arrange and carry on their Work so as not to conflict with the work being carried on or to be carried on for the City by Other Contractors or by the City's employees. The Contractor shall allow them access to the Site and cooperate with them in the carrying out of their duties and obligation in the best manner possible. If any part of the Work depends for its proper execution or result upon the work of Other Contractors, the Contractor shall connect properly and co-ordinate their work with that of such Other Contractors.

GC12.14 The Contractor shall, in writing, notify the Engineer of any defects in the work of such Other Contractors that may interfere with the proper execution of the Work. If the Contractor fails to so inspect the work and report any such defects they shall have no claim against the City by reason of the defective or unfinished work of Other Contractors except for latent defects not reasonably noticeable at the time of commencement of the Work.

GC12.15 If the sending onto the Work or its Site of Other Contractors could not have been reasonably foreseen or anticipated by the Contractor when entering into the Contract and the Contractor incurs additional expense or delay in completing the Work they shall notify the Engineer who will deal with the matter as stated in GC18 Time.

### **Permits and Fees**

GC12.16 The Contractor shall, at their own expense, procure and maintain all permits, licences, and certificates required by law, ordinances, rules, regulations, codes and orders of the authorities having jurisdiction for the execution of the Work, but this shall not include the obtaining of permanent easements or rights of servitude. The Contractor shall give the required notices, pay for all required inspections and comply with the laws, ordinances, rules, regulations, codes and orders of the authorities having jurisdiction that are or become in force during the performance of the Work and that relate to the Work. If there is a discrepancy between any laws, ordinances, rules, regulations, codes and orders the most stringent shall apply.

GC12.17 If the Contract requires or the Contractor desires the use of any design, device, material or process covered by letters of patent or copyright, trademark or trade name, the Contractor shall provide for, at their own expense, such use by suitable legal agreement with the patentee or owner and a copy of said agreement shall be filed with the City upon request. If the City or the Contractor is prevented by injunction from using any patent, design, device, material or process, or any trade mark, trade name or copyright, the Contractor, shall, at their own cost, substitute an equally suitable product, part or method of carrying out the Work, all subject to the prior written approval of the Engineer.

### **GC13. THE ENGINEER**

#### **Authority of the Engineer**

GC13.1 The Engineer will be the City's representative throughout the duration of the Work and shall have authority to act on behalf of the City to the extent expressly provided for in the Contract Documents. The Engineer will be solely responsible for the interpretation or clarification of the Contract Documents or any part thereof that appears indefinite, not clear or contradictory to the Contractor. The Contractor shall obey, perform and comply with the Engineer's orders or instructions with respect to the Work, or concerning the conduct thereof, promptly, efficiently and to the satisfaction of the Engineer, and they will assist Other Contractors, their employees and agents, and those of the City, to do the same.

GC13.2 If the Engineer does not give any direction, instruction or order with respect to the Work, or any part thereof, the Contractor shall not thereby be relieved on any responsibility under the Contract. It is understood and agreed that the Engineer owes no duty either of superintendence or of supervision of the Work to the Contractor; and that each of the provisions of the Contract Documents shall be construed accordingly.

GC13.3 The Contractor shall permit the Engineer to have access to the Work and the Site at all times and the Contractor shall give the Engineer, free of cost to the City, any and all possible assistance and any such information respecting the performance of the Work, whether at the Site of the Work, or at the premises of the Contractor or any Subcontractor, to enable the Engineer to carry out

their duty to see that the Work is performed in accordance with the Contract Documents.

- GC13.4 The Engineer shall have the authority to object to any person employed or retained by the Contractor in the execution of the Work who is in the opinion of the Engineer incompetent, negligent, disrespectful, disorderly or conducting themselves improperly. The Contractor shall forthwith remove the person so objected to. The Engineer may refuse to issue any progress estimate and/or certificate to the Contractor while such person remains engaged upon the Work.

#### **GC14. INSPECTION**

- GC14.1 The Engineer shall have full authority to examine, inspect, test, approve or reject all Plant, materials, equipment, methods or procedure and workmanship without in any way relieving the Contractor from their responsibilities under the Contract. The Engineer shall be the sole judge of determining whether the kind, quantity and quality of the Plant, materials, equipment, methods or procedure and workmanship meet or exceed the requirements of the Contract Documents.
- GC14.2 The Contractor shall before beginning or resuming operations upon any portion of the Work, give the Engineer at least three (3) calendar days notice of their intention to commence work at a certain time and date. It will be the responsibility of the Engineer to ensure that they or their representative is available to inspect the Work, providing that the Contractor has given the required notice.
- GC14.3 If the Contractor covers or permits to be covered any of the Work that is subject to inspection or testing without the prior approval of the Engineer, the Contractor shall, at their sole expense, forthwith take down, expose and rebuild any portion of the Work in order that the Engineer can inspect the Work.
- GC14.4 If, at any time after the commencement of the Work but prior to the expiry of the warranty period, the Engineer has reason to believe that the Work or any part thereof has not been performed in accordance with the Contract Documents, the Engineer may have that Work examined by a qualified person of their choice. If, as a result of an examination of the Work referred to

above, it is established that the Work was not performed in accordance with the Contract Documents, then, in addition to and without limiting or otherwise affecting any of the City's rights and remedies under the Contract or at law, the Contractor shall pay the City, on demand, all reasonable costs and expenses that were incurred by the City in having that examination performed.

## **GC15. CORRECTION OF DEFICIENCIES**

GC15.1 The City shall have the right to any one of and all of the following options in addition to those provided elsewhere in the Contract Documents and to its ordinary remedies at law if, in the opinion of the Engineer, the Work or any part thereof attributable to the Contractor is determined to be defective or deficient:

- .1 If the Engineer shall direct the Contractor to repair, reconstruct, or replace the Work determined to be defective or deficient, the Contractor shall, at their sole expense, and in the manner and within the time period specified, carry out the orders of the Engineer in that respect.
- .2 If the Contractor fails or neglects to act as set out above the City may correct or replace the Work determined to be defective or deficient either by the City's own forces or by an Other Contractor. The cost of correcting or replacing same shall be paid to the City immediately by the Contractor upon receipt of written notice from the City setting out the amount to be so paid. If the Contractor fails to make payment to the City as required hereby, the City may deduct the amount of such payment from any payment required to be made to the Contractor under this Contract. If, in the opinion of the City, the Contractor has received all payments due to them under the Contract, the Surety shall make such payment immediately upon receipt of written notice from the City stating the amount to be so paid.
- .3 If, in the opinion of the Engineer, it is not expedient to correct the Work determined to be defective or deficient, the City may deduct from the Contract Price the difference in value between the Work as done and that called for by the Contract Documents, the amount of which will be determined by the Engineer.
- .4 Pending action under the above, the City shall have the right to use the Work or any portion thereof, without in any way affecting its right of

rejection of any Work determined to be defective or deficient or relieving the Contractor of responsibility to complete the Work.

- GC15.2 If the Contractor disagrees with any decision or direction of the Engineer on any of the foregoing matters, the Contractor shall comply with the decision or direction of the Engineer but may appeal the decision in accordance with GC23 Dispute Resolution.

## **GC16. CHANGE IN WORK**

### **City's Right to Change Work**

- GC16.1 The City shall have the right, at any time before or after the execution of the Contract or at any time during the prosecution of the Work prior to the issuing of the Certificate of Final Completion of the Work to order a Change in Work without in any way affecting or vitiating the Contract, and the Contractor shall carry out such Change in Work upon receipt of a Change Order issued by the Engineer.

### **Change of Costs**

- GC16.2 The Contract Price will not be increased or decreased by reason of any increase or decrease in the cost of the Work to the Contractor that arises as a result of an increase or decrease in the cost of labour, Plant, material or otherwise unless the increase or decrease is a result of a change in a tax imposed under:

- .1 the Excise Act, R.S.C., 1985, c. E-14;
- .2 the Excise Tax Act, R.S.C., 1985, c. E-15;
- .3 the Customs Act, R.S.C., 1985, c. 1;
- .4 the Customs Tariff S.C. 1997, c. 36; or
- .5 The Retail Sales Tax Act, C.C.S.M. c. R130;

that occurs after the Submission Deadline and directly affects the cost to the Contractor of that commodity or service.

- GC16.2.1 If a change in tax takes effect after the Submission Deadline but public notice of the change has been given by either the Federal or Provincial Minister of Finance before that date, the change shall be deemed to have occurred before the Submission Deadline.

- GC16.3 If a change in tax occurs, the Contract Price will be increased or decreased by an amount equal to the amount that is established, by an examination of the relevant records of the Contractor, to be the increase or decrease in the cost incurred that is directly attributable to that change.

#### **Change of Quantity**

- GC16.4 If the amount of the Work originally intended to be done under the Contract is increased by more than 20% of the Estimated Quantity, any negotiated revision to the Contract Price will only apply to the quantities that are in excess of 120% of the Estimated Quantity in the Unit Price Schedule.
- GC16.5 If the amount of the Work originally intended to be done under the Contract is diminished by more than 20% of the Estimated Quantity, any negotiated revision to the Contract Price will only apply to the quantities of the actual Work performed but under no circumstances will the amount payable exceed that amount that would have been payable to the Contractor had the estimated total quantity actually been performed, used or supplied. No claim shall be made for damages on the grounds of loss of anticipated profit on Work so diminished or on any other grounds provided however that the value of the diminution shall not exceed 20% percent of the Contract Price.
- GC16.6 If a change results in a diminution of Work after commencement of the Work or any part thereof resulting in extra cost to the Contractor, for which they would not be entitled to payment on a unit price basis, or in loss of Work already completed but not paid for, or loss to the Contractor in respect of material or equipment purchased by them for the Work but not used thereon as required by the City, compensation shall be made to the Contractor by the City in the sum or sums to be fixed by the Engineer.

#### **Change of Contract Price**

- GC16.7 The Engineer shall determine the value of any Change in Work by one or more of the following methods:
- .1 at the Contract Unit Price(s) for similar work; or
  - .2 at the rate or rates per unit or a lump sum amount subsequently agreed upon; or
  - .3 by the actual cost of the Work to the Contractor plus 15% on any portion of the Work undertaken by the Contractor's own forces or 10% on any

portion of the Work undertaken by a Subcontractor. Equipment costs will be paid for at the rental rates set forth in the written order, or otherwise in accordance with The City of Brandon Construction Vehicles & Equipment Rentals Firm Price Listing.

GC16.8 If the value of the Change in Work is to be determined by either method .1 Unit Price or .2 Lump Sum above, the Contractor shall present their proposed change in the Contract Time and/or Contract Price to the Engineer, supported by appropriate documentation in a form acceptable to the Engineer prior to the commencement of the proposed Work. The Engineer will evaluate and verify the acceptability of such proposal and, if approved by the Engineer, a Change Order will be issued to the Contractor amending the Contract Time and/or Contract Price. The Change Order will stipulate the form of presentation of costs and methods of measurement.

GC16.9 If the value of the Change in Work is to be determined by method .3 Cost Plus above, the cost of performing the work attributable to the Change in Work shall be limited to the actual net change in the cost of the following:

- .1 salaries, wages and benefits paid to the Contractor's employees under a salary or wage schedule agreed upon by the City and the Contractor, or in the absence of such a schedule, actual salaries, wages and benefits paid by the Contractor, for employees engaged in:
  - .1 performing the work on the Site attributable to the Change in Work;
  - .2 in the production or transportation of Products, at shops or on the road;
  - .3 engaged in the preparation or review of Contractor's Specifications and Contractor's Drawings.
- .2 contributions, assessments or taxes incurred for such items as employment insurance, provincial or territorial health insurance, workers' compensation, and Canada or Quebec Pension Plan, that are based on wages, salaries or other remuneration paid to employees of the Contractor and included in the cost of the Work as provided in GC16.9.1;
- .3 travel and subsistence expenses of the Contractor's personnel described in GC16.9.1;
- .4 all Products including cost of transportation thereof;
- .5 Plant, including transportation and maintenance thereof, and , materials, supplies which are consumed in the performance of the Work; and cost

less salvage value on such items used but not consumed, which remain the property of the Contractor;

- .6 equipment and services required for the Contractor's field office;
- .7 removal and disposal of waste products and debris;
- .8 safety measures and requirements;
- .9 the amounts of all subcontracts;
- .10 quality assurance such as independent inspection and testing services;
- .11 charges levied by authorities having jurisdiction;
- .12 royalties and patent licence fees;
- .13 premiums for bonds and insurance which the Contractor is required, by the Contract Documents, to purchase and maintain;
- .14 forfeited deposits; and
- .15 taxes and duties for which the Contractor is liable.

GC16.9.1 The Contractor shall maintain and keep detailed daily records of each piece of work covered by the Change Order, showing the names of the workers engaged thereon, the number of hours each worker was employed, the number of hours Plant and equipment was employed thereon and the quantities of material necessary for and consumed in the performance of the Change in Work. These daily records shall be made in duplicate each day and submitted to the Engineer for verification. If requested by the Engineer, the Contractor shall submit receipted invoices for all materials and services utilized in the performance of the Change in Work. The Contractor shall provide the Engineer with every facility for the compilation of cost records, and when requested shall supply all data necessary for such purpose from payrolls, time books, invoices, and all other sources from which the City may find it necessary to obtain information.

GC16.10 If the method of valuation, measurement or change in Contract Time and/or Contract Price cannot be promptly agreed upon prior to the commencement of the proposed Work and the Engineer requires the same to proceed, then the Engineer in the first instance will determine the method of valuation, measurement and the change in Contract Time and/or Contract Price. The Engineer will issue a Change Order setting out the method of valuation, measurement and any change in the Contract Time and/or Contract Price.

The Contractor shall proceed with the Work and the matter shall be subject to final determination in the manner set out in GC23 Dispute Resolution. The Engineer shall certify the value of the Work performed in accordance with their own valuation and measurement of the Work and shall also certify any change in Contract Time and/or Contract Price.

## **GC17. PAYMENT**

### **Engineer's Progress Estimate**

- GC17.1 The Contract Price to be paid by the City to the Contractor will be the sums certified by the Engineer in the interim and final progress estimates; such sums to be ascertained and determined by the Engineer as follows:
- .1 For Unit Price Contracts, upon the basis of the Contract Unit Prices for the various classes of the Work included in the Unit Price Schedule or Change Order(s). These Contract Unit Prices are gross prices including duty, freight, cartage, Provincial (RST) and Federal taxes (GST excluded) and all charges governmental or otherwise paid and including profit and all compensation that shall be due to the Contractor for supplying labour, materials, Plant, supervision and all details necessarily connected with the completion of the Work and all risks and contingencies connected therewith. The total amount to be paid to the Contractor for the Work described in the Contract will be the amount arrived at by measuring the net amount of each class of the Work listed in the Unit Price Schedule, and pricing the same, in accordance with the Contract Unit Prices therein.
  - .2 For Lump Sum Contracts, upon the basis of the lump sum price included in the Agreement or Change Order(s). The lump sum price shall be a gross price including duty, freight, cartage, Provincial (RST) and Federal taxes (GST excluded) and all charges governmental or otherwise paid and including profit and all compensation that shall be due to the Contractor for supplying labour, materials, Plant, supervision, and all details necessarily connected with the completion of the Work and all risks and contingencies connected therewith. Payments will be made in proportion to the progress of the Work, as determined by the Engineer, during the term of the Contract.

- GC17.2 By the fifth (5th) calendar day after the end of any month during which any Work has been completed, the Contractor shall deliver to the Engineer an application for payment signed by the Contractor which accurately sets forth all such Work completed during the month and the amount claimed therefore in accordance with the valuation method set out in the Contract Documents.
- GC17.3 Subject to the timely receipt of the Contractor's application for payment pursuant to GC17.2, by the fifteenth (15th) calendar day after the end of any month, or as soon thereafter as possible, the Engineer will prepare a monthly progress estimate setting out the quantity and value of the Work performed during the preceding month that in the opinion of the Engineer is in accordance with the Contract Documents and was not included in any previous progress estimate relating to the Contract.
- GC17.4 The City will make payment to the Contractor on account of the progress estimate by the later of:
- .1 the twenty-fifth (25th) calendar day after the end of the month for which the Contractor's application for payment was made; or
  - .2 twenty (20) calendar days after receipt by the Engineer of the Contractor's application for payment pursuant to GC17.2.
- GC17.5 Payments shall be subject to holdbacks pursuant to the provisions of the Contract Documents, The Builders' Liens Act or any other applicable statute, regulation or by-law.

#### **Payment Withheld**

- GC17.6 The City may withhold or on account of subsequently discovered evidence, nullify the whole or part of any progress estimate to the extent necessary to protect the City from loss on account of any one or more of the following if the Contractor:
- .1 abandons the Work; or
  - .2 is adjudged bankrupt or insolvent; or
  - .3 makes a general assignment for the benefit of their creditors; or
  - .4 has a receiver or liquidator appointed in respect of their assets; or
  - .5 is in the judgment of the Engineer not executing or has not been executing the Work, or any part thereof, in a sound and skillful manner

and to their satisfaction and in all respects in strict conformity with the Contract; or

- .6 in the judgment of the Engineer, is not progressing continuously with the Work or any part thereof, and in such a manner as to ensure the proper completion of the Work or any part thereof, within the time stipulated; or
- .7 refuses or neglects forthwith, when so ordered, to conduct the Work so as to ensure its completion, in the opinion of the City, within the time stipulated; or
- .8 fails to submit a schedule or revised schedule of work activities for the Work to the Engineer for approval when such schedule has been requested by the Engineer; or
- .9 has not completed the work within the time required; or
- .10 refuses or neglects to take down, rebuild, repair, alter or amend any defective or unsatisfactory Work, or to remove any condemned material or workmanship, or to comply with any reasonable order in connection therewith that they may receive from the Engineer; or
- .11 fails to make prompt payment to their Subcontractors, their employees or on account of the purchase or rental of material or Plant; or
- .12 fails to promptly secure a discharge of a claim for lien or trust claim served upon the City pursuant to The Builders' Liens Act or The Workers Compensation Act, C.C.S.M. c. W200; or
- .13 persistently disregards any laws, bylaws and statutory regulations; or
- .14 fails to sign a Certificate of Final Completion of the Work as required; or
- .15 fails to employ or keep a competent Superintendent on the Work or to replace the Superintendent as required by the Engineer; or
- .16 fails to comply with the provisions of the Schedule of Work; or
- .17 commits any other material breach of this Contract that in the opinion of the City indicates an unwillingness or inability upon the part of the Contractor to carry out the terms thereof; or
- .18 fails to make good any loss or damage for which they are liable under GC11 Insurance within a reasonable time after being required to do so by the Engineer, or
- .19 fails to make direct deposit arrangements with the City.

GC17.7 The failure of the City to deduct or withhold an amount referred to above shall not constitute a waiver of the right of the City to do so, or an admission of lack of entitlement to do so in any subsequent payment to the Contractor.

GC17.8 The City may make payment to such persons (including the City) as shall be entitled thereto for any or all amounts for which the Contractor or any Subcontractor is shown to be indebted or liable to pay in respect of wages, labour, services, the purchase of material, or rental of Plant furnished for the Work. Payment of such amounts shall discharge the City's liability to the Contractor to the same extent as payment directly to them.

## **GC18. TIME**

### **Contract Time**

GC18.1 The Contractor shall complete the Work in accordance with the Contract Documents and to the satisfaction of the Engineer within the specified Contract Time.

GC18.2 Except as provided for in the definition and application of Working Days, the Contractor shall assume all risk for reasonably foreseeable conditions such as weather within seasonal norms and shall not be entitled to extension of Contract Time or costs due to delay therefore.

### **Working Days**

GC18.3 If the Contract Time is specified as a number of Working Days, counting of Working Days shall commence on the earlier of fourteen (14) calendar days after the award of Contract or the day the Contractor commences Work, and will continue to be assessed until the Certificate of Final Completion of the Work is issued. The Engineer will at the end of each day certify on an inspection report as to whether or not the day is to be considered as a Working Day.

### **Schedule of Work**

GC18.4 The Contractor shall, prior to commencement of the Work, prepare and submit for the Engineer's approval, a Schedule of Work listing the order in which the Contractor proposes to carry on the Work, including the dates at which major or critical portions of the Work will commence and be completed, and confirming the construction start date and the completion date, the latter

date being no later than the date specified in the Agreement for Final Completion of the Work. Once accepted by the Engineer, the Schedule of Work shall not be changed by the Contractor without the Engineer's approval. The Contractor shall be responsible for ensuring that all Work is carried out in accordance with and within the time limits set out in the Schedule of Work.

- GC18.5 If the progress of the Work falls behind the most recent approved Schedule of Work or is delayed for any reason other than one for which an extension of Contract Time is provided for under GC18 Time, the Contractor shall, at their sole cost work such additional time, including weekends and holidays, employ additional workers, or both as may be required to bring the work back on schedule.

### **Delays**

- GC18.6 If the Contractor is delayed in the performance of the Work by:
- .1 a stop work order issued by a court or other public authority having jurisdiction and providing that such order was not issued as the result of an act or fault of the Contractor or anyone employed or engaged by them directly or indirectly;
  - .2 labour disputes, legitimate or legal strikes, lock-outs (including lock-outs decreed by a recognized contractors' association for its members of which the Contractor is a member);
  - .3 acts of God;
  - .4 unavoidable casualties;
  - .5 any other cause that is totally beyond their control, fault or negligence; or
  - .6 any other cause within the Contractor's control that the Engineer has determined is justified;
  - .7 any unduly prolonged delay upon the part of the City;
- then the Contract Time will be extended for a period of time equal to the time lost due to such delay.
- GC18.7 No extension of Contract Time or claim for costs due to delay will be granted by the Engineer unless a written notice, clearly stating the cause of delay and the length of extension requested, is received by the Engineer from the Contractor within seven (7) calendar days of the date on which the cause of the delay arose. In the case of a continuing cause of delay, only one notice

shall be necessary. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. The Engineer may require that any request for an extension of Contract Time be accompanied by a written consent of the Surety whose bonds form part of the Contract Documents.

### **Liquidated Damages**

- GC18.8 Subject to the extensions of Contract Time as provided for herein, if the Contractor fails to achieve Final Completion of the Work in accordance with the Contract Documents and to the satisfaction of the City by the day fixed in the Agreement for Final Completion of the Work, the Contractor shall pay the City the sum stipulated in the Agreement as liquidated damages (and not as penalty) for each and every calendar day following that day fixed for Final Completion of the Work and ending on the day immediately preceding the date of the Certificate of Final Completion of the Work.

## **GC19. CERTIFICATE OF FINAL COMPLETION OF THE WORK**

- GC19.1 On the day that Final Completion of the Work is achieved, and the Contractor has complied with the Contract Documents and all orders and directions made pursuant thereto, to the satisfaction of the Engineer, the Engineer will issue a Certificate of Final Completion of the Work to the Contractor.
- GC19.2 No payment made to the Contractor and no partial or entire use or occupancy of the Work by the City shall be taken as an accurate setting forth of the state of the Work or as an acceptance of any Work or material not in accordance with the Contract Documents. Neither the issue of a Certificate of Final Completion of the Work nor payment of the final progress estimate shall relieve the Contractor from their responsibility either under GC20 Warranty hereof or as a result of any breach of this Contract by the Contractor including but not limited to faulty or defective Work appearing after Final Completion of the Work, failure of the Work to comply with the Contract Documents or the requirement to comply with the terms of any special guarantees set out in the Supplemental Conditions, nor shall it conclude or prejudice any of the powers of the Engineer or the City.
- GC19.3 Subject to their right to appeal pursuant to GC23, acceptance by the Contractor of payment of the final progress estimate and the Certificate of Final Completion of the Work shall constitute a waiver and release by them of

all claims against the City whether for payment for Work done, damages or otherwise arising out of the Contract, except those previously made and still unsettled, if any.

## **GC20. WARRANTY**

GC20.1 The Contractor shall, unless specifically stated otherwise in the Contract Documents, at their sole cost and expense, maintain the Work against any and all defects or deficiencies that may arise for a period of twelve (12) months from the date of the Certificate of Final Completion of the Work.

GC20.1.1 If because of conditions reasonably beyond the control of the Contractor, a portion of the Work cannot be completed but that portion does not prevent the balance of the Work from being put to its intended use, the City may at its sole discretion permit the warranty period for all or part of the completed portion of the Work to commence prior to the issuance of the Certificate of Final Completion of the Work.

GC20.2 Upon receipt of written notice from the City, the Contractor or their Surety shall, at their sole cost and expense, remedy any defect or deficiency, and remedy any and all damage that may arise or result from the defect, deficiency or the correction of same, or otherwise identified by the Engineer within the twelve (12) month period as aforementioned, in the manner and within the time periods specified in the said notice.

GC20.3 If the Contractor fails or neglects to act for any reason whatsoever to remedy the defects or deficiencies or otherwise in the manner and within the time periods specified in the said notice, the City may take all steps necessary to have the defects, deficiencies or otherwise remedied either by the City's own forces or by another contractor acceptable to the City and the Surety. The cost of such remedial work shall be paid to the City by the Contractor within seven (7) calendar days of receipt of written notice from the City to the Contractor setting out the amount to be paid. If the Contractor fails to make payment to the City as required hereby, the City shall deduct the amount of such payment from any payment required to be made to the Contractor under this Contract.

- GC20.4 If the Contractor fails to make payment to the City as required hereunder, the Surety shall make such payment to the City within seven (7) calendar days of receipt of written notice from the City setting out the amount to be so paid.
- GC20.5 Notwithstanding the generality of the foregoing:
- .1 If repairs must be made immediately, by reason of an emergency existing or otherwise, the City shall have the right to undertake such repairs and charge the cost of making such repairs to the Contractor or their Surety, except that the City shall immediately notify the Contractor or their Surety and shall withdraw its forces as soon as the Contractor's or the Surety's forces assume performance of the repair.
  - .2 All costs resulting from the need to undertake remedial work during the warranty period as aforesaid, whether by the Contractor, their Subcontractor or by the City, as provided herein, shall be borne by the Contractor or their Surety. In addition, the Contractor shall be liable to the City for all expenses, losses or damages incurred by the City as a result of such defects, deficiencies or otherwise referred to herein or as a result of the Contractor's failure to meet the warranty requirements specified herein, including, but without limiting the generality hereof, all costs of engineering, inspection and testing.
- GC20.6 If the Contractor can prove, following completion and payment for the remedial work, that the defect, deficiency or otherwise was attributable to a design defect, deficiency or otherwise or resulted from third party damage not attributable to the Contractor or their Subcontractor, the City shall promptly reimburse the Contractor for the cost of undertaking such remedial work. If the Contractor fails for any reason whatsoever to remedy the defect, deficiency or otherwise in the manner and within the time limit specified in herein, the Contractor shall not be entitled to repayment of any monies that they are required to pay the City as outlined in the above.
- GC20.7 If a defect or deficiency prevents the full and normal use or operation of the Work or any portion thereof, for purposes of calculating the warranty period, time shall be deemed to cease to elapse for the defective or deficient portion, and for any portion of the Work whose use or operation is prevented by such defect or deficiency, as of the date on which the defect or deficiency is observed or the use or operation is prevented and shall begin to run again

when the defect or deficiency has been corrected or the Work may be used or operated to the satisfaction of the Engineer.

- GC20.8 Notwithstanding the provisions of this Article, if any statute in force in the Province of Manitoba or in the jurisdiction where the material was manufactured or if a manufacturer's warranty extends beyond the warranty period specified in the Contract Documents, then the provisions of such statute or manufacturer's warranty shall apply.

## **GC21. SUSPENSION OF WORK**

### **City's Right to Stop Work**

- GC21.1 The City has the right and may, by an order in writing, at any time stop or suspend all or any part of the Work, or direct any portion to be commenced or completed in priority to any other part or portion, or may cancel the order to proceed with the Work, or with any part thereof, and the Contractor shall not thereby be entitled to any claim of or loss of profit, or anticipated profit, or for damages or for any additional payment by reason of such order. The Contractor shall comply with such orders immediately and suspend all operations in respect of the Work except those that, in the opinion of the Engineer are necessary to secure the Site and any existing facilities thereon in a proper and satisfactory condition for the safe accommodation of the public, and for the effectual protection of the Work, Site, Plant and material from the weather, vandalism or other causes, and shall so maintain it.
- GC21.2 The Contractor shall not, during a period of suspension, remove any part of the Work, Plant or material from the Site without the consent of the Engineer. No such suspension shall vitiate this Contract or any part thereof, and at any time after such Work has been suspended, such Work may again be resumed in whole or in part at the option of the Engineer. Upon the Contractor receiving written notice from the City that such Work or any part thereof is to be resumed they shall at once resume Work and diligently carry on the same.
- GC21.3 The Contractor shall not proceed to prosecute any portion of the Work, against the orders of the Engineer. In the case of any portion of the Work prosecuted contrary to the orders of the Engineer the cost of such taking known or exposure, and re-building if any shall fall upon the Contractor.

### **Contractor's Right to Suspend Work or Terminate Contract**

GC21.4 If the Work is stopped or otherwise delayed for a period of sixty (60) calendar days or more under an order of any court, or other public authority, and providing that such order was not issued as the result of an act or fault of the Contractor, or anyone directly or indirectly employed by them, or if the City fails to pay the Contractor within sixty (60) calendar days of its maturing and presentation, any sum certified by the Engineer or awarded by arbitrators, then the Contractor may, upon seven (7) calendar days written notice to the City, stop work or terminate this Contract and recover from the City payment for all Work done and any loss sustained upon any Plant or material with reasonable profit and damages.

### **GC22. FORFEITURE OF CONTRACT**

GC22.1 The City shall have the full right and power to take the whole of the Work, or any part or parts thereof, out of the hands of the Contractor, and may employ such means as the City sees fit to have the Work completed, without process or action at law, upon giving the Contractor written notice, a copy of which notice shall be given to the Surety, or the local agent of the latter, if the Contractor:

- .1 abandons the Work; or
- .2 is adjudged bankrupt or insolvent; or
- .3 makes a general assignment for the benefit of their creditor without the City's consent; or
- .4 has a receiver or liquidator appointed in respect of their assets; or
- .5 is in the judgment of the Engineer not executing or has not executed the Work, or any part thereof, in a sound and skillful manner and to their satisfaction and in all respects in strict conformity with the Contract Documents; or
- .6 in the judgment of the Engineer, is not progressing with the Work or any part thereof continuously and in such a manner as to ensure the proper completion of the Work or any part thereof, within the time stipulated in the Contract Documents; or

- .7 refuses, neglects or fails forthwith, when so ordered, to conduct the Work so as to ensure its completion, in the opinion of the Engineer, within the time stipulated; or
  - .8 has not completed the Work within the time required; or
  - .9 refuses, neglects or fails to take down, rebuild, repair, alter or amend any defective or unsatisfactory Work, or to remove any condemned material or workmanship, or to comply with any reasonable order in connection therewith that they may receive from the City; or
  - .10 fails to make prompt payment of wages to themselves, their employees, Subcontractor or accounts for the purchase or rental of material or Plant; or
  - .11 fails to promptly secure a discharge of a lien or trust claim, served upon the City, pursuant to The Builders' Liens Act, within thirty (30) calendar days after receipt of written notice of the claim from the City; or
  - .12 persistently disregards any laws, by-laws or regulations; or
  - .13 commits any other material breach of this Contract that in the opinion of the City indicates an unwillingness or inability upon the part of the Contractor to carry out the terms thereof.
- GC22.2 Upon such notice being given to the Contractor, they shall be subject to any conditions stipulated in the notice, immediately discontinue the Work or any part or parts thereof specified in the notice.
- GC22.3 The Surety may, at its option, assume this Contract in respect of the whole of the Work, or the portion thereof specified in the notice on which the City has ordered the Contractor to discontinue the Work, as the case may be, and proceed to perform same, and may with the written consent of the City sublet the Work or portion of the Work so taken over; provided however that the Surety shall exercise its option, if at all, within fourteen (14) calendar days after written notice to discontinue the Work has been served upon the Contractor and a copy of same upon the Surety or the local agent of the latter.
- GC22.4 The Surety in such event shall take the Contractor's place in all respects, shall be bound by all terms and conditions of Contract Documents and shall be paid by the City in accordance with the terms of the Contract for all Work performed by it.

- GC22.5 If the Surety does not within fourteen (14) calendar days exercise its right and option to assume the Contract as aforesaid or if there is no Surety, then the City shall have the power to complete by contract or otherwise as it may determine, the Work hereinbefore referred to or such portion of it as the City may deem necessary, and the Contractor agrees that the City shall have the right to take possession of and use any of the materials, Plant, supplies and property of every kind provided by the Contractor for the purpose of the Work and to procure other Plant and materials for the completion of the same. The City shall not be required to obtain the lowest price for the Work taken over from the Contractor.
- GC22.6 If the Work or any part hereof is taken out of the Contractor's control, all Plant and material and the interest of the Contractor in all licences, powers and privileges acquired, used or provided by the Contractor under the Contract shall be assigned by the Contractor to the City without compensation to the Contractor. When the Engineer certifies that any Plant, material, or any interest of the Contractor referred to above is no longer required for the purpose of the Work, or that it is not in the best interest of the City to retain that Plant, material, or interest, it shall revert to the Contractor.
- GC22.7 If the cost to the City, as certified by the Engineer, of completing the Work or portion thereof as aforesaid, be less than the amount to which the Contractor would have been entitled under the Contract for so doing, the Contractor shall have no claims in respect thereof against the City. If such certified cost of the Work performed by the City is more than the amount to which the Contractor would have been entitled under the Contract for the same Work, then the City shall have a claim against the Contractor for all additional costs of the Work that have been incurred by the City in addition to the amount of any liquidated damages that the City is entitled to hereunder from the date fixed for Final Completion of the Work in the Contract Documents and the Contractor shall pay the amount of such cost of the Work together with liquidated damages as provided for herein to the City upon notice from the City setting out the amount so due. When any particular part of the Work is being carried on by the City, by contract or otherwise, under the provisions of this Clause, the Contractor shall continue the remainder of the Work in conformity with the terms and conditions of the Contract, and in such manner as in no way to hinder or interfere with the Other Contractor, or workers employed by the City.

- GC22.8 If the whole or any part of the Work is taken out of the Contractor's hands, the Contractor's right to any further payment that is due or accruing due under the Contract is extinguished, and the Contractor is liable to pay the City, upon demand, an amount that is equal to the amount of all loss and damage incurred or sustained by the City in respect of the Contractor's failure to complete the Work.
- GC22.9 The taking of the Work or any part thereof out of the Contractor's control pursuant to the above does not relieve or discharge the Contractor from any obligation under the Contract or imposed upon them by law except the obligation to complete the performance of that part of the Work that was taken out of the Contractor's control.
- GC22.10 If the Contractor disagrees with any decision or direction of the Engineer on any of the foregoing matters, the Contractor shall comply with the decision or direction of the Engineer but may appeal the decision in accordance with GC23 Dispute Resolution.

## **GC23. DISPUTE RESOLUTION**

### **Compliance with Engineer's Decision**

- GC23.1 If the Contractor disagrees with any decision or direction of the Engineer, the Contractor shall nonetheless comply with the decision or direction of the Engineer.
- GC23.2 Such compliance by the Contractor shall not be construed as an admission by the Contractor of the correctness of that decision or direction, or prevent the Contractor from appealing the decision or direction that is the subject of the protest.

### **Appeals**

- GC23.3 If the Contractor disagrees with any decision or direction of the Engineer, the Contractor must, within seven (7) calendar days after receiving the notice of the Engineer's decision or direction, notify the City in writing of their contention with respect thereto and request a determination thereon from the City Manager.

