



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 549-2011

**CITY OF WINNIPEG – CORYDON AVENUE EASTBOUND – LANARK STREET TO
BOREBANK STREET – PAVEMENT RECONSTRUCTION, KING EDWARD STREET
SOUTHBOUND – SASKATCHEWAN AVENUE TO DUBLIN AVENUE – PAVEMENT
REHABILITATION**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 CITY OF WINNIPEG – CORYDON AVENUE EASTBOUND – LANARK STREET TO BOREBANK STREET – PAVEMENT RECONSTRUCTION, KING EDWARD STREET SOUTHBOUND – SASKATCHEWAN AVENUE TO DUBLIN AVENUE – PAVEMENT REHABILITATION

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 19, 2011.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

- B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B3.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B3.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B4. ADDENDA

- B4.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B4.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B4.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B4.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B5. SUBSTITUTES

- B5.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B5.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B5.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B5.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B5.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B14.
- B5.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B5.10 Notwithstanding B5.2 to B5.9, in accordance with B6.6, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B6. BID COMPONENTS

B6.1 The Bid shall consist of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices, hard copy;
- (c) Bid Security;
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;

B6.2 Further to B6.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B5.

B6.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.

B6.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B6.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.

B6.4.2 A hard copy of Form B: Prices must be submitted with the Bid. If there is any discrepancy between the Adobe PDF version of Form B: Prices and the Microsoft Excel version of Form B: Prices, the PDF version shall take precedence.

B6.5 Bidders are advised not to include any information/literature except as requested in accordance with B6.1.

B6.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).

B6.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B6.8 Bids shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B7. BID

B7.1 The Bidder shall complete Form A: Bid, making all required entries.

B7.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

- (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.

B7.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B7.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, shall be affixed;
- (d) if the Bidder is carrying on business under a name other than his own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B7.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B7.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B8. PRICES

B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B8.1.1 For the convenience of Bidders, and pursuant to B6.4.2 and B14.4.3, an electronic spreadsheet Form B: Prices in Microsoft Excel (.xls) format is available along with the Adobe PDF documents for this Bid Opportunity on the Bid Opportunities page at the Materials Management Division website at <http://www.winnipeg.ca/matmgt>

B8.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B8.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B8.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B9. QUALIFICATION

B9.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

- B9.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B9.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
 - (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
 - (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- B9.4 Further to B9.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
 - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>)
- B9.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B9.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B10. BID SECURITY

- B10.1 The Bidder shall provide bid security in the form of:
- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
 - (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.
- B10.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B10.1.2 All signatures on bid securities shall be original.
- B10.1.3 The Bidder shall sign the Bid Bond.

- B10.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.
- B10.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B10.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B10.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B10.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B10.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

- B11.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.
- B11.1.1 Bidders or their representatives may attend.
- B11.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B10 will not be read out.
- B11.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B11.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B11.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B12. IRREVOCABLE BID

- B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B12.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B13. WITHDRAWAL OF BIDS

- B13.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

- B13.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.
- B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B14. EVALUATION OF BIDS

- B14.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation therefrom (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B5.
- B14.2 Further to B14.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.
- B14.4 Further to B14.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B14.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B14.4.2 Further to B14.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B14.4.3 The electronic Form B: Prices and the formulas imbedded in that spreadsheet are only provided for the convenience of Bidders. The City makes no representations or warranties as to the correctness of the imbedded formulas. It is the Bidder's responsibility to ensure the extensions of the unit prices and the sum of Total Bid Price performed as a function of the formulas within the electronic Form B: Prices are correct.

B15. AWARD OF CONTRACT

- B15.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B15.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B15.2.1 Without limiting the generality of B15.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B15.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B14.
- B15.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the General Conditions for Construction, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of:

- (a) Pavement Reconstruction
 - (i) Corydon Avenue Eastbound from Lanark Street to Borebank Street
- (b) Pavement Rehabilitation
 - (i) King Edward Street Southbound from Saskatchewan Avenue to Dublin Avenue

D2.2 The major components of the Work are as follows:

- (a) Temporary Detour Diversion – Beaverbrook Street to Campbell Street
 - (i) Removal of curb and boulevard
 - (ii) Excavation
 - (iii) Compaction of sub-grade
 - (iv) Placement of sub-base and base course material
 - (v) Placement of asphalt pavement (average thickness = 50mm)
 - (vi) Removal of pavement sub-base and base course material associated with detour diversion (post construction)
 - (vii) Restoration of pavement, curb and boulevard (post construction)
- (b) Pavement Reconstruction
 - (i) Removal of existing pavement
 - (ii) Excavation to sub-grade
 - (iii) Replacement of catchbasins and connection pipes
 - (iv) Installation of subdrains
 - (v) Placement of separation/reinforcement fabric
 - (vi) Placement of geogrid
 - (vii) Placement and compaction of sub-base and base course materials
 - (viii) Adjustment of catchbasins, manholes and water valves
 - (ix) Construction of 200mm concrete pavement (reinforced) utilizing slip-form paving equipment
 - (x) Construction of curb utilization slip-form paving equipment
 - (xi) Curb renewal at intersections
 - (xii) Planing and Paving of asphalt tie-ins
 - (xiii) Renewal of existing sidewalk and installation of detectable warning surface tiles
 - (xiv) Boulevard restoration

- (c) Pavement Rehabilitation
 - (i) Planing of existing asphalt pavement overlay
 - (ii) Full depth concrete patches of existing slabs and joints as identified by the Contract Administrator
 - (iii) Replacement of existing catchbasins
 - (iv) Reconstruction of curb utilization slip-form paving equipment
 - (v) Renewal of existing sidewalk
 - (vi) Curb renewal at intersections
 - (vii) Boulevard restoration
 - (viii) Paving of asphalt overlay (average thickness = 100mm)
 - (ix) Guardrail installation

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is KGS Group, represented by:

Roy Houston, P.Eng.

