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SECTION 1 DEFINITIONS AND INTERPRETATION

90.1.1 Definitions

This document shall be interpreted using the definitions in the General Conditions 100. All definitions employed in this document will be capitalized to indicate a reference to the corresponding definition.

90.1.2 Interpretation

This document shall be governed by and interpreted in accordance with the laws of the Province of Manitoba and the laws of Canada.

Where the Contractor consists of more than one person, the obligations of the Contractor shall be joint and several.

If any provision of this Contract is void, illegal, invalid or unenforceable; it shall be severable from the Contract and shall not invalidate or impair the remaining provisions of the Contract.

The Contractor is acknowledged to be an independent contractor and neither the Contractor, nor any officer, servant nor agent of the Contractor is deemed to be an employee of the Owner.

The Contract constitutes the entire agreement between the Owner and the Contractor. There are no other agreements of any kind other than those contained within the Contract.

SECTION 2 GENERAL TENDER INFORMATION

90.2.1 Examination of Tender and Site

It is a Bidder's responsibility, at the Bidder's sole cost and expense, to carefully examine the Site, all local conditions that might affect the Work or the Bid, and all of the various documents contained and referenced in the Tender before submitting a Bid. By submitting a Bid, a Bidder represents to the Owner that the Bidder has made such examination and is satisfied as to the conditions that will be encountered in performing the Work and as to the requirements described in the Tender.

A Bidder assumes all risks for conditions that exist or that may arise in the course of the Work which could have been determined through such examination and for all costs the Bidder may incur or sustain because the Bidder failed to conduct such examination before submitting a Bid.

Any information pertaining to subsurface soil, rock or groundwater conditions provided in the Tender documents has been obtained for design purposes and is valid only at the specific locations at which the information was collected. Bidders may wish to supplement this information by performing their own investigations but must first request permission to access the Site and perform the investigation from the Contract Administrator.

90.2.2 Contents of Tender Documents

The Tender sets out the Bid security submission requirements (if any), the Submission Deadline, the acceptable submission methods and the Submission Location.

The Tender also describes, in detail, the Work to be done, the Site, the time within which or by when the Work must be completed and the amount of Liquidated Damages (if any) payable for failing to meet such requirements.

The following documents form part of the Tender, whether or not they are attached to the Tender:

- a) Bid Forms
- b) Standard Construction Specifications

- c) Bidding Procedures
- d) General Conditions
- e) Special Provisions
- f) Detailed Design Drawings
- g) Other documents applicable to the Work, as listed in the Tender.

The above documents which are not attached to the Tender are incorporated by reference and the most current versions available and in effect at the time of Bid Submission, may be obtained at:

<http://www.gov.mb.ca/mit/contracts/manual.html>

90.2.3 Notice of Tender

Notices of Tender will be posted by the Owner. Such notices will indicate where Tenders may be obtained.

Where Manitoba is the Owner, notices will be posted on Manitoba's online procurement service provider website www.MERX.com.

At the time a Bidder obtains a Tender, it will be required to provide contact information to the Owner for the purposes of receiving Tender Amendments.

90.2.4 Tender Document Order of Priority

If there is a conflict between the various documents referred to in the Tender, document having the highest priority will govern. The order of priority, from highest to lowest, is set out in the General Conditions.

90.2.5 Estimated Quantities

The quantities set forth in a Tender are estimated only unless the Tender specifically states otherwise. Payment is made on the basis of Work actually performed and completed by the Contractor and quantities are measured according to the relevant Specification or Special Provision.

By submitting a Bid, a Bidder acknowledges that the actual quantities used in the Work may be different than the estimated quantities shown on the Price Form. The Owner will use the estimated quantities in evaluating Bids.

90.2.6 Enquiries

A Bidder is solely responsible for obtaining all information that may be necessary in order to understand the requirements of the Tender and to submit a Bid in accordance with the terms and conditions of the Tender.

If a Bidder finds errors, discrepancies or omissions in the Tender, the Bidder should notify the Contract Administrator of the error, discrepancy or omission as soon as possible. If a Bidder is unsure of the meaning or intent of any provision in the Tender, the Bidder should request clarification from the Contract Administrator.

All enquiries related to the Tender must be directed, in writing, to the Contract Administrator identified in the Tender.

Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction or modification to the Tender will be provided by an Amendment.

Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction or modification to the Tender, will be provided by the Contract Administrator only to the Bidder that made the enquiry.

A Bidder is not entitled to rely on any response or interpretation received pursuant to an enquiry unless that response or interpretation is provided in writing by the Contract Administrator or by an Amendment to the Tender.

If a Bidder has sent an enquiry and has not received any acknowledgement of its enquiry, the Bidder should follow up with the Contract Administrator.

Enquiries received within 48 hours of the Submission Deadline may not receive a response from the Contract Administrator.

90.2.7 Amendments

Before the Submission Deadline, the Owner may issue Amendments to the Tender.

The Owner will endeavour to ensure that no Tender Amendments are issued less than 48 hours before the Submission Deadline.

Bidders are responsible for ensuring they have received all Tender Amendments and are advised to check with the Contract Administrator and (where applicable) the Owner's online procurement service provider website for Tender Amendments before submitting their Bids.

90.2.8 Manitoba Government Wide Contract Policy - Legislative and Safety Requirements

This section applies where the Owner is Manitoba.

A Bidder must complete and submit the Contractor's Certification Form contained in the Tender and may do so at the time of bid submission. The contract will not be awarded to the successful Bidder without submission of the Contractor's Certification Form.

Failure to submit the Contractor's Certification Form within 3 business days upon written request, failing to comply with a commitment made or making an untrue statement in the Certification, or failing to provide additional information satisfactory to Manitoba regarding anything in this Certification, may (among other things) result in forfeiture of the bid bond (if applicable) and/or Manitoba declaring that the Bidder/Contractor is ineligible to bid on future tenders.

The fully executed Contractor's Certification Form will form part of the Contract.

For details regarding the Contractor's Certification Form and the Government Wide Contract Policy see the General Conditions 100 or General Conditions 110.

90.2.9 Policy Requirements for Manitoba's Apprenticeship Employment Opportunities Act (Public Works Contracts)

This section applies where the Owner is Manitoba.

All Contractors and subcontractors must contact Apprenticeship Manitoba to obtain an Apprenticeship Employment Opportunities Act Policy Letter ("Letter"). Apprenticeship Manitoba will assess the scope of Work and operations for all Contractors and subcontractors to determine eligibility to engage in a Contract. Apprenticeship Manitoba will issue the necessary Letters accordingly.

Prior to being awarded the contract, the successful Bidder must submit an Apprenticeship Employment Opportunities Act Policy Letter ("Letter") from Apprenticeship Manitoba declaring that the Bidder is eligible to be awarded a contract. The Contract will not be awarded to the successful Bidder without submission of the Letter.

Failure to submit the Letter within 3 business days upon written request may result in forfeiture of the bid bond (if applicable) and/or the Province declaring that the Bidder is ineligible to bid on future tenders.

For details regarding the Apprenticeship Employment Opportunities Act (Public Works Contracts) see the General Conditions 100 or General Conditions 110.

SECTION 3 BID PROCEDURES

90.3.1 ONLINE BID SUBMISSION PROCEDURES

Where the Bidder is required to submit a Bid through the Owner's online procurement service provider, the Bidder will be required to register a user profile with the Owner's online procurement service provider, and the submission procedures set out on the online procurement service provider website shall apply, including those with respect to Amendment Acknowledgements and bid bond submission. It is solely the Bidder's responsibility to ensure that its Bid is received by the online procurement service provider before the Submission Deadline. Bids received after the Submission Deadline will not be accepted.

Where the Owner is Manitoba, the online procurement service provider is www.MERX.com.

90.3.2 PAPER COPY BID SUBMISSION PROCEDURES

Where the Bidder is submitting a traditional paper copy Bid, the submission procedures set out in this subsection 90.3.2 shall apply. For greater clarity, the submission procedures set out in this subsection do not apply to Bids submitted using the Owner's online procurement service provider.

90.3.2.1 Completing the Bidder Information Form

A Bidder must complete and submit the Bidder Information Form contained in the Tender as part of its Bid.

A Bidder must submit a Bid in the Bidder's full legal name and disclose its usual business name, if that is different than its full legal name. It must also identify the form in which it carries on business (for example, sole proprietor, partnership, corporation or joint venture).

A Bidder must provide the civic address from which it carries on business, and a mailing address if that is different than its civic address.

A Bidder must identify an individual who is authorized to represent the Bidder for purposes of the Bid, and provide all such information about where and how the individual may be contacted as is requested in the Bidder Information Form.

If the Owner requests more information about a Bidder's legal name or status, address or contact information, the Bidder must provide the Owner with such information within three (3) calendar days of the request. Failure to provide The Owner with the requested information within such time period may result in that Bidder's Bid being rejected.

90.3.2.2 Completing the Work Schedule Form

A Bidder must complete and submit the Work Schedule Form contained in the Tender as part of its Bid.

The Work Schedule Form details the Liquidated Damages that are applicable to the Contract should the Bidder become the Contractor and fail to complete the Work within the required time. The Bidder is encouraged to refer to the Specification for Liquidated Damages (No. 130) for further information.

90.3.2.3 Completing the Price Form

A Bidder must complete and submit the Price Form contained in the Tender as part of its Bid. The Price Form requires Bidders to provide some or all of the following:

- a) a Unit Price and an Item Price for each Work Item for which a quantity is given;
- b) an Item Price for each Work Item for which a lump sum price is required;
- c) the Item Price Total for each section;
- d) a Charged Day Bid also called the Initial Span for each section (if applicable);
- e) a Site Occupancy Price for each section (if applicable);
- f) the Total Price.

Where a Bidder intends to provide a Work Item free of charge, the Bidder should state "nil" as the Unit Price (if applicable) and as the Item Price for such Work Item. If a Bidder states "0" or "0.00" as the Unit Price (if applicable) and as the Item Price for a Work Item, the Owner will interpret such Unit Price (if applicable) and such Item Price as "nil".

Unless otherwise stated in the Special Provisions, all Prices on the Price Form must be expressed to the nearest cent. When evaluating a Bid, the Owner will round the price to the first two decimal places of any price that includes fractional cents (i.e. more than two (2) decimal places), in the following order: Unit Price, Item Price, Item Price Total and Total Price.

90.3.2.4 Completing the Signature Form

A Bidder must complete and submit the Signature Form contained in the Tender as part of its Bid.

A Bidder is responsible for ensuring that it has received all Amendments and for considering the effect of such Amendments in formulating its Bid. Bidders should acknowledge having received each Amendment, and the date of each such Amendment, in the space provided for this purpose on the Signature Form. A Bid that fails to acknowledge all of the Amendments may be rejected. If a Bid is submitted before an Amendment is issued, the Owner will accept an Amendment Acknowledgement by letter or re-submission of the Signature Form, in accordance with the Changes to Submitted Bids section.

The Signature Form must be signed by the individual(s) or officer(s) who have the legal authority to bind the Bidder. By submitting a Bid, the Bidder acknowledges that the Owner is entitled to presume the signatures are legally binding.

The name and office of each individual signing the Bid should be printed below the individual's signature, and the date on which the individual signed should be inserted.

"Bidder" includes all individuals and entities that submit a Bid, if a Bid is submitted by more than one individual or entity. The obligations of the Bid and Contract, if awarded to such a Bidder, are both joint and several.

Bids should be witnessed on the Signature Form. Where a corporate seal is applied to the Bid, a witness signature is not required.

A Bid that is not signed on the Signature Form by the Bidder is invalid and will be rejected.

90.3.2.5 Changes to Forms in a Tender Prohibited

Bidders must submit their Bids using the forms contained in the Tender. Bids that are submitted on one or more forms that are different from the forms contained in the Tender may be rejected by the Owner.

90.3.2.6 Submission of Bids

By submitting a Bid, the Bidder agrees that:

- a) the Tender, in its entirety, is deemed to be incorporated into and to form part of the Bid notwithstanding that all parts of the Tender may not be attached to or accompany the Bid;
- b) any changes to the submitted Bid received by the Owner before the Submission Deadline form part of the Bid;
- c) if they are the preferred Bidder, the Bidder will enter into a Contract with the Owner to complete the Work in accordance with the Bid; and
- d) the Bid will form part of the Contract.

Bids must be submitted before the Submission Deadline to the Submission Location, using one of the submission methods specified in the Tender for this purpose. Bids received by the Owner after the Submission Deadline, or at an incorrect Submission Location, or by an unacceptable submission method, will be rejected.

The Tender indicates which methods of delivery are acceptable for the Bid (e.g. mail, personal or courier delivery, facsimile, e-mail), and the Bidder shall submit the Bid only in accordance with the methods permitted.

Bids that are submitted by mail, personal delivery or courier must be enclosed in a sealed envelope clearly marked with the Tender number. The envelope should also indicate the Bidder's name and the Bidder's return address.

The Owner may extend the Submission Deadline by issuing an Amendment to the Tender at any time before the Submission Deadline.

90.3.2.7 Changes to Submitted Bids

Where a Bidder has submitted a Bid, the Bidder may make changes to the Bid using one of the submission methods specified in the Tender for this purpose. Any changes to a Bid must be received before the Submission Deadline.

A Bid change may be made by letter or by re-submission of a form. All Bid changes must be in writing and signed by a representative of the Bidder with the authority to bind the Bidder. Bid changes must clearly state the name of the Bidder and the number of the Tender to which the change relates, and should state the address of the Bidder. The Bidder must indicate those portions of the Bid that have changed from the Bidder's original Bid submission.

Where a change affects one or more Prices on the Price Form, the Bidder shall clearly indicate the change to all affected Prices, or resubmit the Price Form.

If, in the Owner's opinion, there is any ambiguity about the nature or effect of any change, the Owner may reject such a change and evaluate the Bidder's Bid without regard to the change.

90.3.2.8 Withdrawal of Bids

A Bidder may withdraw a Bid without penalty at any time before the Submission Deadline by giving written notice to the Owner for this purpose. A Bid withdrawal must be received at the Submission Location before the Submission Deadline.

A notice of Bid withdrawal must be signed by a representative of the Bidder with the authority to bind the Bidder, must clearly state the name of the Bidder and the number of the Tender to which the Bid was responding, and should state the address of the Bidder.

If the Owner receives notice of a Bid withdrawal before the Submission Deadline, the Owner will not consider the Bid during the bid evaluation and will return the Bid to the Bidder only at the request and expense of the Bidder.

90.3.2.9 Confirmation of Bid Receipt

It is solely the Bidder's responsibility to ensure that its Bid and any Bid change (including any Amendment Acknowledgement submitted subsequent to Bid submission) or Bid withdrawal is received at the Submission Location specified in the Tender prior to the Submission Deadline.

Notwithstanding that a Bidder may be entitled to use facsimile transmission or e-mail to submit, change or withdraw a Bid, the Owner cannot assure Bidders that information or documents sent by facsimile transmission or e-mail will reach the intended recipient before the Submission Deadline. By using facsimile transmission or e-mail, Bidders acknowledge that all risks associated with failed or late delivery are borne by the Bidder. Bidders are responsible for ensuring that the intended recipient received such information or documents by the Submission Deadline.

The Owner will assume responsibility for applying any Bid change to a Bidder's Bid provided it was received prior to the Submission Deadline.

SECTION 4 CONDITIONS OF BID

90.4.1 Submission of Bid Bond

If a Tender indicates that a bid bond is required, the Bidder must submit a bid bond using the Owner's standard bid bond form (if available), or in a form satisfactory to the Owner.

Where the Owner is Manitoba, the Bidder must submit an electronic bid bond through the Owner's online procurement service provider along with the Bid. Manitoba's bid bond form is provided with the Tender.

The bid bond must clearly state the Tender number and description of the Work.

The amount of the bid bond shall be ten percent (10%) of the Total Price of the Bid excluding Contingency, expressed as a percentage.

The bid bond shall remain in full force, virtue and effect until the earlier of:

- a) the date a Contract for the Work of the Tender is executed, or;
- b) the date 6 months elapses from the Bid Submission Deadline.

The bid bond must be issued by a surety that is licensed in Manitoba or elsewhere in Canada to carry on the surety insurance business.

90.4.2 Currency and Tax Conditions

All prices must be quoted in Canadian dollars.

Applicable taxes shall be included in all prices shown on the Price Form and shall not be shown separately. Taxes shown separately will be disregarded from all price calculations.

Where Manitoba is the Owner, Manitoba certifies that the amounts payable to the successful Bidder for the Work will be paid by the Government of Manitoba with Crown funds and are therefore not subject to the Goods and Services Tax (GST). The Bidder represents and warrants that the GST has not been included or quoted in any fees, rates or estimates and covenants that it will not include GST in any invoice provided, or request for payment made, under the Contract.

90.4.3 Ownership and Release of Information

Bids that are not withdrawn in accordance with these Bidding Procedures become the property of the Owner after the Submission Deadline.

The Bidder understands that the Owner will publicize information, including detailed price information, contained within the Bid.

The Bidder is advised that any information contained in a Bid may be released by the Owner in original or other forms if authorized or required by the Owner's policies or procedures, including these Bidding Procedures, or by any law, including *The Auditor General Act* (Manitoba) and *The Freedom of Information and Protection of Privacy Act* (Manitoba).

90.4.4 Irrevocable Bid Period

The Owner will endeavour to award a Contract within fifteen (15) calendar days; however, Bids are irrevocable for thirty (30) calendar days after the Submission Deadline. A Bidder is bound to enter into the Contract if it is awarded the Contract during this period of irrevocability.

The Owner may request that Bidders agree to an extension of this period of irrevocability. The Bid of each Bidder that consents to such an extension remains irrevocable for the additional time requested by the Owner. The Bid of each Bidder that does not consent to such an extension remains irrevocable for the irrevocable bid period currently in force upon the Bid.

No Bidder has any obligation to enter into a Contract with the Owner upon the expiration of the irrevocable bid period. Where the irrevocable bid period in force upon a Bid has expired, further Bid information will not be released by the Owner provided the Bidder has so requested.

SECTION 5 BIDDER DECLARATIONS

90.5.1 Qualifications of Bidder

In submitting a Bid, the Bidder declares that the Bidder:

- a) is incorporated and in good standing under The Corporations Act (Manitoba), registered under The Business Names Registration Act (Manitoba) or otherwise authorized or permitted to legally carry on business in the Province of Manitoba;
- b) is financially capable of carrying out the terms of the Contract; and
- c) possesses all the necessary experience, capital, organization, and equipment to perform the Work in accordance with the terms and conditions of the Contract.

90.5.2 No Collusion

In submitting a Bid, the Bidder declares and represents that it has not knowingly participated in bid-rigging, collusion, or fraud in the preparation of its Bid. Further, the Bidder declares and represents that it has produced the Bid independently from, and without consultation, communication, agreement or arrangement with, any competitor, except where the competitor intends to become a Subcontractor for a portion of the Work or intends to form a joint venture arrangement with the Bidder.

The Bidder is advised that, under the *Competition Act* (Canada), the Bidder is responsible for notifying The Owner of any aforementioned agreements or arrangements with its competitors.