- GC23.3.1 Such notice shall set forth particulars of the matters in dispute, and if applicable, state the probable extent and value of the damages and the relevant provisions of the Contract Documents.
- GC23.3.2 If the Contractor fails to so notify the City for a determination within seven (7) calendar days after receiving the notice of the Engineer's decision or direction, the Contractor shall be deemed to have waived any said claim. Oral appeals or oral protests shall not amount to substantial compliance with any of the provisions of this Clause.
- GC23.4 If the Contractor disagrees with the determination of the City Manager, the Contractor must within seven (7) calendar days after receiving notice of the City Manager's determination, notify the City in writing of their contention with respect thereto.
- GC23.4.1 If the Contractor fails to so notify the City within seven (7) calendar days after receiving the notice of the City Manager's determination, the Contractor shall be deemed to have waived any said claim. Oral appeals or oral protests shall not amount to substantial compliance with any of the provisions of this Clause.
- GC23.5 If the Contractor neglects or fails to observe fully and faithfully the above conditions, they shall forfeit all right to any claim for additional payment therefore over and above that approved by the Engineer, or any other remedy that the Contractor otherwise might have had, and shall not make any claim in respect thereof, and if made, the City may reject the same as invalid and they shall not have any right of recovery in respect thereof, at law or otherwise.

### **Arbitration**

- GC23.6 If at any time during the period that this Contract is in force or after the dissolution or determination thereof, any dispute, difference or question shall arise between the City and the Contractor regarding this Contract or the accounts or transaction thereof, or the construction, meaning or effect of these presents or otherwise in relation to the premises, then every such dispute, difference or question shall be referred to arbitration.
- GC23.7 The Arbitration Act, C.C.S.M. c. A120 shall apply to the arbitration in all respects except as expressly otherwise provided in these General Conditions.

- GC23.8 No arbitration shall proceed before the date of Substantial Performance of the Work unless both the City and the Contractor agree that the matter in dispute requires immediate consideration while evidence is available, or in the case of legal proceedings, or where the action may become proscribed by reason of delay.
- GC23.9 Except as hereinafter provided otherwise, the arbitral tribunal shall be composed of three arbitrators, one to be appointed by each party to the reference and the third to be appointed by the first named two arbitrators in writing before they enter upon the business of the reference.
- GC23.10 Either party may notify the other party in writing of their desire to submit the difference, dispute or question to arbitration. Said notice shall name the arbitrator appointed by the party giving notice.
- GC23.11 The party receiving the notice shall, within ten (10) calendar days, reply to the party giving the notice, and name the arbitrator appointed by the party receiving the notice.
- GC23.12 The two arbitrators appointed shall within ten (10) calendar days of the date on which the last of them was appointed, appoint a third arbitrator who shall be the chairperson of the arbitral tribunal.
- GC23.13 If the party receiving the notice refuses or neglects to appoint an arbitrator within ten (10) calendar days, then the arbitrator first appointed shall proceed to hear and determine the matters in difference as if they were an arbitrator appointed by both parties for that purpose, and the award or determination shall be made by the said arbitrator.
- GC23.14 The chairperson of the arbitral tribunal, or the single arbitrator pursuant to GC23.13, shall determine the procedure to be followed in the arbitration.
- GC23.15 Except as hereinafter provide otherwise, the City and the Contractor shall each bear all costs and expenses associated with the appointment of its arbitrator. The City and the Contractor shall bear all other costs and expenses associated with the arbitration equally.
- GC23.15.1 If, pursuant to GC23.13, the arbitral tribunal is composed of one arbitrator, the City and the Contractor shall bear all costs and expenses associated with the appointment of the arbitrator equally.

## **SUPPLEMENTAL CONDITIONS**

### **SC1. SUPPLEMENTAL CONDITIONS**

- SC1.1 In addition to the General Conditions, these Supplemental Conditions are applicable to the Work of the Contract.

### **SC2. WORKPLACE SAFETY AND HEALTH**

#### **COR / SECOR Certification**

- SC2.1 The Contractor shall have a valid COR or SECOR Certification under the Certificate of Recognition (COR) Program or Small Employer Certificate of Recognition (SECOR) Program administered by the Construction Safety Association of Manitoba (CSAM) or under the WORKSAFELY Program administered by the Manitoba Heavy Construction Association (MHCA).
- SC2.1.1 The Contractor shall, within five (5) Business Days of a request by the Engineer, provide proof satisfactory to the Engineer that the Contractor has a valid COR or SECOR.
- SC2.1.2 The Contractor shall, at least five (5) Business Days prior to the commencement of any Work on the Site, provide the Engineer with a Safe Work Plan that identifies the hazards associated with the specific tasks of the contract work and details the steps the Contractor will take to control each hazard.

### **SC3. CONTRACTOR DECLARATION**

- SC3.1 Further to GC5, the Contractor declares that in bidding for the Work and in entering into the Contract, they are aware of the Orders issued under the section 67 of the Public Health Act and have taken all necessary steps to ensure compliance with said Orders. The Contractor shall regularly check the Province of Manitoba webpage for updates and ensure compliance with any future Orders. As Prime Contractor, the Contractor shall ensure Subcontractors are also in compliance.

#### **SC4. INSURANCE**

SC4.1 Further to GC11, the Contractor shall provide and maintain the following insurance:

.1 Workers Compensation Board Coverage:

Workers Compensation Board of Manitoba registration must be current and in good standing. Coverage shall be maintained throughout the term of the Contract, and shall provide evidence thereof to the City of Brandon upon request.

.2 General Liability Insurance:

General Liability Insurance shall be in the name of the Contractor, with the City as an additional insured, but only with respect to liability arising out of the operations of the Contractor with regard to the Work (excluding any legal liability arising out of the sole negligence of the City), with limits of not less than five million dollars (\$5,000,000) per occurrence, an aggregate limit of not less than five million dollars (\$5,000,000) within any policy year with respect to completed operations. The insurance coverage and the form of this insurance shall be at least equal to the latest edition of IBC Form 2100, including an extension for a standard provincial and territorial form of non-owned automobile liability policy and the latest edition of the relevant Canadian Construction Documents Committee (CCDC) endorsement form, and shall be maintained continuously from commencement of the Work until the date of the expiry of the Warranty Period, and with respect to Completed Operations Coverage for a period of not less than six (6) years from the date on which the Warranty Period expires.

.3 Automobile Liability Insurance:

Automobile Liability Insurance in respect of vehicles that are required by law to be insured under a contract by a Motor Vehicle Liability Policy, shall have limits of not less than five million dollars (\$5,000,000) inclusive per occurrence for bodily injury, death, and damage to property, covering all vehicles owned or leased by the Contractor, in the following forms:

- .1 Standard Non-Owned Automobile Policy including Standard Contractual Liability Endorsement. This may be attached to the General Liability Insurance policy.

- .2 Standard Owner's Form Automobile Policy providing Third Party Liability and Accident Benefits Insurance and covering licensed vehicles owned or leased by the Contractor.

The Automobile Liability Insurance shall be maintained continuously from commencement of the Work until the date of the expiry of the Warranty Period.

- .4 Contractors Pollution Liability Insurance:

The Contract shall obtain and maintain Contractors Pollution Liability insurance in respect to the Work with minimum coverage of one million dollars (\$1,000,000) per occurrence.

## **SC5. INSPECTION**

- SC5.1 Further to GC14, unless otherwise authorized by the Engineer, the following construction operations shall not be performed without the Engineer present on the Site:

- .1 Pipe laying; or
- .2 Backfilling; or
- .3 Placing Concrete; or
- .4 Placing Asphalt Pavement; or
- .5 Construction involving existing works or utilities.

## **SC6. WORK SCHEDULE**

- SC6.1 Further to GC18.4, the Contractor shall schedule and perform the Work to complete the Work at each Site in a timely manner.

- SC6.1.1 Unless otherwise authorized by the Engineer, the Work at each Site shall be performed in a continuous manner from commencement to completion.

## **SC7. PAYMENT**

- SC7.1 Further to GC17.3, the Contractor shall make arrangements with the City to receive payment by direct deposit to the Contractor's account at a financial institution, payment will be made by electronic funds transfer on the stipulated date.

## **SPECIFICATIONS**

Section 01002 – Scope of Work

Section 01003 – Measurement & Payment

Section 01-010 – Common Requirements

Section 01-020 – Meetings

Section 01-030 – Submittals

Section 01-040 – Requests for Information & Changes to Work

Section 01-050 – Site Conditions & Restrictions

Section 01-060 – Temporary Works

Section 01-070 – Safety

Section 01-080 – Environmental Protection

Section 01-090 – Traffic Management

Section 01-100 – Materials & Equipment

D-01100-1 – List of Approved Products

Section 01-110 – Quality Control & Field Engineering

Section 01-120 – Cleaning & Closeout

Section 04-010 – Watermains

Section 04-020 – Water Connections

Appendix “A” – City of Brandon Test-Hole Report

## SCOPE OF WORK

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### PART 1: GENERAL

#### 1.1 OTHER CONTRACT DOCUMENTS

- .1 The General Conditions of the Contract, the Supplemental Conditions, Specifications, Drawings, City of Brandon Standard Construction Specifications, and Unit Price Schedule attached hereto shall apply to and form part of this Section. If there is any conflict between this Section and either of the above, this Section shall govern.
- .2 Where the City of Brandon Standard Construction Specifications refer to the Supplemental Conditions or the Special Provisions, it shall now mean Section 01002 Scope of Work.
- .3 The Work shall be completed in accordance with the Contract Documents, Drawings, City of Brandon Standard Construction Specifications included with this Contract, and the requirements of the Engineer.

#### 1.2 THE WORK

- .1 The Work is for the supply and installation of watermain, wastewater sewer, service connections and associated Work at 34th Street and Manitou Drive in the City of Brandon.
- .2 The Work includes, but is not necessarily limited to:
  - .1 Supply and installation of watermain, valves, fittings, hydrant assemblies, water service connection, plugs, bedding, and appurtenances.
  - .2 Connections to existing or future municipal water distribution infrastructure.
  - .3 Supply and installation of wastewater sewer, manholes, plugs, service connection, bedding, and appurtenances.
  - .4 Connection to existing municipal wastewater sewer infrastructure.
  - .5 Excavation, shoring, bedding, backfill, compaction, and trench restoration.
  - .6 Utility crossings, utility protection, and coordination with utility owners.
  - .7 Dewatering, where required.
  - .8 Hydrostatic testing, leakage testing, disinfection, flushing and coordination of bacteriological sampling and testing of watermains.
  - .9 Sewer cleaning, CCTV inspection, and acceptance testing of wastewater sewer infrastructure.
  - .10 Road restoration, granular restoration, ditch grading, topsoil placement, seeding, and related surface restoration.
  - .11 Traffic management and temporary traffic control.
  - .12 All incidental work required to complete the Work in accordance with the Contract Documents.

## **SCOPE OF WORK**

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### **1.3 SCHEDULE OF WORK**

- .1 The Work shall be scheduled at the discretion of the Contractor, subject to the Contract Documents and coordination requirements specified in Article 1.7, Work by Others and Coordination.
- .2 The Contractor shall advise the Engineer a minimum of fourteen (14) Working Days in advance of its intention to commence, suspend, resume or terminate Work.
- .3 The Contractor shall schedule and sequence the Work to accommodate Work by others and shall proceed with portions of the Work that can reasonably be completed independently.
- .4 Once the Work has begun, it shall be advanced diligently with a view to completing the Work or restoring the affected infrastructure to full use in the shortest possible time.
- .5 The Contractor shall notify the Engineer of disruptions to water service in accordance with Section 04-010 Watermains.
- .6 Before commencing each stage of construction, the Contractor shall obtain clearance from the Engineer that the preceding stage is ready to receive new Work and that no weather conditions or other matters outside the City's control preclude commencement of the new Work.
- .7 Once excavation within 34th Street or Manitou Drive begins, the Work shall proceed continuously until:
  - .1 The excavation has been backfilled.
  - .2 The affected roadway has been reopened with an accepted temporary or permanent surface.
  - .3 The affected area has been made safe for traffic and the public.

### **1.4 SITE CONDITIONS & COORDINATION**

- .1 Available test-hole information is included in Appendix A.
- .2 The existing sewer was installed previously, and the material within and adjacent to the existing sewer trench is expected to consist primarily of imported backfill. Conditions within the existing sewer trench may differ from the soils shown in the test-hole logs.
- .3 The Bidder shall make its own interpretation of the information provided and shall carry out any additional investigations it deems necessary for the preparation of its Tender at its own expense.
- .4 The test-hole information applies only at the locations and at the time identified in the logs.
- .5 Soil and groundwater conditions may vary between test-hole locations, along the Work and over time.
- .6 The City does not guarantee that the available test-hole information is free from errors or discrepancies or representative of conditions throughout the Site.
- .7 The Contractor shall coordinate its Work with existing infrastructure, adjacent development work and Work by others in accordance with Section 01-050 Site Conditions & Restrictions.
- .8 The Contractor shall obtain written authorization before entering private property or active development areas.

## **SCOPE OF WORK**

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### **1.5 PROVISIONAL WORK**

- .1 Items identified as provisional in the Unit Price Schedule shall only be completed upon written authorization from the Engineer.
- .2 The Engineer may authorize all, part or none of the provisional Work.
- .3 The City does not guarantee that the estimated provisional quantities will be performed.
- .4 Provisional Work, where authorized, shall be measured and paid at the applicable Contract Unit Prices.

### **1.6 EXISTING INFRASTRUCTURE**

- .1 Existing municipal infrastructure and utilities are located within and adjacent to the limits of the Work.
- .2 Locations and elevations of existing infrastructure shown on the Drawings are based on the best information available and shall be considered approximate unless expressly stated otherwise.
- .3 Before commencing Work, the Contractor shall obtain current utility locates, review available utility records, verify the location and elevation of existing infrastructure that may affect the Work, verify the location, elevation, diameter, material and condition of each proposed connection point, and notify the Engineer of discrepancies between existing conditions and the Contract Documents.
- .4 Existing infrastructure shall be exposed sufficiently in advance of construction to permit discrepancies or conflicts to be addressed without delaying the Work.
- .5 Existing infrastructure shall be exposed using non-destructive methods where required by the Engineer or affected utility owner.
- .6 Damage caused by the Contractor's operations shall be reported immediately to the Engineer and affected owner.
- .7 Infrastructure damaged by the Contractor's operations shall be repaired or replaced at the Contractor's expense to the satisfaction of the Engineer and affected owner.

### **1.7 WORK BY OTHERS AND COORDINATION**

- .1 Work by others is anticipated within and adjacent to the limits of the Work, including:
  - .1 Remediation of an existing wastewater sewer manholes DSM 30-88 and 30-89 as shown on the Drawings.
  - .2 Rough grading west of 34th Street along Manitou Drive following completion of the manhole remediation.
  - .3 Construction of the Brookwood watermain along Manitou Drive, West of the 34th Street intersection.
  - .4 Construction of water and sewer infrastructure serving the Bellafield development east of 34th Street.
- .2 The Brookwood manhole-remediation Work is currently scheduled to be completed by October 15, 2026. Rough grading and Brookwood watermain construction are anticipated to follow the

## SCOPE OF WORK

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manhole-remediation Work. The dates and anticipated sequence are provided for coordination purposes and are subject to change.

- .3 The City does not guarantee the start date, completion date, acceptance or availability of infrastructure installed, repaired or graded by others.
- .4 The Contractor shall coordinate Work by others through the Engineer.
- .5 The Contractor shall account for the anticipated sequence and availability of Work by others when preparing and updating its schedule.
- .6 Before installing provisional watermain west of 34th Street, the Contractor shall verify the actual rough grade and notify the Engineer where the required watermain cover cannot be achieved.
- .7 The Contractor shall protect existing and newly installed infrastructure from construction loading, vibration, excavation, loss of ground, dewatering effects, settlement, displacement and damage resulting from the Contractor's operations.

## PART 2: PRODUCTS

### 2.1 INSULATION

- .1 The following underground insulation shall now be accepted as an approved equal and shall meet the requirements of Section 02210 Excavation, Bedding & Backfill: Foamular 400 High Density Extruded Polystyrene Rigid Insulation.
- .2 The insulation shall be supplied and installed in strict accordance with the manufacturer's written recommendation.

### 2.2 RECYCLED ASPHALT

- .1 In addition to the requirements of Section 02510 Asphalt Concrete Pavement, the Contractor shall have the option of using up to a maximum of 20 percent of total mass of dry aggregate or recycled asphalt pavement (RAP) in the Asphalt Concrete Pavement mix. The source and properties of the RAP material shall be clearly outlined in the Mix Design Statement and if incorporated into the mix, it shall produce an Asphalt Concrete Pavement which meets all the requirements of Section 02510 Asphalt Concrete Pavement.

### 2.3 CONCRETE FIBER ADMIXTURE

- .1 Where Section 02514 Concrete Construction specifies reinforcement in commercial and lane approaches, the Contractor may be permitted to use an approved fiber admixture as an alternative to steel reinforcement. If permitted for use, the Contractor shall supply and install in strict accordance with manufacturer's written specifications and recommendations.
- .2 The following products are approved for use as a concrete fiber admixture:
  - .1 Genesis XF Fibrillated Fiber.
  - .2 Substitutes will be considered in accordance with IB4. Substitutes.

### 2.4 SEWERS

- .1 Further to the requirements of section 02700 'Sewers' the following products shall be used:

## SCOPE OF WORK

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- .1 Profile-walled PVC sewer pipe as specified in Section 02700 'Sewers'.
- .2 Ipex Ultra-Rib PVC sewer pipe.

### PART 3: EXECUTION

#### 3.1 MOBILIZATION AND DEMOBILIZATION

- .1 Mobilization and demobilization shall include all work required to move the Contractor's labour, equipment, materials, temporary facilities, and incidentals to and from the Site.
- .2 Mobilization shall include the setup of staging areas, access, temporary facilities, site controls, and other items required to commence the Work.
- .3 Demobilization shall include removal of equipment, surplus materials, temporary facilities, waste materials, and debris from the Site.
- .4 The Contractor shall restore staging areas, access areas, and other areas disturbed by mobilization and demobilization to the satisfaction of the Engineer.
- .5 Mobilization and demobilization shall be coordinated with the Schedule of Work and completed in accordance with the Contract Documents.

#### 3.2 TRAFFIC MANAGEMENT

- .1 Traffic management shall conform to Section 01-090 Traffic Management and the approved Traffic Management Plan.
- .2 The Contractor shall prepare a detailed Traffic Management Plan and provide it to the Engineer for review a minimum of fourteen (14) calendar days before the scheduled start of Work.
- .3 Construction activities affecting 34th Street and Manitou Drive shall be coordinated to minimize disruption to vehicular and pedestrian traffic.
- .4 Before a road closure, the Contractor shall provide a minimum of forty-eight (48) hours written notice to the Engineer indicating the location, duration and nature of the closure.
- .5 Emergency access shall be maintained at all times unless otherwise authorized by the Engineer.
- .6 Access to adjacent properties shall be maintained except where temporary disruption is required to complete the Work and has been accepted by the Engineer.

#### 3.3 DEWATERING

- .1 Dewatering of the Site may be required to allow placement of pipe bedding and construction of manholes, fittings, valves and connections in firm and dry excavations.
- .2 The method and means of dewatering shall be the Contractor's sole responsibility.
- .3 The Contractor shall provide, install, operate, maintain and remove pumps, wells, well points, discharge hoses, sediment controls and other equipment necessary to control groundwater and complete the Work.

## SCOPE OF WORK

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- .4 The dewatering system shall be of sufficient size and capacity to maintain stable excavations, prevent standing water in excavations, provide firm and dry foundation conditions, permit proper placement and compaction of bedding and backfill.
- .5 Before commencing dewatering, the Contractor shall submit the proposed dewatering method and discharge location to the Engineer for review.
- .6 Review of the proposed dewatering method shall not relieve the Contractor of responsibility for its design, operation, performance or effects.
- .7 Dewatering shall not cause loss of ground, settlement, displacement or damage to existing infrastructure, other utilities, private wells, property or completed Work.

### 3.4 EXISTING HARDWARE ACCOMMODATION

- .1 Existing manholes, valves, valve boxes, catch basins, utility covers and similar street hardware, whether owned by the City or others, shall be raised, lowered, tilted or otherwise adjusted to suit the finished surface.
- .2 Manhole covers, valve boxes, catch basin castings and similar street hardware shall be set flush with the finished surface unless otherwise shown on the Drawings or directed by the Engineer.
- .3 Existing hardware shall remain accessible and operable throughout construction unless otherwise authorized by the Engineer.

### 3.5 EXCAVATION, BEDDING & BACKFILL

- .1 Excavation, bedding and backfill shall be as specified in Section 02210 Excavation, Bedding & Backfill, this Section, the Unit Price Schedule and the Drawings
- .2 Excavation shall be completed to the lines, grades and elevations shown on the Drawings
- .3 The Contractor shall be responsible for the design, installation, maintenance and removal of trench-support systems.
- .4 Engineered temporary works shall be designed and sealed by a professional engineer registered in Manitoba where required by legislation or the Contract Documents.
- .5 Excavations shall be maintained stable and free of standing water.
- .6 Bedding Sand shall be the default bedding material and shall be supplied and installed in accordance with Section 02210 Excavation, Bedding & Backfill.
- .7 Bedding Gravel as specified in Section 02210 Excavation, Bedding & Backfill may be used as an alternative to Bedding Sand provided the base of the excavation is, in the opinion of the Engineer, significantly saturated and softened such that any installation bedded on Bedding Sand may not receive adequate support,
  - .1 Bedding Gravel may not be used as an alternative to Water Control as specified in Section 02210 Excavation, Bedding & Backfill. If standing water exists in the excavation, the Contractor shall drain the excavation as specified in Section 02210 Excavation, Bedding & Backfill prior to placement of bedding material.
  - .2 Bedding Gravel, if approved for use by the Engineer, shall have a minimum depth of 0.150 metres and shall be installed to the spring line of the pipe. Bedding Sand shall be used from the spring line of the pipe to 0.300 metres above the top of pipe

## **SCOPE OF WORK**

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- .8 Backfill shall be placed and compacted in accordance with Section 02210 Excavation, Bedding & Backfill and the Drawings.
- .9 Compaction equipment and procedures used adjacent to pipes, manholes and existing infrastructure shall achieve the specified density without causing displacement or damage.
- .10 The Contractor shall provide the required notice for inspection and testing before bedding, pipe, structures or backfill are concealed.

### **3.6 WATERMAINS**

- .1 Watermains shall be as specified in Section 04-010 Watermains and the Drawings.
- .2 Pipe size, class, material, installation depth and restraint requirements shall be as shown on the Drawings or in the Unit Price Schedule.
- .3 Before ordering project-specific fabricated fittings, the Contractor shall verify the required configuration and submit product data, shop drawings, fabrication details and dimensions for review.
- .4 The Contractor shall not operate an existing valve, hydrant or other water-distribution control unless authorized by the Engineer. City staff will operate existing water-distribution controls unless otherwise authorized by the Engineer.

### **3.7 FITTINGS**

- .1 Fittings shall be as specified in Section 04-010 Watermains and the Drawings.

### **3.8 VALVES**

- .2 Valves shall be as specified in Section 04-010 Watermains and the Drawings.
- .3 Valve boxes shall be installed plumb and adjusted to the finished surface.
- .4 Valves and valve boxes shall be protected from displacement during backfilling and compaction.

### **3.9 HYDRANT ASSEMBLIES**

- .1 Hydrants shall be as specified in Section 04-010 Watermains and the Drawings.
- .2 Hydrant assemblies shall include the hydrant and components specified in Section 04-010 Watermains and shown on the Drawings.
- .3 Hydrants shall be installed plumb and at the elevation and orientation shown on the Drawings.

### **3.10 CONNECTION TO EXISTING WATERMAIN**

- .1 Connections to existing watermain shall be as specified in Section 04-010 Watermains and the Drawings.
- .2 The Contractor shall submit the proposed connection procedure in accordance with Section 01-050 Site Conditions & Restrictions & Section 04-010 Water Distribution.

## **SCOPE OF WORK**

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### **3.11 WATER CONNECTION**

- .1 The 19 mm water service shall be as specified in Section 04-020 Water Connections and the Drawings.
- .2 The water service shall include the connection to the watermain, main stop, saddle where required, water connection pipe, curb stop, service box, thaw wire, where required, fittings, couplers and adaptors, corrosion protection all other related appurtenances required to complete the service connection
- .3 The service shall be installed at the alignment, elevation and termination point shown on the Drawings.
- .4 The curb stop and service box shall be installed plumb and protected from displacement during backfill.

### **3.12 HYDROSTATIC TESTING & DISINFECTION**

- .1 Hydrostatic Testing & Disinfection shall be as specified in Section 04-010 Watermains and the Drawings.

### **3.13 SEWERS**

- .1 Wastewater sewers shall be as specified in Section 02700 Sewers and the Drawings.
- .2 Pipe class, size, material, bedding requirement and installation depth shall be as shown on the Drawings or in the Unit Price Schedule.
- .3 Wastewater sewer pipe and manholes shall be installed at the locations, grades, and elevations shown on the Drawings.
- .4 Wastewater sewer pipe shall be kept clean throughout construction.
- .5 Groundwater, soil, sediment, construction debris and other foreign material shall not be permitted to enter the existing or completed wastewater sewer.
- .6 Plugs shall be suitable for the anticipated head and secured against displacement.

### **3.14 SEWER MANHOLES**

- .1 Sewer manholes shall be as specified in Section 02700 Sewers, Section 02210 Excavation, Bedding & Backfill, this Section and the Drawings.
- .2 Manhole type, diameter, rim elevation and invert elevation shall be as shown on the Drawings.
- .3 The exposed foundation shall be reviewed by the Engineer before placement of foundation materials. Disturbed, softened, loose or unsuitable material shall be removed and replaced as directed by the Engineer.
- .4 Manholes shall be installed on a minimum 300 mm thick Bedding Gravel foundation extending a minimum of 300 mm beyond the outside edge of the manhole base. The Bedding Gravel foundation shall be fully wrapped with separation geotextile, including beneath, along the sides and over the top of the Bedding Gravel. Bedding Gravel shall be placed, levelled and compacted to provide full and uniform bearing beneath the complete manhole base.

## **SCOPE OF WORK**

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- .5 The excavation shall be maintained stable and free of standing water during construction of the foundation, manhole and pipe connections.
- .6 Notwithstanding Section 02210, Granular Backfill within 1.0 m horizontally of the manhole, from the manhole foundation to 3.0 m below finished grade, shall be placed uniformly around the full circumference in lifts not exceeding 150 mm compacted thickness and compacted to a minimum of 98 percent of Standard Proctor Maximum Dry Density
- .7 From 3.0 m below finished grade to the proposed finished grade or roadway subgrade, backfill shall be placed and compacted in accordance with the applicable backfill classification and requirements of Section 02210 Excavation, Bedding & Backfill.
- .8 Backfill shall be maintained at approximately the same elevation around the manhole. Compaction equipment shall be suitable for the available working space and shall not displace or damage the manhole, pipe connections or completed Work.
- .9 The Contractor shall provide sufficient working space for backfill placement, compaction and density testing. Material that does not meet the specified density shall be removed and recompacted at no additional cost to the City.
- .10 Heavy construction equipment shall not operate over or immediately adjacent to the manhole until sufficient backfill has been placed and compacted to prevent movement or damage.
- .11 The Contractor shall confirm the manhole alignment, pipe connections and elevations during backfilling and after final compaction. Movement or damage caused by the Contractor's operations shall be corrected at no additional cost to the City.

### **3.15 CONNECTION TO EXISTING WASTEWATER SEWER**

- .1 Connection to existing wastewater sewer shall be as specified in Section 02700 Sewers and the Drawings.
- .2 The Contractor shall submit the proposed connection procedure to the Engineer for review before commencing the connection.
- .3 The Contractor shall prevent groundwater, soil, sediment, construction debris and other foreign material from entering the existing wastewater sewer.
- .4 Material entering the wastewater sewer as a result of the Work shall be removed by the Contractor at no additional cost to the City.

### **3.16 SEWER CONNECTION**

- .1 The Sewer Connection shall be as specified in Section 02665 Building Services, Section 02700 Sewers and the Drawings.
- .2 The Sewer Connection shall include the connection fitting at the wastewater sewer main, service pipe, bends and fittings where required, watertight terminal plug, marker where required, all related appurtenances required to provide a complete installation.
- .3 The service shall be installed at the alignment, grade, slope, elevation and termination point shown on the Drawings.
- .4 The service connection shall not protrude into the wastewater sewer main.
- .5 The service shall be marked and protected until accepted.

## **SCOPE OF WORK**

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### **3.17 SEWER CLEANING, CCTV INSPECTION & DEFLECTION TESTING**

- .1 Sewer Cleaning, CCTV Inspection & Deflection Testing shall be as specified in Section 02700 Sewers.
- .2 CCTV inspection shall be completed after final cleaning and before acceptance.
- .3 Failed tests, unacceptable CCTV observations and defects shall be corrected.
- .4 The affected wastewater sewer shall be recleaned, reinspected and retested after corrective Work at no additional cost to the City.

### **3.18 EXISTING UTILITY PROTECTION**

- .1 Existing utilities shall be protected throughout construction in accordance with Section 01-050 Site Conditions & Restrictions.
- .2 Where existing utilities conflict with or may be affected by the Work, the Contractor shall coordinate with the Engineer and affected utility owner before proceeding.
- .3 Existing utilities shall be exposed by non-destructive methods where required by the Engineer or utility owner.
- .4 Where the proposed Work crosses below or adjacent to an existing utility, the Contractor shall support and protect the utility in accordance with the utility owner's requirements.
- .5 Existing utilities shall not be used to support temporary works or new infrastructure.
- .6 Temporary supports shall remain in place until the affected utility is permanently supported and backfill has been completed.
- .7 Damage to existing utilities shall be reported immediately and repaired at the Contractor's expense.

### **3.19 ROAD REPAIRS**

- .1 Road Repairs shall be completed in accordance with Section 02210 Excavation, Bedding & Backfill, Section 02303 Granular Base Course, Section 02510 Asphalt Concrete Pavement, Section 02514 Concrete Construction, and the Drawings.
- .2 Temporary Road Repairs shall consist of:
  - .1 Backfill placed and compacted in accordance with Section 02210 Excavation, Bedding & Backfill to within 400 mm of the proposed finished grade.
  - .2 300 mm of compacted 'A' Base Gravel supplied and installed in accordance with Section 02303 Granular Base Course.
  - .3 100 mm of asphalt pavement or concrete, as shown on the Drawings or directed by the Engineer. Asphalt pavement shall conform to Section 02510 Asphalt Concrete Pavement, and concrete shall conform to Section 02514 Concrete Construction.
  - .4 Temporary Road Repairs shall match the surrounding roadway grade and drainage pattern unless otherwise shown on the Drawings.
  - .5 Temporary Road Repairs are intended to provide a safe and passable surface until the area is reconstructed as part of the planned 2027 road construction.

## **SCOPE OF WORK**

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- .3 Existing asphalt pavement shall be sawcut to neat lines prior to removal and extend to sound pavement.

### **3.20 DITCH AND SURFACE RESTORATION**

- .1 Ditches, disturbed grassed areas, and other surface areas outside the asphalt road repair limits shall be restored to equal or better condition than existed prior to construction.
- .2 Before disturbing ditches or grassed areas, the Contractor shall photograph existing grades, drainage paths and surface conditions.
- .3 Ditches and swales disturbed by construction shall be restored to their original grades and drainage patterns unless otherwise shown on the Drawings.
- .4 Restored ditches and swales shall drain freely without ponding.
- .5 Topsoil shall be supplied and placed in accordance with Section 02920 Topsoil.
- .6 Seed shall be supplied and applied in accordance with Section 02935 Seeding.
- .7 Sod is not required.
- .8 Culverts and overland drainage routes disturbed by the Work shall be restored to their original function, grade and alignment unless otherwise shown on the Drawings.

### **3.21 DUST CONTROL**

- .1 The Contractor shall control dust resulting from construction operations in accordance with Section 01-080 Environmental Protection and Section 01-120 Cleaning & Closeout.
- .2 Dust-control methods and materials shall not adversely affect traffic, adjacent property, existing infrastructure, completed Work or the environment.
- .3 The Contractor shall provide dust control as frequently as required to prevent nuisance or unsafe conditions.

**END OF SECTION**

## MEASUREMENT & PAYMENT

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### PART 1: GENERAL

#### 1.1 OTHER CONTRACT DOCUMENTS

- .1 The General Conditions of the Contract, Supplemental Conditions, Specifications, Drawings, Section 01002 Scope of Work, City of Brandon Standard Construction Specifications, Unit Price Schedule and Appendices attached hereto shall apply to and form part of this Section.
- .2 Where there is a conflict regarding the measurement or payment for Work, this Section and the Unit Price Schedule shall govern.
- .3 Where the City of Brandon Standard Construction Specifications refer to Supplemental Conditions, Special Provisions or project-specific requirements, it shall mean Section 01002 Scope of Work and Section 01003 Measurement & Payment.
- .4 Payment for Work under this Contract shall only be made for items listed in the Unit Price Schedule, except where otherwise provided in the Contract Documents.
- .5 Work described in Section 01002 Scope of Work, the Drawings or the City of Brandon Standard Construction Specifications for which no separate item is listed in the Unit Price Schedule shall be considered incidental to the Work, and no separate measurement or payment will be made.
- .6 A reference to an item in the Unit Price Schedule includes the complete supply, installation, testing and acceptance of the item, together with incidental Work required to complete it, unless otherwise specified in this Section.
- .7 Sections of the City of Brandon Standard Construction Specifications that do not contain a Method of Measurement or Basis of Payment shall not be considered eligible for separate payment unless a corresponding item is included in the Unit Price Schedule.

#### 1.2 MEASUREMENT

- .1 Items measured in lineal metres shall be measured to the nearest whole metre.
- .2 Items measured in vertical metres shall be measured to the nearest 0.1 metre.
- .3 Items measured in square metres shall be measured to the nearest square metre.
- .4 Items measured in cubic metres shall be measured to the nearest cubic metre.
- .5 Items measured as each shall be measured by the number of units acceptably supplied, installed, completed, tested, and accepted by the Engineer.
- .6 Items measured as lump sum shall not be measured separately but shall be paid based on completion of the Work described for that item and as accepted by the Engineer.
- .7 Items measured in tonnes shall be measured to the nearest tonne.
- .8 Items where weigh scale tickets are provided to the Engineer for measurement and payment shall conform to the following:

## **MEASUREMENT & PAYMENT**

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- .1 Tickets shall be numbered in sequential order, with no duplicate numbers.
- .2 Tickets shall indicate the date and time of the ticket;
- .3 Tickets shall indicate the truck number, gross vehicle weight, tare weight, net weight and quantity in the unit of measurement indicated in the Unit Price Schedule;
- .4 Tickets shall indicate the project or site for which the material was being provided;
- .5 Tickets shall indicate the name of the Contractor providing the material;
- .6 Tickets shall be provided within 7 days of the delivery of the material to the site.

## **PART 2: PRODUCTS**

NONE

## **PART 3: EXECUTION**

### **3.1 MOBILIZATION/DEMOBILIZATION**

- .1 There will be no measurement made for 'Mobilization/Demobilization' as described in Section 01002 Scope of Work.
- .2 Payment for Mobilization will be at the lump sum price set forth in the Unit Price Schedule for Mobilization, which shall be payment in full for all operations required to mobilize and demobilize the Contractor's forces, equipment, materials, temporary facilities, bonds, insurance, permits, and all other items necessary to complete the Work.
- .3 Payment for Mobilization/Demobilization will be made as follows:
  - .1 Fifty percent (50%) after initial mobilization has been completed and accepted by the Engineer.
  - .2 Twenty-five percent (25%) when approximately fifty percent (50%) of the Contract Work has been completed.
  - .3 Twenty-five percent (25%) after demobilization, cleanup, restoration and Final Completion.
- .4 No additional payment will be made for remobilization unless specifically authorized by Change Order.

### **3.2 TRAFFIC MANAGEMENT**

- .1 There will be no measurement made for 'Traffic Management' as described in Section 01002 Scope of Work.
- .2 Payment for Traffic Management will be at the lump sum price set forth in the Unit Price Schedule and shall be payment in full for all traffic management requirements described in Section 01-090 Traffic Management, Section 01002 Scope of Work, the Drawings, and the approved Traffic Management Plan.