Manager of Civil / Municipal Services

3rd Floor – 865 Waverley Street, Winnipeg, MB, R3T 5P4

Telephone No. (204) 896-1209

Facsimile No. (204) 896-0754

D3.2 At the pre-construction meeting, Roy Houston, P.Eng. will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4. CONTRACTOR'S SUPERVISOR

D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D5. NOTICES

D5.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

D5.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg

Chief Financial Officer

Facsimile No.: (204) 949-1174

- D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
Facsimile No.: (204) 947-9155

D6. FURNISHING OF DOCUMENTS

- D6.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

- D7.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D8. SAFE WORK PLAN

- D8.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D8.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>

D9. INSURANCE

- D9.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
 - (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D9.2 Deductibles shall be borne by the Contractor.

D9.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract.

D9.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D10. PERFORMANCE SECURITY

D10.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D10.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D10.2 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B10.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the C4.1 for the return of the executed Contract.

D11. SUBCONTRACTOR LIST

D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the C4.1 for the return of the executed Contract.

D12. DETAILED WORK SCHEDULE

D12.1 The Contractor shall provide the Contract Administrator with a detailed work schedule (Form L: Detailed Work Schedule) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

SCHEDULE OF WORK

D13. COMMENCEMENT

D13.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

- D13.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D7;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
 - (iv) the Safe Work Plan specified in D8;
 - (v) evidence of the insurance specified in D9;
 - (vi) the performance security specified in D10;
 - (vii) the subcontractor list specified in D11;
 - (viii) the detailed work schedule specified in D12; and
 - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D13.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D14. WORKING DAYS

D14.1 Further to C1.1(gg);

D14.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that he agrees with the Contract Administrator's determination of the Working Days assessed for the report period.

D14.1.2 Work done to restore the Site to a condition suitable for Work, shall not be considered "work" as defined in the definition of a Working Day.

D15. RESTRICTED WORK HOURS

D15.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D16. WORK BY OTHERS

D16.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) City of Winnipeg Traffic Services – Erection and maintenance of temporary traffic control signings. Supply and installation of permanent traffic signs and bases. Permanent pavement markings at crosswalks; and
- (b) Manitoba Hydro Gas Division – Miscellaneous adjustments to lower gas services may be required; and
- (c) City of Winnipeg Geomatics – Adjustments, inspection and identification of survey monuments; and
- (d) TeraSpan Networks – Safety watch during construction and lowering fiber-optic cable at certain locations on Corydon Avenue; and
- (e) Canadian Pacific Railway (CPR) – Safety watch for any construction that occurs within the CPR right-of-way and construction of pavement/sidewalk within 0.45 m of rail tracks. Potential installation of rail crossing gates.

D17. SEQUENCE OF WORK

D17.1 Further to C6.1, the sequence of work shall be as follows:

D17.1.1 The Work shall be divided into two (2) phases: Corydon Avenue and King Edward Street. Each Phase shall be subdivided into stages. Stages are further subdivided into major items of work. Construction of both phases can occur concurrently.

D17.2 Phase I – Corydon Avenue Eastbound

(a) **Stage I** – Temporary Detour Diversion – Corydon Avenue between Beaverbrook Street and Campbell Street

- (i) Remove existing curb and median;
- (ii) Excavate;
- (iii) Compaction of existing sub-grade;
- (iv) Placement and compaction of sub-base and base course;
- (v) Placement of asphalt course; and
- (vi) Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to commencing construction of the asphaltic concrete overlay, including the scratch course.

D17.2.1 Construction of temporary Detour Diversion and erection of traffic control signings shall be completed prior to the commencement of Stage II.

(b) **Stage II** – Pavement Reconstruction – Corydon Avenue Eastbound between Lanark Street and Borebank Street

- (i) Remove existing pavement and curb;
- (ii) Excavation;
- (iii) Adjustment or replacement of existing manholes, catch basins and catch pits;
- (iv) Installation of subdrains;
- (v) Placement of separation/reinforcement fabric and geogrid;
- (vi) Installation of watermain insulation along south side of excavation;
- (vii) Placement and compaction of sub-base and base course materials;
- (viii) Construct 200mm concrete pavement (reinforced) utilizing slip-form paving equipment;
- (ix) Construct splash strip utilizing slip-form paving equipment;
- (x) Construction of asphalt tie-ins at intersection locations;
- (xi) Renewal of existing sidewalk;
- (xii) Boulevard restoration; and
- (xiii) Decommission detour diversion and restoration.

(c) **Stage III** – Pavement Reconstruction – Corydon Avenue Eastbound Station 2+45 to Station 2+70

- (i) Complete pavement reconstruction works in the median lane of this section upon completion of restoration of the temporary detour diversion.

D17.2.2 Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to the commencing construction of the asphaltic concrete overlay, including the scratch course.

D17.2.3 Immediately following the completion of the asphaltic concrete works of Phase I, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.

D17.3 Phase II – King Edward Street Southbound

(a) **Stage I** – West Curb Lane and Curb

- (i) Planing of existing asphalt pavement overlay;