90.5.3 No Conflict of Interest

In submitting a Bid, the Bidder declares and represents that the Bidder does not knowingly have a conflict of interest related to the performance of the Work by the Bidder or by its Subcontractors. If the

Bidder is in doubt as to whether individuals or circumstances give rise to a conflict of interest, the Bidder should consult with the Contract Administrator prior to submitting a Bid. The Owner may reject any Bid if, in its sole discretion, the Owner determines that an actual or potential conflict of interest exists.

SECTION 6 EVALUATION OF BIDS

90.6.1 Opening of Bids

Bids received by the Submission Deadline will be opened publicly and read out at the Submission Location immediately after the Submission Deadline. Where e-mail is specified in the Tender as an acceptable Submission Method and one or more Bids are received by e-mail by the Submission Deadline, the Owner will print hard copies of such Bids for the purpose of the public opening.

Where a Tender requires the Bid to be submitted electronically, the Owner will not hold a public opening, but will post the bid results on the Owner's bid results web page immediately after the Submission Deadline.

Where a Tender requires the submission of a bid bond (whether electronic or hard copy) but the bid bond has not been received prior to the Submission Deadline, the corresponding Bid will not be read out at the public opening, and will be rejected.

All Bids which were read out at the public opening will be evaluated after the public opening.

Anyone may attend the public opening.

90.6.2 Evaluation Process

Bids that were read out at the public opening will be reviewed and evaluated by the Owner after the public opening.

The evaluation of the Bids is a three-step process as follows:

- a) Determining Bid Compliance pass / fail
- b) Comparing Total Prices
- c) Confirming Bidder Qualifications pass / fail

90.6.3 Determining Bid Compliance (Pass/Fail)

The Owner will evaluate all Bids that were read out at the public opening to determine whether they comply with the requirements of the Tender, including these Bidding Procedures.

Those Bids which the Owner determines, in its sole discretion, comply with the requirements of the Tender will progress to the second step of the evaluation process. The Owner may reject a Bid as being non-compliant if the Bid submission is incomplete, obscure, or conditional, or contains additions, deletions, alterations or other irregularities. Those Bids which the Owner determines do not comply with the requirements of the Tender will not progress to the second step of the evaluation but will be rejected and not considered further.

The Owner may also waive irregularities or reject all or any Bids if, in the sole discretion of the Owner, it is considered to be in the best interests of the Owner to do so.

90.6.4 Unit Price and Item Price Omissions

The omission of a Unit Price for a Work Item will not invalidate a Bid provided the Bid identifies an Item Price for such Work Item and provided such Item Price does not represent an amount greater

than ten (10%) percent of the Total Price, excluding Contingency. The Owner will calculate a Unit Price from the Item Price divided by the Estimated Quantity and will enter such amount in the Bid. This calculated Unit Price will be used for making payments in the Contract. If the calculated Unit Price creates mathematical errors, the Bid will be corrected as set out in the section titled Bids with Mathematical Errors.

The omission of an Item Price for a Work Item will not invalidate a Bid provided the Bid identifies a Unit Price for such Work Item. The Owner will calculate the Item Price from the Estimated Quantity multiplied by the Unit Price and will enter such amount in the Bid. If the calculated Item Price creates mathematical errors, the Bid will be corrected as set out in the section titled Bids with Mathematical Errors.

Where a Bidder fails to provide both the Unit Price and the Item Price for a unit price Work Item, the Bid will be rejected.

Where a Bidder fails to provide an Item Price for a lump sum Work Item, the Bid will be rejected.

90.6.5 Bids with Mathematical Errors

Where a Bid contains a mathematical error, the Owner will correct the error. All of the Prices affected by the error will be adjusted, and the Bid will be evaluated on the basis of the corrected Total Price.

Where an Item Price does not equal the product of the Estimated Quantity and the Unit Price, the Owner will consider the Unit Price to be correct and will adjust the Item Price and all other Prices affected by the error.

Where the Item Price Total for a section does not equal the sum of all Item Prices for that section (as indicated by the Bidder or as corrected by the Owner), the Owner will correct the Item Price Total and all other Prices affected by the error.

Where the Site Occupancy Price for a section (if applicable) does not equal the product of the Bid Charged Days and the Charged Day Rate for that section, the Owner will consider the Bid Charged Days to be correct and will adjust the Site Occupancy Price and all other Prices affected by the error.

Where the Total Price does not equal the sum of the Item Price Totals and all Site Occupancy Prices (as indicated by the Bidder or as corrected by the Owner), the Owner will correct the Total Price.

90.6.6 Comparing Total Prices

The Owner will compare the Total Prices of all compliant Bids to determine the Bid ranking. All compliant Bids will be assigned their respective places in order of lowest Total Price to highest Total Price. The preferred Bidder is the Bidder that submitted the compliant Bid with the lowest Total Price, excluding Contingency.

90.6.7 Confirming Qualifications of Preferred Bidder (Pass/Fail)

The qualifications of the preferred Bidder will be assessed, and a Bidder's record of past performance will be a factor in the Owner's determination of the Bidder's qualifications to perform the Work.

For the purposes of assessing qualifications of the Bidder (or the Bidder's Subcontractors), the Bidder shall, on request of the Owner, provide:

- (a) a list of equipment in good working condition that the Bidder is prepared to use in order to undertake the Work;
- (b) full access to the Bidder's equipment or facilities to confirm that the equipment and facilities are adequate to perform the Work;
- (c) a plan stating the Bidder's proposed approach to the various phases of the Work;

- (d) a list of Subcontractors whom the Bidder proposed to engage to perform the Work;
- (e) examples of the Bidder's (and where necessary, Subcontractors') past performance on similar projects;
- (f) reference contact information from other agencies or clients for the Bidder (and, where necessary, Subcontractors);
- (g) proof, satisfactory to the Owner, of the Bidder's qualifications as set out in section 9.5.1; and
- (h) such other information or documents as may be required by the Tender or the Owner.

The preferred Bidder shall, on request, meet with the Owner's representatives prior to the Contract being awarded for the purpose of confirming the preferred Bidder's qualifications.

The Owner has the right to contact not only any of the references provided by the Bidder, but also any other references identified by the Owner who have had dealings with the Bidder or the Bidder's Subcontractors without prior notice to the Bidder.

If the Owner determines that a Bidder's qualifications and record of past performance is unsatisfactory, the Owner may, in its sole discretion, disqualify the Bidder and reject its Bid.

If a preferred Bidder is rejected, the Bidder with the second-lowest Total Price becomes the preferred Bidder, and so on until either a Contract is awarded to a qualified Bidder having submitted a compliant Bid or the Tender is cancelled.

A Bidder will be notified, in writing, if its Bid is rejected.

90.6.8 Award and Signing of Contract

The Owner is under no obligation to award a Contract to a Bidder, even if one or more Bids are determined to be compliant and one or more Bidders are determined to be qualified. Without limiting the generality of the foregoing, the Owner will have no obligation to award a Contract where:

- (a) there is only one Bid received;
- (b) the prices exceed the funds available for the Work;
- (c) the prices materially exceed prices for similar work in the past;
- (d) the prices materially exceed the Owner's cost to perform the Work, or a significant portion thereof, with its own forces;
- (e) the prices are unbalanced;
- (f) in the sole opinion of the Owner, the interests of the Owner would be best served by not awarding a Contract.

If the Owner decides to award a Contract, it will award the Contract to the qualified Bidder that has submitted a compliant Bid with the lowest Total Price excluding Contingency.

The successful Bidder will be notified in writing that the Bidder has been awarded the Contract, subject to the Bidder complying with the specific conditions precedent to the Contract as set out in the Tender or the notification of award.

The Bidder shall, within ten (10) calendar days after the date on which the notification of award was sent to the Bidder, provide evidence to the Owner that the Bidder has satisfied any conditions precedent to the Contract or in the notification of award. Upon receipt of this evidence, the Owner will execute the Contract and send a copy to the Contractor.

90.6.9 Failure to Respond to Award Notification

If, within ten (10) calendar days after the date on which the award notification was sent to the Bidder, the Owner has not received all of the following from the Bidder:

- (a) the Contract, duly signed by the Bidder (if applicable);
- (b) a performance bond (if applicable);
- (c) a labour and material payment bond (if applicable); and
- (d) evidence that the Bidder has satisfied any conditions precedent to the Contract;

then the Owner may do one or more of the following:

- (a) where a bid bond was required, claim against the bid bond;
- (b) declare the Bidder ineligible to bid on tenders issued by the Owner for a period of up to two (2) years;
- (c) proceed to award the Contract to, another Bidder;
- (d) cancel the Tender;
- (e) exercise whatever other remedies are available by law.

90.6.10 Commencement of Work

Unless otherwise authorized by the Owner, in writing, the Contractor shall not commence any Work until the Contractor has:

- (a) submitted an approved performance bond (if required);
- (b) submitted an approved labour and material payment bond (if required);
- (c) complied with the conditions precedent to the Contract;
- (d) confirmed that the Owner has executed the Contract that was signed and submitted by the Contractor and,
- (e) attended a pre-construction meeting (if required).

90.6.11 No Award of Contract

If no Contract is awarded, the Owner will give written notice to all Bidders, that no Contract award will be made and (where applicable) will post a notice on the Owner's online procurement service provider website that the Tender has been cancelled and no further Bid information will be released, provided the Bidder has so requested.

END OF DOCUMENT

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GENERAL CONDITIONSSECTION 1 DEFINITIONS AND INTERPRETATION

Wherever the following terms are used in the Specifications or Plans, the intent and meaning will be interpreted, unless the context otherwise requires, as follows:

100. 1.1 Abbreviations

A.A.S.H.T.O.	-	American Association of State Highway Transportation Officials
A.N.S.I.	-	American National Standards Institute
A.S.A.	-	American Standards Association
A.S.T.M.	-	American Society for Testing Materials
A.W.P.A.	-	American Wood Preservers Association
A.W.S.	-	American Welding Society
B.S.I.	-	British Standards Institution
C.G.S.B.	-	Canadian Government Specification Board
C.S.A.	-	Canadian Standards Association
C.S.P.I.	-	Corrugated Steel Pipe Institute
C.W.B.	-	Canadian Welding Bureau
S.S.P.C.	-	Steel Structures Painting Council

1.2 Definitions

“Aboriginal Business” means a business:

- (ii) that is at least 51% owned and controlled by one or more Aboriginal persons of Manitoba; and
- (iii) if it has six or more full-time employees, at least one-third of whose full-time employees must be Aboriginal persons of Manitoba;

where “business” includes a band, as defined by the *Indian Act*, a sole proprietorship, a corporation, a cooperative, or a partnership

or

a not-for-profit organization whose by-laws require that at least 51% of its board members be Aboriginal persons of Manitoba.

“Aboriginal person of Manitoba” means a person of First Nation ancestry, including treaty, status or registered Indian, non-status or registered Indian, and a Métis person, or a person of Inuit ancestry,

“Amendment” means any document issued by the Owner for the purpose of correcting, clarifying or modifying any documents in the Tender.

“Amendment Acknowledgement” means an acknowledgement by the Bidder that the Bidder has taken into account one or more Tender Amendments in preparing its Bid

“Bid” means a written response to the Tender from a Bidder, made in the form specified in the Tender, offering to perform the Work described in the Tender.

“**Bidder**” means any entity that submits a Bid for the Work.

“**Bidding Procedures**” means the document referred to in the Tender outlining the requirements, processes and procedures for the preparation and evaluation of Bids and award of the Contract.

“**Bridge**” means a structure, including supports, designed to carry traffic over a depression or obstruction.

“**Length**” – means the length of a bridge structure is the overall length measured along the line of survey stationing in-to-in of backwalls of abutments, if present, otherwise end to end of bridge deck; but in no case less than the clear opening of the structure.

“**Roadway Width**” – means the clear width measured at right angles to the longitudinal centre line of the bridge between the bottom of curbs or guard rails or in the case of multiple height curbs between the bottom of the lower risers.

“**Change in Work**” means any addition, deletion or modification to the Work as described in the Contract at the time that the Contract is awarded, and may include changes to quantity or nature of Plant, Material, Site or labour, methods, location or construction schedule.

“**Change Order**” means an order issued by the Owner to undertake a Change in Work.

“**Channel**” means a natural or artificial watercourse.

“**Charged Day Rate**” means daily rate set by the Owner to represent the value of Site Occupancy Charged Days and which are used to calculate the Site Occupancy Price in the Tender and the site occupancy bonus or damages in the Contract.

“**Contingency**” means an Item Price for additional funds that are added to a Contract to cover unknown costs such as Change Orders, Riding Bonus, VMA Haul, Site Occupancy, Fuel Cost Adjustments and forms part of the Total Price.

“**Contract**” means the combined documents consisting of the written agreement between the Owner and the Contractor or the fully signed acceptance of the Bid and all documents attached thereto or referred to therein.

“**Contract Administrator**” means the person or entity engaged or designated by the Owner as the Contract Administrator.

“**Contract Completion**” means the entire Work has been performed in accordance with the Contract except warranties or any other similar terms and conditions which may survive the completion of the Contract.

“**Contract Time**” means the time stipulated in the Contract for completion of the Work including any extension of Contract Time made pursuant to the Contract.

“**Contractor**” means the entity that has been awarded the Contract for the execution of the Work under the terms of the Contract.

“**Culvert**” means any structure not classified as a bridge which provides an opening under the roadway.

“**Department**” means the Department of Infrastructure of Manitoba, or such other entity that assumes the duties and responsibilities of the Department in the future.

“Department Responsible for Dispositions Under *The Mines and Minerals Act*” means the Department of Growth, Enterprise and Trade of Manitoba, or such other entity that assumes the duties and responsibilities of that department in the future.

“Director” means a person holding the office of Director of the Department, or any successor office imbued with the same powers and authorities.

“Drawings” or “Detailed Design Drawings” means drawings which show the nature and scope of Work which have been prepared and approved by the Owner and are referred to in the Tender or Contract.

“Engineer” means the Contract Administrator

“Estimated Quantity” means the estimated quantity for a given Work Item set out in the Tender or Contract.

“Executive Director” means a person holding the office of Executive Director Construction and Maintenance of the Department or any successor office imbued with the same powers and authorities.

“Extra Work” means a Change in Work.

“Extra Work Order” means a Change Order.

“General Conditions” means the document referred to in the Tender or Contract outlining the general requirements, processes and procedures governing the administration of the Contract;

“Highway” means a common and public highway any part of which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.

“Inspector” means the authorized representative of the Engineer assigned to make a detailed inspection of any or all portions of the work.

“Item Price” means:

- (a) an amount equal to the product of the Estimated Quantity and the Unit Price for that Work Item;
- or
- (b) a lump sum price for a Work Item, the amount of the lump sum price for that Work Item.

“Item Price Total” means the sum of all Item Prices for a given Section of a Tender or Contract.

“Major Item” means a Work Item that at least:

- (a) is valued at 7% of the Total Price minus the Site Occupancy Price (if applicable) for a given Section of the Contract,
- or
- (b) \$100,000

“Manitoba” means the Government of Manitoba, as represented by the Minister responsible for the Department, sometimes also referred to as “the Province”.

“Material” means any things, including goods, parts and equipment, which are to form part of the Work.

“may” means an allowable or permissible action or feature.

“Minister” means the person holding the office of Minister of the Department.

“must” or **“shall”** means a mandatory requirement, action or feature.

“Others” or **“Other Contractor”** means any person, firm or corporation employed by or having a contract directly or indirectly with the Province otherwise than through the Contractor.

“Owner” means the entity issuing the Contract and identified in the Contract as the Owner.

“Plan” means a written document setting out an approach to the Work or a portion of the Work and all related activities.

“Plant” means any things brought to, or constructed or temporarily stored upon the Site by the Contractor for the performance of the Work not including Material.

“Prices” means two or more defined prices referred to in the Tender or Contract as the context may require.

“Province” means the Province of Manitoba, Canada.

“Roadway” means the portion of the highway ordinarily used for vehicular traffic including the shoulders.

“Seasonal Shutdown” means the period of time when Work cannot be performed due to seasonal conditions as described in the Provisions for Liquidated Damages and as set out in the Contract..

“Section” means a portion of the total Work defined in a Tender or Contract for which there is a specific funding source.

“Section Head” means the person designated as the section head of the Department, or any successor office imbued with the same powers and authorities.

“Site” means locations where the Work is to be carried out, including the point of delivery of materials to be used in the Work.

“Site Occupancy Price” means the product of the Initial Span and Charged Day Rate for each Section.

“Special Provisions” means the special directions, provisions or requirements to do the Work contained in the Tender or Contract and not otherwise thoroughly or satisfactorily detailed or set forth in the Specifications.

“Specifications” means the General Conditions and the standard specifications approved by the Owner, pertaining to and necessary for the proper performance of the Work and referred to in the Tender or Contract.

“Structure” means bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation drains and other fixtures which may be encountered in the work and not otherwise classed herein.

“Sub-Contractor” means an entity that contracts with the Contractor for any part of the Work or to provide materials, equipment, supplies or services necessary to fulfill the requirements of the Contract, and includes a Subcontractor’s subcontractor.

“Submission Deadline” means the date and time set out in the Tender, or any amendment to that date and time made by Owner by way of an Amendment to that date and time, before which Bidders must submit their Bids.

“Submission Location” means the address or location set out in the Tender to which Bids must be submitted.

“Substantial Completion” means when a Contract is 97% completed, based on the projected final costs of the Contract.

“Substructure” means that portion of the structure which is founded in terra firma including that portion of the foundation above the ground line together with wingwalls, backwalls and retaining walls.

“Superstructure” means that portion of the structure supported by the substructure either integrally with or through a system of bearings.

“Surety” means the corporation, company, or partnership other than the Contractor, executing a bond furnished by the Contractor.

“Tender” means a set of documents issued by the Owner that invites offers to perform the Work described in the documents, in accordance with the terms and conditions set out therein or incorporated by reference, and all Amendments to the foregoing made by the Owner before the Submission Deadline.

“Tendering Office” means the office identified in the Tender as the Tendering Office which has the authority to evaluate a Bid and award a Contract according to the Owner’s policies and procedures.

“Total Price” means the sum of all Item Prices and all Site Occupancy Prices and any adjustments thereto which may be required or agreed to pursuant to the Tender or Contract. Where a Tender or Contract does not provide for a Site Occupancy Price, the sum of Item Prices and the Total Price will be the same.

“Unit Price” means the unit price set forth in the Bid or the Contract for a particular Work Item.

“Work” means the carrying out or doing of all things, temporary or permanent, that are to be done by the Contractor pursuant to the Contract, including, but not limited to, furnishing all Plant, Material, labour, and services necessary for or incidental to the fulfilment of the Contract requirements, including Changes in Work which may be ordered.

“Work Item” “or “Item” means an item identified in the Tender or Contract for which payment is made upon completion of the related Work pursuant to the Contract.

1.3 Interpretation

This Contract shall inure to the benefit of and be binding on the respective executors, administrators, successors and assigns of the Department and of the Contractor.

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

The words "contractor" and "he" or any derivatives thereof shall have a plural, feminine or neuter meaning where the context so requires.