### **MEASUREMENT & PAYMENT**

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- .3 Traffic Management shall include all labour, materials, equipment, signage, barricades, temporary traffic control devices, notices, coordination, maintenance, and removal required to accommodate traffic, pedestrians, cyclists, emergency services, and adjacent property access during construction.
  - .4 All costs associated with Traffic Management shall be included in this item unless specifically identified elsewhere in the Unit Price Schedule.

### **3.3 DE-WATERING**

- .1 There will be no measurement made for Dewatering.
- .2 No separate payment will be made for Dewatering. Dewatering shall be considered incidental to the Work and no separate measurement or payment will be made.
- .3 Dewatering shall be completed in accordance with Section 01-050 Site Conditions & Restrictions, Section 01-060 Temporary Works, Section 01-080 Environmental Protection, and the Contract Documents.
- .4 Dewatering shall include, but not be limited to, all labour, materials, equipment, temporary works, pumping, discharge control, sediment control, maintenance, removal, and other work required to maintain excavations in a firm and dry condition suitable for construction.
- .5 Repair of damage or adverse effects caused by the Contractor's dewatering operations shall be completed at no additional cost to the City.

### **3.4 EXISTING HARDWARE ACCOMMODATION**

- .1 There will be no measurement made for Existing Hardware Accommodation as described in Section 01002 Scope of Work.
- .1 No separate payment will be made for Existing Hardware Accommodation. Existing Hardware Accommodation shall be considered incidental to the Work unless specifically identified in the Unit Price Schedule.

### **3.5 EXCAVATION, BEDDING & BACKFILL**

- .1 There will be no measurement for 'Excavation' or 'Backfill' described in Section 02210 Excavation Bedding & Backfill.
- .2 No separate payment will be made for 'Excavation' or 'Backfill'. Excavation, trench support, backfill, compaction and disposal of excess excavated material shall be considered incidental to the applicable pipe, structure, connection or restoration item.
- .3 Measurement for 'Bedding Sand,' or 'Bedding Gravel' described in Section 02210 Excavation, Bedding & Backfill, will be based on the actual number of linear metres of 'Watermain,' or 'Sewer' acceptably supplied and installed which has used 'Bedding Sand,' or 'Bedding Gravel' as the bedding material up to the spring line of the pipe, measured horizontally on the ground along the centerline of the pipe, including the length through hydrant leads, valves, fittings, catch basins and manholes by the Engineer.

### MEASUREMENT & PAYMENT

- 
- .4 Payment for 'Bedding Sand,' or 'Bedding Gravel' will be at the price set forth in the Unit Price Schedule for 'Bedding Sand', or 'Bedding Gravel' measured as specified herein, which will be payment in full for the supply and installation of 'Bedding Sand' or 'Bedding Gravel' described in Section 02210 Excavation, Bedding & Backfill, including:
- .1 Removal and disposal of unsuitable material, transportation, the supply and installation of 'Bedding Sand' or 'Bedding Gravel';
  - .2 And all other costs and performing all other operations considered incidental to the supply and installation of 'Bedding Sand' or 'Bedding Gravel' for which no price or prices or provisions for payment are included in the Contract Documents.
- .5 Bedding Gravel is a provisional item and shall only be paid where directed by the Engineer.
- .6 Where Bedding Gravel is directed by the Engineer, Sand Bedding shall replace Bedding Gravel for the applicable pipe length unless otherwise directed by the Engineer. Sand Bedding shall not be paid in addition to Bedding Gravel for the same pipe length unless specifically directed by the Engineer. Double payment for Bedding Gravel and Sand Bedding for the same pipe length is not intended.
- .7 Additional bedding or backfill required at manholes, valves, fittings, bends, couplers, plugs, utility crossings, or other structures shall be considered incidental to the supply and installation of the applicable structure or pipe unless otherwise identified in the Unit Price Schedule.
- .8 Bedding Gravel shall not be measured or paid where used solely because the Contractor failed to provide adequate groundwater control or maintain a stable excavation

### 3.6 WATERMAINS

- .1 Measurement for each class and type of 'Watermain' shall be as described in Section 04-010 Watermains.
- .2 Payment for each class and type of Watermain shall be as specified in Section 04-010 Watermains. Additionally, payment shall include excavation, backfill, compaction, support and protection of existing utilities, removal and disposal of excess excavated material, Temporary Road Repairs and other surface restoration required as a result of the Watermain Work, and all other costs and operations considered incidental to the supply and installation of Watermain for which no separate payment is included in the Contract Documents.
- .3 Payment for Watermain shall exclude Bedding Sand, Bedding Gravel, fittings, valves, hydrants, connections to existing watermain, Water Connections, Hydrostatic Testing & Disinfection and Traffic Management where separate items are included in the Unit Price Schedule.
- .4 Joint restraints, thrust blocks, corrosion protection and appurtenances associated with a separately measured fitting, valve, hydrant or connection shall be included in payment for the applicable item.

### 3.7 FITTINGS

- .1 Measurement for each class or type of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug' shall be as described in Section 04-010 Watermains.
- .2 Payment for each class or type of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug' shall be as described in Section 04-010 Watermains.

## **MEASUREMENT & PAYMENT**

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- .3 The 450 mm × 300 mm × 300 mm × 300 mm PVC watermain cross will be measured and paid as one complete fitting. Payment shall include fabrication, submittals, delivery, joint and restraint components, installation and all related Work

### **3.8 VALVES**

- .1 Measurement for each class or type of 'Valve' shall be as described in Section 04-010 Watermains.
- .2 Payment for each class or type of 'Valve' shall be as described in Section 04-010 Watermains.

### **3.9 HYDRANT ASSEMBLIES**

- .1 Measurement for each class or type of 'Hydrant' shall be as described in Section 04-010 Watermains.
- .2 Payment for each class or type of 'Hydrant' shall be as described in Section 04-010 Watermains.

### **3.10 CONNECTION TO EXISTING WATERMAIN**

- .1 Measurement for each class or type of 'Connect to Existing Watermain' shall be as described in Section 04-010 Watermains.
- .2 Payment for each class or type of 'Connect to Existing Watermain' shall be as described in Section 04-010 Watermains.

### **3.11 WATER CONNECTION**

- .1 Measurement for Water Connection shall be based on the number of complete service installations acceptably supplied, installed, tested and accepted by the Engineer.
- .2 Payment will be at the unit price set forth in the Unit Price Schedule and shall include the connection to the watermain, main stop, saddle where required, service pipe, curb stop, service box, thaw wire, fittings, adaptors, corrosion protection, excavation, backfill, testing, Temporary Road Repairs and surface restoration required as a result of the Water Connection Work.
- .3 This bundled item replaces separate measurement and payment for the Water Connection Pipe, Corporation Main Stop, Curb Stop and Service Box under Section 04-020 Water Connections.
- .4 Where there is a conflict regarding measurement and payment for Water Connection, this Section shall govern.

### **3.12 HYDROSTATIC TESTING & DISINFECTION**

- .1 There will be no measurement made for 'Hydrostatic Testing & Disinfection,' described in Section 04-010 Watermains.
- .2 Payment for 'Hydrostatic Testing & Disinfection' shall be as described in Section 04-010 Watermains.

## MEASUREMENT & PAYMENT

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### 3.13 SEWER

- .1 Measurement for each class or type of 'Sewer' described in Section 02700 Sewers, the Scope of Work, and as shown on the Drawings will be based on the number of linear metres of each class or type of 'Sewer' acceptably supplied and installed, measured horizontally on the ground along the centreline of the Sewer including the length through manholes and catch basins, by the Engineer.
- .2 Payment for each class or type of 'Sewer' will be at the price set forth in the Unit Price Schedule for each class or type of 'Sewer' measured as specified herein, which shall be payment in full for those operations described in Section 02700 Sewers, Section 01002 Scope of Work, and as shown on the Drawings, including:
  - .1 Supply and installation of pipe, connection tees, saddles, adaptors, sewer coupler, gaskets, flanges, glands, nuts, bolts, lubricants, restraint devices, support of existing utilities, connection to existing sewer, breaking into existing manhole, catch basin or sewer pipe, repair couplings, concrete collars, hydrostatic and mandrel testing, bulkheads, stoppers, plugs;
  - .2 Trenching, backfilling, boulevard, road, curb, driveway, gravel, sidewalk, paving stone and walkway repairs;
  - .3 Bedding sand, bedding gravel;
  - .4 Fencing, bollard and sign removal, storage, and replacement;
  - .5 And all other costs and performing all other operations considered incidental to the supply and installation of 'Sewers' for which no price or prices or provisions for payment are included in the Contract Documents.

### 3.14 SEWER MANHOLES

- .1 Measurement for each class and type of Wastewater Sewer Manhole shall be as specified in Section 02700 Sewers.
- .2 Payment will be at the unit price per vertical metre set forth in the Unit Price Schedule and shall include excavation, trench support, dewatering, foundation preparation, the minimum 300 mm thick Bedding Gravel foundation extending a minimum of 300 mm beyond the outside edge of the manhole base, separation geotextile fully wrapping the Bedding Gravel foundation, manhole base and sections, adjustment units, frame and cover, gaskets, seals, pipe connections, channels, benching, cleaning, testing, adjustment to final grade, Temporary Road Repairs and all other Work required for a complete installation.
- .3 Payment shall include Granular Backfill around the manhole from the manhole foundation to 3.0 m below finished grade, including supply, placement in lifts not exceeding 150 mm compacted thickness, moisture conditioning, compaction to a minimum of 98 percent of Standard Proctor Maximum Dry Density, density testing and correction of deficient backfill.
- .4 Backfill from 3.0 m below finished grade to the proposed finished grade or roadway subgrade shall be included in the Manhole item and completed in accordance with the applicable backfill classification and requirements of Section 02210 Excavation, Bedding & Backfill.

## **MEASUREMENT & PAYMENT**

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- .5 Bedding, foundation and backfill immediately beneath or adjacent to the manhole shall be incidental to the Manhole item and will not be measured separately under the Bedding Sand or Bedding Gravel items
- .6 Additional manhole depth authorized by the Engineer will be measured and paid at the applicable vertical-metre unit price.
- .7 Removal and replacement of unsuitable foundation material below the limits shown on the Drawings shall only proceed when directed by the Engineer and will be paid as Extra Work unless otherwise identified in the Unit Price Schedule.

### **3.15 CONNECTION TO EXISTING SEWER**

- .1 Measurement will be based on the number of complete Connections to Existing Wastewater Sewer acceptably completed, tested and accepted by the Engineer.
- .2 Payment will be at the unit price set forth in the Unit Price Schedule and shall include exposure and verification, coordination with the City's condition review and monitoring, connection procedures, excavation and trench support local to the connection, removal of an existing plug where required, cutting, fitting, couplers, adaptors, gaskets, connection materials, temporary isolation, ordinary backfill, compaction, cleaning, testing, Road Repairs and other surface restoration required as a result of the connection Work.
- .3 Groundwater, soil, sediment or construction material entering the existing sewer as a result of the Work shall be removed at no additional cost to the City.
- .4 Damage to the existing wastewater sewer caused by the Contractor's operations shall be repaired at no additional cost to the City.

### **3.16 SEWER PLUG**

- .1 Measurement for each permanent Wastewater Sewer Plug will be based on the number of plugs acceptably supplied and installed.
- .2 Payment will be at the unit price set forth in the Unit Price Schedule and shall include the watertight plug, fittings, gaskets, couplers, adaptors, restraint against displacement, excavation, ordinary backfill, testing, marking, protection, Temporary Road Repairs and other surface restoration required as a result of the Sewer Plug Work.
- .3 Temporary construction plugs shall be incidental to the applicable sewer or connection item and will not be measured separately.

### **3.17 SEWER SERVICE**

- .1 Measurement for Sewer Services complete with Connection to Main and Plug will be based on the number of complete service installations acceptably supplied, installed, tested and accepted by the Engineer.
- .2 Payment will be at the unit price set forth in the Unit Price Schedule and shall include the connection fitting, service pipe, bends, fittings, couplers, terminal plug, marker where required, excavation, backfill, cleaning, testing, Temporary Road Repairs and other surface restoration required as a result of the Sewer Connection Work.

## **MEASUREMENT & PAYMENT**

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- .3 This bundled item replaces separate measurement and payment for the service pipe, connection fitting and terminal plug.

### **3.18 SEWER CLEANING, CCTV INSPECTION & DEFLECTION TESTING**

- .1 Measurement will be based on the number of lineal metres of Wastewater Sewer acceptably cleaned, inspected, tested and accepted, measured horizontally along the centreline of the sewer, including the length through manholes.
- .2 Payment will be at the unit price set forth in the Unit Price Schedule and shall include final cleaning, debris removal and disposal, CCTV inspection, video and reports, deflection testing, equipment, labour, access and all required records.
- .3 Repeat cleaning, inspection or testing required because of failed tests, defects, debris, corrective Work or unacceptable observations shall be completed at no additional cost to the City.

### **3.19 EXISTING UTILITY PROTECTION**

- .1 There will be no measurement or separate payment for Existing Utility Protection.
- .2 Existing Utility Protection shall be incidental to the applicable pipe, structure, connection or restoration item and shall include locates, records review, non-destructive exposure where required, temporary support, engineered support systems, coordination, maintenance of utility operation and access, and protection of City monitoring points.
- .3 Damage caused by the Contractor's operations shall be repaired at no additional cost to the City.

### **3.20 ROAD REPAIR**

- .1 There will be no separate measurement or payment for Road Repairs.
- .2 Road Repairs shall be considered incidental to the applicable pipe, structure or connection item.
- .3 Payment for the applicable item shall include trench backfill, saw cutting, removal and disposal of existing pavement and granular materials, subgrade preparation, supply and placement of compacted 'A' Base Gravel, supply and placement of asphalt pavement or concrete, compaction, testing, joint treatment and all other Work required to complete the Temporary Road Repair specified in Section 01002 Scope of Work.
- .4 Payment shall include maintenance of the Temporary Road Repair in a safe, smooth and passable condition until Final Completion.
- .5 Pavement or Temporary Road Repair damaged as a result of the Contractor's operations shall be repaired at no additional cost to the City.

### **3.21 DITCH REPAIR, TOPSOIL AND SEEDING**

- .1 There will be no separate measurement or payment for ditch repair, ditch grading, topsoil placement, seeding or surface restoration.

### **MEASUREMENT & PAYMENT**

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- .2 This Work shall be incidental to the applicable pipe, structure, connection or restoration item and shall include grading, drainage restoration, surface preparation, topsoil, seed, erosion control, maintenance until acceptance and restoration of disturbed culverts and overland drainage routes.
- .3 Sod is not required and will not be measured or paid unless authorized by Change Order.

### **3.22 DUST CONTROL**

- .1 Notwithstanding Section 01-120 Cleaning & Closeout, there will be no separate measurement or payment for Dust Control.
- .2 Dust Control shall be incidental to the Work and shall include all labour, equipment, water or accepted products, application, reapplication, sweeping, cleaning and control of tracking or debris required to prevent nuisance or unsafe conditions. Dust Control shall be considered incidental to the Work.

**END OF SECTION**

## COMMON REQUIREMENTS

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### PART 1: GENERAL

#### 1.1 DESCRIPTION OF WORK

- .1 The Work described herein is in addition to the other Sections of the Standard Construction Specifications (Specifications).

#### 1.2 DEFINITIONS

- .1 The definitions included herein are in addition to those contained within the General Conditions and Supplemental Conditions of the City of Brandon Contract Documents.
- .2 Where used in the Standard Construction Specifications and other documents forming part of the Contract Documents:
  - .1 “Agreement” means the portion of the Contract Documents by that name.
  - .2 “Business Day” means any day, other than a Saturday, Sunday, Statutory Holiday or Civic Holiday as observed by the City.
  - .3 “Change in Work” means an addition, deletion, or modification to the Contract Documents as awarded and included modifications to the quantity or nature of Work, the manner of performance or any part of the Work, price, time or schedule.
  - .4 “Change Order” or “CO” means a written order issued by the City that sets out a Change in Work after the Contractor has provided cost and schedule implications through a Proposed Change Notice.
  - .5 “City” or “City of Brandon” means the City of Brandon of the Province of Manitoba as continued under the Brandon Charter, SM 1989-90, c. 71, and any subsequent amendments thereto.
  - .6 “City-contracted Work” means any Work being completed under a Contract between the City of Brandon and a Contractor.
  - .7 “Consulting Engineer” means the firm or person employed by the Developer for the designs, drawings, specifications and supervision of the works necessary to be carried out by the Developer and the City of Brandon.
  - .8 “Contractor” means the person who has undertaken the performance of the Work under the terms of the Contract, or who has been given the City’s permission to do Work on City owned property or right-of-way. Includes all individuals provided to perform services under the contract including employees, representatives and consultants of the Contractor or subcontractor and any other individual the Contractor is responsible for by law. Also referred to as the “Prime Contractor” or “Contractor Personnel”.
  - .9 “Developer” means the person who has taken financial responsibility of completing Private-contracted work.
  - .10 “Engineer” means the City Engineer or the City of Brandon Engineering Department and includes any person duly authorized by him to perform on his behalf any functions of the Contract.
  - .11 “Field Instruction” or “FI” means a written instruction or sketch to clarify the Contract Documents.

## COMMON REQUIREMENTS

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- .12 “Field Order” or “FO” means a written order issued by the City that sets out a Change in Work before the Contractor has provided cost and schedule implications through a Proposed Change Notice. The method of determining the cost shall be included.
- .13 “Final Completion of the Work” means that the entire Work, except for Warranty Items, have been performed in accordance with the Contract.
- .14 “Prime Contractor” means the Prime Contractor as defined in the Workplace Safety and Health Act, C.C.S.M. c. W210.
- .15 “Private-contracted Work” means any Work being completed in current or future City of Brandon right-of-way, easements, City-owned private property, or property owned by others.
- .16 “Products” means any tangible or intangible personal property to be supplied by the Contractor as a deliverable under the Contract whether by purchase, hire, hire-purchase, license or otherwise.
- .17 “Proposed Change Notice” or “PCN” means a written request by the Engineer, detailing a potential Change in Work being contemplated for which the Contractor shall provide cost and schedule implications to the Engineer for evaluation prior to deciding if the Change in Work shall proceed as proposed.
- .18 “Safe Work Plan” means a procedure for executing tasks that considers the risks and hazards that may arise and defines the control measures to mitigate hazards.
- .19 “Site” means lands, buildings or other places owned, occupied or used by the City and designated by the City for the delivery and/or installation of Products, or the provision of services.
- .20 “Street” means any public highway as defined in the Municipal Act, C.C.S.M. c. M225.
- .21 “Subcontractor” means a person having a contract with the Contractor or another Subcontractor of the Contractor for the execution of a part of parts of the Work or who furnishes material called for in the Contract Documents.
- .22 “Submittal” or “Shop Drawing” means drawings, diagrams, illustrations, schedules, performance charts, brochures, lists, procedures, plans and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.
- .23 “Substantial Performance of the Work” shall have the meaning attributed to it in The Builders’ Liens Act, C.C.S.M. c. B91, or if the Act is not applicable, shall mean when the Work is substantially complete and ready for use, or is being used for the purpose intended.
- .24 “Traffic Management Plan” means drawings, diagrams, schedules and procedures to be provided by the Contractor to ensure proper traffic control is implemented for the protection of road users and Contractor Personnel during temporary periods of street maintenance and construction.
- .25 “Work” means the carrying out and the doing of all things, whether of a temporary or permanent nature, that are to be done by the Contractor pursuant to the Contract Documents and includes the furnishing of all labour, superintendence, services, transportation, materials, Plant, equipment and articles necessary or incidental to the proper performance of the Contract Documents.

## COMMON REQUIREMENTS

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### 1.3 APPLICATION

- .1 The Standard Construction Specifications shall apply to both City-contracted Work and Private-contracted Work as defined herein.

### 1.4 CONTRACT DOCUMENTS

- .1 The Contractor shall keep at the Site and in good order, one (1) complete set of current Contract Documents, approved permits, submittals, change orders, reviewed shop drawings, field testing reports, work schedule, health and safety plan and any other project correspondence.
- .2 For City-contracted Work the following documents shall be collectively known as the “Contract Documents” (in order of precedence):
  - .1 The Agreement between the City and the Contractor;
  - .2 Supplemental Conditions of the Contract;
  - .3 General Conditions of the Contract;
  - .4 Special Provisions;
  - .5 Technical Specifications;
  - .6 The City of Brandon Standard Construction Specifications;
  - .7 Drawings prepared by the City of Brandon or a consultant working on behalf of the City of Brandon.
- .3 For Private-contracted Work; the following documents shall be collectively known as the “Contract Documents” (in order of precedence):
  - .1 The City of Brandon Standard Construction Specifications;
  - .2 The Development Agreement;
  - .3 Drawings stamped by Development Services or Engineering Department “Reviewed for Construction” as delegated by the Engineer.

### 1.5 LATEST VERSION SHALL APPLY

- .1 Where building codes, product or material specifications, Provincial or Federal laws, local ordinances and utility company regulations are quoted or implied, the latest issue as amended and revised to the date of the signing of the Agreement or commencing the Work shall apply, except where a specific date of issue is noted.

### 1.6 ACRONYMS

- .1 Within the text of the Specifications or standards reference may be made to the following organizations or documents.

|        |                                                                |
|--------|----------------------------------------------------------------|
| AASHTO | American Association of State Highway Transportation Officials |
| ACI    | American Concrete Institute                                    |
| AISC   | American Institute of Steel Construction                       |
| AISI   | American Iron and Steel Institute                              |
| ANSI   | American National Standards Institute                          |
| ASA    | American Standards Association                                 |

## COMMON REQUIREMENTS

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|       |                                                                       |
|-------|-----------------------------------------------------------------------|
| ASME  | American Society of Mechanical Engineers                              |
| ASTM  | American Society for Testing and Materials                            |
| AWWA  | American Water Works Association                                      |
| AWS   | American Welding Society                                              |
| CEC   | Canadian Electrical Code (published by CSA)                           |
| CEMA  | Canadian Electrical Manufacturers Association                         |
| CGSB  | Canadian Government Specifications Board                              |
| CISC  | Canadian Institute of Steel Construction                              |
| CSPI  | Corrugated Steel Pipe Institute                                       |
| CSA   | Canadian Standards Association                                        |
| CWB   | Canadian Welding Bureau                                               |
| FCC   | Fire Commissioner for Canada                                          |
| GHS   | Global Harmonized System of Classification and Labelling of Chemicals |
| IEEE  | Institute of Electrical and Electronic Engineers                      |
| MBMA  | Metal Building Manufacturers Association                              |
| ULC   | Underwriters Laboratories of Canada                                   |
| WHMIS | Workplace Hazardous Materials Information System                      |
| SDS   | Safety Data Sheets                                                    |
| NBC   | National Building Code of Canada                                      |
| NFC   | National Fire Code of Canada                                          |
| PPE   | Personal Protective Equipment                                         |
| MUTCD | Manual of Uniform Traffic Control Devices                             |
| TTCM  | City of Brandon Temporary Traffic Control Manual                      |
| TMP   | Traffic Management Plan                                               |

### 1.7 ABBREVIATIONS

- .1 Words and abbreviations which have well known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.
- .2 The following abbreviations shall apply to and be part of the Specifications:

|                      |                     |
|----------------------|---------------------|
| ga                   | gauge (thickness)   |
| °C                   | degree centigrade   |
| %                    | percent             |
| o.d.                 | outside diameter    |
| i.d.                 | inside diameter     |
| m                    | metre               |
| sq                   | square              |
| lm lin.m.            | lineal metre        |
| sq.m. m <sup>2</sup> | square metre        |
| cu.m. m <sup>3</sup> | cubic metre         |
| mm                   | millimetre          |
| um                   | micrometer          |
| cm                   | centimetre          |
| km                   | kilometre           |
| l                    | litre               |
| l/s                  | litres per second   |
| l/m                  | litres per minute   |
| l/hr                 | litres per hour     |
| mg                   | milligram           |
| mg/l                 | milligram per litre |
| kg                   | kilogram            |
| hr                   | hour                |
| no or #              | number              |
| Pa                   | pascal              |
| kPa                  | kilopascal          |

## COMMON REQUIREMENTS

|      |                           |
|------|---------------------------|
| MPa  | megapascal                |
| ppm  | parts per million         |
| psi  | pounds per square inch    |
| j    | joule                     |
| Kj   | Kilojoule                 |
| rpm  | revolutions per minute    |
| hz   | hertz                     |
| w    | watt                      |
| kw   | kilowatt                  |
| hp   | horsepower                |
| HDPE | high-density polyethylene |
| DI   | ductile iron              |
| PVC  | polyvinyl chloride        |
| CI   | cast iron                 |
| SS   | stainless steel           |
| NPT  | national pipe thread      |
| RFI  | request for information   |

### PART 2: PRODUCTS

NONE

### PART 3: EXECUTION

#### 3.1 NOTICES, REVIEW TIME, ACTION ITEMS

- .1 Unless otherwise stated in the Contract Documents or agreed upon between the Engineer and Contractor, turnaround time for typical items shall be as follows:

| Section                        | Item                                    | Action by              | Timing                                                                                                          |
|--------------------------------|-----------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------|
| 01-020 Meetings                | Schedule pre-construction meeting       | Contractor or Engineer | 1 week before commencement of Work                                                                              |
| 01-020 Meetings                | Issue meeting minutes                   | Engineer               | 1 week after meeting                                                                                            |
| 01-020 Meetings                | Submit meeting minute review comments   | Contractor             | 1 week after receipt of minutes                                                                                 |
| 01-030 Submittals              | Issue submittals to Engineer for review | Contractor             | 2 weeks before commencing that portion of Work                                                                  |
| 01-030 Submittals              | Review submittals                       | Engineer               | Review completed within 1 week of receipt, to allow time for resubmissions if necessary within 2 week timeframe |
| 01-040 RFIs & Changes to Work  | Submit RFI                              | Contractor             | Immediate upon discovery of issue/concern                                                                       |
| 01-040 RFI's & Changes to Work | Review RFI and provide response         | Engineer               | 1 week                                                                                                          |
| 01-040 RFI's & Changes to Work | Issue PCN, Price PCN or Issue CO        | Engineer or Contractor | 1 week                                                                                                          |

### COMMON REQUIREMENTS

|                                            |                                                                                                     |            |                                                              |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------------|
| 01-050 Site Conditions & Restrictions      | Notice of requirements for disruption of services                                                   | Contractor | 1 week                                                       |
| 01-090 Traffic Management                  | Give notice to public of any closure to private driveway or loading area or changes to any closures | Contractor | 2 days                                                       |
| 01-100 Material & Equipment                | Notice of requirement for materials supplied by City                                                | Contractor | 2 weeks before commencing that portion of the Work           |
| 01-100 Material & Equipment                | Notice of required materials testing                                                                | Contractor | 2 days                                                       |
| 01-110 Quality Control & Field Engineering | Notice of testing                                                                                   | Contractor | 24 hours                                                     |
| 01-110 Quality Control & Field Engineering | Notice of required initial survey layout                                                            | Contractor | 1 week                                                       |
| 01-110 Quality Control & Field Engineering | Request design files & survey control for use with machine control grading system                   | Contractor | 2 weeks                                                      |
| 01-110 Quality Control & Field Engineering | Request warranty or final completion inspection of Private-contracted Work                          | Contractor | 1 week                                                       |
| 01-120 Cleaning & Closeout                 | Request Substantial Performance, Final Completion or warranty inspection                            | Contractor | Immediate upon Contractor deeming requirements have been met |
| 01-12 Cleaning & Closeout                  | Perform Substantial Performance, Final Completion or warranty inspection                            | Engineer   | 1 week after request for inspection                          |
| 01-120 Cleaning & Closeout                 | Issuance of list of deficiencies (or notice of none)                                                | Engineer   | 1 week after inspection                                      |
| 01-120 Cleaning & Closeout                 | Draft submission of O&M Manuals                                                                     | Contractor | Upon request of Substantial Performance                      |
| 01-120 Cleaning & Closeout                 | Final submission of O&M Manuals                                                                     | Contractor | Upon request of Final Completion                             |
| 01-120 Cleaning & Closeout                 | Review O&M Manuals and provide response                                                             | Contractor | 2 weeks                                                      |

### 3.2 PRIVATE-CONTRACTED WORK

- .1 In many instances the Standard Construction Specifications refer to the Engineer as the acting authority for the Work. For Private-contracted Work the Engineer may authorize a Consulting Engineer to perform the duties of the Engineer.

## COMMON REQUIREMENTS

- .2 A comprehensive list of the duties to be performed by the Consulting Engineer on behalf of the Engineer shall be determined prior to the start of construction.

### 3.3 REVISION REFERENCES

- .1 Through the revision process, numerous sections have been renamed. Until such a time as the Standard Construction Specifications have been fully updated, the following references to sections shall be used interchangeably:

| Current Revision Reference           | Revised Version Reference                             |
|--------------------------------------|-------------------------------------------------------|
| 01010 Common Requirements            | 01-010 Common Requirements                            |
| 01090 Reference Standards            | 01-010 Common Requirements                            |
| 01200 Meetings                       | 01-020 Meetings                                       |
| 01300 Submittals                     | 01-030 Submittals                                     |
| 01500 Temporary Facilities           | 01-060 Temporary Facilities                           |
| 01545 Safety                         | 01-070 Safety                                         |
| 01570 Traffic Control                | 01-090 Traffic Management                             |
| 01600 Material and Equipment         | 01-100 Material & Equipment                           |
| 01700 Contract Closeout              | Submission of O&M Manuals                             |
| 0710 Cleanup                         | 01-120 Cleaning & Closeout                            |
| 02510 Asphalt Concrete Pavement      | 07-010 Hot-Mix Asphalt                                |
| 02212 Roadway Excavation and Grading | 03-020 Sub-Base, Sub-Grade & Base Course Construction |
| 02303 Granular Base Course           | 03-020 Sub-Base, Sub-Grade & Base Course Construction |
| 02512 Ready Mixed Concrete           | 06-010 Concrete Construction                          |
| 02592 HDPE Liner                     | 02-020 Geomembrane                                    |
| 02920 Topsoil                        | 08-010 Topsoil, Seed & Sod                            |
| 02935 Seeding                        | 08-010 Topsoil, Seed & Sod                            |
| 02938 Turf Grass Sod                 | 08-010 Topsoil, Seed & Sod                            |
| 02210 Excavation, Bedding & Backfill | 03-010 Excavation, Bedding & Backfill                 |
| 02514 Concrete Construction          | 06-010 Concrete Construction                          |
| 02660 Watermains                     | 04-010 Watermains                                     |
| 02665 Building Services              | 04-020 Water Connections & 05-020 Sewer Connections   |

**COMMON REQUIREMENTS**

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|              |                       |
|--------------|-----------------------|
| 02700 Sewers | 05-010 Gravity Sewers |
|--------------|-----------------------|

**PART 4: METHOD OF MEASUREMENT**

**4.1 MEASUREMENT**

- .1 Sections of the Standard Construction Specifications that do not contain 'Part 4: Method of Measurement' shall not be considered for measurement unless otherwise stated in the Contract Documents.

**PART 5: BASIS OF PAYMENT**

**5.1 PAYMENT**

- .1 Sections of the Standard Construction Specifications that do not contain 'Part 5: Basis of Payment' shall not be considered for payment unless otherwise indicated in the Contract Documents.

**END OF SECTION**

## MEETINGS

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### PART 1: GENERAL

#### 1.1 DESCRIPTION OF WORK

- .1 The Work described herein is for meetings in connection with the Work.

### PART 2: PRODUCTS

NONE

### PART 3: EXECUTION

#### 3.1 PRE-CONSTRUCTION MEETING

- .1 For Private-contracted Work, following receipt of approved drawings, applicable permits, utility locates, traffic detour plans and any other necessary approvals required to commence the Work, the Consulting Engineer or Contractor will schedule a pre-construction meeting.
- .2 For City-contracted Work, the Engineer will schedule a pre-construction meeting with the Contractor and any Subcontractors and/or Consulting Engineer that the Contractor requests to be in attendance. The time and location of the meeting will be established by the Engineer.
- .3 The following topics shall be discussed at the pre-construction meeting, at minimum:
  - .1 Administrative procedures and responsibilities, communication protocol;
  - .2 Identification of Prime Contractor, Subcontractors, material suppliers, proposed equipment and Products;
  - .3 Bonding, insurance and permitting requirements;
  - .4 Site safety, signage, barricades, traffic management;
  - .5 Disruption of services, tie-ins or connection to existing systems, temporary water requirements, temporary pumping requirements;
  - .6 Road, curb, sidewalk, boulevard restoration requirements, quality control and quality assurance;
  - .7 Commissioning of the Work, training (if applicable), and handover to the City;
  - .8 Schedule, inspection requirements and progress meetings frequency;
  - .9 Close-out submittals, O&M Manuals and Record Drawings;
  - .10 Completion of Work and warranties;
  - .11 Any other topics deemed necessary based on the nature of Work

## **MEETINGS**

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### **3.2 PROGRESS MEETINGS – CITY-CONTRACTED WORK**

- .1 At the Preconstruction Meeting, frequency of progress meetings will be determined based on the nature of the Work and proposed schedule. Meetings to be held at a location agreed upon by the Engineer and the Contractor.
- .2 The meetings shall include representatives of both the City and the Contractor who are capable of expressing the parties' position on any matter to be discussed, and able to act on behalf of their party.
- .3 Topics to be discussed will include an update on all items discussed at the pre-construction meeting as well as issues which have arisen during the course of the Work.

### **3.3 PROGRESS MEETINGS – PRIVATE-CONTRACTED WORK**

- .1 At the Preconstruction Meeting, frequency of progress meetings will be determined based on the nature of the Work and proposed schedule. Meetings to be held at a location agreed upon by the City, the Consulting Engineer and the Contractor.
- .2 The meetings shall include representatives of both the City,, Developer, Consulting Engineer and the Contractor who are capable of expressing the parties' position on any matter to be discussed, and able to act on behalf of their party.
- .3 Topics to be discussed will include an update on all items discussed at the Preconstruction Meetings as well as issues which have come up during the course of the Work.

### **3.4 MEETING RECORDS & DISTRIBUTION**

- .1 Unless otherwise stated in the Contract Documents, the Engineer shall record the minutes, including significant proceedings and decisions as well as identify outstanding action items to be addressed and the party responsible for each item.
- .2 The designated person shall distribute copies of the minutes to all parties in attendance following the meeting. All parties shall have the opportunity to dispute or comment on the minutes, in which case the designated person shall revise the minutes. The minutes or revised minutes shall be considered final if no comments are sent to the designated person after distribution within the time specified in Section 01-010 Common Requirements.

**END OF SECTION**

## **SUBMITTALS**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for the supply, preparation, delivery and review of Submittals required by the Contract Documents or reasonably requested by the Engineer.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Provide all necessary Submittals in accordance with Contract Documents or as the Engineer may reasonably request, including but not limited to:
  - .1 Bonds;
  - .2 Certificates of Insurance;
  - .3 Workers Compensation Board clearance;
  - .4 Safe Work Plan;
  - .5 Schedule
  - .6 Environmental Protection Plan;
  - .7 List of Subcontractors;
  - .8 List of Materials;
  - .9 Clearances
  - .10 Permits
  - .11 Business License
  - .12 Security Clearance
  - .13 Concrete/Asphalt Mix Designs;
  - .14 Aggregate Sources;
  - .15 Test Results;
  - .16 Shop Drawings;
  - .17 Product Data;
  - .18 Certifications;
  - .19 Samples or Mockups;
  - .20 Procedures;
  - .21 Site Plan;
  - .22 Engineered Design Drawings

## **SUBMITTALS**

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- .23 Mill test certificates;
- .24 As-Constructed Drawings;
- .25 Operation & Maintenance (O&M) Manuals;
- .26 Traffic Management Plan.