- (ii) Removal of existing curb;
 - (iii) Full depth concrete patches of existing slabs and joints and construct exposed concrete bus pads;
 - (iv) Replace existing catchbasins;
 - (v) Construct new splash strip curb using slip-form paving equipment;
 - (vi) Adjust manhole rims and valves;
 - (vii) Renewal of existing sidewalk;
 - (viii) Boulevard grading;
 - (ix) Top soil; and
 - (x) Construct asphalt scratch coat.
- (b) **Stage II – Central Lanes (Only One Lane at a Time)**
- (i) Planing of existing asphalt pavement overlay;
 - (ii) Full depth concrete patches of existing slabs and joints;
 - (iii) Adjust manhole rims and valves;
 - (iv) Construct asphalt scratch coat; and
 - (v) Repeat for subsequent central lanes.
- (c) **Stage III – East Curb Lane and Curb**
- (i) Planing of existing asphalt pavement overlay;
 - (ii) Removal of existing curb;
 - (iii) Full depth concrete patches of existing slabs and joints;
 - (iv) Replace existing catchbasins;
 - (v) Construct new splash strip curb using slip-form paving equipment;
 - (vi) Adjust manhole rims and valves;
 - (vii) Renewal of existing sidewalk;
 - (viii) Boulevard grading;
 - (ix) Top soil; and
 - (x) Construct asphalt scratch coat.
- (d) **Stage IV – Asphalt Shoulders and Guardrails**
- (i) Construction of shoulder base course;
 - (ii) Construct asphalt shoulders;
 - (iii) Install guardrail posts; and
 - (iv) Install guard rail W-Beams and all other guardrail appurtenances.
- (e) **Stage V – Construct Final Asphalt Lift**
- (i) Construct final asphalt lift in all lanes in one operation; and
 - (ii) Apply seeding.

D17.3.1 Stage I, II, and III must occur consecutively. The Contractor shall not begin a subsequent stage until the current stage has been completed.

D17.3.2 Stages IV and V can begin once stages I, II and III are complete.

D17.3.3 The Contractor shall not commence any work within the Canadian Pacific Railway (CPR) right-of-way (approximately stations 3+42 to 3+67) until CPR has provided permission to allow the Contractor to work within the right-of-way. Construction within the CPR right-of-way can only occur when a CPR flag person is present. The Contractor shall work the same hours as the CPR flag person.

D17.3.4 Acquiring a CPR flag person needs to be arranged by the Contract Administrator. Once the CPR flag person has been acquired, the Contractor shall work on stages I, II, III, and IV within the confinement of the CPR right-of-way (approximately station 3+42 to 3+67). Once Stages I, II, III and IV within the CPR right-of-way are complete, the Contractor shall

resume work outside of the CPR right-of-way. Acquiring a CPR flag person can occur at any time during the project.

D17.4 Further to C6.1, the sequence of work shall be as follows:

D17.4.1 The Contractor shall delay placing the final lift of asphalt on any single lane after Stage I, II and III of the roadway, so that the final lift of all lanes is placed in one operation.

D17.4.2 Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to commencing construction of asphaltic concrete overlays, including scratch courses.

D18. CRITICAL STAGES

D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

(a) Phase II – King Edward Street Southbound – Must be completed within forty (40) consecutive Working Days.

D18.2 When the Contractor considers the Work associated with Phase II to be completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Completion. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D18.3 The date on which the Phase II Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of Phase II has been achieved.

D19. SUBSTANTIAL PERFORMANCE

D19.1 The Contractor shall achieve Substantial Performance within fifty (50) consecutive Working Days of the commencement of the Work as specified in D13.

D19.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D19.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D20. TOTAL PERFORMANCE

D20.1 The Contractor shall achieve Total Performance within fifty five (55) consecutive Working Days of the commencement of the Work as specified in D13.

D20.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D20.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D21. LIQUIDATED DAMAGES

- D21.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand dollars (\$3,000.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.
- D21.2 The amount specified for liquidated damages in D21.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.
- D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D22. SCHEDULED MAINTENANCE

- D22.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Maintenance of seeded area as specified in CW 3520-R7; and
 - (b) Joint and crack maintenance as specified in CW 3250-R7;
- D22.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

D23. ACCELERATED COMPLETION

- D23.1 Description
- D23.1.1 This specification shall cover the accelerated completion of Phase II – King Edward Street Southbound of this contract.
- D23.2 Acceleration of Work
- D23.2.1 At no risk to the City, the Contractor at his own initiative, means, and expense, may undertake to complete the Works of this Contract to facilitate the safe reopening of the entire Site in Phase II to traffic and pedestrians in advance of the Critical Stage end date as specified in D18.
- D23.2.2 Reopening of the entire Site shall occur when all Work items listed in D17.3 are complete, including boulevard grading, topsoil, sod, and Site cleanup.
- D23.2.3 In recognition of the fact that an early completion of the Works in Phase II is of benefit to the City, the City will compensate the Contractor for said early completion on a per diem unit price basis, as hereinafter set out, provided that the City will not be liable to pay for any period of acceleration in excess of ten (10) Working Days.
- D23.2.4 It is noted that certain delays on road rehabilitation Work are normal, due to Site conditions, necessary layout and dimensional changes. The Contract Administrator will attempt to resolve each situation as soon as possible. The Contractor is advised that no extension to the Critical Stage timeframe listed in D18 will be given for events of this sort which cause construction delay and are resolved within 48 hours of the requirement of change becoming known to both the Contractor and the Contract Administrator.
- D23.3 Method of Measurement
- D23.3.1 Subject to clause D23.2.3 hereof, accelerated completion will be measured on a unit basis per diem. The number of days to be paid for will be the total number of Working Days with which all of Phase II is complete and safely reopened to vehicular and pedestrian traffic in

advance of the Critical Stage number of Working Days specified herein for Substantial Performance in D18, with all specified Works listed in D17.3 completed and acceptable to the Contract Administrator.

D23.4 Basis of Payment

D23.4.1 Subject to clause D23.2.3 hereof, accelerated completion will be paid for at the Unit Price per diem specified hereinafter for "Accelerated Completion" which price shall be payment in full for performing all operations undertaken and all other items incidental to the Work included in this Specification. Unit Price per diem = Three thousand dollars (\$3,000).

D23.4.2 Payment for this item is not identified on Form B: Prices, and shall not be included thereon. If accelerated completion does occur as specified herein, then payment will be made for this item as an addition to the contract.