The words "approved", "directed", "required", "considered necessary", "authorized", "acceptable", "satisfactory", or words of like import, shall mean approved, directed, required, considered necessary or authorized by and acceptable or satisfactory to the Engineer.

This Contract has been entered into and shall be governed by and construed in accordance with the applicable municipal, provincial and federal laws.

100. 1.4 Contract Document Order of Priority

The various portions of the Contract are intended to be read together and complement each other.

If there is a conflict between the various Contract documents, the Contract document having the highest priority will govern. The order of priority, from highest to lowest, is as follows:

- a) Contract Agreement
- b) Special Provisions
- c) Detailed Design Drawings
- d) Standard Construction Specifications
- e) General Conditions

In the event of any conflict among or inconsistency in the information shown on the Drawings, the following rules shall apply:

- a) Dimensions shown in figures on a drawing shall govern where they differ from dimensions scaled from the same drawing.
- b) Drawings of larger scale shall govern over those of smaller scale.
- c) Detailed drawings shall govern over general drawings.
- d) Drawings of a later date shall govern over those of an earlier date.

SECTION 2 GENERAL INFORMATION

| 100. 2.1 Manitoba Government Wide Contract Policy - Legislative and Safety Requirements

2.1.1 Contractor Requirements

To comply with the Province of Manitoba's Government Wide Contract Policy – Legislative and Safety Requirements, the Contractor must execute a copy of the Contractor's Certification Form – Legislative and Safety Requirements and comply with all requirements stated therein. Failing to comply with a commitment made or making an untrue statement in the Certification, or failing to provide additional information satisfactory to the Owner regarding anything in this Certification, may result in termination of the Contract, forfeiture of the performance bond (if applicable) and/or the Owner declaring that the Contractor is ineligible to bid on future tenders.

The fully executed Contractor's Certification Form will form part of the Contract.

2.1.2 Subcontractor Requirements

The Contractor shall collect a fully executed Contractor's Certification Form from all Subcontractors before the Subcontractor begins any Work. The Contractor shall produce the Contractor's Certification Form for all Subcontractors on request. Subcontractors that have not provided a fully executed Contractor's Certification Form will not be permitted to work and may be removed from the Site.

2.1.3 Subcontractor Exceptions

The following subcontractors are not required to submit the Contractor's Certification Form:

- a) Suppliers that are delivering products and are not directly participating in Work activities on the Site (i.e. supply only).
- b) Service providers that are not directly participating in Work activities on the Site.
- c) Subcontractors without employees (i.e. single owner-operators).

2.1.4 Safety Program Requirements

Where the Total Price of the Contract at the time of award is \$100,000 CAD or greater, the Contractor and all Subcontractors with a subcontract value of \$100,000 CAD or greater must have one of the safety program certifications listed below.

- a) Certification of Recognition (COR™) or other Safework Manitoba sanctioned certifications such as RPM
- b) Small Employer Certificate of Recognition (SECOR™)
- c) Evidence of COR™ equivalency issued in accordance with the Canadian Federation of Construction Safety Associations COR™ program and verified by either the Manitoba Heavy Construction Association Work Safely Program or the Construction Safety Association of Manitoba.

100. 2.2 Policy Requirements for Manitoba's Apprenticeship Employment Opportunities Act (Public Works Contracts)

2.2.1 Contractor Requirements

The Contractor must maintain an Apprenticeship Employment Opportunities Act Policy Letter ("Letter") from Apprenticeship Manitoba declaring that the Contractor is eligible to be awarded a Contract.

2.2.2 Subcontractor Requirements

The Contractor shall collect a Letter from all Subcontractors declaring that the Subcontractor is eligible to work on the Contract. The Letter must be collected before the Subcontractor begins any Work on the Contract. The Contractor shall produce copies of the Letter for all Subcontractors on request of the Contract Administrator. Subcontractors that have not provided the Letter to the Contractor will not be permitted to participate in the Work.

2.2.3 Commitment to Continual Employment of Apprentices

Where a Contractor or Subcontractor is employing apprentice(s), the Contractor or Subcontractor, by engaging in the Work of this Contract, commits to continually employing the apprentice(s) for the duration of the Contract. Any apprentices employed by the Contractor or Subcontractor are not required to be on the Site.

SECTION 3 BONDS

100. 3.7 Performance Bond

A Performance Bond, conditioned on the due performance of the terms of the Contract for the amount of fifty per cent of the Total Price excluding Contingency, shall be furnished by the Contractor. The Performance Bond shall remain in full force and virtue for at least one year after the date on which the final payment was made.

3.8 Labour and Material Payment Bond

A Labour and Material Payment Bond, for the amount of fifty per cent of the Total Price excluding Contingency, shall be furnished by the Contractor.

The Contractor shall post a Bond Notice, provided by the Department, advising that a Labour and Material Payment Bond has been issued for the Contract. This notice shall be placed in a conspicuous place. The Engineer may, at his discretion, require the Contractor to post the notice at a number of satisfactory locations at the site.

SECTION 4 SCOPE OF WORK

100. 4.1 Intent of Plans and Specifications

The plans and the specifications shall be part of the Contract.

When the Contractor is furnished a plan for the work, it shall be his responsibility to check over and compare it with any other plans furnished and with work then in place.

The Contractor shall keep at least one complete set of plans, specifications and tender document at the site at all times.

Figure dimensions on plans shall be given precedence over scaled ones. In case of an obvious error the dimension most consistent with the Contract shall be accepted.

4.2 Alterations in Plans

The Department may, from time to time, make alterations in the plans as determined by the Engineer, and these alterations will not be considered as a waiver of any condition of the Contract or as a basis of claim by the Contractor.

4.3 Items Covered by Unit and Lump Sum Prices

In addition to covering the cost of the items of work described in the Contract, the unit prices and lump sums shall cover the cost of furnishing materials, plant, labour, transportation and incidentals necessary for carrying out the work.

4.4 Contingency

The amount shown in the Contract for Contingency is only an estimate. Any amount paid to the Contractor under this item will be based on the actual work done. This amount will be added to the Contract at the time of Award.

No Contingency money will be paid for unless it has been authorized by the Contract Administrator.

4.5 Basis of Payment for Extra Work

The Contractor shall perform all authorized Extra Work.

When Extra Work is authorized and performed, the Contractor will be paid in accordance with whichever of the following provisions are decided upon:

- (a) At the rate or rates as set forth in the Contract for similar work, or
- (b) At the rate or rates per unit set out in the Extra Work order, or
- (c) At the Contractor's actual cost. Actual cost is considered to be the total of;
 - (i) wages of supervisory staff and employees other than operators of equipment, including overtime payments, plus 30% to cover payments made pursuant to the

Workers Compensation Act, Vacation with Pay Act, Unemployment Insurance, Pension Plans, Sick Leave, work breaks and other like employee benefits and payroll costs,

- (ii) the cost of room and board when supplied by the Contractor, for other than operators of equipment, at a standard rate per man-hour,
- (iii) rental of equipment at the rates approved for Department use, of any equipment on or adjacent to the site at the time the Extra Work is carried out. A 10% overhead cost for administration will be added to the rates when the equipment supplied is not owned by the Contractor, Sub-Contractor or an Associated Company,
- (iv) rental of equipment at approved rates, this equipment considered by the Engineer as being necessary to perform the Extra Work and is not included in (iii) above. A 10% overhead cost for administration will be added to the approved rates when the equipment supplied is not owned by the Contractor, Sub-Contractor or an Associated Company,
- (v) cost of materials,
- (vi) 15% of items (i) and (v).

When Extra Work is performed on an actual cost basis, the Contractor shall keep a daily record. The record shall include the names and number of hours worked by each worker and the number of hours worked by each piece of equipment. The record shall be signed by the Contractor or his representative in charge of the work and submitted to the Engineer for approval. Claims for materials in connection with Extra Work shall be submitted by the Contractor to the Engineer, on certified statements, not later than the tenth day of the month following that in which the Extra Work was performed. The Contractor shall submit receipted bills for materials included in the statements.

SECTION 5 CONTROL OF WORK

100. 5.1 Authority of the Engineer

The Engineer will decide all questions which may arise as to:

- (a) the quality and acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work,
- (b) the interpretation of the plans and specifications,
- (c) the acceptable fulfilment of the Contract on the part of the Contractor,
- (d) disputes and mutual rights between Contractors,
- (e) compensation.

The Engineer will have authority to make effective any orders which the Contractor fails to carry out promptly.

5.2 Layout of Work

Where appropriate, construction stakes will be placed by the Engineer to mark the location, alignment and elevation of the work. The Contractor shall assume full responsibility for dimensions and elevations measured from the stakes and shall be responsible for maintaining all stakes set by the Engineer. The cost of damage to construction stakes caused by neglect on the part of the Contractor will be deducted from the progressive payments.

If an error in the plans, specifications or the directions of the Engineer is suspected, work shall be discontinued until the error is rectified.

Insofar as bridge work is concerned, the Contractor shall supply to the Engineer, as necessary, boats and crew, scaffolding, labour, and any other assistance that may be required by the Engineer.

The Engineer will establish the structure centerline, the location offset stakes for one of the substructure units and one benchmark. The Contractor shall be responsible for all measurements and elevation settings taken from the substructure unit and the benchmark established by the Engineer. The Engineer will check the Contractors measurements and elevations prior to start of construction.

5.3 Starting Location

The location at which the Contractor commences construction and the sequence of operations will be as permitted or directed by the Engineer.

5.4 Instructions

The Contractor shall, at all times, have a responsible representative in charge of the work who shall be authorized to receive on behalf of the Contractor written or verbal instructions. Copies of the written instruction shall be signed as having been received by the representative in charge at the time that these are issued.

5.5 Incompetent Worker

Any employee or agent employed by the Contractor who, in the opinion of the Engineer, does not perform the work in a proper skillful manner, is disrespectful, intemperate, disorderly, or otherwise objectionable, shall, at the written request of the Engineer, be promptly removed from the work. The foreman or worker shall not be employed again on the work, without the written consent of the Engineer.

5.6 Protection of Survey Monuments

Before commencing construction, the Contractor shall identify the location of survey monuments located on the site. Monuments disturbed by the Contractor will be restored by the Department. The cost of restoring the monuments will be deducted from the progressive payments.

5.7 Conduct of Operations

The Contractor shall not undertake construction which may interfere with the progress of those engaged in other work for the Department without first discussing with others, plans for doing the work. If the parties are unable to arrive at a mutually satisfactory time for doing the work, the matter shall be referred to the Engineer for his decision. The Contractor shall save harmless the Department from and against all just claims arising as a result of any action on his part or the action of anyone working for him which interfered with the progress of those engaged in other work for the Department.

5.8 Camps

Camps shall be constructed and operated in accordance with the requirements of the appropriate government authorities responsible for public health, safety and the environment.

5.9 Equipment

Equipment to be used for the work shall be subject to approval and shall be maintained in satisfactory working condition for the duration of the work. The Engineer shall have access to the equipment at all times for purposes pertaining to the work. The Contractor shall notify the Engineer prior to removing equipment from the project.

5.10 Roads

At the pre-construction meeting, the Contractor shall review its proposed work plan with the Department prior to commencing any roadwork. The Contractor must demonstrate to the Department that it can re-establish the condition or structure of the road to the satisfaction of the Department prior to seasonal shutdown. Minimum acceptable seasonal shutdown road surface conditions will be reviewed with the Contractor at the preconstruction meeting.

For any incomplete portions of the road, the Contractor will be responsible for damage and road surface maintenance over the seasonal shutdown period. Any direct costs incurred by Manitoba Infrastructure to maintain the road surface will be deducted from the Contractor's payments.

The Contractor shall during the term of the Contract, maintain at his expense all haul roads except Provincial Trunk Highways and Provincial Roads between sources of material supply and the site unless other arrangements have been made with the local authorities. Prior to the commencement of hauling the Contractor shall arrange for an inspection of the roads upon which hauling is to take place. The inspection shall be made by the Contractor, the Engineer and a responsible representative of the Municipality or Territory. During the inspection, notes shall be kept on the condition of each kilometre of haul road.

On completion of the hauling, the same persons, if possible, shall examine the haul roads and determine how much work, if any, the Contractor shall do in order to leave them in as good condition as when hauling commenced. Under no circumstances will the final Contract payment be made to the Contractor until at least two of the above noted parties indicate that they are fully satisfied with the conditions of the haul roads.

If, in the opinion of the Engineer, damage is being done to public roads by the Contractor's equipment, the Contractor shall, at his own expense and on the direction of the Engineer, remove the cause of the damage.

5.11 Rejected Work and Materials

Faulty work discovered prior to acceptance of the work shall be rectified by the Contractor. Rejected material shall be removed from the site. Should the Contractor neglect or refuse to rectify faulty work, or remove the rejected material, the Engineer will cause the faulty work to be rectified and the rejected material removed. The cost will be deducted from the progressive payments.

5.12 Hours of Work

The Contractor shall give a minimum of forty-eight hours notice to the Engineer prior to changing his hours of work from that agreed upon at the pre-construction meeting. The prime contractor and all sub-contractors shall work the same work schedule once the roadwork begins unless otherwise permitted by the Engineer.

Construction operations shall be scheduled so that as many lanes as possible remain open when the Contractor is working, and all lanes shall be open when the Contractor is not working, unless otherwise permitted by the Engineer. The Contractor's schedule will be subject to the Engineer's approval.

SECTION 6 CONTROL OF MATERIALS

100. 6.1 Storage and Care of Materials

The Contractor shall, prior to receipt of material, provide adequate and proper storage facilities and, on receipt of material, promptly place it in storage, except when it is to be incorporated

forthwith into the work. The Contractor shall provide adequate protection for materials that are subject to deterioration during their transportation, handling, storage and use by him. Material supplied by the Department or otherwise, damaged while in the possession of, or under the control of the Contractor, shall be replaced by the Contractor at his own expense.

The Contractor shall give the Supplier and Engineer four days notice of his intention to require the Supplier to provide materials ordered by the Department for the work. The notice shall state the applicable purchase order number or Contract number. If the Contractor requires the Supplier to provide more material than can be used and it becomes necessary to return it to the source of supply, the Contractor shall pay all delivery and return charges.

The Contractor shall give two days notice of his intention to remove materials supplied by the Department from its storage yard. The notice is to be given to the storekeeper of the storage yard.

Materials supplied to the Contractor by the Department shall not be used for any purpose other than that for which they were intended. The Contractor shall be liable for demurrage, rentals and other charges for handling, hauling or storing materials ordered for the Contract.

The Contractor shall, at the time materials are released to him, check and record the quantity of materials. Shortages, discrepancies, or material in bad condition, shall immediately be reported in writing to the Supplier and the Engineer.

The Contractor shall be held responsible for the acceptance, at the point of delivery, of any damaged material, unless, prior to acceptance, the Engineer gives the Contractor a release in writing, from all responsibility in accepting such material.

If a question should arise as to the suitability of any material supplied by the Department for use on the work, such material shall remain in the care of and at the risk of the Contractor until it can be examined and tested by the Engineer to determine its fitness for the purpose for which it was purchased.

Any theft of, loss of, or damage to material after delivery to the Contractor will be charged against him.

6.2 Material from Pits, Quarries, and Other Deposits

Permission in writing shall be obtained by the Contractor prior to removing sand, gravel and quarried material from deposits located on Crown Lands, from

- (i) The Department Responsible for Dispositions Under the Mines and Minerals Act, for Crown Lands not controlled by the Department;
- (ii) The Engineer, for gravel pits owned or controlled by the Department.

The Contractor shall provide the Engineer with a copy of all permits, related to the project prior to material being produced, stockpiled or hauled in the pit. The Department recommends all permits should be applied for early as some removal permits are subject to waiting periods.

Sand, gravel and quarried materials removed from Crown Lands and used on Department projects is not subject to payment of Royalty. Subject to the approval of the Engineer, the Contractor may use materials from such lands for building and maintaining production facilities and haul roads, necessary for the performance of work, but no payment will be made to the Contractor for such materials or for any work done in connection therewith.

Prior to excavating sand, gravel or quarried materials from crown or privately owned lands the Contractor shall report to the Department Responsible for Dispositions Under the Mines and Minerals Act, the location of the pits or quarries and the proposed date of commencement of

operations and shall, immediately after removing sand or gravel, submit a report showing the quantity of each material removed from each pit.

Permission to remove sand, gravel and quarried materials does not guarantee the quality or quantity of the materials.

Surplus aggregate from Crown Lands, produced by the Contractor's plant, not required or beyond that quantity required for the Contract, shall be neatly piled by the Contractor.

In Department owned pits, the Department will purchase up to a maximum of 10% above the quantity that the Contractor was instructed to crush, at the rates specified in the Provisions for Interim Payment excluding the rate for the supply of raw aggregate. Any quantity over 10% will become the Department's aggregate.

Surplus aggregate remaining in Department Responsible for Dispositions Under the Mines and Minerals Act controlled pits may be purchased by the Department at the rates specified in the provisions for interim payments, excluding the rate for the supply of raw aggregate or the Contractor may apply for a Stockpile Protection Permit in accordance with the Department procedures.

If the Contractor elects to use a Department owned pit, an Aggregate Resource Management meeting shall be required before the Contractor will be allowed to operate in the pit. It is the Department's intent to effectively manage the pit resources by matching the raw pit material available with the type of aggregate being produced.

The Contractor shall be required to develop a Pit Usage Plan indicating the area of pit face excavation, location of the crushing machinery, aggregate stockpile sites within the pit and overburden and waste placement location.

The Pit Usage Plan shall be to the satisfaction of the Engineer prior to the Contractor being allowed to operate in the pit.

The Department owned pit located at SE¹/₄ 20-9-17W (locally known as Harris Pit) shall only be utilized for top lift aggregate for bituminous pavement for use on Department projects. The Contractor shall be required to use both the coarse and fine aggregates produced in the bituminous mix design. Excluding the fine aggregates produced in Harris Pit from the mix design will not be permitted.

The Contractor shall obtain permission in writing from the Engineer to produce, remove or stockpile any aggregate from Department owned pits, prior to submitting a tender bid.

If the Contractor elects to produce aggregate by blending material hauled from various sources, the Contractor shall scale, record, and supply to the Engineer in tonnes, any and all materials other than VMA and Binder Material supplied. The Department will supply a scale person for any materials hauled from a Department owned pit.

Upon completing operations on any lands, the Contractor shall, at his expense, cleanup and vacate such lands and leave them in a condition satisfactory to the Department Responsible for Dispositions Under the Mines and Minerals Act.

6.3 Surplus Material

Materials supplied by the Department which are not required in construction or permanently incorporated in the work.

The Contractor shall, if required, haul surplus material to a location designated by the Engineer.

Payment for loading and hauling surplus materials to a designated location will be paid for on the basis of Extra Work.

6.4 Salvaged Materials

When the removal of material to be salvaged is necessary for the satisfactory completion of the work, the material shall be carefully salvaged, sorted and stored at the site or at the location specified in the Special Provisions.

SECTION 7 LEGAL RELATIONS AND RESPONSIBILITIES

100. 7.1 Legal Responsibilities and Permits

Entry into this Contract shall not relieve the Contractor of his responsibility to comply with all Acts, statutes, bylaws, regulations or ordinances of the Local, Provincial or Federal Authorities pertaining to the work.