## **PART 2: PRODUCTS**

### **2.1 SHOP DRAWINGS**

- .1 Clearly indicate materials, methods of construction, diagrams, connections, notes, and other information necessary for completion of the Work. The Shop Drawings shall clearly indicate that any attachments and connections have been properly coordinated, regardless of the trade under which the equipment will be supplied and installed.
- .2 All reviewed Shop Drawings are subject to final acceptance of the equipment and materials installed once they are in commission, all guarantees have been fulfilled and the operations of the equipment and materials have been accepted by the Engineer in accordance with the specifications.
- .3 Shop Drawings shall be sealed by an Engineer as indicated in the Contract Documents.

### **2.2 PRODUCT DATA**

- .1 Manufacturer's standard shop drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will be accepted instead of Shop Drawings if:
  - .1 Information not applicable to project is deleted;
  - .2 Additional required information is provided;
  - .3 All required dimensions and clearances are shown;
  - .4 Performance characteristics and capacities are provided; and,
  - .5 Wiring and control diagrams and installation instructions are included.

### **2.3 METHOD STATEMENTS**

- .1 If required by the Contract Documents, submit detailed method statements and drawings to describe the method, Plant and equipment to be used for execution of any portion of the Work.

### **2.4 AGGREGATE SOURCES**

- .1 Inform Engineer of the source of all processed materials such as aggregates for granular, concrete and asphalt construction and provide access to the material sources for testing.
- .2 The source of Products and material supply shall not change without the prior approval of the Engineer. Any material of a quality or nature not suitable for its intended use will be rejected.
- .3 The Engineer reserves the right to prohibit the use of material from any source which, in his opinion, the character of the material or method of manufacture is such as to make improbable

## **SUBMITTALS**

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the furnishing of material conforming to the requirements of the Standard Construction Specifications.

### **2.5 SAMPLES & MOCK UPS**

- .1 Provide samples of Products, assemblies or components in sizes and quantities specified or as requested by the Engineer. The Contractor shall be responsible for delivery to the location determined by the Engineer.
- .2 Construct mock ups as specified in the Contract Documents at a location acceptable to the Engineer, including all trades required to complete the Work.
- .3 Clearly indicate sample origin and intended use in the Work.
- .4 Where colour, pattern or texture are criteria, provide a full range of samples.
- .5 Notify the Engineer in writing of any deviations in samples from requirements of the Contract Documents.
- .6 Reviewed samples and mock ups will become the standard of material and workmanship against which the Work will be approved.
- .7 Failure to produce samples or prepare mock ups in sufficient time shall not be considered sufficient reason for an extension of Contract Time and no such claim will be considered.

### **2.6 MATERIAL LISTS**

- .1 Subcontractor and material supplier lists shall indicate all subcontractors and material suppliers proposed by the Contractor to execute any portion of the Work. Provide contact information for an authorized person from each Subcontractor and/or material supplier.
- .2 If requested by the Engineer, supply a copy of all delivery receipts for materials. Receipts shall show the quantity, type, and supplier of the material.
- .3 If requested by the Engineer, supply an "Affidavit of Compliance" from the manufacturer of materials furnished certifying that the materials supplied comply with the Contract Documents.

### **2.7 SAFE WORK PLAN**

- .1 As specified in Section 01-070 Safety.

### **2.8 ENVIRONMENTAL PROTECTION PLAN**

- .1 As specified in Section 01-080 Environmental Protection.

### **2.9 TRAFFIC MANAGEMENT PLAN**

- .1 As specified in Section 01-090 Traffic Management.

### **2.10 SCHEDULE OF WORK**

- .1 As specified in Section 01-050 Site Conditions & Restrictions.

## **SUBMITTALS**

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### **2.11 SITE PLAN**

- .1 As specified in Section 01-050 Site Conditions & Restrictions.

### **2.12 AS-CONSTRUCTED RECORD DRAWINGS**

- .1 As specified in Section 01-100 Quality Control & Field Engineering.

### **2.13 TEST RESULTS**

- .1 As specified in Section 01-100 Quality Control & Field Engineering.

## **PART 3: EXECUTION**

### **3.1 SUBMITTAL PROCEDURE**

- .1 For all required submittals, submit promptly and in an organized sequence to not cause delay to the Work. Prior to submission, review submittals to ensure the following:
  - .1 They are in SI Metric units;
  - .2 Quantities, field measurements, construction criteria and dimensions, fabrication processes, installation techniques have been determined and verified;
  - .3 Deviations from the Contract Document requirements are clearly indicated;
  - .4 Any design requirement not included in the Contract Documents has been sealed by a qualified Professional Engineer, registered in Manitoba.
  - .5 Identify as part of the submittal:
    - a. Project/Contract title/number;
    - b. Name of Contractor and Subcontractors, supplier or manufacturer complete with contact information;
    - c. Reference to Drawing number or Specification section;
    - d. Description, installation instructions, performance or test data;
    - e. Model, catalogue number, trade name;
    - f. Reference to applicable standards;
- .2 Submittals not including all of the above information will be returned without reviewing and noted "NOT REVIEWED".
- .3 The Engineer will review for general conformance with the design concept and compliance with the Contract Documents. The review shall not relieve the Contractor of any responsibility for errors or omissions in the submittal or of the duty to comply with the requirements of the Contract Documents unless explicitly approved in writing by the Engineer.
- .4 The Engineer's review will have one of the following notations:
  - .1 "REVIEWED – NO COMMENT", distribute additional copies as required for execution of the Work.

### **SUBMITTALS**

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- .2 “REVIEWED – AS NOTED”, ensure copies are modified prior to distribution for execution of the Work.
- .3 “REVIEWED – REVISE AND RE-SUBMIT”, make necessary revisions indicated and re-submit for review.
- .4 “NOT REVIEWED”, submit other drawings, product data, samples, mock ups, lists or schedules for review which are consistent with the Contract Documents.
- .5 Do not proceed with any Work called for by a submittal until the Engineer’s review is complete and communicated to the Contractor. Only submissions marked “REVIEWED – NO COMMENT” or “REVIEWED – AS NOTED” shall be incorporated into the Work.
- .6 Adjustments made to a submittal by the Engineer are not expected to change the Contract Price or Schedule. If, in the opinion of the Contractor such adjustment does affect the Contract Price or schedule, clearly state in writing the impacts prior to proceeding with the Work. Commencement of the Work indicates the Contractor’s acceptance for any adjustment without an adjustment to the Contract Price or Schedule.
- .7 The Engineer will complete two reviews of any one submission at no cost. Submissions lacking information for review and marked “NOT REVIEWED” will not be considered an official submission.

**END OF SECTION**

## **REQUESTS FOR INFORMATION & CHANGES TO WORK**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for requirements related to Requests for Information (RFIs) and Changes to Work.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Requests for Information (RFIs) as necessary, submission format as specified in Section 01-030 Submittals.

### **PART 2: PRODUCTS**

NONE

### **PART 3: EXECUTION**

#### **3.1 DISCREPANCIES/OMISSIONS**

- .1 Notify the Engineer with a Request for Information (RFI) immediately upon discovery of discrepancies or omissions in the Contract Documents or of any doubt as to the meaning or intent of any part thereof.
- .2 Proceeding with the Work when an error is suspected or when there is doubt as to the interpretation of the Contract Documents constitutes full acceptance of any cost associated with remedial Work which may be required.

#### **3.2 REQUESTS FOR INFORMATION (RFI)**

- .1 RFIs generated by a Subcontractor or supplier shall be initially reviewed by the Contractor to ensure the RFI is necessary prior to submission to the Engineer. The format of the RFI shall follow the Submittal procedure indicated in Section 01-030 Submittals.
- .2 The Engineer will review the RFI received and either respond directly, clarify with a Field Instruction (FI), or indicate that a proposed change is being contemplated and a Proposed Change Notice (PCN) is forthcoming.
- .3 Requests for alternate or substitute materials or Products shall be as per Section 01-100 Material & Equipment.

#### **3.3 CHANGES IN WORK (PRIVATE-CONTRACTED WORK)**

- .1 For Private-contracted Work, any proposed change will require revisions to the "Reviewed for Construction" Drawings, revisions completed by the Consulting Engineer and re-submittal by the original applicant for review by the Engineer. The Contractor shall not proceed with any portion of the Work affected by such changes unless instructed otherwise by the Engineer and approved by the Consulting Engineer.
- .2 For Private-contracted Work, the City reserves the right to make changes after the Drawings have been stamped "Reviewed for Construction", but only if conditions are substantially different than those known to the Engineer at the time of reviewing the Drawings and the changes have been approved by the Consulting Engineer.

## **REQUESTS FOR INFORMATION & CHANGES TO WORK**

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### **3.4 CHANGES IN WORK (CITY-CONTRACTED WORK)**

- .1 For City-contracted Work, refer to the General Conditions of the Contract, including any amendments thereto indicated in the Supplemental Conditions.
- .2 Unless otherwise indicated in the Contract Documents, the Change in Work process for City-contracted Work shall be as follows:
  - .1 A potential change or discrepancy in the Contract Documents is initiated by either the Contractor through a RFI, or the Engineer through an observation on site.
  - .2 If a Change in Work is contemplated by the Engineer, a PCN is issued to the Contractor detailing the Change in Work being considered. A Drawing may or may not be required to further detail the Change in Work.
  - .3 The Contractor reviews the PCN and provides cost and schedule implications to complete the contemplated work. The Contractor shall provide as much detail as necessary for the Engineer to ascertain whether the pricing and schedule implications are reasonable for the Change in Work under consideration.
  - .4 The Engineer reviews the cost and schedule implications received from the Contractor, and determines if the Change in Work shall proceed or not.
  - .5 If the Change in Work is to proceed, the Engineer will issue a Change Order (CO) instructing the Contractor to proceed. Payment and schedule implications will be indicated on the CO.
  - .6 The Engineer will advise the Contractor if the Change in Work is not to proceed.

**END OF SECTION**

## **SITE CONDITIONS & RESTRICTIONS**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for requirements related to the existing Site and restrictions.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Contractor shall provide a schedule of the Work as per the Contract Documents addressing, at minimum, the following:
  - .1 Schedule shall indicate in chronological order the complete sequence of construction activities in the form of a Gantt chart, outlining start, progress and completion dates for each major element, section, item, trade, operation or division of the Work, including the critical path for the overall project completion.
  - .2 Inspect the Work to monitor and report progress on each activity, indicating changes in activity durations and start/finish/imposed dates.
  - .3 Provide explanations for any activities which are over estimated times, and if activities are on the critical path, indicate what corrective activities will be taken to return to the original schedule.
  - .4 Provide revisions to identify changes in schedule due to Changes in Work and revised projections of progress.
- .2 Contractor shall provide a Site plan as per the Contract Documents addressing, at minimum, the following:
  - .1 Site plan shall show material laydown areas, site office (if required), parking, fencing, sanitary facilities, access and egress areas.
  - .2 If changes to the Site layout are required as the Work progresses, a new Site plan shall be provided.

### **PART 2: PRODUCTS**

NONE

### **PART 3: EXECUTION**

#### **3.1 SCHEDULE**

- .1 The Work shall be scheduled at the discretion of the Contractor, subject to the provisions as specified in the Contract Documents or herein.
- .2 Provide notice to the Engineer of intention to commence or terminate Work. Once the Work has begun, it shall be advanced diligently with a view of completing the Work or restoring the infrastructure to full use in the shortest possible time.
- .3 Prior to commencement of each stage of construction on any project, obtain clearance from the Engineer that the previous stage is ready to receive new Work, and that there are no reasons of weather or matters outside the City's control which would preclude commencement of the new Work.

## **SITE CONDITIONS & RESTRICTIONS**

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### **3.2 HOURS OF WORK**

- .1 Work inside the limits of the City of Brandon shall be between 7:00 a.m. and 7:00 p.m. on weekdays and Saturdays unless otherwise approved by the Engineer.
- .2 Any Work performed inside a City of Brandon facility shall be during the normal open hours of that facility unless otherwise approved by the Engineer.
- .3 Work outside of the hours indicated above will only be allowed if in accordance with City by-laws and if approved by the Engineer in writing. When Work is carried out at night, the Contractor shall supply sufficient amount of lighting to enable the Work be done in a safe, efficient and satisfactory manner.

### **3.3 SEASONAL RESTRICTIONS**

- .1 Work shall progress into the fall/winter as late as the Work can be completed per the requirements of the Contract Documents, including but not limited to minimum temperature requirements for concrete and asphalt materials.
- .2 When seasonal conditions are no longer conducive to the performance of the Work, the Contractor shall request a halting of Contract Time due to seasonal restrictions. Upon receipt of the request, the Engineer will review the conditions and make a determination.
- .3 Upon halting of Contract Time being determined by the Engineer, the Site shall be cleaned as per Section 01-130 Cleaning & Closeout. If requested by the Engineer, temporarily fill excavations, patch roadways and do other Work as necessary to re-open the street to traffic during the seasonal shutdown.
- .4 During seasonal shutdown, perform routine maintenance on temporary road patches as necessary to maintain the road in an acceptable condition, as determined by the Engineer.
- .5 When the Contractor and/or Subcontractors are no longer seasonally restricted, as determined by the Engineer, they shall immediately return to Site, remove any temporary road patches and resume the Work.
- .6 Unless otherwise indicated in the Contract Documents, the cost of all cleaning, temporary Work and/or maintenance during the seasonal shutdown shall be the sole responsibility of the Contractor.

### **3.4 SITE LIMITS**

- .1 The location on the Site in which the Contractor commences the Work and the sequence of construction shall be as approved by the Engineer.
- .2 Confine all equipment, Plant, storage of materials, and operations to the Site and avoid unnecessarily encumbering the Site with Products and/or materials.
- .3 Coordinate activities between Contractor and other Works and/or Contractors in adjacent areas. Contractor will not have exclusive rights to the general area.

### **3.5 EXISTING REFERENCE POINTS**

- .1 Not all existing horizontal and vertical control points, survey posts, monuments, property pins or bars are indicated on the Drawings. If the Contractor is in doubt about the location of any of the aforementioned survey control points on the Site, the Contractor shall verify their location with the Engineer, or for private-contracted work the Consulting Engineer, before commencing the Work. Property pins may only be referenced or moved by a Manitoba Land Surveyor, and the

## **SITE CONDITIONS & RESTRICTIONS**

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Contractor shall give timely notice to the Engineer, or where applicable the Developer, to have this done at the City's expense, or for private-contracted work at the Developer's expense.

- .2 The Contractor shall exercise proper care in the protection and preservation of all horizontal and vertical control points, survey posts, monuments, property pins, bars, bench marks, reference points, and stakes. In the case of willful or careless destruction or disturbance of the aforementioned, the Contractor shall be fully responsible for any mistakes caused by their unnecessary loss or disturbance in addition to the expense of their restoration or replacement. The Contractor shall immediately notify the Engineer when a reference point is lost or destroyed. The Contractor shall have no claim for extra compensation on account of delay caused thereby.

### **3.6 EASEMENTS & PRIVATE PROPERTY**

- .1 Obtain consent of adjoining property owners if needed for temporary access or use. Provide written consent from said property owners to the Engineer, if requested. Upon completion of the Work, make good damage to the satisfaction of the property owner.
- .2 If easements are obtained by the City to perform Work on private property, ensure all excavated materials, material to be incorporated into the Work, and property access are within the prescribed limits.
- .3 Fences, planters and other private belongings installed within the right-of-way shall be removed and stockpiled as determined by the Engineer in order to complete the Work.
- .4 Damages as a result of the Work to fences, planters, signs, mailboxes and other private belongings installed on private property shall be repaired at the Contractors expense.

### **3.7 EXISTING UTILITIES**

- .1 The Drawings are intended to show the existence and location of utilities in the right-of-ways at the date of the Drawing; however, not all utilities may be shown or additional utilities may have been added or modified since the Drawings were made. The Contractor shall make all necessary enquiries and give all requisite notice to utilities prior to commencing the Work. Any Work or cost required to locate or expose a utility shall be borne entirely by the Contractor.
- .2 Prior to the commencement of Work, inspect the Site, obtain and confirm dimensions, examine all available records and contact all utilities to establish location and conditions of all existing above and below-ground features that may be impacted by the Work.
- .3 Take extra precaution near any natural gas mains that are located within the limits of the Work. Limits of excavation around gas mains may differ on each Site and shall be as directed by Manitoba Hydro once construction begins.
- .4 Take extra precaution near overhead wires that are located within the limits of the Work. Limits of Work near overhead wires may differ on each Site and shall be as directed by Manitoba Hydro once construction begins.
- .5 Proceed under direction of respective utility owner and/or the Engineer to provide temporary support, protection and maintenance of existing features which may be impacted by the Work.
- .6 Arrange with utility owners and municipal departments for the removal, relocation, replacement or protection of above or below ground features which may be in conflict with the Work unless specified in the Contract Documents.
- .7 Any utility or feature which, in the opinion of the Engineer, requires temporary relocation shall be removed, relocated, replaced or otherwise protected at the Contractor's expense unless specified in the Contract Documents.

## **SITE CONDITIONS & RESTRICTIONS**

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- .8 Any utility or feature damaged as a result of the Work will be repaired at the Contractor's expense.

### **3.8 COORDINATION**

- .1 Coordinate activities of sub-trades and Work by others as required to expedite the Work.
- .2 Coordinate activities between Contractor and other Works and/or Contractors in adjacent areas. Contractor will not have exclusive rights to the general area.
- .3 If emergency repairs to infrastructure are required at the Site the City will have exclusive rights to the area required to make such repairs.
- .4 Upon commencement, the Work shall be advanced diligently with the view of completing the Work or restoring the infrastructure to full use in the shortest possible time.

### **3.9 SUBSURFACE CONDITIONS**

- .1 The City makes no warrants or guarantees of subsurface conditions at the Site. The Contractor is responsible to make their own interpretation of the subsurface conditions at the Site.
- .2 If conditions at the Site are different than expected, advise the Engineer at the earliest opportunity in order to review the Work and determine if changes are required.
- .3 De-watering of the Site may be required, and unless otherwise indicated in the Contract Documents, the City will not be responsible for any payment for de-watering of any excavation. The method and means of de-watering shall be the Contractor's sole responsibility.
- .4 If the Engineer provides test holes or other geotechnical information, the Contractor shall make their own interpretation of the data provided and shall carry out such additional investigations as they deem necessary.

### **3.10 DISRUPTION OF SERVICES**

- .1 One week prior to performing any tie-in or connection to an existing system, submit a detailed written description of how the connection will be made and indicate maximum length of required shutdown of any plant. Do not proceed until written approval by the Engineer.
- .2 No valve, switch or other control of an existing plant shall be operated without the written approval of the Engineer and/or respective utility owner.
- .3 Provide notice to impacted properties of any service interruption, such notice shall be in a manner as directed by the Engineer and/or utility company.

### **3.11 EXISTING HARDWARE ACCOMMODATION**

- .1 All manholes, valves, valve casings, catch basins, utility vault covers, and similar street hardware, whether owned by the City or others, shall be raised, lowered, tilted, or otherwise adjusted prior to and during placement of any materials. Street hardware shall be set flush with the finished graded surface unless otherwise directed by the Engineer.

### **3.12 LOCATION OF EXISTING FIXTURES**

- .1 Location of equipment, fixtures and distribution systems shown on the Drawings or as specified in the Contract Documents shall be considered as approximate.

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**SITE CONDITIONS & RESTRICTIONS**

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- .2 Locate equipment, fixtures, and distribution systems to provide minimum interference, maximum use of space in accordance with manufacturer's recommendations for safety, access, operations and maintenance.
- .3 If required by the Engineer, submit Shop Drawings to indicate relative position of various fixtures and equipment. Inform the Engineer of any impending installation and obtain Engineer's approval for final location.

**END OF SECTION**

## TEMPORARY WORKS

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### PART 1: GENERAL

#### 1.1 DESCRIPTION OF WORK

- .1 The Work described herein is for the supply and install of temporary facilities, utilities, construction aids and controls, as required to execute the Work or as directed by the Engineer in order to expeditiously execute the Work, and removal from Site all such temporary facilities when no longer required or as directed by the Engineer.

#### 1.2 REQUIRED SUBMITTALS

- .1 Shop Drawings if required as per Section 01-030 Submittals.

#### 1.3 REFERENCE STANDARDS

- .1 CSA S269.1 "Falsework and Formwork"
- .2 CSA S269.2 "Access Scaffolding for Construction Purposes"

### PART 2: PRODUCTS

NONE

### PART 3: EXECUTION

#### 3.1 EXCAVATIONS & DEWATERING

- .1 As per Section 03-010 Excavation, Bedding & Backfill.

#### 3.2 CUTTING, FITTING & PATCHING

- .1 Do all cutting, fitting, or patching of Work that may be required to make its several parts come together properly and fit to receive or be received by Work of others shown on, or reasonably implied by the Contract Documents.
- .2 Do not damage or endanger any existing Work by cutting, digging, or otherwise. Do not cut or alter the Work of others without approval from the Engineer.
- .3 Do not cut, drill or otherwise sleeve any load bearing structural member, unless shown specifically on the Drawings or as stated in the Specifications without written approval from the Engineer.
- .4 Submit a written request in advance of cutting or alteration which effects the structural integrity of any element of the Work, the integrity of weather exposed or moisture resistant elements of the Work, the efficiency, maintenance or safety of any operational element, the visual qualities of sight exposed elements, or Work by others. Commencement of cutting or patching means acceptance by the Contractor of existing conditions.
- .5 Perform cutting and remedial Work using qualified specialists familiar with the materials effected and tools or equipment required to complete the Work. Rigid materials shall be cut with clean, true, smooth edges using a power saw or core drill. Openings shall not be cut larger than required for installation of the Work.

## **TEMPORARY WORKS**

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- .6 Restore the Work with new products in accordance with the Contract Documents, fit work airtight to pipes, sleeve ducts, conduits and other penetrations through surfaces and at penetration of fire rated wall, ceiling or floor construction. Completely seal voids with fire rated material through the full thickness of the construction element.
- .7 Properly prepare surfaces to receive patching and finishing and make matches inconspicuous in the final assembly. Refinish surfaces to match adjacent finishes. For continuous surfaces refinish to nearest intersection of an assembly or refinish the entire unit.

### **3.3 TEMPORARY ELECTRICITY**

- .1 If required during the Work, supply, install and maintain all temporary electrical power and lighting, including pole lines, required for the Work in accordance with governing regulations, ordinances or the Contract Documents.
- .2 Wiring for temporary lighting shall be entirely separate from the temporary electricity installation, except for a common supply connection at an electrical service or distribution centre.
- .3 The existing power and lighting system of a building, or portions thereof, may be used when available and only if approved by the Engineer.
- .4 The Contractor shall pay all costs of maintaining and providing temporary electricity from the existing system and shall be responsible for all damages and repairs to the existing system which are a result of the Work.
- .5 Upon completion of the Work, replace all lamps and restore existing system to the satisfaction of the Engineer.

### **3.4 TEMPORARY HEAT & VENTILATION**

- .1 If required during the Work, supply portable heaters or other types of radiation for temporary heat, including attendants, maintenance and fuel.
- .2 Unless stated elsewhere in the Contract Documents, minimum temperature shall be 10 degrees Celsius in all areas in which construction is in progress, and 21 degrees Celsius in any occupied interior building area.
- .3 Use Engineer-approved heating devices only which shall protect the Work and Products against dampness and cold, prevent moisture condensation on surfaces, provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .4 The existing heating system of a building shall not be used for temporary heating and the temporary heating equipment shall operate independently of any mechanical equipment or heating system being installed as part of the Work.
- .5 Provide ventilation to prevent hazardous accumulations of dust, fumes, mist, exhaust, vapours or gases in all areas occupied during execution of the Work.
- .6 Contractor shall be responsible for any damages to the Work due to failure in providing adequate heat and/or ventilation during construction.

### **3.5 TEMPORARY WATER**

- .1 If required by local authorities or the Contract Documents, provide and maintain in good condition a supply of potable water for construction use.

## **TEMPORARY WORKS**

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- .2 Install and maintain all temporary lines and connection, and supply and install the service and meter as required by the City.
- .3 The Contractor shall pay for all water consumed during Private-contracted Work as measured by a hydrant meter box.
- .4 There shall be no charges for water consumed as part of City-contracted Work as metered by a hydrant meter box.

### **3.6 HYDRANT OPERATION**

- .1 Do not operate hydrants or valves that are currently in service and/or connected to a potable water source supplied by the City.
- .2 Where the City approves the use of water from hydrants in the Work, the hydrants and valves will be operated by the City only. Should the Contractor require prolonged use of a hydrant, the Contractor shall request a key to the hydrant meter box from the City.
- .3 Do not obstruct access to hydrants, valve boxes, curb stop boxes or other existing utility controls at the Site.
- .4 Where such access must be blocked, the duration of such obstruction shall be as brief as practicable and only if approved by the Engineer.
- .5 Hydrants not in service as a result of the work shall be red tagged as directed by the Engineer.

### **3.7 SANITARY FACILITIES**

- .1 Provide and maintain in clean and tidy condition sufficient sanitary facilities for the work force in accordance with local health authorities, governing regulations and by-laws.

### **3.8 TEMPORARY STRUCTURES**

- .1 Supply, install and maintain all temporary sheeting, retaining walls, piling or shoring required to protect adjacent building foundations, roadways, excavations, and trenches from damage or movement caused by rain water, ground water or other environmental conditions.
- .2 Supply, install, and maintain scaffolding, ramps, ladders, swing staging, platforms, or temporary stairs as may be required by the Work.
- .3 Falsework and Scaffolding shall be designed and constructed in accordance with CSA S269.1 and CAN/CSA S269.2.
- .4 Scaffolding and falsework shall be rigid, secure and constructed to ensure proper safety for Contractor Personnel and erected and maintained in full compliance with Provincial Codes and regulations governing scaffolding.
- .5 Scaffolding shall be erected in a manner which will not encumber the performance of the Work, independent of walls, without damage to any building or finishes and shall be removed promptly when no longer required.
- .6 The Contractor shall be solely responsible for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use. The Contractor shall engage and pay for a registered professional engineer skilled in the appropriate discipline to perform these functions where required by law or by the Contract Documents, and in all cases where such temporary facilities

## TEMPORARY WORKS

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and their methods of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

- .7 Notwithstanding any provisions to the contrary elsewhere in the Contract Documents, where such Contract Documents include designs for temporary structural and other temporary facilities or specify a method of construction in whole or in part, such facilities and methods shall be deemed to comprise part of the overall design or the specified method of construction. The Contractor shall be responsible for the execution of such design or specified method of construction in the same manner they are responsible for the execution of the Work.

### 3.9 SITE ENCLOSURES

- .1 Supply, erect and maintain in good repair guard railing and barricades, temporary Site enclosures and pedestrian walkways complete with roof, side covers, signs and electrical lighting as required by the Engineer, local authorities, or by-laws to protect Contractor Personnel, the public, and public/private property from injury or damage during the performance of the Work. Barricades shall be erected around all deep excavations, open shafts, open stair wells, or other areas of construction. Barricade the sidewalk at a location in line with the property line upon commencement of construction and maintain the barricades until the Work is complete and the sidewalks have been repaired.
- .2 Temporary fencing shall be constructed using a minimum 1.2 metre high, new snow fence securely wired to rolled steel 'T' bar fence posts spaced at 2.4 metre centers, all of which shall conform to the requirements of the authorities having jurisdiction.
- .3 Remove temporary Site enclosures from Site upon their use being no longer required, or the Work being completed.

### 3.10 TEMPORARY STORAGE

- .1 Supply and maintain, in a clean and orderly condition, suitable locked, weatherproof enclosures for the storage and protection of tools, equipment, Products and materials.
- .2 Allocate storage areas on Site for materials which are not required to be placed in weatherproof sheds. Limit storage of materials and items to designated storage areas only and store in a manner which causes the least interference with construction activities.

### 3.11 SITE SECURITY

- .1 Provide all temporary controls in order to execute Work safely, expeditiously, and minimize damage to the Work and other structures on or adjacent to the Site.
- .2 Provide barricades, fencing and any other barriers necessary to deter the public from the Site.
- .3 Provide weather tight enclosures for any unfinished portions of the Work which may be sensitive to the elements. Design enclosures to withstand wind and snow loadings.

### 3.12 TEMPORARY PUMPING

- .1 Provide temporary drainage and pumping required to keep the Site and excavations free from standing water.
- .2 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials or debris.

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## **TEMPORARY WORKS**

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- .3 Prior to pumping, written approval by the Engineer of the discharge point is required. Provide expected discharge volumes, pump capacities, water quality and other information requested by the Engineer to aid in the approval process.
- .4 For requirements related to bypass pumping of sewer mains for the purposes of gravity sewer work, see Section 05-010 Gravity Sewers.

### **PART 4: METHOD OF MEASUREMENT**

#### **4.1 TEMPORARY WORKS**

- .1 There will be no separate measurement made for supply and install of temporary facilities, utilities, construction aids and controls unless otherwise indicated in a separate Division or the Contract Documents.

### **PART 5: BASIS OF PAYMENT**

#### **5.1 TEMPORARY WORKS**

- .1 No payment will be made for the works associated with 'Temporary Works', as it is considered incidental to the Work, unless otherwise indicated in a separate Division or the Contract Documents.

**END OF SECTION**

## **SAFETY**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for requirements to ensure safety of people and property effected by the Work.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Notwithstanding the requirements of the Manitoba Workplace Safety and Health Act and Regulation or other legislation, the Contractor shall have a Safe Work Plan including but not limited to, the following:
  - .1 Contact information for company management, safety personnel, and other key staff;
  - .2 Emergency contact information for fire, police, medical, dangerous goods, workplace safety & health and other agencies or authorities;
  - .3 Location of, and directions to the nearest hospital or first aid station;
  - .4 Contractor Personnel certifications for first aid/ CPR;
  - .5 Template for regular safety meetings, tailgate safety meetings;
  - .6 Company certifications such as COR or seCOR;
  - .7 Emergency Preparedness Plans for potential emergencies;
  - .8 Hazard analysis for all tasks or situations, including safe work procedures and personal protective equipment required to limit exposure to hazard;
- .2 The Safe Work Plan shall be reviewed specifically for each Site and if necessary, site-specific or activity-specific hazard analysis, PPE, or preparedness plans shall be developed.

#### **1.3 REFERENCE STANDARDS**

- .1 CSA Z166.1-M85 Powder Actuated Tools – Performance Requirements
- .2 CSA Z166.2-M85 Powder Actuated Tools – Use and Handling
- .3 National Building Code of Canada (NBC)
- .4 National Fire Code of Canada (NFC)
- .5 Manitoba Workplace Safety and Health Act and Regulation
- .6 Explosives Act R.S.C., 1985, c. E-17

## **SAFETY**

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### **PART 2: PRODUCTS**

NONE

### **PART 3: EXECUTION**

#### **3.1 PRIME CONTRACTOR**

- .1 Unless specified otherwise in the Contract Documents, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with Manitoba Workplace Safety and Health Act and Regulation

#### **3.2 SAFETY REGULATIONS**

- .1 Observe, comply with, and ensure Contractor Personnel comply with the requirements of The Workplace Safety and Health Act, the Workers Compensation Board of Manitoba, all regulations thereunder and current legislation as required under the jurisdiction of Provincial and local by-laws and applicable statutes. In the event of a discrepancy between any safety provision of the above regulations, the most stringent shall apply. Provide and maintain adequate first aid facilities on Site at all times.
- .2 Meet the requirements of GHS and WHMIS. Labels shall be on all hazardous materials and their containers to alert Contractor Personnel to the dangers of the products and basic safety precautions.
- .3 Safety Data Sheets (SDS) shall be available at the Site to provide detailed hazard and precautionary information on products and materials.

#### **3.3 FIRE SAFETY**

- .1 Provide and maintain temporary fire protection equipment as required by the City, insurance requirements and governing codes, regulations and by-laws. Provide a minimum of one fire extinguisher in each piece of equipment or structure.
- .2 Instruct Contractor Personnel in the proper method of operating portable fire extinguisher and be familiar with the various classifications of fire and the appropriate extinguishing method.
- .3 When working within a structure comply with the fire requirements NBC and/or NFC of Canada. Contractor Personnel shall know the location of fire alarm pull stations, fire extinguishers, fire exits and evacuation routes.
- .4 Store flammable or combustible gases used on the Site in ULC containers and provide adequate ventilation during the use of volatile or noxious substances. The Contractor shall handle gasoline and like combustible materials with good safe practice and remove all combustible debris from the Site daily. Open fires and burning of rubbish are not permitted on site.

#### **3.4 USE OF EXPLOSIVES**

- .1 Explosives will only be permitted by the Engineer if there is no other practical or economical method of completing the Work. The blasting procedure is subject to review by the Engineer and the Contractor shall observe the utmost care not to endanger life and property. Carry adequate liability insurance endorsed for blasting operations to the value requested by the Engineer.
- .2 Contact other utilities as required to ensure that blasting operations will not negatively impact them.

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**SAFETY**

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- .3 Transportation, storage and handling of explosives and related materials shall be in strict accordance with the provisions of the Canada Explosives Act, Provincial regulations, and all other legislation pertaining thereto. Blasting shall be executed by persons licensed for such work by the Province of Manitoba. Use approved protective mats and coverings to prevent the projection of debris.

**3.5 POWDER-ACTUATED FASTENING TOOLS**

- .1 Use of power guns using explosives must be approved by the Engineer and shall only be used by a licensed operator indicating they are qualified to use such tools. Comply with CSA Z166.1, Z166.2, and local regulations.

**END OF SECTION**

## ENVIRONMENTAL PROTECTION

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### PART 1: GENERAL

#### 1.1 DESCRIPTION OF WORK

- .1 The Work described herein is for requirements to ensure the protection of the environment and habitat effected by the Work.

#### 1.2 REQUIRED SUBMITTALS

- .1 Notwithstanding the requirements of any Provincial or Federal legislation, the Contractor shall have an Environmental Protection Plan including but not limited to, the following:
  - .1 Contact information for company management, persons responsible for ensuring adherence to the Environmental Protection Plan, and other key staff;
  - .2 Emergency contact information for environmental emergencies, Workplace Safety & Health and other agencies or authorities;
  - .3 Spill control plan including procedures, instructions, kits and reports to be used in the event of an unforeseen spill of a hazardous substance;
  - .4 Non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal;
  - .5 Air pollution control plan detailing provisions to ensure dust, debris, and airborne hazardous materials are not released into the environment above any prescribed limits;
  - .6 GHS & WHMIS training and procedures;
  - .7 SDS for all chemicals that Contractor Personnel may use or may be found on Site;
  - .8 Waste water management plan identifying methods and procedures for management of waterborne or suspended hazardous materials, in addition to sediment control;
  - .9 Asbestos control plan identifying control measures for handling and disposing of asbestos containing material in accordance with the Workplace Safety and Health Act.
- .2 The Environmental Protection Plan shall be reviewed specifically for each Site and, if necessary, site-specific or activity-specific plans shall be developed.

#### 1.3 REFERENCE STANDARDS

- .1 "Manitoba Stream Crossing Guidelines" - Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, Department of Natural Resources (DNR) and the Department of Fisheries and Oceans (DFO).
- .2 Manitoba Workplace Safety & Health Act and Regulation

### PART 2: PRODUCTS

NONE

## **ENVIRONMENTAL PROTECTION**

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### **PART 3: EXECUTION**

#### **3.1 FUEL SPILLAGE**

- .1 Obtain Engineer approval of refuelling areas for equipment. Prepare procedures for interception and rapid clean-up/ disposal of fuel spillage and ensure materials required for such tasks are readily accessible on Site.

#### **3.2 VOLATILE WASTES**

- .1 Prevent accumulation of wastes which create hazardous conditions and store volatile wastes in covered metal containers which are removed from Site at the end of each day. Ensure no volatile materials are deposited or spilled on land adjacent to the Site or into wastewater sewers or the land drainage system. In the event of a spill, materials shall be removed immediately and the effected land or infrastructure restored to its previous state at the cost of the Contractor. The Contractor shall notify the Engineer immediately in the event of a spill.