CONTROL OF WORK

D24. JOB MEETINGS

D24.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D25. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D25.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

MEASUREMENT AND PAYMENT

D26. PAYMENT

D26.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D27. WARRANTY

D27.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) years thereafter for all the work on King Edward Street from Saskatchewan Avenue to Dublin Avenue, and two (2) years thereafter for all the work on Corydon Avenue from Lanark Street to Borebank Street, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D27.2 Notwithstanding C13.2 or D27.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use; or

D27.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D10)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

BID OPPORTUNITY NO. 549-2011

CITY OF WINNIPEG – CORYDON AVENUE EASTBOUND – LANARK STREET TO BOREBANK STREET – PAVEMENT RECONSTRUCTION, KING EDWARD STREET SOUTHBOUND – SASKATCHEWAN AVENUE TO DUBLIN AVENUE – PAVEMENT REHABILITATION which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D10)

(Date)

The City of Winnipeg
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY – BID OPPORTUNITY NO. 549-2011

CITY OF WINNIPEG – CORYDON AVENUE EASTBOUND – LANARK STREET TO BOREBANK
STREET – PAVEMENT RECONSTRUCTION, KING EDWARD STREET SOUTHBOUND –
SASKATCHEWAN AVENUE TO DUBLIN AVENUE – PAVEMENT REHABILITATION

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding
in the aggregate

Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM J: SUBCONTRACTOR LIST
(See D11)

CITY OF WINNIPEG – CORYDON AVENUE EASTBOUND – LANARK STREET TO BOREBANK STREET – PAVEMENT RECONSTRUCTION, KING EDWARD STREET SOUTHBOUND – SASKATCHEWAN AVENUE TO DUBLIN AVENUE – PAVEMENT REHABILITATION

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
<i>SURFACE WORKS:</i>		
<i>Supply of Materials:</i>		
Concrete		
Asphalt		
Base Course & Sub-Base		
Salt Torrent Seed		
Midwest Guardrail		
Guardrail End Treatment		
<i>Installation/Placement:</i>		
Concrete		
Asphalt		
Base		
Reflective Crack Maintenance		
Salt Tolerant Seed		
Midwest Guardrail		
Guardrail End Treatment		
<i>UNDERGROUND WORKS:</i>		
<i>Supply of Materials:</i>		
Catchbasin		
Sewer Pipe		
Catchbasin / Manhole Frames and Covers		
Watermain Insulation		
<i>Installation/Placement:</i>		
Catchbasin		
Sewer Pipe		
<i>OTHERS:</i>		

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Cover Sheet	A3
P-3328-01	Corydon Ave. Lanark St. to Borebank St. STA. 1+00 to STA. 1+75	A3
P-3328-02	Corydon Ave. Lanark St. to Borebank St. STA. 1+75 to STA. 2+50	A3
P-3328-03	Corydon Ave. Lanark St. to Borebank St. STA. 2+50 to STA. 3+25	A3
P-3328-04	Corydon Ave. Lanark St. to Borebank St. STA. 3+25 to STA. 4+00	A3
P-3328-05	Corydon Ave. Lanark St. to Borebank St. STA. 4+00 to STA. 5+17	A3
P-3328-06	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 1+00 to STA. 2+50	A3
P-3328-07	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 2+50 to STA. 4+00	A3
P-3328-08	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 4+00 to STA. 5+50	A3
P-3328-09	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 5+50 to STA. 7+00	A3
P-3328-10	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 7+00 to STA. 8+50	A3
P-3328-11	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 8+50 to STA. 9+75	A3
P-3328-12	King Edward St. Saskatchewan Ave. to Dublin Ave. STA. 9+75 to STA. 10+13.41	A3
P-3328-13	Guardrail Plan and Details	A3

E2. GEOTECHNICAL REPORT

- E2.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix 'A'.

E3. PROTECTION OF EXISTING TREES

- E3.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:
- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
 - (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
 - (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
 - (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
 - (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.
- E3.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.
- E3.3 No separate measurement or payment will be made for the protection of trees.
- E3.4 Except as required in clause E3.1(c) and E3.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E4. TRAFFIC CONTROL

- E4.1 Further to clauses 3.6 and 3.7 of CW 1130:
- (a) Where directed, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
 - (b) In accordance with the Manual of Temporary Traffic Control in Work Areas on City Streets, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

E5. TRAFFIC MANAGEMENT FOR CORYDON AVENUE EASTBOUND – BEAVERBROOK STREET TO CAMPBELL STREET

- E5.1 Further to clause 3.7 of CW 1130:
- E5.1.1 Maintain a minimum of one lane of traffic in both the eastbound and westbound directions at all times.
 - E5.1.2 The Contractor shall provide and maintain flagmen in accordance with the "Manual of Temporary Traffic Control in Work Areas on City Streets"
 - E5.1.3 Intersecting street and alley approach access shall be maintained wherever possible. In the event that construction Works prevent access to intersecting streets or alleys, the Contractor shall perform these Works in the shortest time possible.

- (a) When access to Lanark Street, Renfrew Street, Sir John Franklin Road, Lindsay Street, or Borebank Street or any alleys are restricted at Corydon, the Contractor shall erect and maintain "Road Closed Local Access Only" signage on barricades at the south access points to these streets along John Brebeuf Place and Fleet Avenue for the duration of the closure.
- (b) When no work is being performed in the intersections and providing it is safe for vehicles, north and south lane closures in the intersection will not be permitted.
- (c) Refuse and recycling collection will continue to be collected from the back alleys between Lanark Street and Campbell Street on Refuse and Recycling Collection Day 2 between 7am and 6pm for streets west of Sir John Franklin Road and on refuse and recycling collection day 1 between 7am and 6pm for streets east of Sir John Franklin Street. The Contractor shall provide a flagman on those days to assist refuse and recycling truck drivers to back down the back alleys in reverse.

- E5.1.4 The Contractor will be responsible for pedestrian and traffic control at the site acceptable to the Contract Administrator.
- E5.1.5 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E5.1.6 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.
- E5.1.7 No separate measurement or payment will be made for traffic management.