7.2 Public Convenience and Safety

The Contractor shall take every measure to provide for the safety and convenience of the highway users and residents along the highway and provide and maintain at his own expense access to driveways, houses, buildings or other property contiguous to the highway under construction.

7.3 Care of Various Services

The Contractor shall provide access to and take precautions to prevent damage to services such as railroad facilities, oil pipe lines, gas pipe lines, water & sewage pipes, electrical and telephone lines and cables, fire hydrants, manholes and catchbasins. The Contractor shall determine the exact location of such services and conduct his operations so as to avoid the possibility of damaging them. The Contractor shall pay just claims arising directly or indirectly from damage caused by his construction operations and shall save harmless the Department from and against all claims arising therefrom.

7.4 Workplace Safety and Risk Management

The Contractor shall develop operational safety policies, procedures and plans to prevent loss or injury to any person or property on or travelling through the site. The Contractor shall familiarize himself, his staff and his subcontractors with the terms of the Manitoba Workplace Safety and Health Act W210 and Regulations to ensure complete understanding respecting the responsibilities given and compliance required. The Workplace Safety and Health Act W210, Regulations and other related safety information can be obtained from Manitoba Labour, Workplace Safety and Health Branch.

7.4. 01 Contractor Responsibility of Employer Duties

By entering into this (Agreement/Contract), the Contractor acknowledges its responsibility to fulfill the duties of the employer under section 4 and section 7.4, if applicable, of *The Workplace Safety and Health Act* (the "Act") and to ensure that the Services are carried out in accordance with the Act and all applicable regulations.

Without limiting the generality of subsection 7.4.01 the Contractor represents and warrants that:

- a) it shall ensure, as far as reasonably practicable, that it will meet the requirements for the protection of workers set out in the Act and the regulations made there under;**
- b) it has a workplace safety and health system or program (the "Program") applicable to the work being performed and shall carry out the services in accordance with the Program;**
- c) its employees, agents and subcontractors are properly qualified and trained to**

perform the Services.

- d) Mobile equipment operators shall possess a valid drivers license, as required by the Highway Traffic Act and may be subject to evaluation by the Department;**
- e) it shall ensure that an adequate number of competent supervisors are provided as prescribed in the Act;**
- f) it has disclosed all "required information" as required under the Act to all employees and workers that will be providing the Services on behalf of the Contractor under this Agreement to ensure they are trained and informed of the hazards inherent to the work and understand the procedures for minimizing the risk of injury or illness.**
- g) As prescribed in the current Manitoba Regulation, it shall immediately notify Manitoba Labour, Workplace Safety & Health Division & the Department of any accident of a fatal or serious nature to any of the Contractor's officers, employees or agents and within five (5) days of the accident provide the Department with a written report detailing the accident and incorporating information requested by the Department;**
- h) it shall immediately notify and provide the Department with copies of any notices, orders or charges issued to the Contractor under the Act;**
- i) it shall comply with all reasonable requests and directions made by the Department including, without limitation, any requests or directions made by the Department's project managers.**

The Contractor shall indemnify and save harmless the Department from and against all claims for damages arising from any lack of precaution or acts of negligence on the part of the Contractor, Sub-Contractor or their employees.

The Department and the Contractor acknowledge and agree that the Contractor is a "Prime Contractor" as that term is defined in The *Workplace Safety and Health Act* (Manitoba) for all purposes of that Act and without limiting the generality of the foregoing, it is further acknowledged and agreed that as the Prime Contractor, the Contractor is solely and completely responsible and liable for and in respect of all obligations, requirements and duties imposed on the Prime Contractor in the Act.

The Department and the Contractor further acknowledge and agree that all rights of the Department set out in the Contract allowing the Department to monitor the construction is for the sole purpose of determining the progress and status of the work for payment purposes and to ensure all conditions of the contract are being met.

7.5 Insurance

1. The Contractor shall, at its own expense, provide for and maintain the following insurance:
 - A. General Liability Insurance:
 - (i) The Contractor shall maintain throughout the term of the Contract, public liability and property damage insurance against claims for personal and bodily injury, death or damage to property arising out of any of the operations, acts or omissions of the Contractor or any of its officers, employees or agents under the Contract, including contingent coverage for all subcontractors; such insurance shall provide, at minimum \$2 million (\$2,000,000) per occurrence limits of liability, in a form satisfactory to the Government of Manitoba;
 - (ii) Such insurance shall include coverage for premises and operations, completed operations, blanket contractual, extended bodily injury, broad form automobile, broad form property damage, non-owned automobile liability, and where applicable, damage to underground property and damage to property, building or land caused by:
 - (a) the use of explosives or blasting;
 - (b) vibration from pile driving or caisson work; or

- (c) removal or weakening of support of such property, building or land whether such support be natural or otherwise; and
- (iii) Such insurance shall include cross-liability and name the Government of Manitoba, its officers, employees and agents as Additional Insured with respect to operations performed under the Contract. Completed operations coverage shall be maintained for 24 months following completion of the work;

B. Automobile Liability Insurance

The Contractor shall obtain and maintain throughout the term of the Contract automobile public liability and property damage liability insurance on all licensed vehicles owned or operated by the Contractor and used on the project, with minimum limits of liability of \$2 million (\$2,000,000) per vehicle; and

C. Workers Compensation Insurance

The Contractor shall obtain and maintain Workers Compensation insurance as required by The Workers Compensation Act. The Contractor shall be registered and be in good standing with the Workers Compensation Board.

2. Notice of Cancellation or Alteration

Where provided, such general liability, professional liability and/or automobile public liability and property damage insurance shall contain a clause which states that the insurers will not cancel, materially alter or cause the policy (ies) to lapse without giving 30 days prior notice in writing to the Province.

3. Certificates of Insurance

The Contractor shall submit to the Department, a certified copy of the general liability policy or certificate in lieu thereof evidencing said insurance. The insurance policy or certificate shall be submitted prior to the date in the Contract where the assessment of working days will commence and/or the date of commencement of Work. When requested by the Department, the Contractor shall submit certified copies of professional liability, automobile public liability and property damage liability and Workers Compensation, policies or certificates in lieu thereof evidencing said insurance.

4 Contractor Shall Not Impair or Invalidate Policies

The Contractor shall not do or omit to do or suffer anything to be done or omitted to be done on the Contract or in performance of the Work which will in any way impair or invalidate such policy or policies.

5 Each Party to Insure Own Property

Each party is responsible for insuring its own property directly or indirectly connected with the Contract and the Work except for materials supplied by the Department as referred to in Section 100.6.1.

6. Course of Construction Insurance for Bridges

Where applicable, structures such as bridges shall be insured by the Contractor against all risks of physical damage or loss, on a full replacement cost basis, through the Course of Construction or Builders' Risk Policy.

7. Professional Liability Insurance

When applicable, the Contractor shall provide for and maintain Professional Liability Insurance.

The Contractor shall ensure that all Consultants engaged or employed by the Contractor or subcontractor maintain Professional Liability Insurance throughout the term of the Contract. "Claims Made Insurance" shall be provided for a minimum of five years following completion of all work and/or services under the contract, insurance against claims arising out of faulty design, maps, plans and specifications or any other error, omission, mistake of a professional or technical nature committed or alleged to have been committed by or on behalf of the Consultant, and provide, at minimum, \$2 million (\$2,000,000) limits of liability, in a form satisfactory to the Government of Manitoba.

The Contractor shall provide satisfactory written evidence of this insurance as required by the Department.

SECTION 8 PROSECUTION AND PROGRESS OF WORK

100. 8.1 Assigning or Sub-Contracting

The Contractor shall ensure that all Sub-Contractors working on the project have adequate insurance and comply with the Acts and Regulations. The Department may require a list of Sub-Contractors prior to the award of Contract. Requests for information on a Contract by Sub-Contractors and/or suppliers shall be directed to the Contractor, unless otherwise authorized by the Contractor.

8.2 Contract Completion

The time for the completion of the work contemplated under the Contract will be specified either as a calendar date or as a number of working days. The completion of the work within the time as specified is an essential part of the Contract.

Should the Contractor fail to complete the work within the time allotted, or within such extra time as may have been allowed by extensions, the sum set forth as "Liquidated Damages" will be deducted for each and every day that Liquidated Damages may be charged in accordance with the terms of the Contract.

When the Contract has not been completed within the required time, the Contractor shall continue to perform the work diligently and expeditiously. Permission to continue and finish the work or any part of it after the time fixed for its completion, shall in no way be considered as a waiver on the part of the Department of any of its rights under the Contract, and time shall continue to be an essential part of the Contract.

8.3 Temporary Suspension of Work

The Engineer may suspend the work wholly or in part by written order for such period as he may deem necessary due to conditions considered unfavorable for the suitable prosecution of the work, unsuitable weather, failure on the part of the Contractor to correct unsafe conditions, failure to carry out orders given or failure to perform any provisions of the Contract.

8.4 Extensions of Time

The time set forth in the Contract for its completion may be extended free of liquidated damages;

- a) When the Contract is not completed within the required time because the Contractor was ordered to perform unspecified Extra Work, the Engineer will extend the number of days allowed for completion by the number of days required to perform the Extra Work.
- b) When the Contract is not completed within the required time because of increases to the original quantities, the Engineer will extend the number of days allowed for completion based on the following formula:

$$E = \frac{F \times D}{O} - D$$

E = Extension of time in Days

F = Finished Contract Value

D = Number of specified days allowed in Contract, or, in a Calendar Completion Contract, the number of days between the date of the award letter and the specified completion date.

O = Original Contract Value

- c) By the Director, in the form of a written approval, when:
- (i) The Contractor is able to prove conclusively that conditions encountered during the work were much more difficult than could reasonably have been anticipated; and,
 - (ii) The Contractor submits a request for an extension of time accompanied by evidence of the difficult conditions and forwards it to the Director prior to completion of the Contract.

No claims for damages shall be made against the Department on account of delays on the part of the Department in the delivery of materials or in the performance of work; but should there be unduly prolonged delays upon the part of the Department in the delivery of any materials required for the work or in the performance of the work, the Contractor shall be entitled to a corresponding extension of time to complete the work.

8.5 Termination of Contract

Notwithstanding any extension of time if, at any time prior to the completion of the Contract, for any cause whatsoever, whether or not due to the fault of the Contractor, Sub-Contractor, or the employees of either of them, or otherwise, the work, in the opinion of the Director, is not being performed in accordance with the terms of the Specifications and the Contract, or is not progressing satisfactorily, or is not likely to be completed within the time specified; the Department, after forty-eight hours notice given to the Contractor or his agent may re-let the work and enter into a new Contract for the whole or any part of the uncompleted work, or otherwise cause said work or any part thereof to be completed, and pay for same out of any monies of the Contractor which may be due or accruing due him from the Department, and may further charge the Contractor with the amount of any money which the Department may have spent in connection with such work over and above the monies aforesaid of the Contractor, and may collect the same as a debt due from the Contractor to the Department. The Department reserves the right to take over and use any plant and materials being used in the work. The Contractor hereby agrees that he will not remove, dispose of, nor transfer his rights in any of the plants or materials after he has received the above-mentioned forty-eight hours notice, and any assignment or transfer made in contravention of this provision is invalid.

8.6 Opening to Traffic

The work shall not be open to traffic until authorized by the Engineer. When, in the opinion of the Engineer, the work or any portion thereof, is in an acceptable condition for travel, it shall be opened to traffic as may be directed by the Engineer, but such opening shall not be construed as an acceptance of the roadway, or any part of it, or as a waiver of any of the provisions of the Contract or of the Specifications.

Necessary repairs or renewals made on any section of the roadway due to its being open to travel, under instructions from the Engineer, and to ordinary wear and tear, or otherwise, prior to the completion and acceptance of the roadway, shall be performed at the expense of the Contractor.

If the Contractor is dilatory in completing certain phases of the work, the Engineer may order the road open to traffic. In such an event, the Contractor, prior to final acceptance, shall not be relieved of his liability and responsibility during the period the road is so opened.

Where the work is divided into sections, upon application by the Contractor, the Department may take over for maintenance any section which may be found to be completed in a satisfactory manner. No such section will be taken over unless it connects with a completed section or road; said taking over shall not be deemed to be final acceptance of the work or in any way prejudice the rights of the Department under the Contract or otherwise.

8.7 Maintenance

The Contractor shall satisfactorily maintain the work described in the Contract until the final acceptance of the work.

8.8 Cleaning Up

The Contractor shall conduct all his day to day operations in such a manner as to avoid creating any unpleasant appearances or any conditions that will be detrimental to or mar the surrounding area or waterways. Waste materials and refuse shall be promptly disposed of in a manner that will not contaminate or mar the surrounding area or waterways.

Upon completion and before final acceptance of the work, the highway, borrow pits and all ground occupied by the Contractor in connection with the work shall be cleaned of all rubbish, excess materials, temporary structures, and equipment; and all parts of the work shall be left in an acceptable condition.

8.9 Final Acceptance of the Work

Until final completion and final acceptance of the work, the work shall be under the charge and care of the Contractor, and he shall take every necessary care against damage to the roadway or any part of the work by the action of the elements, or from any other cause whatsoever arising from the execution of the work or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good, at his own expense, all damages to any portion of the roadway or any part of the work, occasioned by any of the above mentioned causes, before final completion and acceptance.

When work has been completed according to the plans and specifications and upon certification of the Engineer, final acceptance of the work will be made by the Department.

SECTION 9 CLAIMS AND PAYMENTS

100. 9.1 Claims for Adjustment

As time is of the essence, every effort must be made to resolve disputes at the field level as they occur. Resolution on claims against the Department should be achieved in one or two days at the maximum. Should it not be possible to resolve the dispute in this manner, then the Contractor shall submit the claim in writing to the Section Head. The claim must show justification and background calculations.

- i) The Section Head will investigate and respond to the claim in writing within 7 days of receipt, with copies to the Director responsible for the project and the Executive Director of Construction and Maintenance.

If the claim is considered invalid the response should include why the Department does not feel the claim is valid.

If the claim is deemed valid but the Department does not agree on the compensation requested, the Contractor should be contacted and a meeting set up to determine fair compensation.

Quality Assurance will participate in this meeting in an advisory capacity, when requested.

- ii) The Contractor may appeal the decision of the Section Head to the Director responsible for the project. The Director shall respond within 7 days.
- iii) The Contractor may request that the Executive Director of Construction and Maintenance review the decision made by the Director responsible for the project.
- iv) In the event that the dispute or claim cannot be resolved by the Executive Director of Construction and Maintenance, the dispute or claim may, with the consent of both the Department and Contractor, be forwarded to binding arbitration in accordance with the provisions of The Arbitration Act, except that any decision of the arbitrator will be final and binding and not subject to appeal.

9.2 Changes in Quantity

Unless the contract provides otherwise, adjustments in contract unit prices for increased or decreased quantities shall be governed by the following provisions:

- 1) Major Contract Item means a contract item representing at least 7% of the Total Price of the Contract, excluding Contingency, or \$100,000 in value.
- 2) If the final quantity of a Major Contract Item is within 20% of the estimated quantity there will be no adjustment to the contract unit price.
- 3) If the final quantity of a Major Contract Item is less than 80% of the estimated quantity and the Total Price excluding Contingency is under by a minimum of 15%, the Contractor may submit a written request for an adjustment of the contract unit price. The Department will consider the request subject to the following limitations:
 - a) An adjustment will be considered only to the extent that the decrease in the quantity justifies an increase in the pro-rata share of fixed expenses chargeable to that Major Contract Item.
 - b) Fixed expenses will be deemed to be 20% of the bid price.
 - c) No allowance will be made for anticipated profits on any work not performed.
 - d) The total adjusted payment shall not exceed 80% of the payment which would be made for the estimated quantity at the contract unit price.

The method used to adjust the unit price will be as follows:

- Determine the Fixed Cost = 20% x Unit Price
- Determine the balance of Unit Price = Unit Price - Fixed Cost
- Calculate Adjusted Fixed Cost rounded to nearest cent (4)

$$= \text{Fixed Cost} \times \frac{\text{Estimated Quantity}}{\text{Actual Quantity}}$$
- Calculate the Adjusted Unit Price

$$= \text{Balance of Unit Price} + \text{Adjusted Fixed Cost}$$

On combination grading/paving projects, each construction activity will be deemed to be a separate entity.

- 4) If the final quantity of a Major Contract Item is more than 120% of the estimated quantity, either party may submit a written request to the other for an adjustment of the contract unit price. The request will be considered by the party receiving it subject to the following limitations:

- a) The contract unit price shall apply to all quantities up to and including 120% of the estimated quantity.
 - b) If adjusted, the adjusted unit price shall apply only to the quantities in excess of 120% of the estimated quantity.
- 5) Any request for an adjustment of the contract unit price shall be:
- a) In writing;
 - b) Received no later than 30 days after the Department has notified the Contractor of the final quantities; and
 - c) Accompanied by supporting evidence.
- 6) Nothing in this section shall excuse the Contractor from proceeding with the work.

9.3 Financial Obligations of Contractor

The Contractor shall pay every just claim for the cost of work, service or material made by a person who performs any work or service, or places or furnishes material to be used in the performance of the Contract. The payment of every such claim by the Contractor shall be an obligation under the Contract. So long as any such claim remains unsatisfied the Contract shall be deemed to be uncompleted.

Where a written claim for the cost of work, service or material is placed by a third party, the Department will retain from any funds still owing to the Contractor an amount equal to the claim as the minimum holdback until the claim is satisfied.

The Contractor shall keep payrolls showing the names of employees on the work, the dates and number of hours worked each day, rate of pay, amount due and each payment made to each worker.

When requested, the Contractor shall supply a statement showing all obligations incurred in connection with the work and remaining unpaid at the date of submission of the statement. Supplying such a statement shall be a condition precedent to the payment of any money due the Contractor under the Contract.

100. 9.4 Sales Tax

The Manitoba Government is not subject to payment of the Goods and Services Tax (GST), therefore all prices shall exclude Goods and Services Tax. The Department will issue a statement certifying the goods and services provided under this contract are for the sole use of the Manitoba Government.

All other applicable Provincial and Federal Sales Taxes will not be reimbursed to the Contractor or paid on behalf of the Contractor but are considered included in the applicable unit or lump sum prices. Sales Tax will not be paid as a separate item.

9.5 Workers Compensation Payments

The Contractor shall be registered and be in good standing with the Workers Compensation Board.

Should the Contractor fail to pay to the Workers Compensation Board, premiums on the wages of his employees, or compensation awarded by the Workers Compensation Board in respect to the work, the Department may deduct from any money due the Contractor under the Contract a sum sufficient to pay all such amounts to the Workers Compensation Board.

9.6 Payments to Contractor

Progress payments will be based on estimates prepared and certified by the Engineer.

The total amount paid to the Contractor will be determined by multiplying the actual quantities of work, which have been certified by the Engineer, by the applicable unit prices, plus payments for work actually performed for which the basis of payment is a lump sum amount, plus payments for extra work actually performed.

When, in the opinion of the Engineer, lump sum prices are unbalanced, the payments for the applicable lump sum item may be made on a pro-rata basis over the life of the Contract.