#### **3.3 DRAINAGE/PUMPING FACILITIES**

- .1 Provide and maintain temporary drainage and pumping facilities, including well points if necessary, to keep all excavations and the Site free of water at all times. Do not permit ponding of water on the Site and do not discharge water containing suspended materials or other harmful substances into wastewater sewers, the land drainage system or across adjacent properties without the written approval of the Engineer.

#### **3.4 USE OF EQUIPMENT NEAR WATERWAYS**

- .1 Do not operate equipment in waterways or use waterway beds for borrow material or dump waste material or debris into waterways. Follow erosion control methods outlined in the Manitoba Stream Crossing Guidelines.

#### **3.5 FIRES**

- .1 Fires and burning of rubbish on Site is not permitted.

#### **3.6 TREE PROTECTION**

- .1 No trees whatsoever shall be cut down or removed from the Site without the written permission of the Engineer or from a City arborist as per the Tree Protection By-law No. 7335.
- .2 The Engineer and City Arborist shall coordinate prior to construction of City-contracted Work to ensure pruning of trees has occurred to minimize damage to trees from excavators and trucks.
- .3 The Engineer, City Arborist and Contractor shall coordinate prior to construction of Private-contracted work to ensure pruning of trees has occurred to minimize damages to trees from excavators and trucks.
- .4 Tree roots shall be protected during excavation and grading so they receive minimum possible disturbance and damage. Do not stockpile material near the tree trunk and avoid compaction of the critical root zone area of a tree.
- .5 Excavation shall only be permitted on one side of the tree or as approved by the Engineer. All exposed roots should be cut using a sharp pruning tool to provide a clean severance of the root.
- .6 Backfill around exposed roots as soon as possible to prevent roots from drying out.

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**ENVIRONMENTAL PROTECTION**

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- .7 Unapproved removal or damage to a tree shall result in the following penalty as stated in Compliance By-law No. 7198.

**3.7 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

**3.8 SEDIMENTATION CONTROL**

- .1 Provide and maintain temporary sedimentation control measures in accordance with the Section 08-030 Erosion & Sedimentation Control.

**END OF SECTION**

## **TRAFFIC MANAGEMENT**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for the coordination, install, management, and removal of temporary traffic controls to facilitate movement of vehicles and pedestrians during the Work.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Prior to Work on any Street requiring full or partial closure to traffic or pedestrians, prepare a Traffic Management Plan (TMP) clearly showing the following:
  - .1 Limits of construction, road closure, and sidewalk closure.
  - .2 Provisions for local traffic including lane, driveway, and parking lot access and egress.
  - .3 Approximate location of all traffic control devices;
  - .4 Proposed detour route (if applicable);
  - .5 Approximate start date and duration of closure;
  - .6 Type of Work to be completed;
  - .7 Contact information for Contractor responsible for the Work;
- .2 A revised TMP shall be provided for any portions of the Work requiring different traffic accommodations than the approved TMP.

#### **1.3 REFERENCE STANDARDS**

- .1 Manual of Uniform Traffic Control Devices for Canada (MUTCD) – Transportation Association of Canada.
- .2 Temporary Traffic Control Manual (TTCM) – City of Brandon Engineering Department.
- .3 Work Zone Traffic Control Manual (WTCM) – Manitoba Infrastructure.
- .4 The Workplace Safety & Health Act C.C.S.M. c. W210

### **PART 2: PRODUCTS**

#### **2.1 TRAFFIC CONTROL DEVICES**

- .1 The design and dimensions of traffic control devices shall conform to the requirements of the most recent edition of the MUTCD, TTCM or WTCM. Where two or more documents are conflicting, the more stringent requirements shall apply.
- .2 All traffic control devices including signs, barricades, channelling, and other devices shall conform to the requirements of this Section, the TTCM for City roads and the WTCM for Provincial roads. Where two or more documents are conflicting, the more stringent requirements shall apply.

## **TRAFFIC MANAGEMENT**

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- .3 All traffic control devices shall be clearly marked with the Contractors name, address and telephone number and shall be reflectorized to show the same colour and appearance at night as by day. Reflective must meet or exceed ASTM Type IV.
- .4 During winter conditions, flashing beacons other than those powered by batteries, shall be supplied if requested by the Engineer.

### **PART 3: EXECUTION**

#### **3.1 COORDINATION**

- .1 Coordination of road closures is the sole responsibility of the Contractor, with approval required from the Engineer before proceeding.
- .2 Prior to the closure of any street or driveway the public so affected by the closure shall be given a minimum forty-eight (48) hours notice to all vehicles to be removed if necessary.
- .3 Coordinate the Work such that all affected commercial properties will have access during regular business hours. Regular business hours may vary.
- .4 Comply with the requirements of all acts, regulations and by-laws in force for the regulation of traffic or use of roadways upon or over which it is necessary to carry out the Work, transport materials or equipment.
- .5 Coordinate the Work to minimize disruption to residential driveway and parking access. Provide temporary access to driveways within the Work area not immediately adjacent to an open excavation during evenings, weekends, holidays and other times in which the Contractor is not working.
- .6 All haul routes and hauling on City streets shall be subject to approval by the Engineer. The haul routes shall be maintained in a clean and dust-free condition at all times at the Contractor's expense.

#### **3.2 ARTERIAL & COLLECTOR STREETS**

- .1 Roadways classified as arterial shall not be closed except for the actual carrying out of Work and such closure or blockage shall be as brief as possible. The minimum expected level of service is to keep one lane in each direction open to traffic.
- .2 Closure of roadways classified as collectors shall be limited to seven days. Extended closures shall be considered by the Engineer with justification provided by the Contractor.
- .3 Street classification is available in Traffic By-law No. 5463.

#### **3.3 INSTALLATION & REMOVAL**

- .1 Upon review and acceptance of the TMP by the Engineer, confirm start and estimated completion dates for the closure to ensure adequate public notification. Advise of any changes to start or estimated completion dates to allow for updating of the notification a minimum of forty-eight (48) hours in advance of implementation.
- .2 Prior to commencing operations supply, erect, move and maintain all traffic control devices as required by the reviewed TMP, until the detour is no longer required.
- .3 All signs on City of Brandon property, by whosoever owned, which must be moved to facilitate the Work, shall be taken down, stored, and promptly restored with particular attention being given

## **TRAFFIC MANAGEMENT**

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to traffic regulatory signs. If conditions do not permit prompt restoration of signs, carefully remove the signs and posts from the Site and store them in a secure location until they can be installed. The Contractor shall be fully responsible for and shall pay the cost of restoration, repair and replacement of any sign damaged while in his care and custody.

- .4 All traffic control devices shall be positioned so they are clearly visible to oncoming traffic. They shall be positioned not less than 1.2m or more than 2.5m from the edge of the travelled portion of the roadway.
- .5 All such signs erected in accordance with this Section shall be removed and/or covered during periods when the advice or warning contained thereon is not applicable.
- .6 Any installed device that, in the opinion of the Engineer, does not comply with the aforementioned standards shall be removed promptly and replaced. Ensure that there are sufficient devices on hand to adequately protect all Sites during the performance of the Work. The Contractor shall designate a representative to regularly maintain such devices.
- .7 When the detour is no longer required, ensure that all permanent signs have been restored as required. Remove all traffic control devices and advise the Engineer to ensure the public notification is discontinued.

### **3.4 TRAFFIC NOT DETOURED (PARTIAL CLOSURE)**

- .1 When working on a travelled way, place all equipment in a position to present a minimum of interference and hazard to the travelling public, keep equipment as close together as working conditions will permit, and preferably on the same side of the travelled way. Do not leave equipment on the travelled way overnight unless approved by the Engineer.
- .2 Traffic not detoured shall be permitted the use of the roadway at all times and the Contractor shall maintain the roadway and perform the Work so as to create a minimum of interference with pedestrian and vehicle traffic.
- .3 When the Work is performed within public areas, supply and install adequate warning and traffic signs as may be necessary to provide the public with adequate warning. Place the warning and traffic signs sufficiently in advance of the Work, to enable the public to respond to directions.
- .4 If in the opinion of the Engineer, damage is being done to public roads by the Contractor's equipment, remove the cause of the damage and repair any damage at the Contractor's expense.

### **3.5 TRAFFIC DETOURED (FULL CLOSURE)**

- .1 In all cases where the Work interferes with the normal use of a roadway provisions shall be made either to detour the traffic or to afford it the use of the roadway.
- .2 If directed by the Engineer, a roadway may be closed to all traffic. Provide and maintain a passable detour route around the Site and an adequate means of egress and ingress for emergency vehicles and local traffic to access adjacent properties along or in the vicinity of the Work. The detour shall be well graded gravel or a paved surface free of pot holes and of sufficient width to accommodate the anticipated traffic volumes. Comply with all the provisions contained in the MUTCD regarding traffic control devices and flag person.
- .3 Any closure or blockage of traffic shall be as brief as possible and at no time shall any one city block be isolated from emergency services except during the actual carrying out of the Work.
- .4 Variable message signs may be required when closure of an arterial or collector street is necessary. Variable message signs shall be installed as directed by the Engineer.

## TRAFFIC MANAGEMENT

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### 3.6 FLAGPERSON

- .1 If, in the opinion of the Engineer, flag persons are required, to protect the Work and vehicular traffic, they shall be provided and equipped by the Contractor. Each flag person shall be certified, dressed and properly equipped as required by Manitoba Workplace Safety and Health and shall at minimum:
  - .1 Be certified as a Manitoba Flagperson and carry their Flagperson Training Certificate on them at all times while performing the duties of a Flagperson.
  - .2 Be equipped with a full safety PPE (jacket and trousers) that meets the Class 3 Level 2 requirements of CAN/CSA Z96-09, High Visibility Safety Apparel, and that is fluorescent yellow-green in colour and protective head gear in fluorescent yellow-green in colour.
  - .3 Be equipped with a means of communications with other flaggers and the chief flagperson as necessary.
  - .4 Be familiar with the standard procedures of traffic control flagging.
- .2 The Contractor shall provide not less than two (2) flag persons at each location where loading or depositing of material requires the turning of trucks or other equipment on the roadway; or where the operation of construction equipment, deposited stockpiles or materials on or adjacent to the roadway; or the leaving of equipment on or adjacent to the roadway endangers the safety of the travelling public; or where it is necessary to institute one-way traffic system through the construction area; or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use; or where public traffic is required to pass working vehicles or equipment which may block all or part of the travelled roadway.

### 3.7 PEDESTRIANS, CYCLISTS & ACCESSIBILITY

- .1 In all cases where the Work interferes with the normal use of a sidewalk, multi-use trail, bike lane or other pedestrian facility, provisions shall be made to detour the pedestrian or cyclist traffic or afford it use of the pedestrian facility.
- .2 The detour for a pedestrian facility shall be at an approved crossing to avoid dead ends. A temporary accessible ramp shall be provided at the detour location if one does not already exist.
- .3 Pedestrian facility barricades shall be installed to the full width of the pedestrian facility being detoured ensure detection from support animals. A minimum height of 150mm along the bottom of the detour signage shall be solid to ensure detection from an identification cane.
- .4 Where provisions are provided to use a pedestrian facility during construction, the surface shall be well-graded gravel, reclaimed asphalt pavement or paved surface, free of potholes and of sufficient width to accommodate the anticipated pedestrian traffic, including wheelchairs, scooters, or other wheeled devices.

### 3.8 ACCESS & PARKING

- .1 Provide and maintain access roads, sidewalk crossings, ramps, and construction runways in a condition suitable for a passenger car to enter the Site. Access to the Site shall be restricted to designated access roads as shown on the Drawings, or as directed by the Engineer.
- .2 Access to driveways, lanes and unloading areas shall be provided and maintained by the Contractor except when actual construction operations prohibit such access during normal working hours. Prior to the closure of any private driveway or loading area, the public so affected by the closure shall be given notice in order that vehicles may be removed if necessary. Advise all emergency services as to the location, nature and duration of any road closure.

## **TRAFFIC MANAGEMENT**

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- .3 Parking space on City streets for the purposes of the Work shall be as specified in the City of Brandon Traffic By-Law No. 5463.

### **3.9 TEMPORARY ROADS**

- .1 Construct all haul roads, access roads and other roads necessary to complete the Work.
- .2 Access roads shall be easily traversable by a passenger vehicle to allow for access to the Site by the Engineer for purposes of inspections, measurements, or any other reason.
- .3 Prior to constructing roads, approval by the Engineer of the design, materials, grading, and location is required. Provide any design information requested by the Engineer to aid the approval process. The design for Private-contracted roads shall be submitted as part of the complete drawings submission prepared by the Consulting Engineer and accepted by the Engineer.
- .4 Temporary roads shall be considered part of the Site, therefore the provisions of Section 01-130 Cleaning & Closeout, specifically Dust Control, shall apply.

## **PART 4: METHOD OF MEASUREMENT**

### **4.1 TRAFFIC MANAGEMENT**

- .1 There will be no measurement made for 'Traffic Management'.

## **PART 5: BASIS OF PAYMENT**

### **5.1 TRAFFIC MANAGEMENT**

- .1 Payment for 'Traffic Management' will be at the lump sum price set forth in the Unit Price Schedule for each 'Traffic Management' measured as specified herein, which shall be payment in full for those operations described herein, and as shown on the Drawings.

## **MATERIAL & EQUIPMENT**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein pertains to the supply, storage, and incorporation of materials and Products into the Work, as well as guidelines for equipment and workmanship.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Materials List in accordance with Section 01-030 Submittals.

### **PART 2: PRODUCTS**

#### **2.1 APPROVED PRODUCT LIST**

- .1 See list of approved Products (D-01100-1) attached to this Section.

### **PART 3: EXECUTION**

#### **3.1 MATERIALS & WORKMANSHIP**

- .1 Materials and workmanship shall conform to or exceed, in whole or part, applicable standards and other governmental or trade specifications or standards referred to within the Contract Documents. The Work shall conform to such standard, in whole or part, as specified.
- .2 Materials manufactured in excess of the timelines specified herein or by the manufacturer shall not be incorporated in the Work.

#### **3.2 STANDARDS**

- .1 All material, Products or equipment shall meet or exceed the reference standard stated in the Contract Documents. All material, Products or equipment required to be CSA approved shall carry the CSA label or CSA testing laboratory listing. All material, Products or equipment required to be fire rated shall carry the ULC label or ULC testing laboratory listing.
- .2 Material, Product and equipment shall be of the specified design and quality, performing to published ratings and for which replacement parts are readily available and unless otherwise indicated in the Contract Documents shall be of uniformity of manufacturer for any particular or like material, Product or item of equipment.
- .3 Defective, damaged, irregular, expired, factory seconds or inferior material, Product, or equipment whenever identified, will be rejected, regardless of previous inspections. The Contractor shall promptly remove and replace defective material, Product, or equipment at his own expense and be responsible for all delays and costs caused by a rejection.
- .4 If requested by the Engineer, the Contractor shall obtain an independent testing laboratory report, stating the material, Product or equipment meets or exceeds the requirements of the specification.

#### **3.3 MANUFACTURER'S DIRECTIONS**

- .1 Unless otherwise specified, the Contractor shall install, erect and maintain all material, Product and equipment in strict accordance with the manufacturer's latest printed instructions and shall

## **MATERIAL & EQUIPMENT**

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not rely on labels or enclosures provided with Products, but shall obtain written instruction directly from the manufacturer. The Contractor shall promptly notify the Engineer in writing, of any conflict between the Contract Documents and manufacturer instructions.

- .2 Labels, trademarks and nameplates on material, Product and equipment are not acceptable in permanent locations except where required for operating instructions, safety purposes or when located in mechanical or electrical rooms.

### **3.4 AVAILABILITY OF PRODUCTS**

- .1 Immediately upon signing the Contract Documents, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify the Engineer of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 If a material, Product or item of equipment specified is not available or delivery would unduly delay completion of the Work, the Contractor shall propose a substitution or other remedial action in sufficient time to prevent a delay in the performance of the Work. If a proposal is not given to the Engineer, the Engineer reserves the right to substitute a more readily available material, Product or item of equipment, at no additional cost to the City, in order to prevent a delay in the completion of the Work.
- .3 The Contractor shall review Product requirements and shall coordinate the delivery of all material, Product and equipment, regardless of supplier, to ensure availability for incorporation into the Work, but shall not deliver materials unduly long before they are needed or in excessive amounts.
- .4 When requested by the Engineer, the Contractor shall provide evidence of orders placed for material, Product or equipment, with copies of acknowledgement of orders and confirmation of delivery of all material shall be scheduled so that the Work progresses continuously.

### **3.5 SUBSTITUTES**

- .1 Material, Product, equipment, procedures and methods which are specified by their proprietary names, or by make, model, trade name or catalogue reference, shall form the basis for the Specifications and the Contract Documents. No substitute for these Products will be permitted without the Engineer's written approval and no other action on the part of the City will constitute an approval.
- .2 For City-contracted Work, Requests for Substitutes shall be submitted during the tender period as detailed in the General Conditions of the Contract, Instruction to Bidder IB4 Substitutes.
- .3 For Private-contracted Work, Requests for Substitutes shall be submitted prior to the Drawings being stamped "Reviewed for Construction" by the Engineer.
- .4 If a material, Product or item of equipment specified is not available or delivery would unduly delay completion of the Work, the Contractor shall propose a substitution or other remedial action in sufficient time to prevent a delay in the performance of the Work. If a proposal is not given to the Engineer, the Engineer reserves the right to substitute a more readily available material, Product or item of equipment, at no additional cost to the City, in order to prevent a delay in the completion of the Work.
- .5 A request for a substitute or alternative material, Product, item of equipment, procedure or method shall be submitted to the Engineer as described in Section 01-030 Submittals and shall include sufficient information and details to enable the Engineer to determine the acceptability of the material, Product, equipment, procedure of substitute. The request shall identify any other work which would become necessary to accommodate the requested substitute, and any anticipated cost or time savings. Further, the request shall certify that the substitute will adequately perform the functions called for by the general design, is equal in standard and meets

## **MATERIAL & EQUIPMENT**

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the Specifications in all respects, is suited the same use and capable of performing the same function as the specified and can be incorporated into the Work strictly in accordance with the Schedule of Work.

- .6 Should the proposed substitution be accepted either in part or in whole, the Contractor shall assume full responsibility and costs for design or Drawing changes, coordinating, modifying and integrating the work affected by the substitution into the permanent Work and the work by others.

### **3.6 STORAGE AND HANDLING**

- .1 Store and handle all material, Product, and equipment in accordance with the manufacturer's written instructions protected from the action of the elements and in a secure manner satisfactory to the Engineer.
- .2 Store material, Product, and equipment unopened in the original and undamaged condition with the manufacturer's seals and labels intact. Packaging or bundling shall not be removed until the Product is required in the Work.
- .3 Storage of material, Product, and equipment shall be on the Site only, unless otherwise agreed to by the Engineer. If material, Product, or equipment is stored off the Site, it shall be insured and stored in a bonded warehouse, satisfactory to the Engineer.
- .4 The Contractor shall be responsible for the additional handling and transportation of the material, Product and equipment required to deliver the stored items to the Site. Material, product or equipment damaged in shipment or in storage shall be removed from the Site, and not incorporated into the Work.

### **3.7 MATERIAL, PLANT AND REAL PROPERTY SUPPLIED BY THE CITY**

- .1 Materials to be supplied by the City shall be delivered to the nearest storage site or the Site at anytime. Where materials has been delivered prior to the awarding of the Contract, the Contractor and the Engineer shall visit the location where the material is stored and take such inventory as is required for the Contractor to assume responsibility for the material.
- .2 The Contractor shall be responsible for the acceptance, at the point of delivery, of any damaged material, unless prior to acceptance, the Engineer gives the Contractor a written release from all responsibility in accepting such material.
- .3 The Contractor shall, in advance of receipt of shipment of materials, provide adequate and proper storage facilities and, on receipt of such shipment, he/she shall promptly place the materials in storage, except when they are to be incorporated forthwith in the Work.
- .4 The Contractor shall be liable for any offloading, demurrage or storage charges on shipments of materials for the Work after the awarding of the Contract.
- .5 The Contractor shall be liable for all rentals, or other charges for handling, hauling or storing materials ordered for the Work, unless stated otherwise in the Contract Documents.
- .6 The Contractor shall keep such records of all material, Plant and real property referred to above as the Engineer from time to time requires and shall satisfy the Engineer, when requested that such material, Plant and real property are at the place and in the condition in which they ought to be.
- .7 The Contractor is liable to the City for any loss of or damage to material, Plant or real property that is supplied or placed in the care, custody and control of the Contractor by the City for use in the Work, whether or not that loss or damage is attributable to causes beyond the Contractor's control.

## **MATERIAL & EQUIPMENT**

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- .8 The Contractor is not liable to the City for any loss or damage to material, Plant or real property referred to above, if that loss or damage results from and is directly attributable to reasonable wear and tear.
- .9 If the Contractor fails to make good any loss or damage for which he is liable within a reasonable time after being required to do so by the Engineer, the Engineer may cause the loss or damage to be made good at the Contractor's expense, and the Contractor shall thereupon be liable to the City for the cost thereof and shall, on demand, pay to the City an amount equal to that cost or it shall be deducted from payments to be made by the City as part of the Contract Documents.

### **3.8 MATERIAL, PLANT AND REAL PROPERTY TO BECOME PROPERTY OF THE CITY**

- .1 All material and Plant and the interest of the Contractor in all real property, licences, powers and privileges purchased, used or consumed by the Contractor for the Work shall, after the time of their purchase, use or consumption be the property of the City for the purposes of the Work and they shall continue to be the property of the City and in the case of material, until the Engineer is satisfied that it will not be required for the Work, and in the case of Plant, real property, licenses, powers and privileges, until the Engineer is satisfied the interest vested in the City therein is no longer required for the purposes of the Work.

### **3.9 PARTIAL PAYMENT FOR SUPPLY PRIOR TO INSTALLATION**

- .1 For City-contracted Work, unless otherwise specified in Specification Divisions 2 through 10, Method of Measurement or Basis of Payment Sections, payment for supply and installation is processed upon installation to the satisfaction of the Engineer. The Engineer may consider partial payment for supply and delivery of Product or material to Site prior to installation. In these instances, the material or Product shall be deemed supplied as per the Manitoba Builders' Liens Act, Clause 2(3) Supplying Materials and the payment amount shall be as agreed upon by the Engineer and the Contractor.

### **3.10 TESTING**

- .1 Supply and deliver to the Engineer representative of materials incorporated into the Work, for the purpose of testing and quality control, with reasonable promptness and in an orderly sequence so as not to cause any delay in the Work, as outlined in the Contract Documents or when requested by the Engineer
- .2 Provide all samples at no additional cost to the Work, and provide all labour and facilities to obtain, handle, and securely store and cure test samples and materials on the Site.

### **3.11 CONSTRUCTION EQUIPMENT AND PLANT**

- .1 Maintain all construction equipment and Plant in good operating order. If requested by the Engineer, provide evidence that the construction equipment and Plant are adequate to manufacture, transport, place and finish the Work to a quality and production rates required by the Schedule of the Work.

**END OF SECTION**

**LIST OF APPROVED PRODUCTS**

**SECTION 04-010 WATERMAINS**

| <b>Specification Reference</b>   | <b>Approved Product(s)</b>                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.2 Pipe (DR18)                  | <ul style="list-style-type: none"> <li>• IPEX Blue Brute (150-300mm)</li> <li>• IPEX TerraBrute (150-600mm)</li> <li>• IPEX Centurion (350-600mm)</li> <li>• Westlake CIOD (150-600mm)</li> <li>• Westlake Cobra Lock (150-300mm)</li> <li>• Northern Pipe C900 (150-600mm)</li> </ul>                                                                                                |
| 2.3 Restrained-Joint PVC Pipe    | <ul style="list-style-type: none"> <li>• IPEX TerraBrute (200mm-600mm)</li> <li>• Westlake C900 Certa-Lok (150mm-600mm)</li> </ul>                                                                                                                                                                                                                                                    |
| 2.4 Fittings (Injection-Moulded) | <ul style="list-style-type: none"> <li>• IPEX Blue Brute DR18 (150-300mm)</li> </ul>                                                                                                                                                                                                                                                                                                  |
| 2.4 Fittings (Fabricated)        | <ul style="list-style-type: none"> <li>• IPEX Blue Brute DR18 (150-300mm)</li> <li>• IPEX Centurion DR18 (350-600mm)</li> <li>• Westlake CIOD DR18 (250-600mm)</li> </ul>                                                                                                                                                                                                             |
| 2.5 Joint Restraint              | <ul style="list-style-type: none"> <li>• Ford UFR1350</li> <li>• Ford UFR1355</li> <li>• Ford UFR1360</li> <li>• Clow 360C</li> <li>• Clow 390C</li> </ul>                                                                                                                                                                                                                            |
| 2.6 Gate Valve                   | <ul style="list-style-type: none"> <li>• Mueller A2362 (150-300mm)</li> <li>• Clow 2639 (150-300mm)</li> <li>• Mueller A2361 (350-600mm)</li> <li>• Clow 2638 (350-600mm)</li> </ul>                                                                                                                                                                                                  |
| 2.7 Valve Box                    | <ul style="list-style-type: none"> <li>• WD46</li> </ul>                                                                                                                                                                                                                                                                                                                              |
| 2.8 Hydrant                      | <ul style="list-style-type: none"> <li>• Clow M67 Brigadier</li> <li>• Mueller Super Centurion</li> </ul>                                                                                                                                                                                                                                                                             |
| 2.9 Coupler                      | <ul style="list-style-type: none"> <li>• Ford Ultraflex (150-400mm)</li> <li>• Romac Alpha (150-400mm)</li> <li>• Romac Macro HP (150-400mm)</li> <li>• Robar 1506 (150-300mm)</li> <li>• Robar 1696-2B (150-200mm)</li> <li>• Hymax 2 (150mm-300mm)</li> <li>• Hymax Grip (High Pressure Grip) (150-400mm)</li> </ul>                                                                |
| 2.10 Repair Clamp                | <ul style="list-style-type: none"> <li>• Robar 5616 (150mm-300mm)</li> <li>• Robar 5626 (150mm-400mm)</li> <li>• Robar 5636 (300-600mm)</li> <li>• Ford FS1 (150-300mm)</li> <li>• Ford FS2 (150-400mm)</li> <li>• Ford FS3 (400-600mm)</li> <li>• Romac SS1 (150-300mm)</li> <li>• Romac SS2 (150-350)</li> <li>• Romac SS3 (250-600mm)</li> <li>• Robar 6636 (150-600mm)</li> </ul> |
| 2.11 Tapping Sleeve              | <ul style="list-style-type: none"> <li>• Romac SST (150-200mm)</li> <li>• Romac STS 420 (200-300mm)</li> </ul>                                                                                                                                                                                                                                                                        |
| 2.12 Anode                       | <ul style="list-style-type: none"> <li>• Interprovincial Corrosion Control Co. 36S2.0ZP (16.4kg)</li> </ul>                                                                                                                                                                                                                                                                           |
| 2.13 Petrolatum Tape             | <ul style="list-style-type: none"> <li>• Denso LT Tape</li> <li>• Chase Construction Product Longwrap Petrolatum System</li> </ul>                                                                                                                                                                                                                                                    |

**LIST OF APPROVED PRODUCTS**

**SECTION 04-020 WATER CONNECTIONS**

| <b>Specification Reference</b> | <b>Approved Product(s)</b>                                                                                                                                      |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.2 Copper Pipe                | <ul style="list-style-type: none"> <li>Great Lakes Copper Type K (19-50mm)</li> </ul>                                                                           |
| 2.3 PEXa Pipe                  | <ul style="list-style-type: none"> <li>Rehau Municipex (38-50mm)</li> </ul>                                                                                     |
| 2.4 Main Stop Valve            | <ul style="list-style-type: none"> <li>Mueller H-15013 (38-50mm)</li> <li>Cambridge Brass Series 301NL (19-50mm)</li> <li>Mueller H-15008N (19-50mm)</li> </ul> |
| 2.5 Saddle                     | <ul style="list-style-type: none"> <li>Romac 305</li> <li>Robar 2616 (150-300mm)</li> <li>Robar 2626 (350-450mm)</li> </ul>                                     |
| 2.6 PVC Tapped Coupler         | <ul style="list-style-type: none"> <li>IPEX Blue Brute DR18 (150-300mm)</li> <li>NAPCO CIOD PVC DR18 (150-300mm)</li> </ul>                                     |
| 2.7 Coupler/Adaptor            | <ul style="list-style-type: none"> <li>Mueller H-15403N</li> <li>Cambridge Brass Series 118NL</li> </ul>                                                        |
| 2.8 Curb Stop Valve            | <ul style="list-style-type: none"> <li>Mueller H-15209N</li> <li>Mueller B-25219N</li> <li>Cambridge Brass 203NL</li> </ul>                                     |
| 2.9 Curb Stop Box              | <ul style="list-style-type: none"> <li>WD SB20CB (19-25mm)</li> <li>WD VB35 (38-50mm)</li> </ul>                                                                |

## **QUALITY CONTROL & FIELD ENGINEERING**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for quality control and field engineering services provided by the Engineer or designate.

#### **1.2 REQUIRED SUBMITTALS**

- .1 Aggregate samples in accordance with Section 01-030 Submittals.

### **PART 2: PRODUCTS**

NONE

### **PART 3: EXECUTION**

#### **3.1 INSPECTION**

- .1 The Engineer shall complete inspections to verify conformance of the Work with the Standard Construction Specifications and Contract Documents.
- .2 Give timely notice to the Engineer to allow for inspection of the Work as specified herein. Provide access and cooperate with the Engineer for quality control purposes to allow for inspection of:
  - .1 Fitting, valve, hydrant, coupler, repair clamp, and tapping sleeve installation as part of watermain installation.
  - .2 Manhole, fitting, catch basins and coupler installation as part of sewer installation.
  - .3 Fitting, Saddle, main stop, curb stop, and coupler as part of water and sewer connection installations.
  - .4 Proof-rolling of all subgrade prior to geosynthetics or granular base course installation.
  - .5 Granular base course installation, compaction and moisture conditioning.
  - .6 Formwork, reinforcement, protection and placement and finishing of concrete.
  - .7 Surface preparation, prime and tack coats, delivery, placement and compaction of asphalt.
  - .8 Site preparation and installation of topsoil, soil, seed, erosion protection, sediment control, and tree planting.
  - .9 And all other works where conformance to the Standard Construction Specifications and Contract Documents is required.

#### **3.2 TESTING**

- .1 The Engineer shall complete or witness testing to support conformance of the Work with the Standard Construction Specifications and Contract Documents.

### QUALITY CONTROL & FIELD ENGINEERING

- .2 Give twenty four (24) hours notice, minimum, to the Engineer to allow for testing as specified in Section 01-010 Common Requirements. Provide access and cooperate with the Engineer to review or complete the following:
  - .1 Watermain pressure testing and disinfection.
  - .2 CCTV inspection and deflection, infiltration and exfiltration testing.
  - .3 Sieve analysis, standard proctor and field density results.
  - .4 Mix design report, marshall test results and field density results.
  - .5 Concrete air, slump and strength testing shall be completed by a CCIL or ACI certified technician.
- .3 Material testing frequency shall be as indicated in the following table:

| Testing                             | Test Method | Locations & Frequency                                                                      |
|-------------------------------------|-------------|--------------------------------------------------------------------------------------------|
| Bedding & Backfill Sieve Analysis   | ASTM C136   | Three samples per production sequence                                                      |
| Granular Base Course Sieve Analysis | ASTM C136   | One sample per day during production                                                       |
| Granular Base Course Proctor        | ASTM D-698  | One sample/test                                                                            |
| Granular Base Course Density        | ASTM D-2922 | Test locations shall be every 30m on each travel lane                                      |
| Concrete Slump, Air, & Strength     | CSA A-23    | Each delivery over 3 cubic meters. Additional tests after every 20 cubic meters delivered. |
| Bituminous Aggregate Sieve Analysis | ASTM C136   | two samples per day during production                                                      |
| Bituminous Marshall                 | ASTM D-6927 | One sample per day or after delivery of 500 tonne                                          |
| Bituminous Density                  | ASTM D-2950 | Test locations shall be every 30m on each asphalt mat/pull                                 |

### 3.3 SURVEY

- .1 Unless otherwise specified in the Contract Documents, the Engineer will provide the initial construction survey, for City-contracted Work, to set horizontal and vertical control for the Work. This will include:
  - .1 Project survey control.
  - .2 Benchmarks, grades and stakes for establishing and siting a pipe laser for watermain and/or sewer pipe installation.
  - .3 Initial grade stakes to identify locations and elevations of, centerline, edge of surface, curb and gutter, shoulder and toe.
  - .4 Centerline nails to allow for paving operations.

### **QUALITY CONTROL & FIELD ENGINEERING**

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- .2 Give at least one (1) week notice to the Engineer prior to requiring any survey work from the Engineer as specified in Section 01-010 Common Requirements.
- .3 The Contractor shall be responsible for additional surveys, during the course of the Work including:
  - .1 Establishing grade and alignment of Watermains or Sewers. The Contractor shall supply a pipe laser and target for use during installation of watermain and/or sewer pipe. The pipe laser shall be calibrated yearly, and a certificate of calibration shall be provided to the Engineer.
  - .2 Establishing grade and alignment of Road Construction. The Contractor shall supply the appropriate equipment to transfer grades from the initial grade stakes to any additional stakes the Engineer deems necessary.
- .4 Assume full responsibility for dimensions and elevations transferred from benchmarks and grade stakes. If, in the opinion of the Engineer, the Contractor's method of setting alignment and grade is inaccurate or insufficient, the Engineer may direct that a more suitable method be used to ensure accurate grade and/or alignment is maintained.
- .5 Not all survey posts, monuments, property pins or bars are indicated on the Drawings, the Contractor shall verify their location with the Engineer before commencing the Work. Property pins may only be referenced or moved by a Manitoba Land Surveyor and the Contractor shall give timely notice to the Engineer to have this done at the City's expense for City-contracted Work.
- .6 Exercise proper care in the protection and preservation of all horizontal and vertical control points, survey posts, monuments, property pins, bars, benchmarks, reference points, and stakes and in the case of willful or careless destruction or disturbance, the Contractor shall be fully responsible for any mistakes caused by their unnecessary loss or disturbance in addition to the expense of their restoration or replacement.
- .7 Notify the Engineer when a grade stake is lost or destroyed. The Contractor shall have no claim for extra compensation on account of delay caused thereby.
- .8 Provide such assistance as may be required by the Engineer in establishing or checking the Work to verify vertical and horizontal tolerances are met, including a fully qualified rod person. No compensation shall be paid to the Contractor for any required assistance in setting lines and grades or for any loss of time on account of such necessary suspension of the Work or otherwise on the account of the requirements of this Section.
- .9 The Engineer at anytime may conduct Quality Assurance checks on any survey performed by the contractor.

### **3.4 MACHINE CONTROL**

- .1 The Contractor may use machine control grading equipment as they deem necessary and as agreed to by the Engineer.
- .2 Request from the Engineer two (2) weeks in advance of their anticipated start date, the necessary design information to establish a Digital Terrain Model (DTM), as specified in Section 01-010 Common Requirements.
- .3 Survey control shall be provided to the Contractors by the Engineer. Request survey control points from the Engineer two (2) weeks in advance.
- .4 The DTM shall be submitted to the Engineer one (1) week in advance of the anticipated start date.

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**QUALITY CONTROL & FIELD ENGINEERING**

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- .5 The Contractor and Engineer shall perform checks on Site to verify the Contractor has the capabilities, knowledge, equipment and experience to properly operate the system and meet acceptable tolerances.
- .6 The Engineer shall review the Contractor's machine control grading. If the Engineer determines the Work is not meeting the required horizontal and vertical tolerances, the Contractor shall redo the Work to the requirements of the Contract at the Contractor's expense.