E6. TRAFFIC MANAGEMENT FOR KING EDWARD SOUTHBOUND – SASKATCHEWAN AVENUE TO DUBLIN AVENUE

- E6.1 Further to clause 3.7 of CW 1130:
 - E6.1.1 The contractor shall not close more than one lane at a time.
 - E6.1.2 Intersecting street and private approach access shall be maintained whenever possible.
 - E6.1.3 All construction activities through the Dublin Avenue intersection shall be restricted to off-peak hours (9am to 3pm). No work shall be conducted within the Dublin Avenue intersection before 9am or between 3pm and 5:30pm.
 - E6.1.4 Should the Contractor be unable to maintain pedestrian or vehicular access to a business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected business and the Contract Administrator, prior to disruption of access.
 - E6.1.5 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E7. PEDESTRIAN SAFETY

- E7.1 During the project, where identified by the contract administrator, a temporary snow fence shall be installed at specific locations where a hazard to pedestrians may exist for any significant duration. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E8. WATER OBTAINED FROM THE CITY

- E8.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E9. SURFACE RESTORATIONS

- E9.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E10. INFRASTRUCTURE SIGNS

- E10.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

E11. SALT TOLERANT GRASS SEEDING

DESCRIPTION

- E11.1 Further to CW 3520 and CW3540, this specification shall cover sub-grade preparation and the supply and placement of Salt Tolerant Grass Seed.

MATERIALS

- E11.2 Salt Tolerant Grass Seed

- E11.2.1 Salt Tolerant Grass Seed for regional and collector boulevards, medians and interchange areas shall be a mixture composed of:
- (a) Seventy percent (70%) Fults or Nuttals Alkaligrass (*Puccinellia* spp.), twenty percent (20%) Audubon or Aberdeen Creeping Red Fescue and ten percent (10%) Perennial Ryegrass.

EQUIPMENT

- E11.3 Scarification equipment shall be suitable for the area being scarified, shall be capable of scarifying the sub-grade to the specified depth and shall be accepted by the Contract Administrator. For confined areas a toothed bucket may be acceptable. For larger areas tilling equipment may be required.

CONSTRUCTION METHODS

- E11.4 Preparation of Existing Grade

- E11.4.1 Prior to placing topsoil, in areas to be seeded greater in width than 600mm, prepare the existing sub-grade by scarifying to a minimum depth of 75mm and to a maximum depth of 100mm to the satisfaction of the Contract Administrator.

- E11.4.2 Scarification shall consist of breaking up and loosening the sub-grade. No scarification shall occur within the edge of a tree canopy (or drip line).

- E11.5 Salt Tolerant Grass Seeding

- E11.5.1 Salt Tolerant Grass Seed shall be sown at a rate of 2.2 kilograms per 100 square meters.

MEASUREMENT AND PAYMENT

- E11.6 Supply, placement and maintenance of Salt Tolerant Grass Seed will be paid for at the Contract Unit Price per square metre for "Salt Tolerant Grass Seeding", measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification. Payment for Salt Tolerant Grass Seeding shall be in accordance with the following:
- (a) Sixty five (65%) percent of quantity following supply and placement.
 - (b) Remaining thirty five (35%) percent of quantity following termination of the Maintenance Period.

E12. SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES

DESCRIPTION

- E12.1 This specification covers the supply and installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

SPECIFICATIONS AND DRAWINGS

- E12.2 Referenced Standard Construction Specifications and Standard Details
- (a) CW 3235 - Renewal of Existing Miscellaneous Concrete Slabs
 - (b) CW 3240 - Renewal of Existing Curbs
 - (c) CW 3310 - Portland Cement Concrete Pavement Works
 - (d) CW 3325 - Portland Cement Concrete Sidewalk
 - (e) SD-229C - Curb Ramp for Concrete Pavement
 - (f) SD-229D - Curb Ramp for Asphalt Overlay
- E12.3 SDE Drawings
- (a) SDE-229A - Curb Ramp Layout for Intersections
 - (b) SDE-229AA - Detectable Warning Surface Tile in Curb Ramps for Intersections, Layout Option 1
 - (c) SDE-229AC – 300x300 Detectable Warning Surface Tile, Layout Option 3
 - (d) SDE-229AD – 300x300 Detectable Warning Surface Tile, Layout Option 3 DETAIL
 - (e) SDE-229AE – Curb Ramp for Pedestrian Corridor with a Traffic Control Device
 - (f) SDE-229AF – Detectable Warning Surface Tile Orientation for Offset Intersections
 - (g) SDE-229BB – Detectable Warning Surface Tile in Curb Ramps for Medians
 - (h) SDE-229E - Curb Ramp Depressed Curb

MATERIALS

- E12.4 Acceptable Detectable Warning Surface Tile product is:
- (a) 610 x 1220mm (2'x 4') Cast in Place (Federal Yellow).
 - (b) 300 x 300mm (1'x1') Cast in Place (Federal Yellow).

Manufacturer - ADA Solutions Inc.,
Supplier -
Brock White Canada
879 Keewatin Street
Winnipeg, Manitoba

Attention: Bernie Giesbrecht
Ph: 204-479-8089

or

Manufacturer - Armor Tile Tactile Systems
Supplier –
Alsip's Building Products
1 Cole Avenue
Winnipeg, Manitoba

Attention: Jason Alsip
Ph. 204-667-3330

- E12.4.1 Detectable warning surface tiles shall be Federal Yellow (USA); or Safety Yellow (Canada).
- E12.4.2 Detectable warning surface tiles shall be cast in place type with ribs. (Anchored type is not allowed)
- E12.4.3 Truncated domes on detectable warning surface tiles shall be in accordance with ADA Accessibility Guidelines (ADAAG).