On payments made prior to completion of the Contract, 7.5% of the amount of each payment will be retained as holdback. Where a Contract is estimated to be 75% completed in terms of dollars and work is stopped for a seasonal shutdown, the Contractor may request a reduction in holdback to the Department. If approved, the Department may, without consent of the Surety, reduce the holdback to 3.0%.

When the Contract work is estimated to be 97% completed and the remaining work will be delayed, the Contractor may request a reduction in holdback to the Department. If approved, the Department may without consent of Surety reduce the holdback to 1.0%.

Payment for any reduction in holdback will be held for 40 days after the date the Contractor last worked or when applicable, has reached substantial completion of work.

The Department will release the final payment providing:

- The Engineer has accepted the completed work;
- There are no outstanding claims of which the Department has been notified; and
- The Release Agreement has been executed by all parties.

If, four months after the completion of the work the Department is unable to finalize the Contract due to outstanding claims, the Department shall proceed in accordance with the procedures outlined in the Highways and Transportation Construction Contracts Disbursement Act or the Builder's Liens Act.

Neither the final inspection and acceptance, nor the final payment, nor any provision in the Contract shall relieve the Contractor of his responsibility for complying fully with all the terms and conditions of the Contract, and he shall remedy any defects or omissions arising out of non-compliance therewith that appear within one year after the date on which the final estimate, issued in accordance with the terms of the Contract, has been approved and paid, and he shall save harmless the Department from and against all claims for damages to persons or property arising out of any such defects or omissions, or the remedying thereof.

END OF DOCUMENT

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SPECIFICATION FOR LIQUIDATED DAMAGES

130. 1 SCOPE

These specifications are intended to outline the assessment of Liquidated Damages for contract completion specified by calendar date, working days or site occupancy.

130. 2 DEFINITIONS

2.1 Charged Days

Means the unit of measurement for Site Occupancy as a Liquidated Damage.

2.2 Initial Span

Means the number of Charged Days Bid by the Contractor for Site Occupancy on the Tender Price Form.

2.3 Final Span

Means the number of Charged Days assessed for Site Occupancy as calculated pursuant to these Specifications.

2.4 Spring Road Restrictions

Means that period of time pursuant to subsection 86(1) of Manitoba's Highway Traffic Act, used to restrict vehicle weights.

2.5 Twenty-Eight Day Period

Means a period of twenty-eight (28) days as shown on a calendar including weekends and holidays applicable to a Site Occupancy contract. The first period will commence on the first Charged Day assessed to the Contract. All subsequent periods will commence on the first day following the previous 28 day period.

2.6 Equipment

On grading and surfacing projects equipment will be interpreted to mean equipment and trucks normally working and travelling on the highway embankment. On depositing and stockpiling aggregate projects equipment will be interpreted to mean the crusher, screener or hauling vehicles.

2.7 Seasonal Shutdown Date

The date identified in the Contract as the Seasonal Shutdown Date.

130. 3 LIQUIDATED DAMAGES

In the event that all of the work on a project is not completed within the specified time limit damages will be sustained by the Department. It will be impractical and extremely difficult to ascertain the actual damage which the Department will suffer by reason of such delay. The sum set forth as Liquidated Damages or a Charged Day Rate is not a penalty but is an estimate of the cost to the Department and the Public for engineering, inspection, supervision, administration,

continuing maintenance costs, road user costs, delay costs, safety costs, budget delay costs and other costs which will accrue after the specified time limit.

The Department will deduct, from the Contract payments, the sum set forth as daily Liquidated Damages, lump sum Liquidated Damages and/or Charged Days required to complete the work after the specified time limits.

The Engineer's certification as to the number of days for which Liquidated Damages will be charged will be final and binding on all parties.

130. 4 COMPLETION SPECIFIED BY COMPLETION DATE

4.1 General

A Completion Date is specified in the Contract by when the Contractor must complete the Work.

4.2 Assessment of Liquidated Damages

When Work has not been completed by the specified Completion Date, the Engineer will charge liquidated damages, at the rate stated in the Contract, for every calendar day that the Work remains incomplete after the specified Completion Date, except:

- On days where the Contract special provisions require the Contractor to cease construction operations at 4:00 p.m. or earlier, only ½ day will be charged.
- If the Contractor elects not to work on any one of the following days:
 - A Saturday; or
 - A Sunday; or
 - A Statutory Holiday,

Liquidated Damages will be assessed on a Saturday, Sunday or Statutory Holiday if the Contractor chooses to work on that day.

130. 5 COMPLETION SPECIFIED BY WORKING DAYS

5.1 General

A Working Day allotment is identified in the Contract and represents the maximum time available to the Contractor in which to complete the Work. As the Work progresses, Working Days are assessed in accordance with the 'Assessment of Working Days' section below and are deducted from the allotment of Working Days. When the allotment of Working Days have been exhausted, Liquidated Damages are assessed in accordance the 'Assessment of Liquidated Damages' section below.

5.2 Assessment of Working Days

A Working Day will be any day, when in the opinion of the Engineer, atmospheric and highway conditions are such that 70% of the Contractor's equipment normally expected to work on the highway is able to work at least seven hours between 7:00 a.m. and 6:00 p.m. with the following exceptions;

- On days where the Contract special provisions require the Contractor to cease construction operations at 4:00 p.m. or earlier, only ½ day will be charged.
- If the Contractor elects not to work on any one of the following days:
 - A Saturday; or

- A Sunday; or
- A Statutory Holiday,

then that day will not be assessed as a Working Day.

A Saturday, a Sunday or a Statutory Holiday will however be considered a Working Day if the Contractor elects to perform work requiring more than one Department employee's presence, providing the Contractor is able to work at least 7 hours between 7:00 A.M. and 6:00 P.M.

The Engineer will commence assessing Working Days on whichever of the following dates is earlier:

- a) the date specified by the Department on the Work Schedule, or in the Special Provisions; or
- b) the date on which the Contractor commences work on any Item of Work listed by the Department on the Work Schedule.

Work not listed on the Work Schedule may be undertaken without Working Days being assessed provided that the work occurs prior to the start of the assessment of Working Days and prior to the Contractor commencing work on an Item of Work listed on the Work Schedule.

Notwithstanding the above, Working Days will not be assessed for the first seven calendar days after the award date regardless of the start date in the contract, provided that the Contractor has not started operations on an Item of Work identified on the Work Schedule.

If the Contractor starts work on an item listed in the Work Schedule on or before the award date, the assessment of Working Days will commence on the award date.

Working Days, once commenced, will continue to be assessed until all Work has been completed.

The assessment of Working Days will normally cease when all major items listed in the Work Schedule have been completed. If the remaining work consists solely of final trimming of shoulders on base and paving projects, or final trimming of slopes and roadways on grading jobs, then those items will be considered complete for the purpose of assessment of Working Days. If the Contractor is not making a reasonable effort to complete the trimming, then Working Days will continue to be assessed.

5.3 Periodical Leave

The Contractor may request, in writing, to accumulate periodical leave days. If approved, Working Days will be assessed seven days a week during the accumulation of periodical leave days. The Contractor will be allowed to accumulate periodical leave days at the rate of two days per week to a maximum of six consecutive days. When approved, the Contractor may use the accumulated periodical leave days and will not be assessed Working Days during this time. No work will be permitted during periodical leave days.

5.4 Assessment of Liquidated Damages

When the allotment of Working Days has been exhausted, the Engineer will charge liquidated damages at the rate stated in the Contract, for each subsequent calendar day that qualifies as a Working Day as described in Section 5.2.

130. 6 COMPLETION SPECIFIED BY SITE OCCUPANCY

6.1 General

Site Occupancy is a system for monitoring and administering progress of the Work. The Site Occupancy completion model has two components; Charged Days and Liquidated Damages associated with a Completion Date(s).

6.2 Bidding Charged Days

The Bidder shall provide a bid for Charged Days under the "Charged Days Bid" column on the Price Form. This is the Bidder's estimated days to complete the Work. A failure to provide a bid for Charged Days will result in rejection of the Bid.

The number indicated by the Bidder for the quantity of Charged Days Bid shall be a whole number. If a part of a day is indicated, that quantity will be rounded up to the nearest whole number and the Site Occupancy Price will be recalculated.

The Contractor shall also provide a Site Occupancy Price by multiplying the "Charged Days Bid" by the "Charged Day Rate" (set by the Department). The Site Occupancy Price on the Price Form will only be used for the purpose of comparing bids and will not form part of the Contract Price as defined in General Conditions Clause 100.1.2. Additionally, contrary to specification 100.9.2, Site Occupancy will not be considered a Major Contract Item.

6.3 Assessment of Charged Days

The total amount of Charged Days assessed will be measured in whole numbers.

Charged Days will be assessed for every day except for the following:

- Days prior to the Contractor starting work on the Contract. The Contractor shall provide a minimum of 14 days notice to the Department for commencement of the work. Failure of the Contractor to commence work as indicated, in the opinion of the Engineer, may result in the assessment of Charged Days;
 - Days the Contractor is prohibited from working due to restrictions outside the Contractor's control that are imposed by Public Authorities that come into effect after the Contract is awarded;
 - Days the Contractor schedules employee time off subject to the following conditions:
The Contractor will be granted a maximum of eight (8) Non-Charged Days per Twenty-Eight Day Period (including holidays) for the purpose of allowing employee time off providing:
 - a) The Engineer is given at least 3 days notice;
 - b) There is no ongoing work that requires the presence of Department personnel, as determined by the Engineer;
 - c) Any of the days allowed for employee time off not used in the specified Twenty-Eight Day Period may not be carried over to subsequent Twenty-Eight Day Periods;
 - d) The 8 days allowed for employee time off will be pro-rated for periods shorter than twenty-eight days;
 - Days the Contract is delayed due to inclement weather subject to the following conditions:
 - a) The Contractor is prevented from utilizing at least 70% of the total labour and equipment engaged on the controlling operation for at least 7 hours, as determined by the Engineer; or
- b) The Contractor is ripping, drying, re-laying material or performing other measures to restore the material to its pre-existing condition, as determined by the Engineer.
- Days on which work has been suspended by the Engineer because of an action or omission by the Province;

- Days not worked due to Acts of God or the Public Enemy, Acts of the Province or any foreign state, floods, epidemics, quarantine restrictions, strikes, embargoes, or delays due to such causes, alterations or changes in Plans, or any other reason not originally contemplated by the Contract;
- Days not worked because of Spring Road Restrictions in the Final Span;
- Days for clearing and grubbing provided that charge days have not commenced;
- Days for aggregate production;
- Beginning one day after the final acceptance of the road surface approaches and side slopes excluding the installation of rumble strips, trimming, and seeding. Charged Days may continue to be assessed, if in the opinion of the Engineer, the Contractor is not making a reasonable effort to complete the rumble strips, trimming, and seeding;
- Any other conditions specified in the Contract.

6.4 Calculation of Site Occupancy Final Span

Extensions to the Initial Span will determine the Final Span and will be calculated as follows:

$$\text{Final Span} = \frac{F \times I}{A}$$

Where:

Final Span = adjusted number of Charged Days allowed (a fraction of a day will be rounded up to a full day);

*F = Final Contract Amount (excluding Mobilization of Equipment, Traffic Control, Extra Work, Fuel Cost Adjustment, Liquidated Damages, Riding Bonus and Site Occupancy);

I = Initial Span of the Contract

*A = Total Amount at Award (excluding Mobilization of Equipment, Traffic Control, Extra Work, Riding Bonus and Site Occupancy).

6.5 Payment for Site Occupancy Charged Days

Payment for Site Occupancy will be made as follows:

- If the number of assessed Charged Days equals the Final Span, no payment will be made;
- If the number of assessed Charged Days is less than the Final Span, a payment equal to the Contract Unit Price per Charged Day multiplied by the difference between the Final Span and the actual number of assessed Charged Days will be made;
- If the number of assessed Charged Days exceeds the Final Span, a deduction equal to the Contract Unit Price per Charged Day multiplied by the difference between the actual number of assessed Charged Days and the Final Span will be made.

6.6 Assessment of Liquidated Damages

When Work has not been completed by the specified Completion Date, the Engineer will charge liquidated damages at the rate stated in the Contract, for each calendar day (with no exceptions) that the Work remains incomplete after the specified Completion Date.

130. 7 Seasonal Shutdown Conditions

7.1 Seasonal Shutdown Date

The Seasonal Shutdown Date, if required, is identified in the Contract and is set based on the seasonal conditions that are expected to interrupt the Work. The Contractor is expected to occupy the Site and attempt the Work until the Seasonal Shutdown Date. At the Contractor's option, the Contractor may remain on Site and continue to attempt the Work beyond the Seasonal Shutdown Date. Whether or not a specific year is stated in the contract, the Seasonal Shutdown Date will apply to each subsequent year on a recurring annual basis while the Work remains incomplete.

7.2 Completion Specified by Completion Date

Where a Seasonal Shutdown Date is identified in the Contract, the assessment of daily Liquidated Damages will cease between the latter of the Seasonal Shutdown Date or the actual day the Contractor ceases operations. The assessment of daily Liquidated Damages will recommence the earlier of 7 calendar days after the lifting of Spring Road Restrictions or the actual day the Contractor recommences operations the following year.

Where a Seasonal Shutdown Date is not identified in the Contract, the assessment of daily Liquidated Damages will continue until the Work is complete.

7.3 Completion Specified by Working Days

Where a Seasonal Shutdown Date is identified in the Contract the assessment of Working Days or daily Liquidated Damages will cease between the latter of the Seasonal Shutdown Date or the actual day the Contractor ceases operations. The assessment of Working Days or daily Liquidated Damages will recommence the earlier of 7 calendar days after the lifting of Spring Road Restrictions or the actual day the Contractor recommences operations the following year.

Where a Seasonal Shutdown Date is not identified in the Contract, the assessment of Working Days or daily Liquidated Damages will continue until the Work is complete.

7.4 Completion Specified by Site Occupancy

Where a Seasonal Shutdown Date is identified in the Contract, the assessment of Charged Days and/or daily Liquidated Damages will cease between the latter of the Seasonal Shutdown Date or the actual day the Contractor ceases operations. The assessment of Charged Days and/or daily Liquidated Damages will recommence the earlier of 7 calendar days after the lifting of Spring Road Restrictions or the actual day the Contractor recommences operations the following year.

Where a Seasonal Shutdown Date is not identified in the Contract, the assessment of Charged Days and/or daily Liquidated Damages will continue until the Work is complete.

130. 8 EXTENSIONS OF TIME

The time set forth in the Contract for its completion may be extended:

- a) When the Contract is not completed within the required time because the Contractor was ordered to perform unspecified Extra Work which interrupted major contract activities or operations, the Engineer may extend the number of days allowed for completion by the number of days required to perform the Extra Work. The time extension will be at the discretion of the Engineer.
- b) Where completion is specified by Working Days, when the Contract is not completed within the required time because of increases to the original contract quantities, the Engineer will extend the number of Working Days allotted for completion based on the following formula:

$$E = \frac{F \times D}{O} - D$$

E = Extension of time in Days. (Rounded off to nearest day)

F = Finished Contract Value

D = Number of Working Days allotted in the Contract,

O = Original Contract Value.

c) By the Director, in the form of a written approval, when:

- I. The Contractor is able to prove conclusively that conditions encountered during the work were much more difficult than could reasonably have been anticipated; and,
- II. The Contractor submits a request for an extension of time accompanied by evidence of the difficult conditions and forwards it to the Director prior to completion of the Contract.

When the Contract is not completed within the time limit due to Acts of God or the Public Enemy, Acts of the Province or any foreign state, Floods, Epidemics, Quarantine Restrictions, Strikes, Embargoes, or delays due to such causes, alterations or changes in Plans, or any other reason not originally contemplated by the Contract, the Director, on written request, may extend the time limit.

Delays incurred as a result of seasonal changes and adverse weather should be anticipated by the Contractor and are not compensatory but may be eligible for extensions of time in extraordinary circumstances.

In the event an extension of time is granted, time shall continue to be the essence of the Contract.

No claims for damages shall be made against the Department on account of delays on the part of the Department in the delivery of materials or in the performance of work; but should there be unduly prolonged delays upon the part of the Department in the delivery of any materials required for the work or in the performance of the work, the Contractor shall be entitled to a corresponding extension of time to complete the work.

130. 9 CONSIDERATIONS DURING SPRING ROAD RESTRICTIONS IN SEASONAL SHUTDOWN

The Contractor may elect to haul restricted loads during Spring Road Restrictions and will not be assessed Liquidated Damages, Working Days or Charged Days only when a Seasonal Shutdown is in effect.

Where overweight permits affecting required movement of equipment to the project are denied for a further period of time after Spring Road Restrictions have been lifted, assessment of Liquidated Damages, Working Days or Charged Days will commence the earlier of 7 calendar days after the date overweight permits are approved or on the date the Contractor starts work on an item listed in the Work Schedule.

130. 10 CONSIDERATIONS DURING FISH SPAWNING RESTRICTIONS

Where the Contract restricts Work in or around a fish bearing water body during a fish spawning period, the Contractor will not be assessed Liquidated Damages, Working Days or Charged Days where the restriction interrupts a major contract activity.

130. 11 EQUIPMENT SUMMARY AND DAILY ASSESSMENT RECORD

The Engineer will maintain an Equipment Summary and Daily Assessment Record. This record is necessary to document the assessment of Working Days, Charged Days and Liquidated Damages.

The Contractor shall initial the Record to certify that the information is correct. One week will be allowed for the Contractor to file a written protest setting forth in what respect the Record is considered incorrect; otherwise the Record for that week will be deemed to have been accepted by the Contractor.

Copies of the Record will be provided to the Contractor on a weekly basis.

SPECIFICATIONS FOR MOBILIZATION OF EQUIPMENT

190. 1 SCOPE

The lump sum price for "Mobilization of Equipment" will be payment in full for assembling, transporting and setting up the Contractor's equipment, sleeping, kitchen and sanitary facilities, tools and supplies necessary for the maintenance and repair of equipment, and all items necessary or incidental thereto and for moving all the items away when the project is completed.

190. 2 BASIS OF PAYMENT

The Department will make four payments for "Mobilization of Equipment". The first payment of 25% of the lump sum price will be made when the Contractor, in the opinion of Manitoba, has substantially mobilized to the site.

The second payment of 25% of the lump sum price will be made when the Contractor has completed 25% of the Work by contract value.

The third payment of 25% of the lump sum price will be made when the Contractor has completed 50% of the Work by contract value.

The fourth payment of 25% of the lump sum price for Mobilization of Equipment will be made when the Contractor has reached substantial completion.

<u>Project Progress</u>	<u>Mobilization Payment</u>
Mobilize to Project Site	25%
25% Complete by Value	25%
50% Complete by Value	25%
Substantial Completion	25%
Total	100%

SPECIFICATIONS FOR STRUCTURAL EXCAVATION

1.0 DESCRIPTION

The Work shall consist of:

- .1 Excavation and removal of material for the placement of foundations, substructure units, approach slabs, transition slabs and culverts as shown on the Drawings and described in this Specification;
- .2 Excavation and removal of material for construction of the design river bank and channel profile as shown on the Drawings and described in this Specification;
- .3 Dewatering the excavations;
- .4 Preparing the base of excavation, including supplying, placing and compacting granular backfill;
- .5 Supplying, placing, finishing and heating of a concrete working base; and

Cofferdams and shoring shall be completed in accordance with the Specifications for Temporary Works.