**3.5 QUALITY CONTROL & FIELD ENGINEERING OF PRIVATE-CONTRACTED WORK**

- .1 The Engineer shall authorize a Consulting Engineer to perform Quality Control & Field Engineering services for Private-contracted Work.
- .2 Quality Control reports, survey as-built information and testing reports shall be submitted to the Engineer at intervals specified by the Engineer. Intervals shall be determined prior to signature of the Contract Documents.
- .3 Quality assurance shall be undertaken by the Engineer.

**END OF SECTION**

## **CLEANING & CLOSEOUT**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for requirements for maintaining the Work and Site in a clean and tidy condition, and for the proper closeout and completion of the Work.

#### **1.2 REFERENCE STANDARDS**

- .1 The Builder' Liens Act, C.C.S.M. c. B91 – Province of Manitoba.
- .2 The Workplace Safety & Health Act C.C.S.M. c. W210

### **PART 2: PRODUCTS**

NONE

### **PART 3: EXECUTION**

#### **3.1 SITE CLEANUP**

- .1 Continuously maintain the Site, the Work and adjacent buildings in a standard of cleanliness that ensures safe and clean access to public areas and is free from the accumulation of waste products, debris, and rubbish other than that caused by the City or other contractors. Roadways shall be clean and passable at all times.
- .2 The disposal of surplus material, salvage material, waste and debris shall comply with City of Brandon regulations and by-laws, and Provincial and Federal Government anti-pollution laws. Provide on-site containers for collection of waste materials, and debris and remove all waste materials and debris from the Site at regular scheduled times or as directed by the Engineer. The disposal of waste materials and rubbish by burning or burial on the Site will not be permitted.
- .3 As the Work progresses, remove any Products, tools, materials, Plant and equipment not required for the performance of the remaining Work.
- .4 If in the opinion of the Engineer the Contractor is negligent in performing any of the requirements specified herein, the Engineer will direct the necessary Work be done by others, with all costs charged to the Contractor or deducted from monies due to the Contractor.

#### **3.2 DUST CONTROL**

- .1 Dust caused by the Contractor's operations shall be controlled by cleaning, sweeping and sprinkling with water, or other means as necessary. Provide dust tight screens or partitions to localize dust generating activities.
- .2 If required by the Engineer, wet down dry materials and rubbish to prevent the blowing of dust and debris.
- .3 Initiate dust control measures including the application of calcium chloride and/or water to ensure dust conditions remain below levels acceptable to the Engineer.
- .4 Wet materials shall be transported in approved watertight vehicles. Tank trucks equipped with spray bars, complete with suitable control apparatus, shall be used for the application of water.

## **CLEANING & CLOSEOUT**

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The use of water resulting in mud on public roadways will not be permitted as a substitute for sweeping or other methods.

### **3.3 CLEANING OF BUILDINGS**

- .1 Prior to the Final Inspection, clean the interior and exterior surfaces of buildings as directed by the Engineer. Cleaning of buildings may include the cleaning and polishing of glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, mechanical and electrical fixtures, the replacement of broken, scratched or disfigured glass, the removal of stains, spots, marks and dirt from painted, decorative and stained work, electrical and mechanical fixtures, furniture fitments, millwork, walls, and floors, washing of exterior walls, steps and platforms, waxing, sealing, shampooing or other preparation of new floor finishes.
- .2 Remove all foreign materials from roof including nails, screws, and sheet metal cuttings with a magnetic roller and clean and sweep roofs, gutters, areaways and sunken wells, sweep and wash clean all paved areas.

### **3.4 SALVAGED MATERIAL**

- .1 The City retains ownership of all existing works, material, Products or equipment removed from the Site during the Work.
- .2 Carefully remove, sort and pile salvaged material near the Site as directed by the Engineer. Material, Product or equipment which the Engineer declares to be of no value or use to the City shall be promptly removed from the Site and disposed of as stated in this Section.
- .3 The loading, transporting, unloading, and disposal of salvaged material shall be at the Contractor's sole expense unless stated otherwise in the Contract Documents.
- .4 All salvaged material shall be removed from the Site and neatly piled as directed by the Engineer.
- .5 The City reserves the right to direct salvaged material to a disposal location of its choosing at no additional cost to the City, provided such location is not be greater than fifteen (15) kilometres one way by road from the Site.

### **3.5 SURPLUS MATERIAL**

- .1 All surplus or unsuitable material arising out of the Work shall be removed from the Site and neatly piled, evenly spread, or deposited as directed by the Engineer.
- .2 The City reserves the right to direct surplus excavated material to a disposal location of its choosing at no additional cost to the City, provided such location is not be greater than fifteen (15) kilometres one way by road from the Site.
- .3 Exercise great care to prevent spillage on haul routes and any spillage shall be removed immediately and the affected area cleaned.
- .4 The value of surplus materials not delivered to City as directed or disposed of in any other manner than specified herein shall be deducted from monies owing to the Contractor, or invoiced to the Contractor based on quantity calculations and value as determined by the Engineer.

### **3.6 O&M MANUALS & SYSTEM DEMONSTRATION**

- .1 Prior to the completion of Work, arrange and coordinate with the Engineer, a system demonstration to instruct the Engineer in the maintenance and operation of any mechanical and electrical systems and finishes.

## **CLEANING & CLOSEOUT**

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- .2 Demonstrate and instruct the Engineer on the start up, operation, control, adjustment, trouble shooting, care, servicing and maintenance of each item of mechanical and electrical equipment using the completed operation and maintenance manuals (if required in the Contract Documents) as the basis of instruction.
- .3 Prepare and issue additional data in the operation and maintenance manuals as the need for additional data becomes apparent during the demonstration or as directed by the Engineer.
- .4 If specified in the Contract Documents, each manufacturer shall provide an authorized representative to demonstrate the operation of each supplied item of the mechanical and electrical system, and instruct the City's personnel on its use. The amount of time required for instruction of each item shall be as required by the City to ensure familiarity with equipment and systems.

### **3.7 SPARE PARTS**

- .1 Supply all spare parts, special tools, maintenance and extra materials in the quantity specified in the Contract Documents and/or as per manufacturers recommendation. Provide items in unbroken cartons and strongly packaged with tags identifying their function and equipment with which they are associated.
- .2 Spare parts and maintenance materials provided shall be new, not damaged or defective, and of the same quality, manufacture, production and dye lot as Products incorporated in the Work. If requested, shall furnish evidence as to the type, source and quality of the spare parts provided.

### **3.8 SUBSTANTIAL PERFORMANCE**

- .1 Prior to a request for a Certificate of Substantial Performance, thoroughly inspect the Work and ensure it meets the requirements for Substantial Performance set out in Section 2(1) of the Builders' Liens Act. If the Contractor is satisfied all requirements have been met, provide a written request for a Certificate of Substantial Performance to the Engineer.
- .2 For City-contracted Work, upon receipt of the request for a Certificate of Substantial Performance, the Engineer will inspect the Work and either provide the Certificate of Substantial Performance, or provide a list of deficiencies that must be corrected prior to issuance of the Certificate.
- .3 Upon issuance of a list of deficiencies, the Contractor may request a meeting on-site to review the deficiencies with the Engineer and clarify any outstanding requirements. Upon completion of the meeting on-site, any changes or modifications to the list will be made by the Engineer and the list re-issued as the final deficiency list.
- .4 When the Engineer is satisfied that all defects and deficiencies have been corrected, and that all the requirements of the Contract Documents have been met, the Certificate of Substantial Performance of Work will be issued.
- .5 For Private-contracted Work, and all other requirements related to Substantial Performance for City-contracted Work, the relevant provisions of the Builders' Liens Act shall apply.

### **3.9 FINAL INSPECTION**

- .1 Prior to a request for a Certificate of Final Completion, thoroughly inspect the Work and ensure it is complete, that all deficiencies have been corrected, the Site is clean and cleanup is complete, all Work is in full operating condition, the Site Inspection and testing reports have been reviewed to verify conformance with the Contract Documents and that changes, repairs or replacements have been completed. When satisfied that the Work, as set forth in the Contract Documents, is

## **CLEANING & CLOSEOUT**

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- totally performed, the contractor shall, in writing, request a Certificate of Final Completion from the Engineer.
- .2 Upon receipt of the request for a Certificate of Final Completion, the Engineer will inspect the Work and either provide the Certificate of Final Completion, or provide a list of deficiencies that must be corrected prior to issuance of the Certificate.
  - .3 Upon issuance of a list of deficiencies, the Contractor may request a meeting on-site to review the deficiencies with the Engineer and clarify any outstanding requirements. Upon completion of the meeting on-site, any changes or modifications to the list will be made by the Engineer and the list re-issued as the final deficiency list.
  - .4 When the Engineer is satisfied that all defects and deficiencies have been corrected, and that all the requirements of the Contract Documents have been met, the Certificate of Final Completion of Work will be issued, the date of which will become the start of the Warranty period.
  - .5 The Final Progress Estimate will not be issued until the Engineer has received, in good order all copies of the operating instructions and manuals, warrantee certificates and guarantees, spare parts, as built drawings, certification that training is complete, occupancy certificates, certificates or permits from Hydro, elevator, and fire inspectors, testing and balancing reports, final utility readings, all keys for buildings, gates, or operating systems and equipment, and any other required certificates of approved or acceptance from regulating bodies as required by the Contract Documents.
  - .6 Final Inspections for Private-contracted Work shall be scheduled and performed as per the Contract Documents.

### **3.10 WARRANTY INSPECTION**

- .1 Prior to the end of the warranty period, the Engineer will inspect the Work and either provide notice that no additional warranty items remain or provide a list of deficiencies that must be corrected. The Contractor shall promptly remedy any outstanding defects due to faulty materials or workmanship in the Work.
- .2 Upon issuance of a list of deficiencies, the Contractor may request a meeting on-site to review the deficiencies with the Engineer and clarify any outstanding requirements. Upon completion of the meeting on-site, any changes or modifications to the list will be made by the Engineer and the list re-issued as the final deficiency list.
- .3 When the Engineer is satisfied that all defects and deficiencies will be corrected, and that all the requirements of the Contract Documents have been met, notice will be provided to the Contractor.
- .4 Warranty Inspections for Private-contracted Work shall be scheduled and performed as per the Contract Documents.

### **3.11 ENGINEER'S CHARGES**

- .1 The Engineer will conduct no more than two (2) Substantial Performance, two (2) Final Completion Inspections, and two (2) warranty Inspections. In each case one inspection will be to review for deficiencies, and the second to confirm deficiencies have been corrected.
- .2 Should it become necessary for the Engineer to again inspect the Work for deficiencies which were not corrected satisfactorily prior to the previous two inspections, the Contractor shall pay for the additional time and expense incurred by the Engineer all further inspections. The Engineer's charges for additional time will be deducted from the Contractor's Final Progress Estimate or invoiced to the Contractor.

**CLEANING & CLOSEOUT**

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**PART 4: METHOD OF MEASUREMENT**

**4.1 DUST CONTROL**

- .1 Measurement for each class or type of 'Dust Control' described herein will be based on the number of hours spent applying 'Dust Control' to the site.

**PART 5: BASIS OF PAYMENT**

**5.1 DUST CONTROL**

- .1 Payment for each class or type of 'Dust Control' will be at the price set forth in the Contract Documents for each class or type of 'Dust Control' measured as specified herein, which shall be payment in full for those operations described herein, including:
  - .1 Supply and operation of equipment to apply dust control.
  - .2 Supply and application of dust control materials.
- .2 And all other costs and performing all other operations considered incidental to the supply and application of 'Dust Control' for which no price or prices or provisions for payment are included in the Contract Documents.

**END OF SECTION**

## **WATERMAINS**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for the construction of watermains, appurtenances and associated works.

#### **1.2 CLASSIFICATION OF WORK**

- .1 Watermains and fittings shall be classified based on conduit size, expressed as nominal inside diameter of the pipe and fittings, pipe material type, and installation depth. Unless specified otherwise, pipe and fittings shall be PVC.
- .2 Valves shall be classified based on valve type, and on the basis of nominal inside diameter of the valve. Unless specified otherwise in the Contract Documents, valves shall be gate valves.
- .3 Connection to existing shall be classified on the basis of type of connection being made and the nominal inside diameter of pipe being connected to.
- .4 Abandon existing shall be classified based on conduit size of watermain, fitting, valve , or hydrant being abandoned.

#### **1.3 REFERENCE STANDARDS**

- .1 CAN/CSA-B137.3 'Rigid Polyvinyl Chloride (PVC) Pipe for Pressure Applications'.
- .2 AWWA C900-22 'PVC Pressure Pipe and Fabricated Fittings, 4 inch through 60 inch'.
- .3 ANSI/AWWA C907 'Injection-Molded PVC Pressure Fittings 4 inch through 12 inch'.
- .4 CAN/CSA-B137.2 'PVC Injection-Moulded Gasketed Fittings for Pressure Applications'.
- .5 ASTM A536
- .6 ANSI/AWWA C509 'Resilient-Seated Gate Valves for Water Supply Service'.
- .7 ANSI/AWWA C515 'Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service'.
- .8 ANSI/AWWA C502 'Dry Barrel Fire Hydrants'.
- .9 AWWA C219 'Bolted, Sleeve-Type Couplings for Plain-End Pipe'.
- .10 AWWA C230 'Stainless Steel Full-Encirclement Repair & Service Connection Clamps for 2" through 12" Pipe'.
- .11 AWWA C217 'Petrolatum and Petroleum Wax Tape Coatings for the Exterior of Connections and Fittings for Steel Water Pipelines'.
- .12 AWWA C605 'Underground Installation of PVC and PVCO Pressure Pipe and Fittings'

#### **1.4 REQUIRED SUBMITTALS**

- .1 Materials List as per Section 01-030 Submittals.

## **WATERMAINS**

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### **PART 2: PRODUCTS**

#### **2.1 APPROVED PRODUCTS**

- .1 See Section 01-100 Material & Equipment for list of approved products.

#### **2.2 PIPE**

- .1 Pipe shall be certified to CAN/CSA-B137.3, made from PVC compound conforming to ASTM D1784 cell class 12454 and shall conform to AWWA C900-22.
- .2 PVC pipe shall be minimum DR 18 with a pressure class/rating of 1620 kPa (235 psi).
- .3 Each length of pipe shall have a bell end complete with factory installed push on elastomeric ring gasket capable of withstanding pressure equal to the rated pressure of the pipe and withstanding thermal expansion and contraction.
- .4 If specified the Contract Documents, supply oil and gasoline resistant gaskets, which shall be clearly identified by colour code or markings placed directly on the gaskets. Lubricant for joining pipes shall be approved by the gasket manufacturer.
- .5 Pipe shall be coloured blue and supplied in lengths not in excess of 6.1m.
- .6 Notwithstanding the requirements of Section 01-100 Material & Equipment, pipe manufactured in excess of 30 months prior to installation shall be considered defective and shall be promptly removed and replaced by the Contractor at their own expense.
- .7 Minimum pipe diameter shall be 150mm.

#### **2.3 RESTRAINED-JOINT PVC PIPE**

- .1 Restrained joint PVC pipe shall be certified to CSA B137.3, made from PVC compound conforming to ASTM D1784 cell class 12454, and shall conform to AWWA C900.
- .2 Restrained-joint PVC pipe shall be minimum DR 18 with a pressure class/rating of 1620 kPa (235 psi).

#### **2.4 PVC FITTINGS**

- .1 PVC fittings (tee, cross, bend, reducer, tapped coupler, coupler, adaptor or plug) shall be Polyvinyl Chloride (PVC) made from a PVC compound conforming to ASTM D1784 cell class 12454.
- .2 Injection-molded fittings shall conform to AWWA C907 and CAN/CSA-B137.2.
- .3 Fabricated fittings shall conform to AWWA C900 and CAN/CSA-B-137.3. Fabricated PVC fittings shall be butt-fused or bonded from sections of PVC pipe of the same class, type, size and manufacturer as the pipe to which it joins and over wrapped with fibreglass in accordance with AWWA C900. The fibreglass reinforced polyester shall be applied in a manner which completely covers the fitting except for the area adjacent to the bell which shall be left uncovered a sufficient width to enable a restraining clamp to bear evenly against the pipe and bell surface around the entire circumference of the pipe.
- .4 PVC fittings shall be the same class, type, size and manufacturer as the pipe to which it joins. Fittings shall be coloured blue.

## **WATERMAINS**

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- .5 Notwithstanding the requirements of Section 01-100 Material & Equipment, fittings manufactured in excess of 30 months prior to installation shall be considered defective and shall be promptly removed and replaced by the Contractor at their own expense.

### **2.5 JOINT RESTRAINT**

- .1 The joint restraint shall be ductile iron manufactured in accordance with ASTM A536. The clamping ring surface shall have serrations on the inside to provide positive restraint around the entire circumference of the pipe surface and shall be suitable for use with both rigid and resilient pipe materials and the type of joint being made.
- .2 The joint restraint shall be rated at full-rated pressure of the class of pipe being used, with minimum 1.5:1 safety factor.
- .3 Bolts and nuts shall be 316 stainless steel.
- .4 Unless specified otherwise in the Contract Documents or shown on the Drawings, all fittings, couplers, valves and hydrants shall be supplied complete with joint restraints.

### **2.6 GATE VALVE**

- .1 Gate valves 300mm (12") and smaller shall be manufactured in accordance with AWWA C509. Gate Valves 350mm (14") and larger shall be manufactured in accordance with AWWA C515.
- .2 Unless specified otherwise in the Contract Documents or shown on the Drawings, each valve shall have push on type joints compatible with the class and type of pipe to which it is intended to join.
- .3 The gate valve shall have a minimum 10 mil fusion bonded epoxy coated interior and exterior surfaces, with a SBR encapsulated rubber disc trim and O-Ring stem seals.
- .4 Gate valve shall have a non-rising, forged bronze stem for right hand close operation thread and rated to 1725 kPa (250 psi) working pressure, and 3450 kPa (500 psi) static test pressure. The gland and bonnet nuts and bolts and any other hardware exposed to the atmosphere or ground, shall be T-316 stainless steel. The valve shall be supplied with a 50mm square operating nut.

### **2.7 VALVE BOX**

- .1 The valve box assembly shall be a two-piece extension type with a one-piece slide on cast iron casing top and PVC DR18 pipe base as shown on the Standard Drawing D-04010-2 attached to this Section.
- .2 Each valve box shall be supplied complete with a tubular extension spindle with a 50mm square operating nut, a plastic centering disc, stone disc, cast iron valve box cover, and hinged cast iron lid. The valve box shall be vertically adjustable to suit the depth of bury specified for the pipe and valve, plus or minus 300mm.
- .3 The spindle shall be of such length that when set on the valve operating nut the top of the spindle shall be 150 to 300mm below the lid. Each valve casing shall have an inside diameter of not less than 133mm.

### **2.8 HYDRANT**

- .1 The hydrant shall be manufactured in accordance with AWWA C502, be ULC and FM approved and ANSI/NSF 61 and 372 certified. The hydrant shall be rated for 1725 kPa (250 psi) working pressure.

## WATERMAINS

- .2 The hydrant shall be a compression shut off type, dry barrel design with push on type inlet compatible with the class and type of pipe to which it is intended to join.
- .3 Unless specified in the Contract Documents, hydrant shall have right hand close operation and shall have the drain hole factory plugged internally.
- .4 All coatings shall conform to AWWA C550. The below grade hydrant barrel and boot shall be factory coated with asphalt coating as per AWWA C502. Interior surfaces of the hydrant shall be epoxy coated conforming to AWWA C502.
- .5 The hydrant boot shall have a flat bottom and flat rear surface and have a flange connection to the hydrant barrel.
- .6 The hydrant shall be supplied complete with a concrete support block as shown on Standard Drawing D-04010-3. The hydrant shall have no more than one extension installed on the operating stem.
- .7 Hydrants shall have an easily repairable breakaway flange centred no more than 25-50mm above the ground line (measured to the bottom of flange) which will break when the hydrant body is struck. All nuts, bolts and washers exposed to the atmosphere or ground shall be T-316 stainless steel.
- .8 The hydrant shall have one 4 ½ inch (nominal) pumper connection and two 2 ½ inch (nominal) hose connections.

|                            | 4 ½" Outlet         | 2 ½" Outlet |
|----------------------------|---------------------|-------------|
| Male O.D.                  | 5 $\frac{25}{64}$ " | 3.000"      |
| Male Root                  | 5 $\frac{9}{64}$ "  | 2.825"      |
| Female Bore                | 5 $\frac{11}{64}$ " | 2.860"      |
| Female Root                | 5 $\frac{7}{16}$ "  | 3.050"      |
| Threads/ inch (Higbee Cut) | 5                   | 8           |

- .9 The operating and nozzle caps nuts shall be 1¼" x 1¼" square.
- .10 The hydrant body shall clearly display the following markings: AWWA, ULC, manufacturer's name and model designation, nominal ID of the main valve, year of casting, direction of turning operating nut to operate main valve, and the ground line.
- .11 Hydrants shall be fitted with a hydrant marker. Hydrant markers shall be 32mm diameter, DR 9.3 HDPE pipe, 1.5m tall and orange in colour. A 50mm reflective strip with adhesive backing shall be installed on the end of the marker. Each hydrant marker shall be supplied with a clamp and bolts for mounting to the hydrant flange.
- .12 The hydrant body above grade shall be covered with one (1) coat of paint as follows:
  - .1 Downtown Business District: Red with Black top & caps
  - .2 All other City of Brandon locations: Chrome Yellow with Black top & caps

## **WATERMAINS**

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- .3 Hydrants installed on private property, connected to City potable water source: Chrome Yellow with Silver top & caps
- .4 Hydrants not connected to City potable water source: Blue
- .13 Should the hydrant require re-painting it shall be completed as follows:
  - .1 The hydrant shall be thoroughly cleaned and prepared according to the preparation directions of the specified paint. Remove surface rust and roughen shiny surfaces.
  - .2 The hydrant shall be primed.
  - .3 Two coats of Sherwin-Williams Polane SP polyurethane paint shall be applied.
  - .4 Paint shall be applied so that moving parts do not become “painted shut”.

### **2.9 COUPLER**

- .1 Couplers shall be a long body style with a minimum length of 175mm and shall meet AWWA C219 standards and shall be NSF 61 certified.
- .2 Couplers 400mm (12”) and smaller shall be rated for 1725 kPa (250 psi) working pressure. Couplers larger than 400mm shall be rated for (150 psi) working pressure.
- .3 The center ring and end plates shall be fabricated of cast ductile iron to ASTM A536, steel to ASTM A53 or stainless steel. Ductile iron and steel couplers shall be epoxy coated, fusion bonded according to AWWA C213.
- .4 Gaskets shall be ethylene propylene diene monomer (EPDM) or styrene butadiene rubber (SBR) in accordance with ASTM D2000 and be of the proper dimension for the size and type of pipe material(s) being joined. If specified the Contract Documents, supply nitrile butadiene rubber (NBR) oil and gasoline resistant gaskets. Lubricant for joining pipes shall be approved by the gasket manufacturer.
- .5 All nuts, bolts, washers and connecting rods exposed to the atmosphere or ground shall be T-316 stainless steel.
- .6 PVC Coupler shall meet the requirements of Part 2.4 (PVC Fittings) of this specification.

### **2.10 REPAIR CLAMP**

- .1 The repair clamp shall be wrap around “O” style and shall be rated for 1035 kPa (150 psi) working pressure. The coupler shall comply with AWWA C230.
- .2 Gaskets shall be nitrile butadiene rubber (NBR) in accordance with ASTM D2000.
- .3 All metal parts and welds shall be T-304 stainless steel which has been fully passivated. Bolt shanks shall be forged flat to resist bending and the threads shall be rolled-type and lubricated by an anti-galling compound. Nuts, bolts and washers shall be T-304 stainless steel and shall be connected to turn independently without separating.
- .4 The rubber gasket shall have tapered ends, a gridded surface, stainless steel armours and manufactured of a synthetic equivalent to natural rubber. If specified the Contract Documents, supply oil and gasoline resistant gaskets, which shall be clearly identified by colour code or markings placed directly on the gaskets. Lubricant for joining pipes shall be approved by the gasket manufacturer.

## **WATERMAINS**

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- .5 A clamp for pipe with a nominal inside diameter of 250mm (10") and less shall have a minimum of one row of no less than three bolts.
- .6 A clamp for pipe with a nominal inside diameter of 300 or 350mm (12 or 14") shall have a minimum of two rows of no less than three bolts.
- .7 A clamp for pipe with a nominal inside diameter of 400 mm (16") and greater shall have three rows of no less than four bolts.
- .8 The clamp length shall be no less than two times the nominal inside diameter of the pipe on which the clamp is to be installed.
- .9 A clamp with a corporation cap shall be used when disconnecting existing services at the main stop.

### **2.11 TAPPING SLEEVE**

- .1 The tapping sleeve shall be a stainless steel (including flange) lifter bar style with flange outlet and shall be rated for 1725 kPa (250psi) working pressure. The tapping sleeve shall conform to AWWA C223.
- .2 Gaskets shall be nitrile butadiene rubber (NBR) in accordance with ASTM D2000.
- .3 All metal parts and welds shall be T-304 stainless steel which has been fully passivated. Nuts, bolts and washers shall be T-304 stainless steel and shall be connected to turn independently without separating.
- .4 Maximum branch size shall be 150mm.

### **2.12 ANODE**

- .1 The sacrificial anode shall be high grade, 99% pure, electrolytic zinc manufactured in accordance with ASTM B418, Type II, with a minimum 3.17 millimetre diameter steel core, and supplied in a permeable cloth bag or cardboard tube containing a low resistivity backfill mixture composed of 75% ground hydrated gypsum, 20% powdered Wyoming bentonite and 5% anhydrous sodium sulphate firmly packaged around the anode.
- .2 The anode shall be supplied with a minimum of 3.0 metres of #12/7 stranded copper TWU, minus 40°C, insulated connecting wire firmly connected to the anode core with silver solder or an approved equal. The connection shall be insulated by filling the recession and voids in the lead wire core connections with an electrical potting compound.
- .3 The anode shall be shipped in a watertight package of adequate design to permit normal handling without tearing and shall be clearly labelled with the manufacturer's name, the net weight, and anode type.
- .4 Connections shall be made with a thermite type welder and XF alloy type cartridge of suitable charge, and sleeves recommended by the manufacturer. The Contractor shall use a crucible and weld metal such as Cadweld, Thermoweld or approved equal.

### **2.13 PETROLATUM TAPE**

- .1 Petrolatum tape, in accordance with AWWA C217 and CSA Z245.30-18, shall be composed of a non-woven synthetic fabric carrier, full impregnated with a neutral compound based on saturated petroleum and inert silicious fillers.

## **WATERMAINS**

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### **2.14 TEMPORARY WATER**

- .1 Pipe & fittings (tees, bends, couplers) shall be 50mm High Density Polyethylene (HDPE), PE4710 resin, certified to CAN/CSA-B137.1 or NSF 61. HDPE pipe shall be minimum DR 17 with a pressure class/rating of 860 kPa (125 psi).
- .2 Fittings shall be installed via electrofusion or butt fusion.
- .3 Saddles shall be NSF 61 certified. Fused or stainless-steel saddles shall be permitted.
- .4 Female Connections shall be NSF 61 certified hose bibs.
- .5 Building Services shall be NSF61 certified 16mm hose.
- .6 A male 50mm threaded connection at the meter box will be provided by the City.

### **2.15 CONCRETE**

- .1 Concrete used for the hydrant base block and reaction blocking (thrust blocks) shall be Class C as specified in Section 06-010 Concrete Construction, using Type HS – High Sulphate Resistant hydraulic cement.

## **PART 3: EXECUTION**

### **3.1 DISRUPTION OF WATER SERVICE**

- .1 Make every effort to minimize the disruption of water service during the Work.
  - .1 If the water supply must be taken out of service for a period less than 24 hours, the Contractor shall provide written notice to all addresses affected by the intended interruption a minimum of 72 hours prior to shutting off the water. The form of notice shall be subject to the approval of the Engineer and at a minimum shall include the Contractor's name, phone number, and start and end times of the interruption of service. The City will provide notice for City-contracted Work.
  - .2 If the water supply must be taken out of service for a period exceeding 24 hours, the Contractor shall notify the Engineer seven (7) days in advance. The Contractor shall supply all affected services with a temporary pressurized water supply as outlined in Part 3.2 of this Section.
- .2 Boil water and maintenance advisories shall be the responsibility of the City and issued as required.

### **3.2 TEMPORARY WATER**

- .1 The Contractor shall supply, install, and maintain a temporary water service as shown on the Standard Drawing D-04010-1 attached to this Section.
- .2 The temporary water system shall be connected to a meter box installed by the City at a hydrant agreed upon by the Contractor and Engineer. The Contractor shall be responsible for the temporary water system from the meter box to the connection point of the buildings serviced by the temporary water service.
- .3 The temporary water system shall be installed such that unobstructed vehicle and pedestrian traffic along sidewalks, paths, roads, lanes and driveways can be maintained at all times. Ensure the temporary water system is protected from damage and installed in such a manner that limits safety

## **WATERMAINS**

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risk to the public. Locations where the temporary water system shall cross roadways shall be indicated on the Traffic Management Plan.

- .4 The Contractor shall flush and disinfect the temporary water system as per the requirements of Part 3.17 (Disinfection) of this Section prior to any customer being allowed to draw water from the system.
- .5 No connection to a customer system shall be permitted without approval from the Engineer and customer, to ensure the meter valve is closed and the system is functioning properly.
- .6 The Contractor shall ensure system is functioning adequately, provide emergency contact information for evenings, weekends, holidays and other periods in which the Contractor is not on-site, to perform maintenance such as repairing leaks or thawing temporary water system as necessary.
- .7 The Contractor shall dismantle and remove the temporary water system once the new watermain is put into service, all sample results have been accepted and boil water advisories lifted.
- .8 The Contractor shall be responsible for damaged meter boxes.
- .9 Insulation or heat tape may be required if overnight temperatures are below 0°C.

### **3.3 LINE AND GRADE**

- .1 The Engineer will establish benchmarks, grades and stakes in a manner and at an offset distance agreed upon with the Contractor to allow for establishing and siting a pipe laser. The Contractor shall supply and operate the pipe laser to ensure proper line and grade.
- .2 Prior to commencing any Work, the Contractor shall satisfy themselves as to the meaning and correctness of all benchmarks, grades and stakes. No claims shall be made for any alleged inaccuracies due to the failure to read same correctly. The Contractor shall maintain all benchmarks, grades and stakes in good order and transfer the correct horizontal and vertical control to the watermain alignment and invert(s).
- .3 The Contractor shall notify the Engineer of any damage to established benchmarks and/or stakes immediately and cease use until such time that the Engineer has re-established the benchmarks and/or stakes. The Contractor will not re-establish any benchmarks and/or stakes.
- .4 The use of a pipe laser is required to maintain line and grade. Certificates of calibration shall be submitted to the Engineer to review prior to the start of the Work.
- .5 The Contractor shall provide such assistance as may be required by the Engineer in establishing or checking the vertical and horizontal control including a fully qualified rod person. No compensation shall be paid to the Contractor for any required assistance in setting lines and grades or for any loss of time on account of such necessary suspension of the Work or otherwise on the account of the requirements of this Section.

### **3.4 TOLERANCES**

- .1 Watermain pipe, fittings, appurtenances, valves, hydrants, and service connections shall be installed accurately to the required line and grade shown on the Drawings or as set out on the Site by the Engineer.
- .2 Vertical and horizontal variance from line shall not exceed 25mm.
- .3 Sharp deflections greater than 1 degree will not be permitted.

## **WATERMAINS**

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### **3.5 EXCAVATION**

- .1 Excavation shall be in accordance with Section 03-010, Excavation, Bedding & Backfill.

### **3.6 INSTALLATION OF PIPE**

- .1 Each section of watermain pipe shall be accurately placed on a dry, firm but slightly yielding foundation of bedding material to the line and grade stated in Part 3.3 (Line and Grade) and 3.4 (Tolerances) of this Section, and backfilled as described in Section 03-010 Excavation, Bedding & Backfill. Where applicable, insulate as described in Section 03-010 Excavation, Bedding & Backfill.
- .2 Pipe laying shall proceed as directed by the Engineer, with the bell ends facing in the direction of installation. All watermain pipe and fittings shall be joined using elastomeric gaskets and in strict accordance with the pipe manufacturer's written assembly instructions to form a watertight connection with the adjoining pipe.
- .3 Prior to joining pipes, the Contractor is to obtain the approval of the Engineer for the method of joining to be used and, if requested, they shall demonstrate, their ability to carry out the method proposed. Extreme care should be taken during joining to ensure that all interior and exterior joining surfaces are clean and free of any foreign materials.
- .4 Displaced or contaminated gaskets shall be removed, cleaned and lubricated or replaced prior to joining. Pipes shall be carefully aligned and inserted by hand, bar and wooden block, lever type or friction pullers. The use of hydraulic excavation equipment as the means of pushing or moving the pipe to grade will not be permitted.
- .5 Each joint shall be satisfactorily completed prior to installation of the next length of pipe. The Contractor shall check the gaskets to ensure it has not pushed out of the seat and it is uniformly compressed around the circumference of the pipe.
- .6 Deflection of straight pipe sections to create curves or correct alignment errors will not be permitted. Curves and bends on pipes shall be made with approved fittings.
- .7 Pipe shall be cut square with a fine toothed hand saw, power saw, hack saw, or disk cutter, but not with a chain saw. The spigot end of solid wall PVC pipe shall be bevelled to 15 degrees.
- .8 At the end of each workday, or when watermain pipe is not being installed, the open end of the pipe shall be protected by a PVC plug to keep the pipe clean, with adequate precautions taken to overcome possible uplift.

### **3.7 VALVE & VALVE BOX**

- .1 Each valve and valve box shall be installed at the locations shown on the Drawings, as directed by the Engineer, or as specified in the Contract Documents all in accordance with the Standard Drawing D-04010-2 attached to this Section.
- .2 The valve lid shall be installed so that the lid closes with the direction of traffic.
- .3 The valve box base shall be set evenly on the valve bonnet, supported so it does not transmit shock or stress to the valve and braced to prevent lateral movement to the sides of the trench. The valve stem, casing and/or extension shall be installed plumb and centered on the valve nut.
- .4 The valve box casing and top shall be adjusted to the elevation required to facilitate the progress of the Work prior to being set at the finished grade as shown on the Drawings as directed by the Engineer. A valve box, which is not plumb or centred over the valve nut, shall be excavated and set properly at the Contractor's sole expense.

## **WATERMAINS**

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- .5 Stainless steel nuts and bolts in the valve bonnet and flange connections shall be wrapped with petrolatum tape prior to backfill.

### **3.8 HYDRANTS**

- .1 The hydrant shall be installed at the locations and to the elevations shown on the Drawings, as directed by the Engineer, or as specified in the Contract Documents all in accordance with the Standard Drawing D-04010-3 attached to this Section.
- .2 Each hydrant shall be installed plumb with the pumper connection facing the street. Hydrants shall be connected to the watermain by a hydrant lead complete with a gate valve installed on the lead not less than 1.0m from the Hydrant.
- .3 Red tags (supplied by the Engineer) shall be placed on the hydrant until the hydrant has been put into service.
- .4 Stainless steel nuts and bolts in the barrel-to-shoe connection shall be wrapped with petrolatum tape prior to backfill.

### **3.9 THRUST BLOCKS**

- .1 Concrete reaction blocking (thrust blocks) shall be installed at each cross, tee, bend, reducer, plug and hydrant as shown on the Standard Drawing D-04010-4 attached to this Section and as directed by the Engineer.
- .2 Reaction blocking shall be placed between solid undisturbed trench soil and the fitting or hydrant base in such a manner as not to interfere with the base flange barrel bolts or restraining rods and joint flexibility is not restricted. The entire face of the excavation against which the block bears shall be flat and at the proper angle with the pipe.
- .3 A bond breaker consisting of 8 mil polyethylene sheeting shall be installed between fitting or hydrant and the concrete to enable future removal of the thrust block.
- .4 No horizontal struts or braces required for trench bracing shall remain in the concrete thrust block. Prior to any concrete being placed, all thrust block form work shall be inspected and approved by the Engineer.
- .5 Concrete reaction blocking shall be installed a minimum of three days prior to hydrostatic pressure testing.