CONSTRUCTION METHODS

- E12.5 Selection of Layout Options
 - E12.5.1 Select the appropriate design layout for detectable warning surface tiles according to the following prioritized order:
 - E12.5.2 Layout Option One – Install detectable warning surface tiles in accordance with SDE-229A and SDE-229AA.
 - E12.5.3 If two 610mm x 1220mm tiles would physically overlap each other, or would be within 150mm of each other, or if one tile would lie within the circulation path towards the other tile, then install the detectable warning surface tiles according to the following order, Layout Option Two(2) or Three(3).
 - E12.5.4 Layout Option Two – Separate the tiles by moving either one or both tiles along the curb line in opposite directions, in accordance with this Specification, and keeping the ramp and pedestrian road crossing as perpendicular to the road as is possible, as directed by the Contact Administrator.
 - E12.5.5 Layout Option Three – Install detectable warning surface tiles in accordance with SDE-229AC and SDE-229AD.
- E12.6 General
 - E12.6.1 Construct curb ramps, sidewalk ramps and multi-use paths in accordance with the referenced Standard Construction Specifications, Standard Details, and SDE drawings.
 - E12.6.2 Detectable warning surface tile shall not be placed at private approaches or alleys.
 - E12.6.3 All curb ramps opposite each other shall have the same width.
 - E12.6.4 Construct the lip of the depressed curb in accordance with SDE – 229E.
 - E12.6.5 Construct ramp slopes in accordance with SD-229C and SD-229D. Use a ramp slope with preference for a slope as close to 5% maximum as possible.

E12.6.6 Construct flare and curb taper slopes according to the following:

- a) If the curb taper is within a grassed area, construct the curb taper 900mm in length.
- b) When the flare and curb taper are in a full width sidewalk and the sidewalk area at the top of the ramp is <1500mm in width, construct the flare and curb taper at 5% slope to allow safe passage for wheelchairs in this area.
- c) When the flare and curb taper are in a full width sidewalk and the sidewalk area at the top of the ramp is ≥ 1500 mm in width, construct the flare and curb taper at 10% slope.

E12.6.7 Install the detectable warning surface tile in accordance with E12.10.

E12.6.8 Trim the corner of the tile at curb radii in accordance with SDE-229AA and SDE-229AD.

E12.6.9 Install the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.

E12.6.10 Orient the detectable warning surface tiles perpendicular to the crossing direction.

E12.6.11 Locate gratings, access covers and other appurtenances outside of the sidewalk ramps, depressed curbs, rest areas, and gutters in front of the depressed curbs, as directed by the Contact Administrator.

E12.7 Medians and Refuge Islands

E12.7.1 Where the distance from back of curb to back of curb is 1.32m or greater, install one detectable warning surface tile 50mm from the back of each curb.

E12.7.2 Where the distance from back of curb to back of curb is less than 1.32m, place the tiles 50mm from the back of curb and cut the tile(s) to fill the remaining area between the curbs.

E12.8 2.0m Wide Depressed Curb for Multi-use Paths

E12.8.1 Construct a curb ramp with a 2.0m depressed curb at high volume collector and regional street intersections in accordance with SDE-229E, in accordance with Public Works Department guidelines and as directed by the Contract Administrator.

E12.8.2 Construct the concrete ramp 2.0m wide and a minimum of 1.50m deep from back of curb.

E12.8.3 Construct the curb ramp in accordance with SD-229C and SD229D.

E12.8.4 Install one 610mm x 1220mm tile centered to the 2.0m wide depressed curb. The part of the tile nearest the curb must be 50mm from the back of curb similar to tile placement in SDE-229AA.

E12.9 3.5m Wide Depressed Curb for Multi-use Paths

E12.9.1 Construct a curb ramp with a 3.5m depressed curb at low volume collector and residential street intersections in accordance with SDE-229E, in accordance with Public Works Department guidelines and as directed by the Contact Administrator.

E12.9.2 Construct the concrete ramp 3.5m wide and a minimum of 1.50m deep from back of curb.

E12.9.3 Construct the curb ramp in accordance with SD-229C and SD229D.

E12.9.4 Install two (2) tiles in each concrete ramp, one (1) on each side for each direction. Place the short edge of each tile 150mm from the edge of the concrete ramp, with both tiles in line with each other transversely across the concrete ramp. The tile(s) nearest the curb must be 50mm from back of curb similar to tile placement in SDE-229AA.

E12.9.5 Saw cut the middle of the concrete slab, perpendicular to the curb and to a depth of D/4. Cut additional sawcuts as directed by the Contract Administrator.

INSTALLATION INSTRUCTIONS

E12.10 Installation Instructions for Cast In Place Inline Dome Detectable/Tactile Warning Surface Tile

- (a) During Cast In Place Detectable/Tactile Warning Surface Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- (b) The specifications of the structural embedment flange system and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers. Do not set Cast In Place tiles in asphaltic concrete.
- (c) The physical characteristics of the concrete shall be consistent with the contract specifications. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (12 kg) shall be placed on each tile.
- (d) Prior to placement of the Cast In Place Detectable/Tactile Warning Surface Tile system, the contract drawings shall be reviewed.
- (e) Pour and finish the concrete using typical mason's tools, however, 12 kg weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 300mm square.
- (f) The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile. Remove the plastic sheeting after the concrete has set.
- (g) When preparing to set the tile, it is important that NO concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.
- (h) Drill additional 6mm vent holes in the ribs under the tile as required to help seat the tile in the concrete.
- (i) The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. The tile shall be placed in accordance with the contract drawings.
- (j) The Cast In Place Detectable/Tactile Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the surface of the truncated domes are flush to the adjacent concrete surface. Embedment of the tile so the top of the truncated domes are flush with the adjacent concrete will reduce the possibility of damage due to snow clearing operations. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting which can result in air voids under the tile surface.
- (k) While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, a steel trowel shall then be used to finish the concrete around the tile's perimeter.
- (l) During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external force placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- (m) Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 12kg each shall be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
- (n) If required, individual tiles can be bolted together using ¼ inch or equivalent hardware. This can help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that concrete does not rise up between the tiles during installation. Any protective plastic wrap which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.
- (o) Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If

concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.