2.0 REFERENCES AND RELATED SPECIFICATIONS

All reference standards and related specifications shall be current issue or the latest revision at the date of tender advertisement.

2.1 References

- CSA A23.1, Concrete Materials and Methods of Concrete Construction

2.2 Related Specifications

- Specifications for Reinforced Cast-In-Place Concrete
- Specifications for Temporary Works

3.0 SUBMITTALS

The Contractor shall submit the following to the Engineer, in accordance with the Special Provisions:

- .1 A detailed Excavation Staging Plan and schedule clearly illustrating the method and sequence by which he proposes to stage the excavation, cofferdam and shoring Works in accordance with the Drawings, this Specification and the Special Provisions.
- .2 A detailed Dewatering Plan and schedule clearly illustrating the method and sequence by which he proposes to handle dewatering the excavation and groundwater depressurization (if required) for the duration of the Work in accordance with the Drawings, this Specification and the Special Provisions.

4.0 MATERIALS

4.1 Working Base Concrete

The strength of working base concrete shall be a minimum compressive strength of 20 MPa at 28 days.

5.0 CONSTRUCTION METHODS

5.1 Cofferdams and Shoring

The Contractor shall construct cofferdams and shoring in accordance with Specifications for Temporary Works, the Shop Drawings and as specified herein.

Variations from the Shop Drawings will not be permitted, unless such variations are approved by the Professional Engineer responsible for the design and the Engineer is provided with revised Shop Drawings.

5.2 Excavation Requirements

The Contractor shall excavate only material that is necessary for the construction of the structure and shall not excavate outside the limits of excavation shown on the Drawings and in accordance with the following:

.1 Structural Excavation for Concrete Culverts

Neat trenches shall be excavated for placing aprons, cut off walls and lower portions of headwalls or wingwalls. Where "neat" trenching is impractical for cut-off walls, headwalls or wingwalls, backfilling of these areas shall be done with lean-mix concrete. The excavation shall be dewatered to prevent disturbing the natural soil conditions at the base of the excavation and to permit completing all construction operations in the dry.

Dewatering shall be accomplished by constructing trenches around the outside perimeter of the culvert bed and by excavating sump pits to a depth of not less than 2.0 meters below the bottom of the culvert base, or by other means subject to the Engineer's approval. When trenches and sump pits are used, the excavation shall be shored or braced with cribs to permit pumping.

The equipment used for excavation purposes may travel or move on the base of the excavation only if it does not disturb the base of the excavation. All additional excavation and backfilling required as a result of the improper use of equipment for excavation purposes shall be done at the Contractor's own expense.

Cofferdams to isolate the excavation from the waterway shall be constructed in accordance with the Specifications for Temporary Works.

Excavations that are more than 1.5 metres deep and within a cofferdam in a watercourse shall be shored, sloped and/or stepped in accordance with the Manitoba Workplace Safety and Health Act and Regulations. The slopes or sides of the excavation shall be shored unless:

- (a) The excavation is cut in solid rock or other equally stable material, excluding frozen ground;
- (b) The excavation is cut in cohesive, granular or other material to a stable slope based on the material properties of the in-situ material and as determined by a geotechnical engineer. A maximum 1:1 slope (angle not greater than 45° measured from the horizontal plane) shall be provided; and
- (c) A combination of sloped and vertical faces are used for stabilizing the sides of the excavation where the vertical face shall not exceed 1.0 metres and the remaining sides are sloped in accordance with this Specification.

.2 Structural Excavation for Abutments, Approach Piers and Retaining Walls

Excavation shall be kept to a minimum. The limits of the excavation shall not extend more than 1.0 meter beyond the footprint of the footings.

Excavations for abutments, approach piers and retaining walls that are more than 1.5 metres deep and outside of a watercourse channel shall be shored, sloped and/or stepped as approved by the Engineer and shall meet the requirements of the Manitoba Workplace Safety and Health Act and Regulations. In areas where groundwater seepage is encountered, the excavation shall be dewatered to permit completing all construction operations in the dry.

.3 Structural Excavation for River Piers

Excavation shall be kept to the minimum. The limits of the excavation shall not extend more than 1.0 meter beyond the footprint of the footings.

Excavation for river piers shall be isolated from the watercourse on all sides of the excavation using sheetpiling cofferdams. Sheetpiling cofferdams shall be shored as approved by the Engineer and shall meet the requirements of the Specifications for Temporary Works and the Manitoba Workplace Safety Health Act and Regulations.

5.3 Depth of Excavation and Condition of Base

Excavations shall be completed to the elevations and dimensions as shown on the Drawings, or to the elevations directed by the Engineer in the field in order to obtain firm, stable foundations. If the Engineer determines that the required depth of increased excavation exceeds 1.0 meter below the bottom of excavation elevation shown on the Drawings, the additional work shall be done and will be paid for as Extra Work in accordance with the General Conditions.

Neat trenches shall be excavated for footing keys.

Under winter conditions, the Contractor shall remove frost from the base of the excavation and maintain the base and concrete working base in an unfrozen condition until the structural concrete can be placed. Hoarding and heating requirements will then apply as specified in Specifications for Reinforced Cast-In-Place Concrete.

5.4 Dewatering of Structural Excavations

Structural excavations shall be dewatered and maintained dewatered so that the material is excavated in its natural state and construction of the foundations is completed in the dry. The bottom of the excavation shall be kept free from excessive moisture and free-flowing water.

Underwater excavation will not be allowed in structural excavations other than under extreme conditions where the ingress of water from the bottom of the excavation is impossible to stop.

Pumping from the interior of any excavation shall be done so that the water is diverted from the footing base. The level of any water inside of the excavation shall be below the bottom of the footing elevation so that the foundations are placed in the dry. Pumping water from the excavation shall not be discontinued until the substructure unit is completed and backfilled unless otherwise allowed by the Engineer.

Pumping to dewater a sheetpiling cofferdam sealed with tremie concrete shall not commence until the concrete has sufficient strength to withstand the hydrostatic pressure.

The Contractor shall ensure that the point of discharge from surface water pumped from any excavation is a minimum of 25 metres from the edge of a watercourse. The Contractor shall ensure that water discharge

onto the vegetated channel bank or any other locations is done so in a manner that does not cause erosion of the ground and prevents water containing sediment from directly entering the watercourse. This shall be done to the satisfaction of the Engineer. Should the Engineer determine additional measures are required, the Contractor shall implement these measures immediately.

The Dewatering Plan shall include specific measures for handling potentially sediment-laden water from excavation dewatering activities to ensure that the turbid water is not discharged directly into the watercourse. These measures may include but not be limited to, the construction and maintenance of settling ponds for the duration of the Work.

5.5 Concrete Working Base

A concrete working base shall be placed in all excavations. The bottom of the excavation, with the exception of all cut-off trenches and sump pits, shall be covered with a layer of working base concrete having a minimum thickness of 75 mm. The concrete working base shall be placed immediately after the excavation is completed, and the Engineer has approved the depth of the excavation and the character and condition of the foundation material. The concrete shall be as dry as is practicable and shall be tamped and screeded to give a level working platform for setting up forms and placing reinforcing steel. The Contractor shall allow the concrete working base to cure for 24 hours before setting up forms or placing reinforcing steel.

5.6 Excavation and Protection of Existing River Banks, Channel and Embankment Slopes

The river banks and channel shall be excavated to the profiles identified on the Drawings. The Contractor shall not disturb the river banks, channel and embankment slopes outside of the excavation limits or beyond the profile shown on the Drawings.

The Contractor will not be allowed to dispose of excavated material within the project limits.

If the Contractor can demonstrate conclusively that there is no alternative to disturbing the banks, slopes, or channel, permission may be granted by the Engineer provided that the Contractor shall be responsible for restoring the banks, slopes and channel to the original profile and compaction at his own expense.

5.7 Excavated Material

Excavated material to be reused as backfill material shall be stockpiled within a suitable area approved by the Engineer. Examples of unsuitable areas include, but are not limited to, the following:

- (a) In the flood plain;
- (b) On the edge of an embankment creating slope stability issues; or
- (c) Locations impeding sight lines of the travelling public through or around the site.

Excavated material that is unsuitable for, or surplus to, the backfill requirements, or any other debris within the construction limits, shall become the property of the Contractor and shall be removed from the project limits immediately. During freezing weather, the excess material shall be disposed of before it freezes.

6.0 QUALITY MANAGEMENT

After each excavation is completed, the Engineer will inspect the base of the excavation before any further work can proceed. The Engineer can order test pits, test drilling, further excavation or other work as is necessary to obtain firm, stable foundations. The Contractor shall allow the Engineer unhindered access to the excavation and shall assist the Engineer in completing additional testing, drilling or any other work deemed necessary.

7.0 METHOD OF MEASUREMENT

7.1 Structural Excavation

Structural excavation will be paid for on a lump sum basis, and no separate measurement will be made for this work.

Excavation of river banks, channel and embankment slopes to final design profile and supplying, placing, compacting, finishing and heating the granular backfill and concrete for the concrete working base will be considered incidental to the structural excavation and no separate measurement will be made of this work.

7.2 Dewatering

Dewatering will be paid for on a lump sum basis, and no separate measurement will be made for this work.

8.0 BASIS OF PAYMENT

8.1 Structural Excavation

Structural excavation will be paid for at the Contract Lump Sum Price for "Structural Excavation", measured as specified herein, and will be payment in full for performing all operations herein described and all other items incidental to the Work.

8.2 Dewatering

Dewatering will be paid for at the Contract Lump Sum Price for "Dewatering", measured as specified herein, and will be payment in full for performing all operations herein described and all other items incidental to the Work.

SPECIFICATIONS FOR SUPPLYING AND PLACING GRANULAR BACKFILL

1002. 1. DESCRIPTION

The work will consist of supplying, hauling to the site, placing and compacting granular backfill.

1002. 3. SUPPLY OF MATERIALS

The Contractor shall supply granular backfill which shall be free from organic material and shall meet the following requirements:

Not more than 50% shall pass the 4.75 mm sieve, and not more than 15% shall pass the 0.075 mm sieve. The gravel shall be uniformly graded from coarse to fine and the maximum particles shall not exceed 150 mm in diameter.

A sample of the granular material which the Contractor proposes to use shall be submitted to the Engineer at least 14 d before the material is to be used in the work. The Department will test the material for conformance to the grading requirements.

1002. 7. CONSTRUCTION METHODS

Granular backfill shall be placed in accordance with the plans and the Special Provisions or as directed by the Engineer. The backfill shall be placed in layers not to exceed 200 mm in depth and each layer shall be thoroughly compacted by means of packers or mechanical tampers approved by the Engineer to a relative compaction of not less than 95% standard Proctor.

1002. 9. METHOD OF MEASUREMENT

Granular backfill will be measured in cubic metres of material delivered and placed in the designated backfill areas. The capacity of vehicles hauling granular backfill will be derived from measurements made by the Engineer. These measurements will be used to establish the base capacity to the nearest 0.1 m³ and the capacity of a vehicle box so determined shall not be changed while in use on the project without the consent of the Engineer.

The Contractor shall level all loads before they are measured by the Engineer. Measurements will not be made for material heaped above the water level capacity of the box and deductions will be made in 0.1 m³ units for loads which do not contain full water capacity.

1002. 11. BASIS OF PAYMENT

(a) Supplying

Supplying granular backfill will be paid for at the Contract Unit Price per cubic metre for "Supplying Granular Backfill", measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

(b) Placing

Placing granular backfill will be paid for at the Contract Unit Price per cubic metre for "Placing Granular Backfill", measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

SPECIFICATIONS FOR
SUPPLYING AND DRIVING STEEL BEARING PILES

1.0 DESCRIPTION

The Work shall consist of:

- .1 Supplying, handling, hauling, storing, aligning and driving steel bearing piles;
- .2 Cutting off piles at the required elevations;
- .3 Pre-boring of piles, if applicable;
- .4 Splicing piles, if shown on the Drawings or deemed necessary by the Engineer; and
- .5 Supplying and installing pile tips, if shown on the Drawings or deemed necessary by the Engineer.

Steel bearing piles, steel "H" piles, and steel "HP" piles shall be considered one and the same for the Drawings, this Specification and the Special Provisions.

2.0 REFERENCES AND RELATED SPECIFICATIONS

All reference standards and related specifications shall be current issue or latest revision at the date of tender advertisement.

2.1 References

- CAN/CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel
- CSA W59, Welded Steel Construction (Metal Arc Welding)
- AASHTO/AWS D1.5M/D1.5 Bridge Welding Code
- MIT's Approved Products List

2.2 Related Specifications

- Specifications for Supply, Fabrication and Erection of Miscellaneous Metal

3.0 SUBMITTALS

The Contractor shall submit the following to the Engineer, in accordance with the Special Provisions:

- .1 Copies of Mill Test Certificates showing chemical analysis and physical tests for piling material. Piling material without this certification will be rejected.
- .2 Manufacturer's specifications and catalogue for all mechanical hammers to be used.
- .3 Certificate of mass for gravity or drop hammers. If this certificate is not available, the gravity or drop hammers shall be weighed in the presence of the Engineer. Hammers so weighed shall have the exact mass marked on them. Gravity hammers shall weigh at least 1.5 ton but in no case shall the mass of the hammer be less than the combined mass of the pile and pile cap.

- .4 Pile driving procedures to be used for the installation of the driven steel bearing piles.
- .5 Proof of certification for the welders conducting the Work (if applicable). All welders shall satisfy one of the following requirements:
 - i. Welders qualified in accordance with the requirements of AASHTO/AWS D1.5M/D1.5,
 - ii. Valid Canadian Welding Bureau (CWB) Welding ticket, or
 - iii. Valid "Welder's Licence" as issued by the Mechanical and Engineering Division, Department of Labour and Manpower, Province of Manitoba, with a minimum of 5 years of experience welding on steel structures.
- .6 Welding procedures specific to the Work (if applicable).

4.0 MATERIALS

4.1 Steel Bearing Piles

As a minimum, steel bearing piles shall conform to the requirements of CAN/CSA G40.21M, Grade 300W. Where piling is designated in metric dimensions, imperial equivalent piling will be acceptable. Mill certificates shall be provided to the Engineer prior to pile installation.

All piles crushed excessively or bent through negligence or carelessness in driving operations shall be replaced by the Contractor at his own expense unless, at the discretion of the Engineer, the damage is so slight that the pile can be repaired properly by the Contractor at his own expense.

4.2 Pile Tips

Pile tips shall conform to the requirements of CAN/CSA G40.21M, Grade 300W.

Pile tips must be approved as identified in MIT's Approved Products List and shall be to the satisfaction of the Engineer. Any pile tips that are not in MIT's Approved Products List will be subject to approval by the Engineer.

4.3 Splice Plates

Splice plates shall conform to the requirements of CAN/CSA G40.21M, Grade 300W.

4.4 Welding Materials

The Contractor is responsible for supplying all welding materials. All welding materials shall conform to the requirements of the Specifications for Supply, Fabrication and Erection of Miscellaneous Metal.

5.0 CONSTRUCTION METHODS

5.1 Handling and Storage

Piling shall be handled, hauled and stored in a manner that avoids damage to the piling materials. Loading and unloading shall be by crane, loader or other appropriate hoisting equipment.

The Contractor, in the handling and lifting of the piles, will not be permitted to drag them along the ground. Piles shall be stockpiled off the ground on timber blocking and handled in a manner to avoid

any damage.

If piles are damaged due to the Contractor's handling operations, the Contractor shall, at his own expense, replace all damaged piles with piles meeting the requirements of this Specification and as shown on the Drawings.

5.2 Location and Alignment

The piles shall be driven in the positions shown on the Drawings or as directed by the Engineer. Piles shall

be driven vertically unless shown otherwise on the Drawings, and shall not deviate more than 2 percent out-of-plumb. Batter piles shall be driven to the batter specified, and shall not deviate more than 2 percent from the batter specified. Piles shall not be more than 75 mm off centre measured at cut-off elevation.

The Contractor shall take adequate precautions to ensure that the piles are in proper alignment, including the use of installation frames, fixed leads or other means as are necessary. The method of maintaining alignment shall be accepted by the Engineer.

Piles shall not be jacked or pulled into their final positions.

5.3 Driving Steel Bearing Piles

Piles shall be driven to the depths and in accordance with the pile driving criteria indicated in the Geotechnical Report, on the Drawings or as directed by the Engineer. All pile driving equipment, driving methods and procedures shall be reviewed by the Engineer before any driving is started. Acceptable driving equipment includes hammers, vibratory hammers, driving frames or other equipment as may be required by the Engineer.

The Contractor shall remove any surface and/or shallow depth obstructions to obtain the required penetration of the piles.

Pile driving equipment to be used by the Contractor shall be of such capacity that the required bearing and penetration shall be obtained without damage being done to the piles. Driving of all piles shall be continuous and without interruption until the pile has been driven to cut-off elevation or the refusal criteria has been met. The driving of the piles with driving extensions should be avoided if practicable, and shall be done only under written permission of the Engineer. When driving extensions are used, one pile from each group of 10 shall be a long pile driven without extensions, and shall be used as a test pile to determine the average bearing capacity of the group.

If the Contractor can demonstrate conclusively that special methods, other than providing a higher capacity hammer, are necessary to advance the pile to the required penetration, such supplementary methods will be subject to the Engineer's approval and will be paid for as a Extra Work in accordance with the General Conditions. For the special types of piling, driving heads, mandrels, or other devices in accordance with the Manufacturer's recommendations shall be provided so that the pile may be driven without damage and without unnecessary drilling.

Pile driver leads shall be used to support the piles while they are being driven and shall be braced to the supporting crane so as to hold the piles securely and accurately in the required position during driving. Leads shall be of sufficient length to be supported firmly on the ground. The use of hanging or swinging leads will not be allowed unless they can be held in a fixed position during the driving operations. Batter piles shall be driven with inclined leads.

The heads of steel bearing piles shall be squared and protected by a cap of a design approved by the Engineer. The cap shall be designed to hold the axis of the pile in line with the axis of the hammer. The top of the cap shall have a timber shock block.

The Contractor shall drive all piling in the sequence as shown on the Drawings or specified by the Engineer to minimize pile upheaval. If upheaval does occur, the Contractor shall re-drive the lifted piles to the specified elevations. The Contractor shall excavate material that has boiled up during pile driving operations. The elevation of all piles previously driven or redriven shall be confirmed to detect uplift. If uplift of 5 mm or more occurs in any pile, that pile shall be redriven to its original elevation and thereafter to the required final driving resistance. If cavities remain around the piles after driving, the cavities shall be filled with sand or other approved material to the satisfaction of the Engineer.

For pile installation monitoring purposes, the Contractor shall paint markings on each pile at 0.25 meter intervals, with a label at each 1.0 meter interval, starting from the toe of the pile.