### **3.10 JOINT RESTRAINT**

- .1 Joint restraint clamps, restraint rods and associated hardware shall be installed at all fittings, couplers, valves and hydrants unless directed otherwise by the Engineer.
- .2 The Engineer may also direct that assemblies of fittings and valves be permanently tied together with restraint rods. Restraint rods, nuts, bolts and washers shall be T-316 stainless steel with the length and diameter as directed by the Engineer.
- .3 Joint restraints shall be assembled to tie fittings, couplers, valves and hydrants to the nearest full-length section of pipe.
- .4 Joint restraints shall be installed with the manufacturer recommended number of rods.

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### **3.11 CONNECTION TO EXISTING**

- .1 The Contractor shall make a connection to an existing watermain where shown on the Drawings, as directed by the Engineer or as specified in the Contract Documents all in accordance with the Standard Drawing D-04010-5 attached to this Section.
- .2 The Contractor shall verify pipe material and diameter in advance of making a connection to an existing watermain to ensure proper couplers are available to make the connection.
- .3 Carefully excavate, expose and clean the existing watermain and/or fitting and remove any existing thrust blocking and plug. If a bell and plug do not exist, carefully cut and trim the existing watermain pipe and install either a new fitting complete with end pieces of new pipe or join a new section of pipe to the existing watermain.
- .4 The interior of the existing pipe and the new pipe or fitting shall be disinfected with a solution containing 50 ppm (parts per million) of chlorine prior to joining the new watermain to the existing bell. All connections made without a bell and spigot joint shall be made with an approved coupling in strict accordance with the manufacturer's instructions. Pipes shall be neatly cut at a right angle to the axis of the pipe and all surfaces shall be smooth, free of dirt, corrosion and burs. Pipes shall be aligned correctly, and the installed coupling shall form a watertight connection. Under no circumstances shall two pipes be connected with a repair clamp.
- .5 A 16.4kg anode shall be installed on metallic watermains as per Part 3.15 (Anodes).

### **3.12 COUPLERS**

- .1 Clean the pipe over the entire circumference where the coupler is to be installed. Scrape away dirt and corrosion to ensure the surface is as smooth as possible. Remove all foreign debris on the pipe or gasket.
- .2 Check the diameter of pipe to ensure the correct size coupling has been supplied. Ensure pipes to be connected are aligned or within deflection tolerances recommended by the manufacturer.
- .3 Follow proper bolt tightening procedures and torque recommendations by the manufacturer.
- .4 Coupler models without internal mechanical restraints shall be installed with joint restraints.

### **3.13 REPAIR COUPLERS**

- .1 Clean the pipe over the entire circumference where the coupler is to be installed. Scrape away dirt and corrosion to ensure the surface is as smooth as possible. Remove all foreign debris on the pipe or gasket.
- .1 Lubricate the ring gasket as per the manufacturer's instructions.
- .2 Install the coupler, centered over the repair area. A minimum length of 100mm (4") of clamp is required beyond each side of the repair area.
- .3 Install the coupler, tighten the bolts in sequence and to the torque defined by the manufacturer.

### **3.14 TAPPING SLEEVES**

- .1 Clean the pipe over the entire circumference where the sleeve is to be installed. Scrape away dirt and corrosion to ensure the surface is as smooth as possible. Remove all foreign debris on the pipe or gasket.
- .2 Lubricate the ring gasket as per the manufacturer's instructions.

## **WATERMAINS**

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- .3 Install the sleeve, tighten the bolts in sequence and to the torque defined by the manufacturer.
- .4 Hydrostatic testing of each tapping sleeve and valve assembly shall be completed prior to tapping the existing watermain. The hydrostatic test pressure shall be 1035 kPa (150 psi). Test pressure shall be held for 15 minutes. No leakage will be permitted.
- .5 Following completion of tapping, the coupon shall be removed from the cutter and submitted to the Engineer.

### **3.15 ANODES**

- .1 Sacrificial anodes shall be installed on encasement pipes and at any location where the existing uncoated metallic distribution system is exposed or as directed by the Engineer. Anodes shall be 16.4kg (36 lbs).

### **3.16 PETROLATUM TAPE**

- .1 All necessary primers and preparation materials shall be utilized.
- .2 Petrolatum tape shall be applied to repair clamps, tapping sleeves and saddles, or as directed by the Engineer.

### **3.17 HYDROSTATIC TESTING**

- .1 Prior to acceptance of the Work, the entire watermain shall be hydrostatic pressure tested in the presence of the Engineer. The length of pipe to be tested shall not exceed the distance between neighbouring valves unless otherwise directed by the Engineer. Ensure all required thrust blocks, restraints and backfill are in place to adequately restrain the system.
- .2 All water used for testing and flushing the watermain shall be potable and unless stated otherwise in the Contract Documents shall be supplied at the Contractor's sole expense.
- .3 Provide all necessary labour, materials and equipment for the test including a suitable pump, measuring tank, pressure hoses, connections, plugs, valves, liquid filled pressure gauges capable of reading a minimum pressure change of 7 kPa (1psi) and all other appurtenances necessary for filling and pressurizing the pipe and recording the pressure and leakage losses. If requested by the Engineer, provide evidence that the pressure gauges used are calibrated and accurate.
- .4 If directed by the Engineer, pass three (3) foam swabs through the new watermain in succession to remove any accumulations of debris prior to the hydrostatic testing. The watermain shall be slowly filled from the lowest point possible with water from a meter box or potable water truck. All corporation valves and intermediate main valves shall be open, test section end main valves, and curb stop valves shall be closed unless otherwise directed by the Engineer. Entrapped air shall be expelled from the watermain at each hydrant or through a temporary corporation valve installed by the Contractor at a high point(s) selected by the Engineer. When the watermain and building service lines have been filled with water and all entrapped air removed, the watermain shall be maintained in a static state at the required test pressure for a minimum of five (5) minutes with no change in the pressure reading prior to commencing the hydrostatic test.
- .5 The hydrostatic test pressure shall be 1035 kPa (150 psi). The watermain shall be maintained in a static state at the required test pressure for two (2) hours with all intermediate main valves and corporation valves open and the curb stops closed. A loss of pressure in excess of 28 kPa (4psi) over the two-hour test period will be considered a failure, and the entire test will be repeated until the loss of pressure is within the limit stated above.

## **WATERMAINS**

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- .6 Where connections are made to existing water mains, the pressure used to test sections of new mains which cannot be isolated from the existing mains shall be established by the Engineer. This shall not relieve the Contractor from their obligation to repair leaks or replace defective material.
- .7 If the results of the hydrostatic test exceeds the allowable pressure loss, locate and repair the leak or defect and repeat the hydrostatic test until the leakage does not exceed the allowable pressure loss stated above.
- .8 Upon completion of a successful hydrostatic test, remove all temporary air bleed lines and close the main (corporation) valve.
- .9 A Hydrostatic Testing Report shall be submitted, the report shall include:
  - .1 Department and/or Contractor to have completed the testing;
  - .2 Date of report;
  - .3 Project or Bid No.;
  - .4 Drawing No.;
  - .5 Location of test (from, to);
  - .6 Size & type of pipe;
  - .7 Length of section under test;
  - .8 Test start time, meter reading, test stop time, meter reading, total loss (for both failed tests and passed);
  - .9 Date completed;
  - .10 Operators signature and phone number;
  - .11 Photos with timestamp of gauge at start and end of test.

### **3.18 DISINFECTION**

- .1 All new or repaired watermains and building connections shall be chlorinated throughout their entire lengths prior to being placed into service. The method used to introduce the disinfectant into the watermain shall be approved by the Engineer. Acceptable forms of chlorine which may be used to prepare disinfecting solutions include calcium hypochlorite granules or sodium hypochlorite solutions.
- .2 The chlorine shall be injected into the watermain at an initial concentration of 50ppm (parts per million) (50mg/l) of available chlorine and held for a minimum period of 24 hours, during which all valves and accessories shall be operated several times to allow penetration of the chlorine solution. Disinfection will be accepted when after the 24 hour chlorine contact period, the chlorine residual in the watermain as measured by the Engineer is greater than 5ppm (5 mg/l). If the chlorine residual is less than or equal to 5ppm, the entire disinfection process shall be repeated until an acceptable reading is obtained. Chlorinated water with a concentration of more than 100ppm (parts per million) (100mg/L) shall not be injected into the watermain.
- .3 Once an acceptable reading is obtained by the Engineer, the Contractor will thoroughly flush the watermain until the quality of the water within the new watermain is equal to that within the existing distribution system. The temporary water system shall be used to flush the new watermain. The water used for flushing and disinfection shall be discharged in a method approved by the Engineer

## WATERMAINS

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and in accordance with Manitoba Conservation guidelines. No water shall be discharged into a body of water until the chlorine concentration is less than 0.1 mg/l.

- .4 The Engineer will take two sets of two bacteriological samples following flushing. The samples will be taken 24 hours apart. The Engineer will submit samples to an accredited laboratory immediately following sampling.
- .5 Disinfection will be accepted when bacteriological test results from both samples show Total Coliform result is less than 1 colony forming unit (cfu) per 100mm, Heterotrophic Plate Count (HPC) does not exceed 500 cfu/mm and Total Chlorine residual does not exceed 2 parts per million (2 mg/L).
- .6 When the watermain has been hydrostatic tested, disinfected and flushed to the satisfaction of the Engineer, the Engineer will open all valves and applicable curb stops and place the watermain into service.
- .7 A Disinfection Report shall be submitted, the report shall include:
  - .1 Department and/or Contractor to have completed the testing;
  - .2 Date of report;
  - .3 Project or Bid No.;
  - .4 Drawing No.;
  - .5 Location of disinfection (from, to);
  - .6 Size & type of pipe;
  - .7 Length of section disinfected;
  - .8 Location of chlorine injection and discharge;
  - .9 Chlorine residual at injection point;
  - .10 Flow through time;
  - .11 Chlorine residual at discharge point following injection;
  - .12 Date and time chlorine injection completed;
  - .13 Date and time chlorine flushing started and finished;
  - .14 Chlorine residual following flushing;
  - .15 Bacteriological sample number, location taken, date and time taken, and chlorine residual
  - .16 Name and signature of the operator taking the sample;
  - .17 Testing laboratory;
  - .18 Test submission and completion dates;
  - .19 A copy of the test results from the testing laboratory;

## **WATERMAINS**

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### **3.19 ABANDON EXISTING**

- .1 Exposed watermains to be abandoned shall be sealed if they are not removed during the course of construction.
- .2 Place a minimum length of 1.0m of Class C concrete into the end of the abandoned watermain, forming a complete seal.
- .3 Wrap the end of the watermain in non-woven geotextile and backfill.

## **PART 4: METHOD OF MEASUREMENT**

### **4.1 WATERMAINS**

- .1 Measurement for each class or type of 'Watermain' described herein will be based on the number of lineal metres of each class and type of 'Watermain' acceptably supplied and installed, measured horizontally on the ground along the centreline of the watermain, include the length through hydrant leads, valves, fittings, as measured by the Engineer.

### **4.2 FITTINGS**

- .1 Measurement for each class or type of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug' described herein will be based on the actual number of each class or type of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug' acceptably supplied and installed, as measured by the Engineer.

### **4.3 VALVES**

- .1 Measurement for each class or type of 'Valve' described herein will be based on the actual number of each class or type of 'Valve' acceptably supplied and installed, as measured by the Engineer.

### **4.4 HYDRANTS**

- .1 Measurement for each class or type of 'Hydrant' described herein will be based on the actual number of each class or type of 'Hydrant' acceptably supplied and installed, as measured by the Engineer.

### **4.5 CONNECTION TO EXISTING**

- .1 Measurement for each class or type of 'Connection to Existing' described herein will be based on the actual number of each class or type of 'Connection to Existing' acceptably supplied and installed, as measured by the Engineer.

### **4.6 HYDOSTATIC TESTING & DISINFECTION**

- .1 There will be no measurement for 'Hydrostatic Testing & Disinfection' described herein.

### **4.7 TEMPORARY WATER**

- .1 There will be no measurement for 'Temporary Water' described herein.

## **WATERMAINS**

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### **4.8 ABANDON EXISTING**

- .1 Measurement for each class or type of 'Abandon Existing' described herein will be based on the actual number of each class or type of 'Abandon Existing' acceptably supplied and installed, as measured by the Engineer.

## **PART 5: BASIS OF PAYMENT**

### **5.1 WATERMAINS**

- .1 Payment for each class and type of 'Watermain' will be at the price set forth in the Unit Price Schedule for each class and type of 'Watermain' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of pipe, gaskets, flanges, nuts, bolts, washers, lubricants, restraint devices, and thrust blocks;
  - .2 Removal of existing pipe required to install new pipe;
  - .3 Support of existing utilities, support of existing structures;
  - .4 Supply and installation of casing spacers and end seals;
  - .5 Trenching, backfilling, road, curb, parking lot, driveway, sidewalk, and walkway repairs;
  - .6 And all other costs and performing all other operations considered incidental to the supply and installation of 'Watermain' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.2 FITTINGS**

- .1 Payment for each class or type of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug', will be at the price set forth in the Unit Price Schedule for each class or type of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug', measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of fittings, thrust blocks, gaskets, flanges, nuts, bolts, washers, lubricants, joint restraints, polyethylene bond breaker and petrolatum tape;
  - .2 And all other costs and performing all other operations considered incidental to the supply and installation of 'Cross', 'Tee', 'Bend', 'Reducer' or 'Plug' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.3 VALVES**

- .1 Payment for each class or type of 'Valve' will be at the price set forth in the Unit Price Schedule for each class or type of 'Valve' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of, concrete support block, gaskets, flanges, glands, nuts, bolts, lubricants, joint restraints and petrolatum tape;
  - .2 Valve box, stone disc, centering disc, spindles, extensions, polyethylene wrap;
  - .3 And all other costs and performing all other operations considered incidental to the supply and installation of 'Valve' for which no price or prices or provisions for payment are included in the Contract Documents.

## **WATERMAINS**

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### **5.4 HYDRANTS**

- .1 Payment for each class or type of 'Hydrant' will be at the price set forth in the Unit Price Schedule for each class or type of 'Hydrant' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of hydrant, thrust blocks, concrete support block, gaskets, flanges, nuts, bolts, lubricants, joint restraints and petrolatum tape.
  - .2 Hydrant supports and hydrant extensions, polyethylene bond breaker;
  - .3 And all other costs and performing all other operations considered incidental to the supply and installation of 'Hydrant', for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.5 CONNECTION TO EXISTING**

- .1 Payment for each class or type of 'Connect to Existing' will be at the price set forth in the Unit Price Schedule for each class or type of 'Connect to Existing' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of couplers, gaskets, nuts, bolts, lubricants, joint restraints and petrolatum tape;
  - .2 Cutting, fitting, and cleaning;
  - .3 Supply and installation of anode, cad welding and handy cap;
  - .4 And all other costs and performing all other operations considered incidental to the supply and installation of 'Connect to Existing' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.6 HYDROSTATIC TESTING & DISINFECTION**

- .1 Payment for 'Hydrostatic Testing & Disinfection' will be at the lump sum price set forth in the Unit Price Schedule for each 'Testing & Disinfection' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of water tank, pumps, gauges, power, chlorine, appurtenances, valves, pipe, fittings, adaptors, gaskets, flanges, couplers, saddles, installation and removal of temporary corporation stop;
  - .2 And all other costs and performing all other operations considered incidental to the supply and installation of 'Testing & Disinfection' for which no price or prices or provisions for payment are included in the Contract Documents.
- .2 Bacteriological testing will be paid for by the City for City-contracted Work.

### **5.7 TEMPORARY WATER**

- .1 Payment for 'Temporary Water' will be at the lump sum price set forth in the Unit Price Schedule for each 'Temporary Water' measured as specified herein, which shall be payment in full for;
  - .1 Supply, installation and removal of appurtenances, valves, pipe, fittings, adaptors, gaskets, flanges, couplings, saddles;
  - .2 Supply, installation and removal of any protective measures required for any Temporary Water lines crossing any road open to traffic.

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**WATERMAINS**

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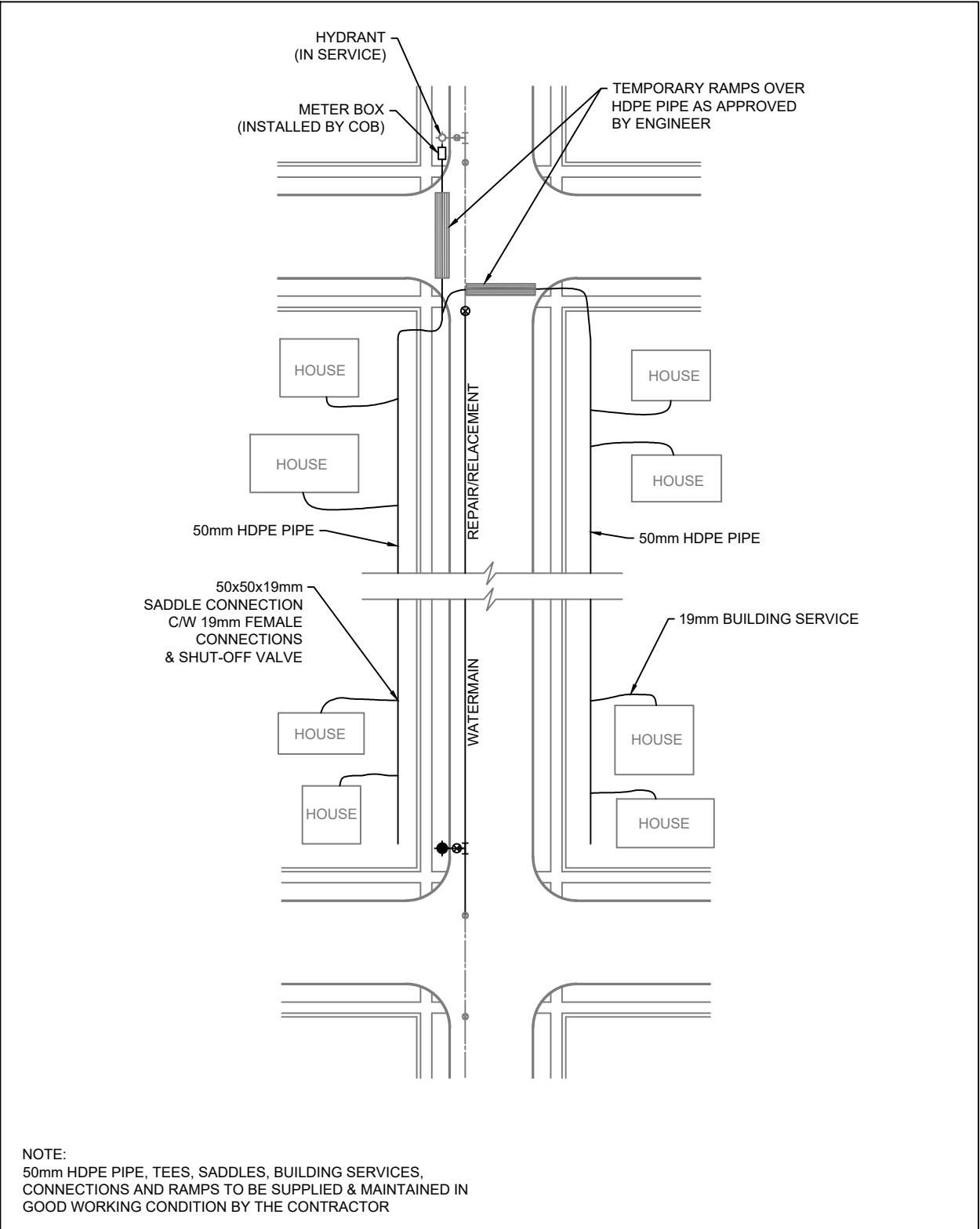
- .3 Cutting, fitting, relocation of system to each block on street;
- .4 And all other costs and performing all other operations considered incidental to the supply and installation of 'Temporary Water' for which no price or prices or provisions for payment are included in the Contract Documents.
- .2 The consumption of water measured at the meter box shall be paid for by the City for City-contracted Work.

**5.8 ABANDON EXISTING**

- .1 Payment for each class and type of 'Abandon Existing' will be at the price set forth in the Unit Price Schedule for each class and type of 'Abandon Existing' measured as specified herein, which shall be payment in full for:
  - .1 Locating, disconnecting, cutting, fitting, bracing, sealing, removal of existing pipes and fittings (if required) and making water tight;
  - .2 Trenching (if required) or excavation, backfilling, road, curb, driveway, sidewalk, and walkway repairs;
  - .3 Supply and installation of concrete plug at the end of the pipe;
  - .4 And all other costs and performing all other operations considered incidental to the supply and installation of 'Abandon Existing' for which no price or prices or provisions for payment are included in the Contract Documents.

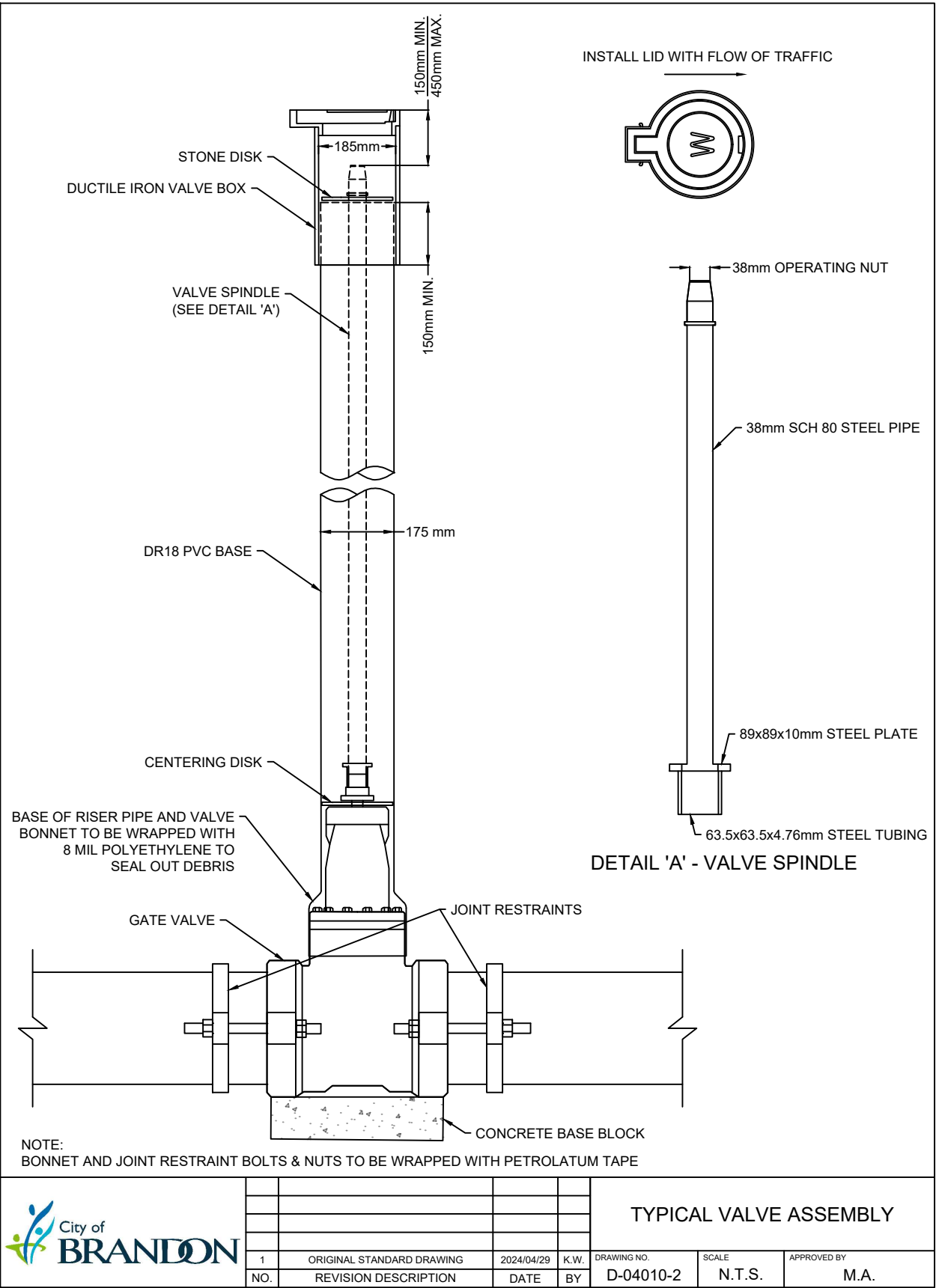
**END OF SECTION**

WATERMAINS

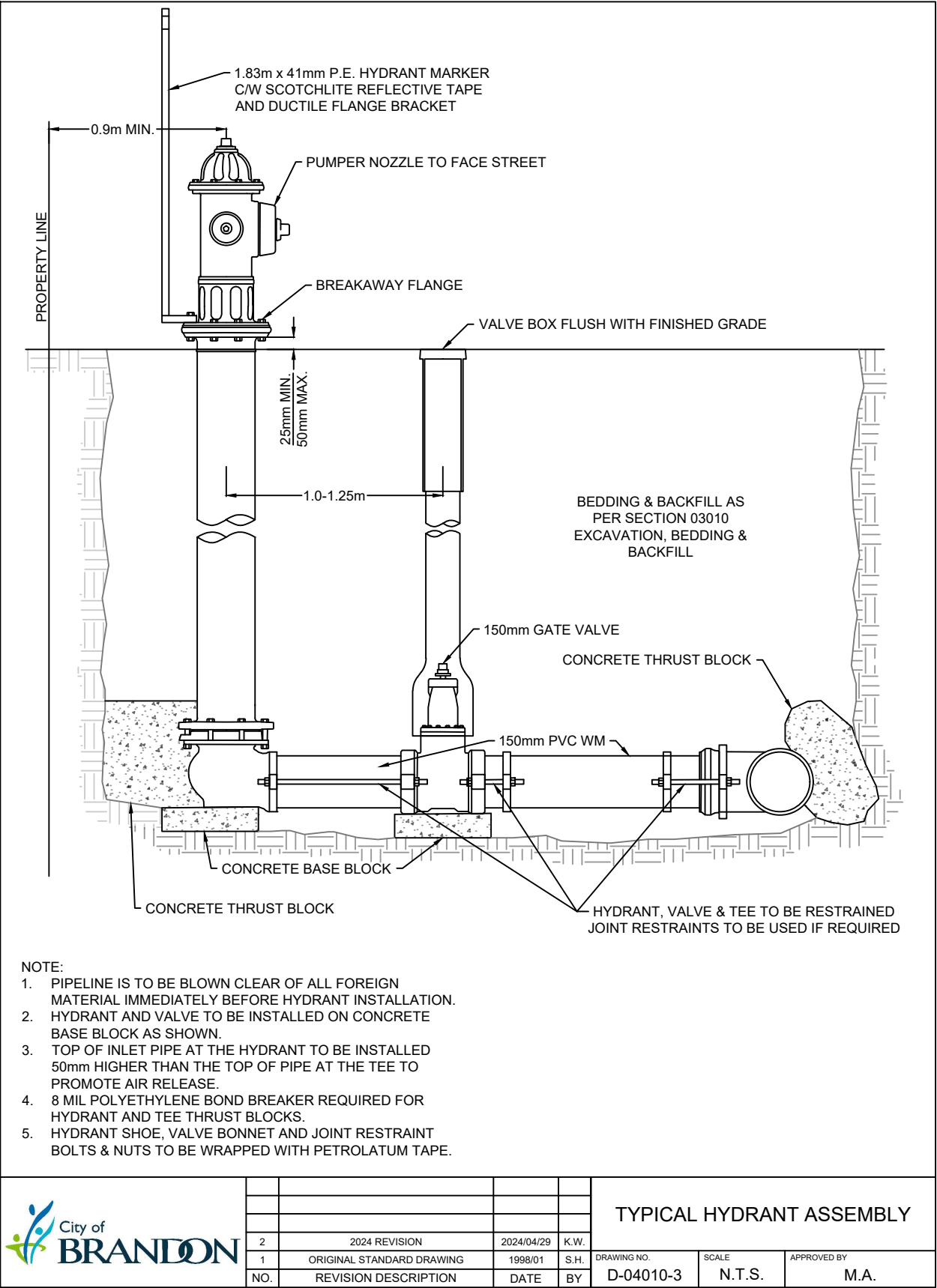


|  |     |                           |            |      |                                                 |                 |                     |
|--|-----|---------------------------|------------|------|-------------------------------------------------|-----------------|---------------------|
|  |     |                           |            |      | STANDARD DRAWING FOR<br>TEMPORARY WATER SERVICE |                 |                     |
|  |     |                           |            |      |                                                 |                 |                     |
|  | 2   | 2024 REVISION             | 2024/04/29 | K.W. | DRAWING NO.<br>D-04010-1                        | SCALE<br>N.T.S. | APPROVED BY<br>M.A. |
|  | 1   | ORIGINAL STANDARD DRAWING | 1998/01    | S.H. |                                                 |                 |                     |
|  | NO. | REVISION DESCRIPTION      | DATE       | BY   |                                                 |                 |                     |

WATERMAINS

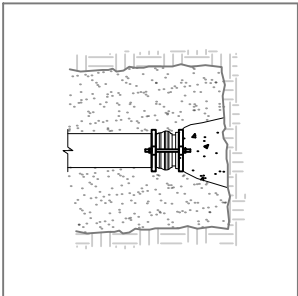


WATERMAINS

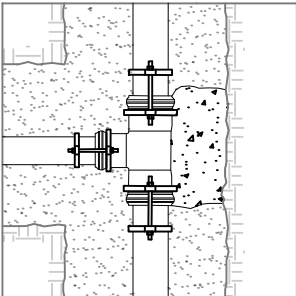


WATERMAINS

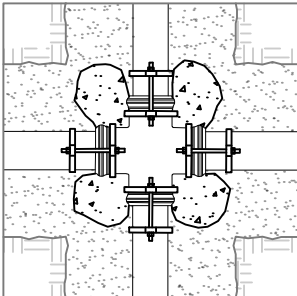
| MINIMUM THRUST BLOCK BEARING AREA & VOLUME FOR FITTINGS |                             |             |            |             |            |             |            |             |            |
|---------------------------------------------------------|-----------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| PIPE DIA.                                               | TEE, CROSS, PLUG OR HYDRANT | BENDS       |            |             |            |             |            |             |            |
|                                                         |                             | 90°         |            | 45°         |            | 22.5°       |            | 11.25°      |            |
|                                                         |                             | HORIZ. (m²) | VERT. (m³) | HORIZ. (m²) | VERT. (m³) | HORIZ. (m²) | VERT. (m³) | HORIZ. (m²) | VERT. (m³) |
| 150                                                     | 0.78                        | 1.10        | 1.59       | 0.60        | 1.12       | 0.30        | 0.61       | 0.15        | 0.31       |
| 200                                                     | 1.34                        | 1.90        | 2.73       | 1.03        | 1.93       | 0.52        | 1.05       | 0.26        | 0.53       |
| 250                                                     | 2.02                        | 2.86        | 4.11       | 1.54        | 2.91       | 0.79        | 1.57       | 0.40        | 0.80       |
| 300                                                     | 2.86                        | 4.05        | 5.81       | 2.19        | 4.11       | 1.12        | 2.22       | 0.56        | 1.13       |
| 400                                                     | 4.97                        | 7.02        | 10.10      | 3.80        | 7.14       | 1.94        | 3.87       | 0.97        | 1.97       |
| 450                                                     | 6.24                        | 8.83        | 12.69      | 4.78        | 8.97       | 2.44        | 4.85       | 1.22        | 2.47       |



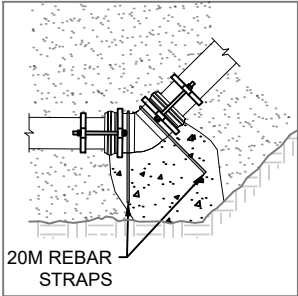
PLUG



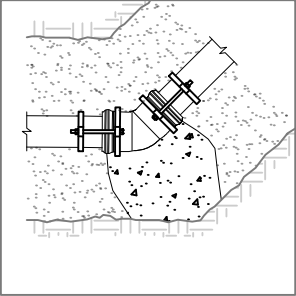
TEE



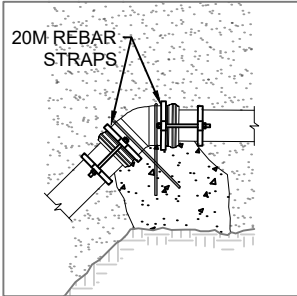
CROSS



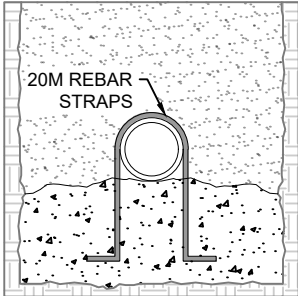
VERTICAL BEND DOWN



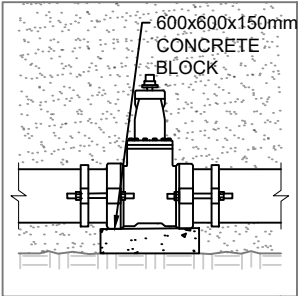
HORIZONTAL BEND



VERTICAL BEND UP



VERTICAL BEND SECTION

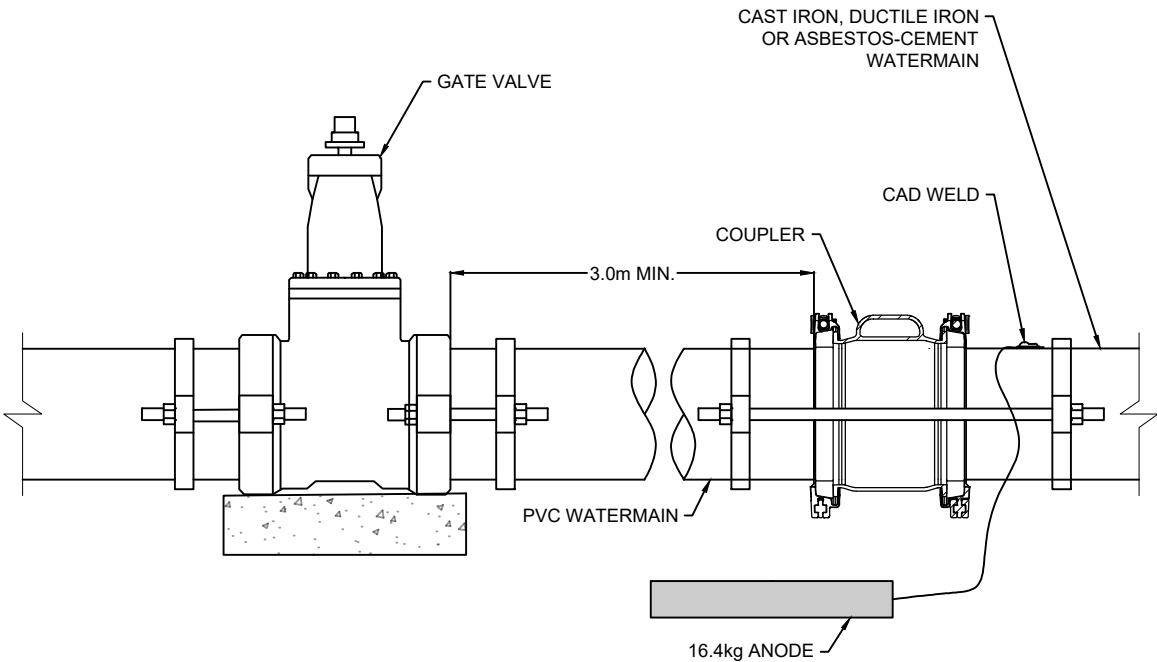


PRE-CAST CONCRETE BASE BLOCK

- NOTE:
1. ALL CONCRETE TO BE 20 MPa.
  2. ALL BLOCKING IS TO BE AGAINST UNDISTURBED SOLID GROUND.

|                                                                                                                           |     |                           |            |      |             |                        |             |  |
|---------------------------------------------------------------------------------------------------------------------------|-----|---------------------------|------------|------|-------------|------------------------|-------------|--|
|  <div>City of<br/><b>BRANDON</b></div> |     |                           |            |      |             | STANDARD THRUST BLOCKS |             |  |
|                                                                                                                           |     |                           |            |      |             |                        |             |  |
|                                                                                                                           | 2   | 2024 REVISION             | 2024/04/29 | K.W. |             |                        |             |  |
|                                                                                                                           | 1   | ORIGINAL STANDARD DRAWING | 1998/01    | S.H. | DRAWING NO. | SCALE                  | APPROVED BY |  |
|                                                                                                                           | NO. | REVISION DESCRIPTION      | DATE       | BY   | D-04010-4   | N.T.S.                 | M.A.        |  |

WATERMAINS



NOTE:

- 1. VALVE BONNET, COUPLER AND JOINT RESTRAINT BOLTS & NUTS TO BE WRAPPED WITH PETROLATUM TAPE.
- 2. 16.4kg ANODE TO BE INSTALLED ON EXISTING DUCTILE OR CAST IRON WATERMAINS.
- 3. JOINT RESTRAINTS AT CONNECTION MAY BE REPLACED BY MECHANICALLY RESTRAINED COUPLER.

|                                                                                     |     |                           |            |      |                              |        |             |
|-------------------------------------------------------------------------------------|-----|---------------------------|------------|------|------------------------------|--------|-------------|
|  |     |                           |            |      | TYPICAL WATERMAIN CONNECTION |        |             |
|                                                                                     |     |                           |            |      |                              |        |             |
|                                                                                     |     |                           |            |      |                              |        |             |
|                                                                                     | 1   | ORIGINAL STANDARD DRAWING | 2024/04/29 | K.W. | DRAWING NO.                  | SCALE  | APPROVED BY |
|                                                                                     | NO. | REVISION DESCRIPTION      | DATE       | BY   | D-04010-5                    | N.T.S. | M.A.        |

## **WATER CONNECTIONS**

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### **PART 1: GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- .1 The Work described herein is for the supply and installation of water connections having a nominal pipe diameter of 50mm or less. Water connections having a nominal pipe diameter of 150 mm or greater shall be constructed as specified in Section 04-010 Watermains.