- (p) Tiles can be cut using a continuous rim diamond blade in a circular saw or mini-grinder. Use of a straightedge to guide the cut is advisable where appropriate.
- (q) Bolt 300mm x 300mm tiles together prior to placing in plastic concrete. This ensures that the surface of the tiles are flush with each other.

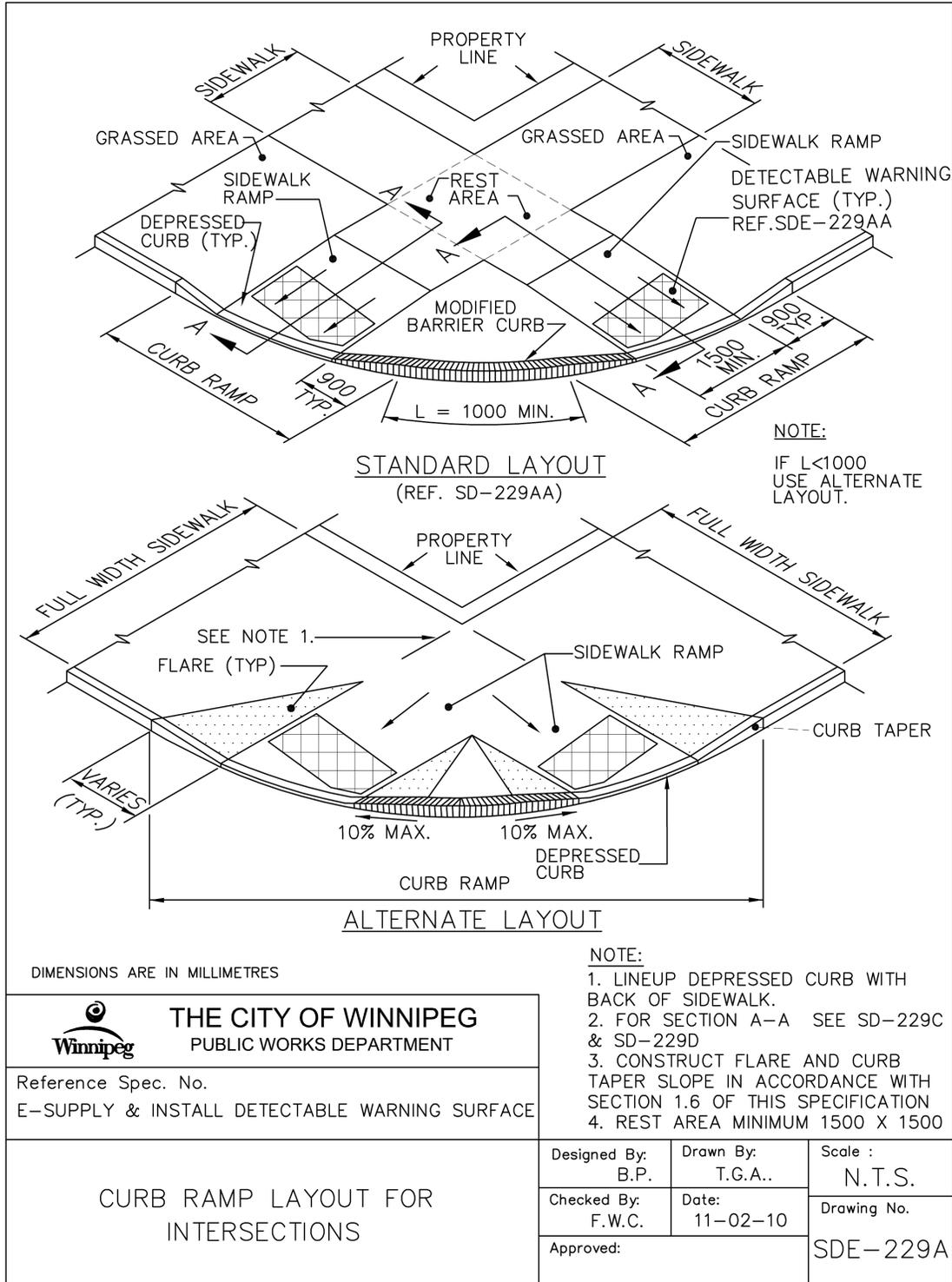
MEASUREMENT AND PAYMENT

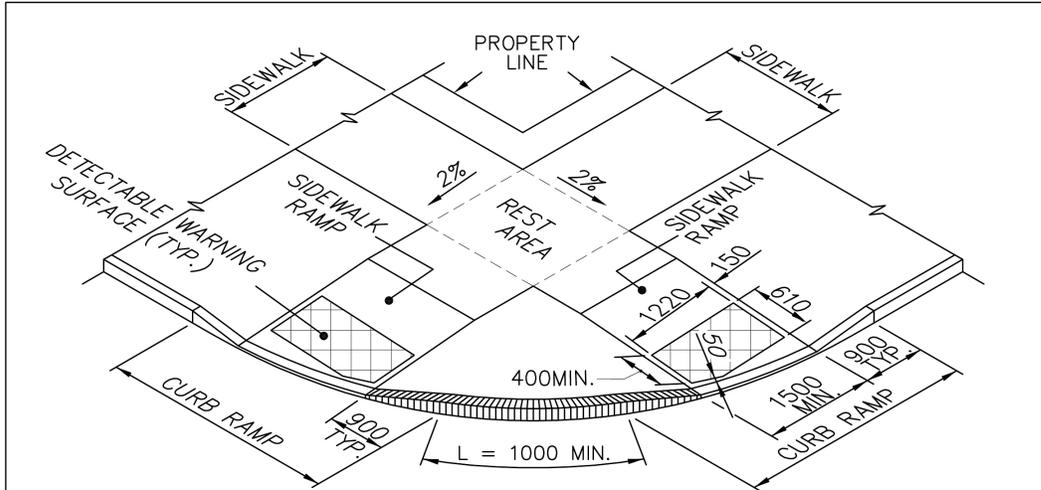
- E12.11 Detectable Warning Surface Tiles shall be measured on a unit basis and paid for at the Contract Unit Price per unit for the "Items of Work" listed here below. The number of units to be paid for shall be the total number of detectable warning surface tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