The Contractor shall ensure the safety of all personnel during pile driving operations. In particular, overhead protection shall be provided for all personnel located adjacent to the pile driving lead and under the pile driving hammer. The overhead protection shall be designed and constructed so as to safely withstand forces from falling debris or other matter.

Pre-boring will not be allowed unless it is specified in the Geotechnical Report, on the Drawings or approved in writing by the Engineer.

5.4 Pile Cut-Offs

The piles shall be cut off level at the required elevations as specified on the Drawings or as directed by the Engineer.

5.5 Splicing Piles and Installing Pile Tips

The Contractor shall splice piles and install pile tips in accordance with the Drawings, this Specification, welding procedures, and the following:

- .1 The butting ends of the driven pile and its extension or the pile and the pile tip shall be cut square to give reasonable bearing between the mating surfaces.
- .2 The butting surface shall be bevelled to facilitate a full penetration butt weld. Temporary clamping plates may be used as required.
- .3 Before welding over previously deposited metal, the slag shall be removed. This requirement shall apply to successive layers, to successive beads, and to the cratered area when welding is resumed after any interruption.
- .4 All butt welds shall have the root of the initial weld arc-air gouged, to sound metal and cleaned by grinding and wire brushing before welding is started from the second side.
- .5 Material to be welded shall be preheated in accordance with CSA W59.
- .6 The piles shall not have more than one splice per pile unless otherwise approved by the Engineer. The location of the splice(s) shall be approved by the Engineer.
- .7 For railway bridges, the pile ends to be spliced shall be flame cut using a steel guide to obtain a square and even cut. The bevel cut shall be made at 45°. Splice plates shall be welded to the upper pile before

positioning. The upper pile shall then be positioned, and the splice plates welded to the lower pile. Butt welds shall then be completed.

5.6 Defective Piles

The pile driving procedures shall not subject the piles to excessive and undue abuse producing deformation of the steel. Manipulation of piles to force them into proper position will not be permitted. Piles damaged by improper driving, or driven out of proper location, or driven below the cut-off elevation, shall be corrected by one of the following methods accepted by the Engineer:

- .1 The piles shall be withdrawn and replaced by new, if necessary, longer piles, or
- .2 Replacement piles shall be driven adjacent to defective or low piles, or
- .3 The piles shall be spliced or built up, as otherwise provided herein, or a sufficient portion of the footing extended to properly embed the piles. All piles, pushed up by the driving of adjacent piles or by any other cause, shall be driven down again.

In the case of required penetration and bearing capacity are not obtained, the Contractor shall provide a hammer of greater energy, as applicable, or when accepted by the Engineer, resort to pre-drilling.

6.0 QUALITY MANAGEMENT

6.1 Quality Control

The Contractor shall provide a detailed survey of all of the pile locations for a pile cap (foundation) and provide that to the Engineer prior to cutting off any piles for that pile cap.

The Contractor shall replace any piles, or add additional pile(s), for piles that do not meet the specified refusal criteria or do not meet the following tolerances: +/-2% out of alignment for battered piles, +/-2% out of plumb for vertical piles, and 75 mm off centre of the specified locations. Any modifications required to the pile cap, due to piles out of tolerance or due to required additional piles to compensate for out of tolerance piles, shall be carried out as specified by the Engineer at the Contractor's own costs.

6.2 Quality Assurance

All welds will be inspected visually by the Engineer. The Contractor shall allow the Engineer unhindered access to the piling and shall assist the Engineer in carrying out any inspection, including suitable access.

6.3 Pile Driving Records

The Contractor and the Engineer will keep an independent record of each and every pile driven. The records shall give the date, time, diameter, length, location, type, total depth of penetration, rate of penetration, number of blows per 300 mm, penetration of the last five blows, steam, air or diesel pressure and the kind and size of hammer used in driving. Any unusual phenomena shall be noted and recorded, especially if they indicate possible damage to the pile.

Energy output of driving equipment at the time of final set shall be carefully recorded by the Contractor, along with the final penetration readings, and reported immediately to the Engineer. The required set per blow will be subject to acceptance by the Engineer, showing regard to the specified driving equipment and piles permitted.

7.0 METHOD OF MEASUREMENT

7.1 Steel Bearing Piles

Supplying steel bearing piles will be measured in lineal length of piling. The number of lineal metres to be paid for will be the total number of lineal metres of piling unloaded and stockpiled at the site as authorized by the Engineer.

Driving steel bearing piles will be measured in lineal length of piling. The length to be paid for will be the total number of lineal metres driven, less 50% of the total number of lineal metres of piling cut off after driving. Cut offs will be measured by the Engineer in the presence of the Contractor. Unless determined otherwise by the Engineer, cut offs shall become the property of the Contractor and shall be removed from the site.

7.2 Pile Tips

Supplying and installing pile tips will be measured on a unit basis and the number to be paid for will be the total number of pile tips supplied and installed as accepted by the Engineer.

7.3 Splicing Steel Bearing Piles

Splicing steel bearing piles will be measured on a unit basis and the number to be paid for will be the total number of splices performed by the Contractor and accepted by the Engineer.

7.4 Pre-Boring

Pre-Boring of piles will be considered incidental to supplying and driving steel bearing piles and no separate measurement will be made of this work.

8.0 BASIS OF PAYMENT

8.1 Steel Bearing Piles

Supplying steel bearing piles will be paid for at the Contract Unit Price per metre for "Supplying Steel H Piles", measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the Work.

Driving steel bearing piles will be paid for at the Contract Unit Price per metre for "Driving Steel H Piles", measured as specified herein, which price will be payment for performing all operations herein described and all other items incidental to the Work.

8.2 Pile Tips

Supplying pile tips will be paid for at the Contract Unit Price per pile tip for "Supply of Pile Tips", measured as specified herein, which price will be payment for performing all operations herein described and all other items incidental to the Work.

Installing pile tips will be paid for at the Contract Unit Price for "Installation of Pile Tips", measured as specified herein, which price will be payment for performing all operations herein described and all other items incidental to the Work.

8.3 Splicing Steel Bearing Piles

Splicing of steel bearing piles will be paid for at the Contract Unit Price per pile tip for "Splicing Steel H Piles", measured as specified herein, which price will be payment for performing all operations herein described and all other items incidental to the Work.

SPECIFICATIONS FOR
DISMANTLING AND SALVAGE OF EXISTING STRUCTURES

1.0 DESCRIPTION

The Work shall consist of:

- .1 Dismantling and removing (in whole or in part) the existing structure together with salvaging, cleaning, handling and storing of all usable or valuable parts and materials, and disposing of non-salvageable materials and debris;
- .2 Design, supply, fabrication, installation, maintenance and removal of demolition catch platforms;
- .3 Backfilling of cavities created; and
- .4 Site restoration.

Cofferdams and shoring (if required) shall be completed in accordance with the Specifications for Temporary Works.

2.0 REFERENCES AND RELATED SPECIFICATIONS

All reference standards and related specifications shall be current issue or the latest revision at the date of tender advertisement.

2.1 References

2.2 Related Specifications

- Specifications for Supplying and Placing Backfill
- Specifications for Temporary Works

3.0 SUBMITTALS

The Contractor shall submit the following to the Engineer, in accordance with the Special Provisions:

- .1 A detailed plan and schedule clearly illustrating the method and sequence by which the Contractor proposes to dismantle and remove the existing timber or steel structures (in whole or in part), including a description of the measures that will be implemented to meet the environmental requirements. The demolition procedure shall include detailed design notes and Shop Drawings that are sealed, signed and dated by a Professional Engineer licensed to practice in the Province of Manitoba necessary to describe the following:
 - (a) Access roads, Site Work Roads, work bridges and working platforms in accordance with the Specifications for Temporary Works.
 - (b) Type and capacity of equipment.
 - (c) Sequence of operation, including position of equipment.
 - (d) Proposed method of traffic accommodation and protection of the travelling public, when required.
 - (e) Design of demolition catch platforms.

(f) Description of the measures that will be implemented to meet the requirements of Environmental Management Procedures, including all monitoring and reporting requirements.

(g) Details and schedule of site restoration.

(h) Measures to be taken to protect adjacent structures, adjacent grades and portions of existing structure to remain.

.2 Upon completion of the Work, a letter bearing the seal of the Registered Professional Engineer certifying that he has carried out a personal inspection of the Work and the method of demolition and removal, including any temporary works and the measures to meet the environmental requirements, have been completed in accordance with his sealed plans and procedures.

.3 A description of the quantity and location for the demolition waste that will be recycled and reused.

4.0 MATERIALS

5.0 CONSTRUCTION METHODS

5.1 Closing To Traffic

The Contractor shall not close any portion of the existing rail line or roadways to traffic or begin the dismantling and removal operations without prior written approval from the Engineer. The approval will not be given until all required traffic control devices have been erected and the requirements of the traffic control plan have been met to the satisfaction of the Engineer.

5.2 Dismantling and Salvaging

.1 General

The Contractor shall be fully responsible for ensuring safety in areas underlying and adjacent to the construction site. The Contractor will be responsible for any loss or damage caused as a result of his actions. The Contractor shall prevent movement, settlement or damage to adjacent structures, grades or portions of existing structures to remain. If the safety of the structure being removed, or adjacent structures or grades appear to be in danger, the Contractor shall cease operations and notify the Engineer immediately.

All bridge components, in whole or in part, that have been deemed non-salvable by the Engineer, shall not be reused in any other bridge or structure in the future, and shall be disposed of off-site

The Contractor shall obtain and pay for all licenses and permits, and shall comply with all Municipal, Provincial and Federal regulations related to demolition and disposal of these materials.

.2 Dismantling and Salvaging

The existing structure shall be dismantled and removed in a careful and workmanlike manner and the use of equipment or facilities that might damage portions of the structure to be salvaged shall not be permitted. Bolts, screws, pins and nails shall be removed in such a manner as to avoid splitting and breaking of the timbers. Salvable material shall be cleaned, sorted and stored as to size and length for purposes of checking and preparing lists.

Salvable timber shall be trimmed to usable lengths as directed by the Engineer. Piles shall be cut off neatly at the proposed or existing ground line, as directed by the Engineer. When in water, the piles shall be cut off at the existing stream bed. All lumber such as decking shall be strapped in bundles of approximately 1 m³. The length of the salvaged stringers shall be clearly marked with yellow paint on both ends of every stringer.

.3 Salvable Materials

Material having salvage value shall be carefully handled to avoid damage and shall be piled neatly at a location adjacent to the work. A detailed list of salvable material shall be prepared by the Contractor and provided to the Engineer.

The Contractor shall load and haul the salvaged material to the Beausejour Bridge Yard, unless otherwise specified in the Special Provisions.

Salvable material is the property of the Minister and the Contractor will be held responsible for all material not accounted for. The salvable material shall not be used by the Contractor for any of his construction operations.

.4 Demolition Catch Platform

The demolition catch platform shall be designed and constructed as required to catch and retain all products of demolition, from falling onto roadway surfaces, railway right-of-way surfaces or open water during the Contractor's operations.

The demolition catch platform shall be designed and constructed so that the minimum vertical clearances over roadways and railways, as shown on the Drawings, are provided. The platform shall include, but not necessarily be limited to deck edge platforms and other catch platforms as required to collect and contain all products of demolition and all other debris.

5.3 Removal and Disposal of Non-Salvable Materials

Any debris that falls off the structures onto the underlying ground, roadway or railway right-of-way shall be immediately cleaned up by the Contractor.

The Contractor shall remove all non-salvable materials and debris from the site as soon as possible. All material shall be deemed non-salvable unless noted otherwise on the Drawings or Special Provisions. Demolition debris shall become the property of the Contractor and shall be properly disposed of at an approved location, in accordance with the applicable Provincial and Municipal Regulations and Acts. Storage of non-salvable materials and debris will not be allowed on site without the written approval of the Engineer.

The Contractor shall recycle and reuse as much of the non-salvable materials and demolition debris as is reasonably practical.

5.4 Backfilling of Cavities

The Contractor shall backfill all cavities created by the dismantling and removal operations with suitable material approved by the Engineer and in accordance with the Drawings and the Specifications for Supplying and Placing Backfill.

5.5 Site Restoration

The Contractor shall restore the site to the profile and grade as shown on the Drawings and to the approval of the Engineer.

6.0 QUALITY MANAGEMENT

The Contractor shall allow the Engineer unhindered access to the demolition areas and shall assist the Engineer in carrying out inspections, including provision of access platforms.

Upon completion of dismantling and removal (in whole or in part), a final inspection will be made by the Engineer.

7.0 METHOD OF MEASUREMENT

Dismantling and salvage of existing structures will be paid for on a lump sum basis, and no measurement will be taken for this work.

8.0 BASIS OF PAYMENT

Dismantling and salvage of existing structures will be paid for at the Contract Lump Sum Price for "Dismantling and Salvaging Existing Structures", measured as specified herein, and will be payment in full for performing all operations herein described and all other items incidental to the Work.

SPECIFICATIONS FOR CONSTRUCTION OF
 TREATED TIMBER STRUCTURES

1025. 1. DESCRIPTION

The work will consist of hauling timber to the construction site, placing timber, field framing, treating cut surfaces and holes, placing bridge iron, and painting all exposed bridge iron.

1025. 3. SUPPLY OF MATERIALS

3.1 Materials to be supplied by the Minister at the source(s) of supply specified in the Special Provision:

Treated Timber
Timber Preservative
Bridge Iron
Steel Beam Guard Rail
Identification Plaque, Cadmium Plated Screws

3.2 Materials to be supplied by the Contractor:

Rust Inhibiting Paint
Shimming Material

1025. 7. CONSTRUCTION METHODS

7.1 Handling and Storage of Materials

Treated timber brought to the site shall be carefully handled to avoid damaging the outer fibres. Dropping of the timber from the truck to the ground will not be allowed.

Special tools and slings shall be employed to prevent the penetration or bruising of the treated surfaces. The use of tongs, chains or other sharp tools for handling purposed will not be allowed.

The timber shall be stored in an orderly fashion and may be stacked in neat regular piles. Large pieces shall be spaced to allow the use of slings. Piled materials shall be closely stacked to prevent warping. The bottom pieces in each pile shall be placed on blocks to prevent bending of the timber.

Bridge iron shall be separated according to size and length and stored in suitable bins for ease of inspection, checking and handling.

7.2 Field Framing

Cutting, framing and boring of treated timber will be done by the supplier before treatment, however field cutting, fitting and matching may be required as indicated on the plans. The Contractor shall make the necessary cuts and holes, in a true and workmanlike manner.

All timber from which the seal of treatment has been removed due to mishandling by the Contractor will be rejected and replacement shall be made at the Contractor's expense, or if permitted by the Engineer, the Contractor shall apply timber preservative to the damaged surface. The Contractor shall apply one heavy coat of timber preservative to all areas where the seal of treatment has been removed or partially removed in the process of field cutting and framing.

1025. 7. CONSTRUCTION METHODS (Cont'd)

7.3 Placing Treated Timber

Treated timber shall be placed in the structure to the alignment and position indicated on the plans.

The Contractor shall measure the depth of all stringers above the daps and shall shim the daps with material approved by the Engineer on those stringers which measure less than the required measurement.

Butting stringers shall be fitted so that no gap remains between them. At hose joints where the butting stringers are not fully in contact with each other, the gaps shall be completely shimmed with material approved by the Engineer.

If, during the nailing of the deck, it is found that some areas of the deck do not bear properly on the stringers, these areas shall be shimmed with plywood to obtain full bearing of the deck to the stringers.

If precast girders do not bear properly on the timber pile caps, the Contractor shall place shims under the cap or under the girders to obtain full bearing of the girders to the cap.

All shims shall be treated with Timber Preservative.

Supplying and placing shims will be considered incidental to the Unit Price for "Placing Treated Timber" and no separate payment will be made for this work.

The individual sticks of decking shall be nailed together with sufficient force so that there are no gaps remaining between the rows of decking. To this end, the Contractor shall:

- (i) use hammers of the same weight and
- (ii) rotate his personnel who are nailing the deck across the width of the bridge.

In addition, the Contractor shall measure the distance between the leading face of the completed decking and the proposed position of the end floor plank at least once during the nailing of every 3 m of decking to ensure that:

- (i) the advance of the decking is uniform and
- (ii) the decking ends up parallel with the end floor plank.

The measurements shall be taken along each side of the bridge as well as along the centreline of the bridge.

7.4 Placing Bridge Iron

Bridge iron shall be placed and secured in the locations indicated on the plans. Nails, drift bolts and spikes shall be driven with sufficient force to set the heads flush with the surface of the timber. Recesses formed for countersinking shall be filled with timber preservative before the bolt is placed. All machine bolt assemblies and lag screws shall be drawn up snug and tight. The Contractor shall apply two coats of rust inhibiting paint to all exposed parts of the bridge iron after it has been secured in place. The steel plates under butting stringers and the pile straps shall be completely painted with two coats of rust inhibiting paint before being placed.

1025. 7. CONSTRUCTION METHODS (Cont'd)

7.4 Placing Bridge Iron (Cont'd)

The size of holes drilled in treated timber shall be as follows:

Drift Bolts

Holes shall be bored through the first timber with a bit 2 mm less in diameter than the nominal diameter of the bolt.

Machine Bolts

Holes shall be bored with a bit 2 mm larger in diameter than the nominal diameter of the bolt.

Lag Screws

Holes shall be bored to a depth of 40 mm shorter than the length of the lag screw with a bit 2 mm less in diameter than the nominal diameter of the lag screw.

Spikes

Boring of holes for spikes will not be required except where spikes are to be driven near an edge of a timber. In such cases, the holes shall be bored only through the first timber with a bit 3 mm less in diameter than the nominal diameter of the spikes.

7.5 Structure Identification Plaque

A brass identification plaque (c/w cadmium plated screws) for every structure will be supplied by the Department to the construction site.

The Contractor shall install the plaque on the outside of the exterior stringer nearest the northeast corner of the bridge.

The installation of the identification plaque(s) will be considered incidental to the unit price for "Placing Bridge Iron" and no separate payment will be made for this work.

1025. 9. METHOD OF MEASUREMENT

(a) Placing treated timber will be measured on a volume basis. The quantity to be paid for will be the number of cubic metres of timber, complete in place and accepted. The volume of timber will be computed using the actual width, thickness and length of each piece as shown on the plans.

(b) Placing bridge iron will be measured on a mass basis. The total number of kilograms paid for will be determined from the plans using the nominal masses of the various types of bridge iron as given in recognized handbooks.

1025. 11. BASIS OF PAYMENT

(a) Placing treated timber will be paid for at the Contract Unit Price per cubic metre for "Placing Treated Timber", measured as specified herein, which price will be payment in full for performing all operations herein described for timber and all other items incidental to this work.

1025. 11. BASIS OF PAYMENT (Cont'd)

- (b) Placing bridge iron will be paid for at the Contract Unit Price per kilogram for "Placing Bridge Iron", measured as specified herein, which price will be payment in full for performing all operations herein described for bridge iron and all other items incidental to this work.