#### **1.2 CLASSIFICATION OF WORK**

- .1 Water connection pipe shall be classified based on conduit size, expressed as nominal diameter of the pipe. Permissible sizes of water connections shall be 19mm, 25mm, 38mm and 50mm.
- .2 Curb Stops shall be classified based on the nominal diameter of the curb stop.
- .3 Corporation main stops shall be classified based on the nominal diameter of the corporation main stop, the size of the watermain it is to be connected to, and the type of connection.
- .4 Abandoned water connections shall be classified based on conduit size of water connection pipe to be abandoned, the conduit size, and material of the watermain it is connected to.

#### **1.3 REFERENCE STANDARDS**

- .1 AWWA C800 "Underground Service Line Valves and Fittings".
- .2 AWWA C904 "Cross-Linked Polyethylene (PEX) Pressure Pipe, 1/2 in. (12mm) – 3 in. (76mm), for water service".
- .3 AWWA C907 "PVC Watermain Fittings 4 inch through 12 inch".
- .4 ASTM F876 "Standard Specification for Crosslinked Polyethylene (PEX) Tubing".
- .5 CAN/CSA B137.2 "PVC Injection-Moulded Gasketed Fittings for Pressure Applications".
- .6 CAN/CSA B137.5 "Cross-linked Polyethylene (PEX) Tubing Systems for Pressure Applications".
- .7 ASTM B62 "Standard Specification for Composition Bronze of Ounce Metal Castings".
- .8 ASTM A240 "Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications".
- .9 ASTM D2000 "Standard Classification System for Rubber Products in Automotive Applications".3
- .10 CAN/CSA B64.10 "Selection and Installation of Backflow Preventers/Maintenance and Testing of Backflow Preventers".

#### **1.4 REQUIRED SUBMITTALS**

- .1 Materials List as per Section 01-030 Submittals.

## **WATER CONNECTIONS**

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### **PART 2: PRODUCTS**

#### **2.1 APPROVED PRODUCTS**

- .1 See Section 01-100 Material & Equipment for list of approved products.
- .2 All products shall be designed for a minimum pressure of 1035 kPa (150 psi).
- .3 Brass or bronze products shall be manufactured from copper alloy CDA No. 83600 (red brass, 85-5-5-5), C89833 or C87850 in accordance with the chemical and mechanical requirements of ASTM B62.
- .4 Stainless steel products shall be type 304 conforming to ASTM A240, passivated for corrosion resistance.

#### **2.2 COPPER PIPE**

- .1 Copper pipe shall be Type K annealed (soft) seamless copper tubing conforming to AWWA C800.

#### **2.3 CROSSLINKED POLYETHYLENE (PEXA) PIPE**

- .1 PEXa pipe shall conform to AWWA C904, ASTM F876 and CSA B137.5.

#### **2.4 CORPORATION MAIN STOP VALVE**

- .1 Corporation main stop valve shall be all brass or bronze manufacture conforming to AWWA C800 complete with AWWA tapered thread on the inlet end and a conductive rubber and stainless steel seated compression fitting complete with electrical thaw wire connector on the outlet end.
- .2 All brass or bronze components in contact with potable water shall be manufactured from copper alloy CDA No. C89833, C89836, or C87850 in accordance with the chemical and mechanical requirements of ASTM B584.

#### **2.5 SADDLE**

- .1 Saddles shall be stainless steel conforming to AWWA C800.
- .2 Stainless steel saddles shall be type 304 conforming to ASTM A240, passivated for corrosion resistance.
- .3 Gaskets shall be nitrile butadiene rubber (NBR) in accordance with ASTM D2000.
- .4 Saddles shall have AWWA tapered outlet threads. The outlet shall be sized according to the main stop valve to be installed. Reducers shall not be permitted.

#### **2.6 PVC TAPPED WATER CONNECTION COUPLER**

- .1 PVC tapped water connection coupler shall be as specified in Section 04-010 Watermains.

#### **2.7 WATER CONNECTION COUPLER / ADAPTOR**

- .1 Couplers or adaptors used to join sections of water connection or building service pipe shall be all brass or bronze manufacture conforming to AWWA C800 complete with conductive rubber and stainless-steel seated compression fitting on each inlet end.

## **WATER CONNECTIONS**

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- .2 All brass or bronze components in contact with potable water shall be manufactured from copper alloy CDA No. C89833, C89836, or C87850 in accordance with the chemical and mechanical requirements of ASTM B584.
- .3 Connections to PEXa pipe shall use an approved stiffener.

### **2.8 WATER CONNECTION CURB STOP VALVE**

- .1 Curb stop valve shall be all brass or bronze manufacture conforming to AWWA C800 and shall be either a press fitted plug or ball valve with straight through unobstructed flow when full open.
- .2 All brass or bronze components in contact with potable water shall be manufactured from copper alloy CDA No. C89833, C89836, or C87850 in accordance with the chemical and mechanical requirements of ASTM B584.
- .3 The curb stop valve shall be complete with a conductive rubber and stainless steel seated compression fitting on each inlet end and be electrically continuous between the operating head and the inlet connections.
- .4 The curb stop shall open and close over 90 degrees of turn only. A positive drain hole shall be provided on the outlet side of the curb stop and shall be in the 'closed' position when the stop is open and in the 'open' position when the stop is closed.
- .5 The starting or operating torque of the stop shall not exceed 7 Newton metres. Connections to PEXa pipe shall use an approved stiffener.

### **2.9 WATER CONNECTION CURB STOP BOX**

- .1 The curb stop box shall be a top adjusting type suitable for 2 to 4m bury and shall be supplied complete with:
  - .1 16mm diameter solid stainless steel spindle of sufficient length for the required depth of bury with the upper end forged to fit a service box operating key, shaped to center the spindle within the box stem and also shaped parallel to the bottom yoke to provide a positive indication of the position of the curb stop valve (open or closed).
  - .2 The spindle bottom yoke shall be sized to fit all makes of curb stop valve keys between 19 and 50mm nominal size and drilled to accept a 5mm diameter brass or stainless-steel cotter pin, located centrally on the yoke no more than 10mm from the centre line of the hole to the extremity of the yoke.

### **2.10 THAW WIRE**

- .1 Thaw wire shall be #0 (1/0) insulated stranded copper wire.

### **2.11 WATER METER ASSEMBLY**

- .1 Water meters shall conform to AWWA C715 or AWWA C700 and shall be NSF61 certified.
- .2 Ball valves shall be NSF 61 certified and meet the Manitoba Building Code.
- .3 Pressure reducing valves shall be NSF 61 certified and meet the Manitoba Building Code.
- .4 Check valves shall be NSF 61 certified and selected and installed as per CSA B64.10.

## WATER CONNECTIONS

### 2.12 ABANDONED CORPORATION CAP REPAIR CLAMP

- .1 Abandoned corporation cap repair clamps shall be as specified in Section 04-010 Watermains, Repair Clamps.

## PART 3: EXECUTION

### 3.1 GRADE & ALIGNMENT

- .1 Each Water Connection shall be installed to the line and grade shown on the Drawings and as set out at the Site by the Engineer. Vertical variance from design grade shall not exceed 25mm and horizontal variance from line shall not exceed 100mm. Water Connections shall be installed as shown on Standard Drawing D-04020-1 attached to this Section, as shown on the Drawings, or as directed by the Engineer. Sharp bends in the pipe will not be permitted, even if the pipe remains within tolerances.

### 3.2 SIZING

- .1 Each Water Connection shall be sized to carry the anticipated water requirements of the building; however, no Water Connection shall be less than 19mm inside nominal diameter.
- .2 Water Connections greater than 50mm but less than 150mm shall be 150mm within the City right-of-way through the curb stop and reduced to the appropriate size on private property.
- .3 Copper pipe shall be used for 19mm and 25mm sizes. PEXa pipe may be used for 38mm and 50mm sizes.

### 3.3 CONNECTIONS

- .1 Water service pipe connection types shall be as follows:

| Nominal Pipe | Nominal Outlet | Type of Connection               | Thaw Wire                                                           |
|--------------|----------------|----------------------------------|---------------------------------------------------------------------|
| 150 – 300mm  | 19 – 25mm      | PVC tapped coupler or direct tap | Required for PVC & AC mains                                         |
| 150 – 300mm  | 38 – 50mm      | Saddle                           | Not required with PEXa connection pipe                              |
| 400 – 600mm  | 19 – 50mm      | Saddle                           | Required for PVC & AC mains. Not required with PEXa connection pipe |

- .2 All connections made to asbestos cement pipe shall be made with an approved saddle.

### 3.4 EXCAVATION

- .1 Excavation shall be in accordance with Section 03-010, Excavation, Bedding & Backfill.
- .2 The interior of all pipes shall be kept free of dirt, concrete, or superfluous materials of every description as the Work proceeds.

## **WATER CONNECTIONS**

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### **3.5 DEPTH OF COVER**

- .1 Water Connections shall be placed a minimum of 2.7m below the proposed finished ground elevation unless directed otherwise by the Engineer or stated in the Contract Documents.
- .2 Water Connections placed with less than 3.0m of cover shall be insulated as specified in Section 03-010, Excavation, Bedding & Backfill.

### **3.6 CONNECTION TO WATERMAIN**

- .1 19mm and 25mm corporation main stop valves shall be installed in the top quadrant of the watermain pipe at an angle of 30° above spring line. 38mm and 50mm water connection main valves shall be installed horizontally into the watermain pipe when the water connection pipe is copper, and between 10 and 20° above horizontal (spring line) when the water connection pipe is PEXa.
- .2 A watermain pipe shall be direct tapped in strict accordance with the pipe manufacturer's written instructions and with the use of an approved tapping machine equipped with the proper bits and cutters for the type of host pipe. No tap shall be within 600mm of the end of the watermain pipe and multiple taps shall be staggered a minimum of 450mm on centre. The water connection main valve shall be threaded into the watermain pipe with the use of the tapping machine. The tapping tool shall be removed, the corporation main stop closed.
- .3 Corporation main valves shall be tightened into ductile iron pipe with 70-80 Newton metres of torque with 1 to 3 threads showing and into PVC watermains with 35-40 Newton metres of torque with 1 to 2 threads showing. The thread of the corporation stops used on PVC and ductile iron pipe shall be wrapped with three to four wrappings of Teflon pipe thread tape (leave 1<sup>st</sup> two threads unwrapped) prior to installation.
- .4 A watermain pipe requiring a saddle shall have the maximum recommended size of hole, for the saddle being installed, drilled in the watermain pipe. The saddle and clamp shall be placed on the main and the saddle screws alternately tightened to maintain equal gaps between saddle sections to ensure a secure and watertight fit around the watermain, but not so tight to cause any deformation of the watermain pipe.

### **3.7 INSTALLATION OF WATER CONNECTION PIPE**

- .1 The Water Connection pipe shall be connected to the corporation main stop. Each section of pipe shall be accurately placed on a dry, firm foundation of bedding material to the line and grade stated in this Section and backfilled as described in Section 03-010 Excavation, Bedding & Backfill. 19mm and 25mm Copper Water Connection pipe shall be laid with a combination horizontal and vertical gooseneck, free of any kinks, as shown on D-04020-1. The loop of the gooseneck shall be set off-centre in the direction which shall tighten the corporation main stop if settlement of the backfill occurs.
- .2 Couplers will not be permitted on new Water Connections. Each Water Connection from the watermain to the curb stop valve shall be made with one continuous length of Water Connection Pipe.

### **3.8 CURB STOPS AND SERVICE BOXES**

- .1 Curb stops shall be located at the limit of the right-of-way unless approved by the Engineer and installed as shown on D-04020-1. The Curb Stop Valve shall be set on a solid unyielding base and correctly positioned to drain water from the building service when in the shut-off position. A pre-cast concrete block shall be placed below the curb stop valve. If directed by the Engineer a 0.33 cubic metre gravel drainage sump shall be placed below and around the curb stop valve.

## **WATER CONNECTIONS**

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- .2 The curb stop box shall be placed plumb over the curb stop valve and shall be supported solely by the base. The lower section of the service box and the extension spindle shall be a minimum of 300mm below the finished grade to prevent heavy loads from being transmitted to the curb stop valve. Following the installation of the thaw wire the curb stop box height shall be adjusted to correspond with the depth of cover as stated in this Section.
- .3 When installing a Water Connection Pipe prior to development of a property, the curb stop valve shall be left in the closed position and a 2"x4" wood marker, with the upper 600 mm painted blue, driven into the ground beside the curb stop box.

### **3.9 THAW WIRES**

- .1 Copper Water Connections installed on a non-metallic watermain shall have a thaw wire installed as shown on D-04020-1. A thaw wire shall be installed in the electrical connection on the compression nut of all corporation main stop valves and looped continuously between any two services in such a manner that all the Water Connections are connected in pairs. The thaw wire shall be separated from the water main by a minimum of 500mm. Thaw wires will not be permitted to join more than two services for looping.
- .2 For a single Water Connection where it is impractical to loop the thaw wire to another corporation main valve, the thaw wire shall be placed beside the Water Connection Pipe in the open trench then wrapped around the curb box shaft and extension and secured in place with electrical tape as shown on D-04020-1.
- .3 The curb stop box shall be installed fully extended to allow for the maximum amount of thaw wire to be installed. The thaw wire shall be cut flush beneath the curb valve box top, fastened to the service box stem with duct tape and the extension driven down to finished grade.
- .4 The thaw wire and service shall have an electrical resistance of no more than 0.005 Ohms when measured between the top of the curb valve extension spindles of two joined curb valves. An open circuit will not be accepted.

### **3.10 TESTING**

- .1 Hydrostatic testing and disinfection of a new Water Connection attached to a new watermain shall be in accordance Part 3.16 (Testing) of Section 04-010 Watermains.
- .2 The hydrostatic testing and disinfection of a new Water Connection to an existing watermain shall be done by first filling the new service line with water, closing off all valving to the building and examining the Work for any visible signs of leakage. Upon completion, flushing to be arranged by the Engineer.

### **3.11 BUILDING WATER SERVICE CONNECTION**

- .1 Before connecting a Building Water Service to an existing Curb Stop Valve, contact the City to operate the Curb Stop Valve and ensure that adequate water is available. If there is no water, the flow is poor, or the curb stop malfunctions, immediately stop the Work and request direction from the Engineer.
- .2 When connecting to an existing lead Building Water Service, the property owner shall be notified as required by the Engineer. The Building Water Service may require flushing.
- .3 Water services shall enter the building a minimum of 0.3m and maximum of 1.0m horizontally from the wall. Water meters and shut-off valves shall not be installed in confined spaces such as crawl spaces. Where a water service enters a confined space the water meter and shut-off shall be located in the immediate adjacent space intended for continuous occupancy.

## **WATER CONNECTIONS**

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- .4 Pipes shall be anchored to maintain pipe alignment and support the weight of the pipe, meter and related components.
- .5 Meters shall be installed in a horizontal position.
- .6 19mm and 25mm water services shall be installed as shown in Standard Drawing D-04020-2.
- .7 38mm and 50mm meters shall be flanged as shown in Standard Drawing D-04020-2 and D-04020-3. Flanges shall be supplied by the City of Brandon.
- .8 The by-pass valve as shown in Standard Drawing D-04020-4 shall remain closed and must be sealed closed by the City of Brandon.
- .9 All shut-off valves must be Manitoba Plumbing Code approved. A shut-off valve shall be installed immediately upstream of the water meter, as close as possible.
- .10 No connections are permitted upstream of the water meter.
- .11 An approved backflow prevention device shall be installed as required, in accordance with CSA B64.10.

### **3.12 ABANDON WATER CONNECTION**

- .1 Excavate and locate the corporation main stop for the water connection to be abandoned.
- .2 Turn off the corporation main stop and cut the water connection pipe.
- .3 Install repair clamp with an abandoned corporation main stop cap, complete with petrolatum tape.
- .4 Remove service box and rod to a minimum 0.6m below grade.

## **PART 4: METHOD OF MEASUREMENT**

### **4.1 WATER CONNECTION PIPE**

- .1 Measurement for each class or type of 'Water Connection Pipe' described herein will be based on the number of lineal metres of each class and type of 'Water Connection Pipe' acceptably supplied and installed, measured horizontally on the ground along the centreline of the watermain, include the length through corporation main stops and curb stops, as measured by the Engineer.

### **4.2 CURB STOP**

- .1 Measurement for each class or type of 'Curb Stop' described herein will be based on the actual number of each class or type of 'Curb Stop' acceptably supplied and installed, as measured by the Engineer.

### **4.3 CORPORATION MAIN STOP**

- .1 Measurement for each class or type of 'Corporation Main Stop' described herein will be based on the actual number of each class or type of 'Corporation Main Stop' acceptably supplied and installed, as measured by the Engineer.

### **4.4 TESTING & DISINFECTION**

- .1 There will be no measurement for 'Testing & Disinfection' described herein.

## **WATER CONNECTIONS**

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### **4.5 ABANDON WATER CONNECTION**

- .1 Measurement for each class or type of 'Abandon Water Connection' described herein will be based on the actual number of each class or type of 'Abandon Water Connection' acceptably supplied and installed, as measured by the Engineer.

### **4.6 BUILDING WATER SERVICE CONNECTION**

- .1 There will be no measurement for 'Building Water Service Connection' described herein.

## **PART 5: BASIS OF PAYMENT**

### **5.1 WATER CONNECTION PIPE**

- .1 Payment for each class and type of 'Water Connection Pipe' will be at the price set forth in the Unit Price Schedule for each class and type of 'Water Connection Pipe' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of pipe and thaw wire,
  - .2 Removal of existing pipe required to install new pipe;
  - .3 Support of existing utilities, support of existing structures;
  - .4 Trenching, backfilling, road, curb, parking lot, driveway, sidewalk, and walkway repairs;
  - .5 And all other costs and performing all other operations considered incidental to the supply and installation of 'Watermain' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.2 CURB STOP**

- .1 Payment for each class or type of 'Curb Stop' will be at the price set forth in the Unit Price Schedule for each class or type of 'Curb Stop' measured as specified herein, which shall be payment in full for:
  - .1 Supply and installation of curb stop, pre-cast concrete block and service box;
  - .2 Reconnection of existing building service;
  - .3 And all other costs and performing all other operations considered incidental to the supply and installation of 'Curb Stop' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.3 MAIN STOP**

- .1 Payment for each class or type of 'Corporation Main Stop' will be at the price set forth in the Unit Price Schedule for each class or type of 'Corporation Main Stop' measured as specified herein, which shall be payment in full for:
  - .4 Supply and installation of, corporation main stop, saddle or PVC tapped coupling;
  - .5 Direct tapping or drilling;
  - .6 Thaw wire connection and petrolatum tape;

## **WATER CONNECTIONS**

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- .7 And all other costs and performing all other operations considered incidental to the supply and installation of 'Corporation Main Stop' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.4 ABANDON WATER CONNECTION**

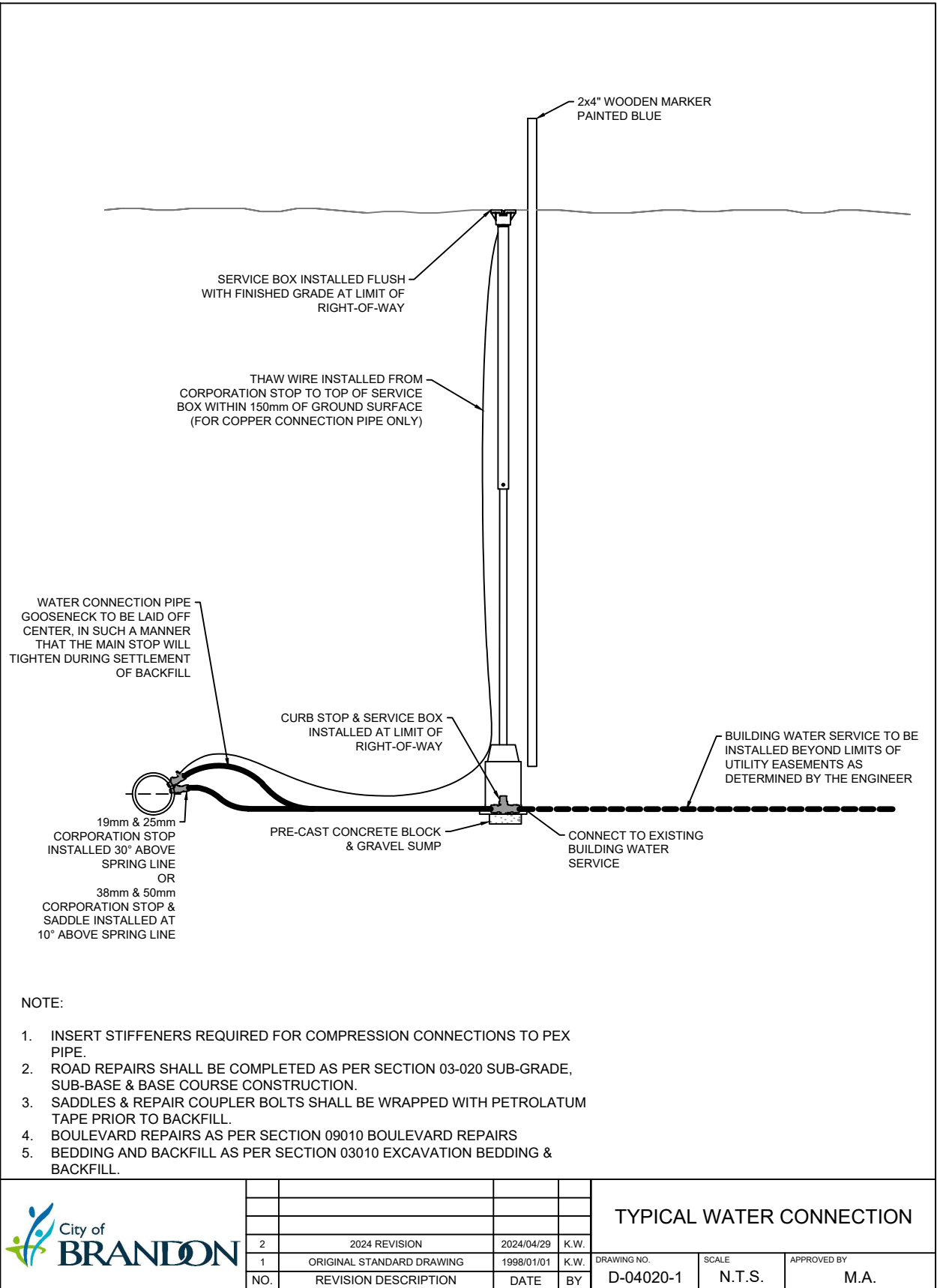
- .1 Payment for each class and type of 'Abandon Water Connection' will be at the price set forth in the Unit Price Schedule for each class and type of 'Abandon Water Connection' measured as specified herein, which shall be payment in full for:
  - .1 Locating, shut-off, disconnecting, cutting, removal of existing;
  - .2 Trenching (if required) or excavation, backfilling, road, curb, driveway, sidewalk, and walkway repairs;
  - .3 Supply and installation of abandoned corporation cap and petrolatum tape;
  - .4 Removal of service box;
  - .5 And all other costs and performing all other operations considered incidental to the supply and installation of 'Abandon Water Connection' for which no price or prices or provisions for payment are included in the Contract Documents.

### **5.5 BUILDING WATER SERVICE CONNECTION**

- .1 No payment will be made for the works associated with 'Building Water Service Connection', as it is considered incidental to the Work, unless otherwise indicated in a separate Division or the Contract Documents.

**END OF SECTION**

WATER CONNECTIONS



## **APPENDIX “A”**

### **CITY OF BRANDON TEST-HOLE REPORT**

**Client:** City of Brandon  
**Project:** 34th Street  
**Address:** between Maryland Ave & Patricia Ave, Brandon, MB, Canada

**BORING LOG**  
**Boring No.** TH 2022-21  
**Page:** 1 of 1

**Drilling Start Date:** 11/04/2021 17:45  
**Drilling End Date:** 11/04/2021 18:10  
**Drilling Company:** Paddock Drilling Ltd  
**Drilling Method:** Solid Stem Auger  
**Drilling Equipment:** Track Mounted Drill Rig  
**Driller:**  
**Logged By:** Andy Brauer

**Boring Depth (m):** 7.5  
**Boring Diameter (mm):** 125.0  
**Sampling Method(s):** Grab  
**DTW During Drilling (m):** 3.3  
**DTW After Drilling (m):** 5.4  
**Ground Surface Elev. (m):** 403.407  
**Location (Northing, Easting) (m):** 5,518,659.666; 429,163.821  
**Zone:** UTM Zone 14

| DEPTH (m) | LITHOLOGY | WATER LEVEL | BORING COMPLETION | COLLECT     |             |              |              | SOIL/ROCK VISUAL DESCRIPTION                                                                                                                                                                      | PID (ppm) | Moisture Content (%) | Dry Density (pcf) | Liquid Limit | Plastic Limit | Plasticity Index (PI) | #200 Sieve (%) | Pocket Penetrometer (tsf) | Unconfined Compressive Strength (tsf) | ELEVATION (m) |
|-----------|-----------|-------------|-------------------|-------------|-------------|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------|-------------------|--------------|---------------|-----------------------|----------------|---------------------------|---------------------------------------|---------------|
|           |           |             |                   | Sample Type | Blow Counts | Recovery (m) | N Value RQD% |                                                                                                                                                                                                   |           |                      |                   |              |               |                       |                |                           |                                       |               |
| 0         |           |             |                   |             |             |              |              | (0.00m) Sandy LEAN CLAY (CL); 70% fines (mostly silt, little clay); 30% fine sand; medium-stiff, black, dry, Silt: 52.9%, Clay: 18.5%, sample contains 9.7% organic matter (according ASTM D2974) |           | 30.9                 |                   |              |               |                       |                |                           |                                       |               |
|           |           |             |                   | GR          |             |              |              | (1.30m) SILTY SAND (SM); 55% fine sand; 45% fines (some silt, little clay); loose, brown, dry, Silt: 30.8%, Clay: 16.5%                                                                           |           | 17.7                 |                   |              |               |                       |                |                           |                                       |               |
|           |           |             |                   | GR          |             |              |              | (1.80m) LEAN CLAY with sand (CL); 80% medium plasticity fines (some silt, some clay); 15% fine sand; 5% gravel; medium-stiff, brown, dry, Silt: 42.5%, Clay: 37.3%                                |           | 22.2                 | 40.8              | 19.9         | 20.9          |                       |                |                           |                                       |               |
|           |           |             |                   | GR          |             |              |              | (3.00m) SILT (ML); 100% low to medium plasticity fines (mostly silt, little clay); soft, brown, dry, Silt: 83.6%, Clay: 15.9%                                                                     |           | 33.6                 | 33.4              | 27.7         | 5.7           |                       |                |                           |                                       | 400           |
|           |           |             |                   | GR          |             |              |              | (3.3m) As Above: below 3.3m wet                                                                                                                                                                   |           |                      |                   |              |               |                       |                |                           |                                       |               |
| 5         |           |             |                   | GR          |             |              |              | (5.1m) As Above: below 5.1m grey                                                                                                                                                                  |           | 32.9                 |                   |              |               |                       |                |                           |                                       |               |
|           |           |             |                   | GR          |             |              |              | (6.00m) SILT with sand (ML); 85% non-plastic to low plasticity fines (mostly silt, few clay); 15% fine sand; gray, saturated, loose, Silt: 71.0%, Clay: 12.6                                      |           | 30.9                 | 25.6              | 23.5         | 2.1           |                       |                |                           |                                       |               |
|           |           |             |                   |             |             |              |              | (7.50m) Boring terminated, Boring open to 6.5m, seepage @ 5.4m immediately after drilling. Test hole backfilled with auger cuttings and bentonite plug @ approx. 1m depth.                        |           |                      |                   |              |               |                       |                |                           |                                       | 395           |
| 10        |           |             |                   |             |             |              |              |                                                                                                                                                                                                   |           |                      |                   |              |               |                       |                |                           |                                       |               |

NOTES:

Checked by: Kyle Winters

|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|--------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------|--|-----------------------------------------------|-------------|-------------------------|-----------|-----------------------------------|-----------|---------------------|------------|-------------------------|-----------------------|-------------------------------------------------------------------------------------|---------------------|-------------|-------------|
| Testhole:                                                                                                                |       | TH 2022-21                                                                                           |  | Date Drilled:                                 |             | 4-Nov-21                |           | Logged by: Andy Brauer            |           |                     |            |                         |                       |  |                     |             |             |
| Location:                                                                                                                |       | 34th Street, Proposed DS between Maryland Ave and Patricia Ave (east side)                           |  | Report Date:                                  |             | 7-Jan-22                |           | Drilled by: Paddock Drilling Ltd. |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  | UTM Coordinates:                              |             |                         |           | N: 5518660                        |           | E: 429164           |            | ELEV: 403.4             |                       |                                                                                     |                     |             |             |
| Depth:<br>from: to:                                                                                                      |       | Comments:                                                                                            |  | # Lab<br>Sample                               | #<br>Sample | Sample<br>Depth<br>[ft] | MC<br>[%] | LL<br>[%]                         | PL<br>[%] | PI<br>[%]           | SPT<br>[n] | Coarse<br>Gravel<br>[%] | Fine<br>Gravel<br>[%] | Coarse<br>Sand<br>[%]                                                               | Fine<br>Sand<br>[%] | Silt<br>[%] | Clay<br>[%] |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
| 0'                                                                                                                       | 4.5'  | Silt - sandy, some clay brown, dry, soft to firm, contains 9.7% organic matter                       |  | 22062                                         | 21.1        | 2.0 - 3.0               | 30.9      |                                   |           |                     |            | 0.0                     | 0.6                   | 1.5                                                                                 | 26.4                | 52.9        | 18.5        |
| 4.5'                                                                                                                     | 6.0'  | Sand - silty, some clay, brown, dry, loose, non plastic                                              |  | 22063                                         | 21.2        | 5.0 - 6.0               | 17.7      |                                   |           |                     |            | 0.0                     | 0.2                   | 0.9                                                                                 | 51.7                | 30.8        | 16.5        |
| 6.0'                                                                                                                     | 10.0' | Silt and clay - some sand, trace gravel, brown, dry, firm, intermediate plastic                      |  | 22064                                         | 21.3        | 7.0 - 8.0               | 22.2      | 40.8                              | 19.9      | 20.9                |            | 3.7                     | 2.0                   | 2.7                                                                                 | 11.9                | 42.5        | 37.3        |
| 10.0'                                                                                                                    | 20.0' | Silt - some clay, brown (below 17.0' grey), dry (below 11.0' wet), soft, low to intermediate plastic |  | 22065                                         | 21.4        | 12.0 - 13.0             | 33.6      | 33.4                              | 27.7      | 5.7                 |            | 0.0                     | 0.0                   | 0.1                                                                                 | 0.3                 | 83.6        | 15.9        |
|                                                                                                                          |       |                                                                                                      |  | 22066                                         | 21.5        | 18.0 - 19.0             | 32.9      |                                   |           |                     |            | 0.0                     | 0.0                   | 0.1                                                                                 | 0.9                 | 99.0        |             |
| 20.0'                                                                                                                    | 25.0' | Silt - some sand, some clay, grey, saturated, loose, low plastic                                     |  | 22067                                         | 21.6        | 24.0 - 25.0             | 30.9      | 25.6                              | 23.6      | 2.0                 |            | 0.0                     | 0.0                   | 0.0                                                                                 | 16.3                | 71.0        | 12.6        |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  |                                               |             |                         |           |                                   |           |                     |            |                         |                       |                                                                                     |                     |             |             |
| End of the hole 25.0', open to 21.5', seepage @ 18.0' immediately after drilling                                         |       |                                                                                                      |  | Naming Convention                             |             |                         |           |                                   |           | Soil classification |            |                         |                       |                                                                                     |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  | >35%                                          |             | Primary Soil            |           |                                   |           |                     |            | Particle size           |                       |                                                                                     |                     |             |             |
| Comments: Filled with cuttings, bentonite plug at surface. Determination of organic matter was done according ASTM D2974 |       |                                                                                                      |  | 20 - 35%                                      |             | "clayey", "sandy", etc. |           |                                   |           |                     |            | Coarse Gravel           |                       | Metric                                                                              |                     | Imperial    |             |
|                                                                                                                          |       |                                                                                                      |  | 10 - 20%                                      |             | "some silt", etc.       |           |                                   |           | +9.5mm              |            |                         |                       | +3/8                                                                                |                     |             |             |
|                                                                                                                          |       |                                                                                                      |  | 1 - 10%                                       |             | "trace gravel", etc.    |           |                                   |           | Fine Gravel         |            | 9.5 to 2.0mm            |                       | -3/8 to + #10                                                                       |                     |             |             |
| Abbreviations                                                                                                            |       |                                                                                                      |  |                                               |             |                         |           | Coarse Sand                       |           | 2.0 to 0.4mm        |            | - #10 to + #40          |                       |                                                                                     |                     |             |             |
| LL = Liquid Limit                                                                                                        |       |                                                                                                      |  | MC = Moisture Content                         |             |                         |           |                                   |           | Fine Sand           |            | 0.4 to 0.075mm          |                       | - #40 to + #200                                                                     |                     |             |             |
| PL = Plastic Limit                                                                                                       |       |                                                                                                      |  | SPT = Standard Penetration Test (ASTM D 1586) |             |                         |           |                                   |           | Silt                |            | 0.075 to 0.002mm        |                       |                                                                                     |                     |             |             |
| PI = Plasticity Index                                                                                                    |       |                                                                                                      |  |                                               |             |                         |           |                                   |           | Clay                |            | < 0.002mm               |                       |                                                                                     |                     |             |             |