SPECIFICATIONS FOR ERECTION OF STRUCTURAL STEEL

1.0 DESCRIPTION

The Work shall consist of:

- .1 Unloading and erecting structural steel components (e.g. girders, diaphragms, jacking beams, stiffeners, girder coverplating) as shown and described on the Drawings and in this Specification;
- .2 Supplying and installing bearings, including grout pads (where applicable);
- .3 Design, supply, fabrication, installation, maintenance and removal of temporary falsework (where applicable);
- .4 Design, supply, delivery, installation, maintenance and removal of erection bracing, temporary wind bracing, lateral stability bracing, longitudinal ties and other temporary works for structural steel girders; and
- .5 The quality control (QC) testing of all materials and the Work.

The Contractor shall not erect the structural steel girders until the substructure concrete has cured a minimum of seven days and achieved 80% of the 28 day specified concrete strength requirements.

2.0 REFERENCES AND RELATED SPECIFICATIONS

All reference standards and related specifications shall be current issue or latest revision at the date of tender advertisement.

2.1 Related Specifications

- Specifications for Supply and Fabrication of Structural Steel
- Specifications for Temporary Works

3.0 SUBMITTALS

The Contractor shall submit the following to the Engineer, in accordance with the Special Provisions:

.1 Girder Erection Procedure

A schedule and detailed plan clearly illustrating the method and sequence by which the Contractor proposes to unload and erect the structural steel girders. The girder erection procedure shall include detailed design notes and Shop Drawings that are sealed, signed and dated by a Professional Engineer, registered or licensed to practice in the Province of Manitoba necessary to describe the following and assume full responsibility that the design is being followed:

- .1 Access to work, including earth berms, work bridges, or rock berms. The Professional Engineer shall confirm that the temporary works can fully support all loads during girder erection.
- .2 Type and capacity of proposed equipment.

- .3 Sequence of operation, including position of cranes, trucks with girders, and traffic accommodation.
- .4 Detailed crane position and location, particularly adjacent to substructure elements, such as piers and abutment backwalls, with details of load distribution on wheels and outriggers throughout each lift. If the Engineer, approves the crane positioned on the structure during a portion of the work, details of crane position on the structure showing wheel loads and axle spacing of equipment moving on structure shall also be submitted.
- .5 Loads and their position from crane wheels and outriggers during all positions of lifting when the crane(s) is on or adjacent to the structure.
- .6 Details of temporary falsework, including proposed methods to be used to ensure stability and the required splice elevations and structure shape and details of release (if applicable).
- .7 Method of providing temporary supports for stability.
- .8 Details of lifting of girders, showing vertical forces at lifting points and on the lifting devices.
- .9 Complete details of blocking for bearings where necessary to constrain movement due to horizontal forces and/or gravity effects.
- .10 When applicable, complete details of longitudinal ties between the ends of girders at locations where the bridge will be made continuous. These ties shall be capable of resisting tension or compression that will develop due to temperature change, creep, and shrinkage. These shall be kept in place until the diaphragms have been installed and a majority of bridge deck concrete has been cast and reached specified strength.
- .11 Grout Pad Construction, if applicable.
- .12 Provide an "As Constructed" detailed survey of the substructure showing the following:
 - .1 Location and elevation of all bearing seats;
 - .2 Shim height at each bearing location, if applicable;
 - .3 Top of girder elevations at each bearing (and each splice location where applicable).

Safety and compliance with Manitoba Workplace Health and Safety Act and Regulations shall be integral to the girder erection procedure.

- .2 Detailed design notes and Shop Drawings for the bearings that are stamped signed and dated by a Professional Engineer, registered or licensed to practice in the Province of Manitoba.
- .3 Detailed design notes and Shop Drawings for proposed temporary works, including but not limited to: erection bracing, temporary wind bracing and lateral stability bracing for structural steel girders that are sealed signed and dated by a Professional Engineer, registered or licensed to practice in the Province of Manitoba.

4.0 MATERIALS

4.1 Bearings

The Contractor shall supply bearings in accordance with the requirements and details specified on the Drawings. Bearings must be approved as identified in MIT's Approved Products List and shall be to the

satisfaction of the Engineer. Any bearings that are not in MIT's Approved Products List will be subject to approval by the Engineer.

4.2 High Strength Bolts, Nuts and Washers

The requirements of the Specifications for Supply and Fabrication of Structural Steel, Clause 4.2 shall apply.

4.3 Welding Consumables

The requirements of the Specifications for Supply and Fabrication of Structural Steel, Clause 4.4 shall apply.

5.0 CONSTRUCTION METHODS

5.1 General

The Contractor shall schedule, coordinate and sequence structural steel erection in cooperation with the delivery of the structural steel by the structural steel fabricator.

Any structural steel components that in the opinion of the Engineer have been damaged or otherwise rendered useless by the improper handling by the Contractor shall be replaced by the Contractor at his own expense.

If the structural steel components are stored on site, the requirements of the Specifications for Supply and Fabrication of Structural Steel, Clause 5.6 shall apply.

5.2 Bearing Areas

.1 Grout Pads

When shown on the Drawings or described in the Special Provisions, the Contractor shall construct grout pads using Sika 212 flowable grout or equivalent, accepted by the Engineer. Construction of grout pads shall be done by workers competent in this work.

Grouts shall be packaged in waterproof containers with the production date and shelf life of the material shown. It shall be mixed, placed, and cured in strict accordance with the Manufacturer's recommendations.

The method of forming and pouring the grout shall be submitted to the Engineer for review and approval prior to the work being undertaken. Dry-pack methods of constructing grout pads will not be accepted.

When the daily minimum air temperature or the temperature of the girders, bearings, or substructure concrete in the immediate area of the grouting falls below 5°C, or when there is a probability of it falling below 5°C within 24 hours of grouting, the following provisions for cold weather grouting shall be implemented:

- (a) Before grouting, adequate preheat shall be provided to raise the temperature of the adjacent areas of the girders, bearings, and substructure concrete to at least 10°C.
- (b) Temperature of the grout during placing shall be between 10°C and 25°C.
- (c) The grout pads (and girders where appropriate) shall be enclosed and kept at 15°C to 25°C for at least five days. The system of heating shall be designed to prevent excessive drying-out of the grout.

.2 Anchor Bolts

The Contractor shall remove all anchor bolt void forming materials prior to grouting. Any residues on the concrete surface, such as oils, grease, or other contaminants that can reduce bonding characteristics, shall be removed by sandblasting.

Anchor bolts shall be set accurately and grouted with non-shrink cement grout accepted by the Engineer. All methods and materials for setting anchor bolts and building bearing pads shall be submitted to the Engineer for review and acceptance. The location of the anchor bolts, in relation to the slotted holes in the expansion shoes, shall correspond with the temperature at the time of erection. The nuts on the anchor bolts, at the expansion ends of spans, shall be adjusted to permit free movement of the spans.

.3 Bearings

The Contractor shall accurately assemble and install the bearings as specified on the Drawings and as directed by the Engineer. The stainless steel surface of the bearings, the Teflon coated bearing pads and the machined surfaces of steel bearings that have been cast into the girders shall be protected from damage at all times. The plywood and polyethylene covers shall not be removed until immediately prior to the positioning of the bearings over the bearing seats.

When steel bearings are employed in conjunction with grout pockets in the substructure, the bearings shall be set accurately on galvanized steel shims, and grouted as detailed on the Drawings, after the girder erection has been completed. The shims must be located so that a minimum of 75 mm grout coverage is provided. When the grout pockets are not detailed, the bearing plates shall be set on the property finished bearing areas in exact position and shall have a full and even bearing on the concrete.

Where the design requires that the girders bear on neoprene pads placed directly on pier or abutment seat concrete, the Contractor shall supply and install shims cut from lead sheeting as determined by the Engineer to ensure full and uniform bearing.

Any bearings that in the opinion of the Engineer have been damaged or otherwise rendered unusable by improper storage or handling by the Contractor shall be replaced by the Contractor at his expense.

5.3 Erection of Structural Steel Girders

.1 General

Before taking possession and erecting the girders, the Contractor shall verify that the lengths of the girders, the layout of the substructure units, the elevations of the bearings seats, and the location of the anchor bolts are in accordance with the Drawings. All discrepancies discovered by the Contractor shall be brought immediately to the attention of the Engineer.

It is essential that the girders be erected with utmost attention being given to girder positioning, alignment, and elevation. The Contractor shall adjust girder position, bearing location, and bearing elevation in order to achieve as closely as possible the lines and grades shown on the Drawings. The Contractor shall minimize any differential camber (girder to girder), and the sweep of the girders by jacking, loading of girders, winching, or whatever means are necessary, and shall provide the necessary temporary attachments to hold the girders in position. The Engineer shall approve of all proposed methods of jacking, loading, winching, etc. prior to the work being undertaken.

Unloading and erection of the structural steel girders shall be under the direction of a Professional Engineer, registered or licensed to practice in the Province of Manitoba. The Professional Engineer shall be experienced in bridge girder erection and be present for all stages of the girder erection.

Loose timber blocking will not be permitted for use as temporary works for any aspect of girder erection.

It is the Contractor's responsibility to ascertain the actual weight of the girders.

.2 Equipment

All cranes, rigging and equipment shall be in good condition and properly maintained at all times during the period of the work. All cranes, rigging and equipment shall be of sufficient capacity to complete every stage of the erection works.

The Engineer shall, at his/her discretion, verify capacity and state of equipment provided and any equipment found not meeting the requirements for erection work shall be removed and replaced.

Slings and other lifting devices that will be in contact with structural steelwork shall be of a type which shall not damage shop primed or painted surfaces.

.3 Erection

The Engineer shall be notified in writing of the starting date at least two weeks prior to the commencement of field operations. Work shall not be carried out until the Engineer is on the site.

Components shall be lifted, placed, and maintained in position using appropriate lifting equipment, temporary bracing, guys, or stiffening devices so that the components are at no time overloaded, unstable, or unsafe. Additional permanent material may be provided, if approved by the Engineer, to ensure that the member capacities are not exceeded during erection. The additional material shall be shown in the erection diagram.

Release of temporary supports or temporary members, etc. must be gradual, and under no circumstances will a sudden release be permissible.

Unless otherwise approved by the Engineer, at least 50% of the holes in the joints shall be filled with drift pins or hand tightened bolts prior to removing the crane. At least 50% the bolts required in the flanges shall be installed. For roadway or railway overpass structures, drift pins shall not be left in place over traffic when the crane is removed.

For temporary fit ups, main girder splices and connections shall be aligned with drift pins and a sufficient number of fitting up bolts shall be installed to maintain the integrity of the connection.

The fitting up bolts may be the high strength bolts used in the installation. Drift pins shall be 1 mm larger in diameter than the required bolts. Excessive drifting that distorts the metal and enlarges the holes is not allowed. Reaming up to 2 mm over the nominal hole diameter is permitted, except for oversize or slotted holes.

Repairs to erected material will only be permitted after the repair procedure has been approved by the Engineer.

Filling of misplaced holes by welding is permitted only with the written approval of the Engineer.

Material intended for use in the finished structure shall not be used for erection or temporary purposes unless such use has been shown on the Shop Drawings, erection diagram, or authorized by the Engineer.

Hammering that will damage or distort the members is not permitted.

Surfaces that will be in permanent contact shall be cleaned immediately prior to assembly.

.4 Temporary Stresses

The Contractor shall assume full responsibility for ensuring that all bridge member and component stresses are within permissible limits at all stages of the construction work. The Contractor shall provide all necessary additional steel reinforcement, bracing or other measures required to ensure that the erection procedures do not overstress any temporary or permanent member or component at any stage of the Work.

.5 Alignment and Camber

The structural steel girders shall be erected to the proper alignment in plan and in elevation, taking into account the dead load camber shown on the Drawings. Members shall be aligned to the dimensional tolerances specified in CAN/CSA W59-M, but in no case, shall it deviate by more than 50 mm from the theoretical location.

Alignment shall be measured from survey lines joining the ends of any test length of a member.

.6 Temporary Bracing

The Contractor shall be responsible for the design, supply, installation and removal of all:

- .1 erection bracing;
- .2 temporary wind bracing;
- .3 lateral stability bracing; and
- .4 longitudinal ties

as may be required during and immediately following the erection of structural steel girders.

The bracing shall be designed and installed so that it will not interfere with the installation of steel diaphragms.

.7 Lifting Devices

After the Engineer has approved the erection positions of the girders, all lifting devices shall be removed to the satisfaction of the Engineer.

5.4 Connections

Holes made in the field shall be drilled or reamed. Shop reamed holes shall not be re-reamed in the field.

At the time of erection, all splice plates shall be free of loose mill scale, burrs, and all contamination such as drilling shavings, oil, dirt, and paint.

Surfaces to be in permanent contact shall be cleaned immediately prior to assembly.

Any error in shop fabrication or any deformation resulting from handling or transportation that prevents the proper assembly and fitting of parts, especially splices of main structural members, shall be reported

and the proposed method of correction shall be submitted to the Engineer. Corrective measures shall not commence until the submitted proposal is accepted by the Engineer.

5.5 Cantilever Erection

When members or components to be erected will be cantilevered, splices that support the cantilevering member or component shall be fully bolted before extending.

5.6 Attachments

The use of tack welds for securing temporary or permanent attachments that are not shown on submitted Shop Drawings, erection drawings or fabrication drawings shall not be permitted on any portion of girders or any other structural members.

5.7 Field Welding

The company undertaking field-welding shall be certified to Division 1 of CAN/CSA W47.1.

The requirements of the Specifications for Supply and Fabrication of Structural Steel, Clause 5.2 shall apply.

5.8 Bolted Construction

The requirements of the Specifications for Supply and Fabrication of Structural Steel, Clause 5.3 shall apply.

Bolt heads shall be located on the outside faces of exterior girder webs.

Bolt heads in field splices for box girders shall be located on the exterior surfaces.

5.9 Removal of Falsework and Site Clean-up

Upon completion of the erection and before final acceptance, the Contractor shall remove all temporary falsework. He shall remove all piling, excavated or surplus materials, rubbish and temporary supports, replace or renew any damaged fences, and restore in an acceptable manner all property damaged during the execution of the Work. Disposed of surplus materials shall be in a manner and at a location satisfactory to the Engineer.

The Contractor shall leave the bridge site, roadway and adjacent property in a neat restored and presentable condition, satisfactory to the Engineer. When requested by the Engineer, the Contractor shall provide written evidence that affected property owners and/or regulatory agencies have been satisfied.

5.10 Protection of Concrete Components

If the coating system is to be applied in the field, the substructure shall be protected during construction against rust-staining by water runoff until the structural steel has been coated.

6.0 QUALITY MANAGEMENT

After all of the structural steel has been erected, the Engineer and the Contractor shall conduct a final inspection to locate any damage or deficiencies. All visible damage or any deficiencies shall be repaired to the satisfaction of the Engineer before final approval.

7.0 METHOD OF MEASUREMENT

7.1 Structural Steel

The structural steel will be measured on a mass basis. The total mass in kilograms to be paid for will be computed on the basis of the net finished dimensions on the plans, deducting the mass of copes, cuts, clips and all open holes, except bolt holes. The mass of rolled shapes will be calculated using the nominal mass listed in recognized handbooks or as follows:

Material	Unit Mass (kg/m ³)
Structural Steel	7 850
Lead	11 320
Bronze	8 590

The mass of all paint, galvanizing material or other protective coatings, and all deposited weld metal used for either shop or field welding, will not be included in the mass of material to be paid for.

7.2 Bearings

The supply and installation of bearing units will be measured on a unit basis, and the number to be paid for will be the total number of bearings installed and accepted by the Engineer.

8.0 BASIS OF PAYMENT

8.1 Structural Steel

Erection of structural steel will be paid for at the Contract Unit Price per kilogram for "Erection of Structural Steel" measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the Work.

8.2 Bearings

Supply of bearings will be paid for at the Contract Unit Price for "Supply Bearings", measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the Work.

Installation of bearings will be paid for at the Contract Unit Price for "Installation of Bridge Bearings", measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the Work.

SPECIFICATIONS FOR STONE RIP-RAP

1297. 1. Scope

These Specifications govern all operations necessary for and pertaining to the supplying and placing of approved stone as a protective covering along the side slopes and bases of river channels, around piers and abutment footings and wing walls, on slopes around culvert inlets and outlets and on embankments, or such other places as may be indicated on the plans or designated by the Engineer in the field.

1297. 2. MATERIALS

2.1 Stone Rip-Rap Quality

The Contractor shall supply field stone, quarried rock, or quarried limestone which is dense, durable, sound, resistant to the action of water and frost, and suitable in all respects for the purpose intended. Stone rip-rap shall be free from sod, roots, organic material and debris prior to placement. Individual pieces of stone shall be free of defects such as seams or cracks that would cause rapid or excessive deterioration or degradation.

Quarried limestone shall have a maximum Los Angeles Abrasion Loss of 32% (ASTM C535) and a maximum Magnesium Sulphate Soundness Loss of 13% (ASTM C88). Representative sample limestone, from the intended source, crushed to maximum 75 mm aggregate size, shall be supplied by the Contractor to the Department for approval a minimum of two weeks prior to its use.

2.2 Stone Rip-Rap Gradation

The stone rip-rap shall be well graded having a full range and even distribution of sizes and shall conform to the following gradation:

STONE RIP-RAP GRADATION

SIZE Smaller Than (mm)	CLASS 600	CLASS 450	CLASS 350
600	100%		
450		100%	
350	15-50%		100%
250		15-50%	
200	0 - 15%		15-50%
150		0 – 15%	
100			0 – 15%

Dependent on conditions and provided there is no additional cost to the department, the Engineer may accept a larger size of stone rip-rap than what is called for on the tender bid page.

1297. 3. CONSTRUCTION METHODS**3.1 Preparation of Bed**

The ground surface shall be **excavated and neatly shaped** to the lines as shown on the plans or as staked by the Engineer in the field prior to the placing of any rip-rap.

The supply and installation of any geotextile, granular filter, and/or bedding material shown on the plans shall be according to their respective specifications and paid for as separate items.

3.2 Placing of Stone Rip-Rap

The stone rip-rap shall be dumped or placed in such a manner that the larger stones are uniformly distributed, the smaller rocks serve to fill the spaces between the larger stones, and that excessive segregation of the various stone sizes does not occur.

Sufficient placing and leveling shall be done to produce a firmly bedded neat and uniform surface conforming to the thickness, shape, and dimensions shown on the plans.

4. METHOD OF MEASUREMENT

Stone rip-rap will be measured on a volume or a mass basis, as indicated on the tender bid page.

Where the unit bid item for Stone Rip-Rap is in cubic metres, the volume to be paid for will be the number of cubic metres placed in the completed work as determined by multiplying the actual surface area by the thickness shown on the plans or by using the volume rated capacity of the hauling vehicle.

Where the unit bid item for Stone Rip-Rap is in tonnes, the mass to be paid for will be measured in tonnes of material placed in the completed work.

The area to be rip-rapped shall not exceed the dimensions shown on the plans or as established by the Engineer in the field.

5. BASIS OF PAYMENT

Stone rip-rap will be paid for at the unit price for "Stone Rip-Rap", measured as specified herein, which price will be payment in full for **excavating and shaping the rip-rap bed**, supplying, loading, hauling, and placing rip-rap and for performing those operations described herein and those incidental to the work.