Detectable Warning Surface Tiles:

- i) 300mm x 300mm tiles
 - ii) 610mm x 1220mm tiles
- E12.12 The area under the detectable warning surface tile is part of the concrete sidewalk ramp and will be paid in accordance with CW 3235 or CW 3325.
- E12.13 The concrete sidewalk ramp and the concrete ramp for multi-use paths will be paid as 100mm sidewalk in accordance with CW 3235 or CW 3325.
- E12.14 Curb ramp will be paid in accordance with CW 3240 or CW 3310.

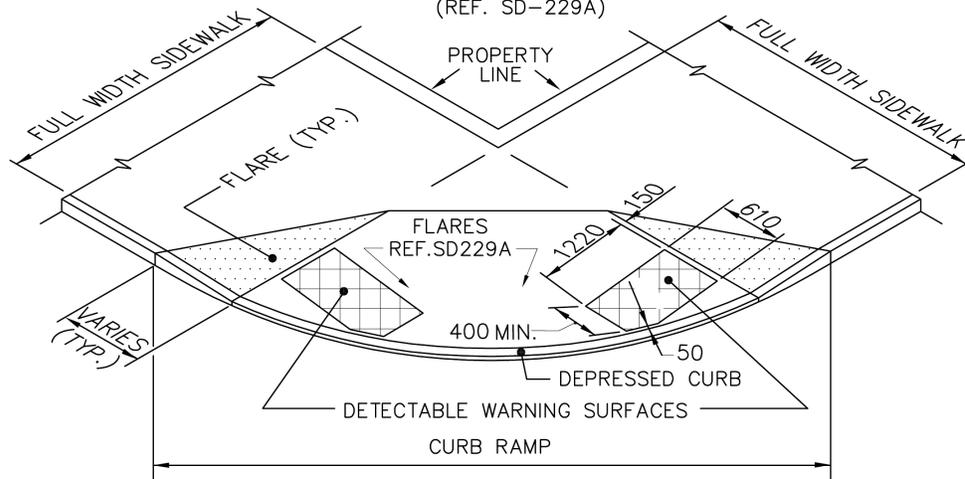
DRAWINGS





STANDARD LAYOUT

(REF. SD-229A)



ALTERNATE LAYOUT

(REF. SD-229A)



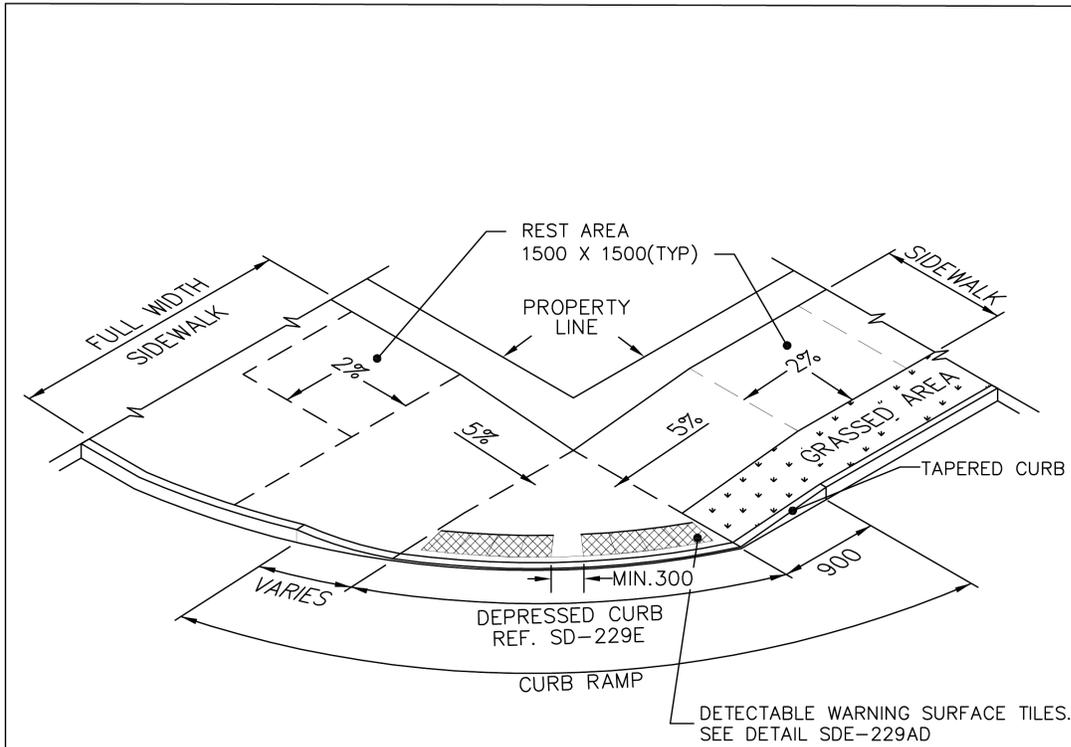
THE CITY OF WINNIPEG
 PUBLIC WORKS DEPARTMENT

Reference Spec. No.
 CW 3235, CW 3310, CW 3325
 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE

DIMENSIONS ARE IN MILLIMETRES

DETECTABLE WARNING SURFACE TILE
 SURFACE IN CURB RAMPS FOR
 INTERSECTIONS. **LAYOUT OPTION 1**

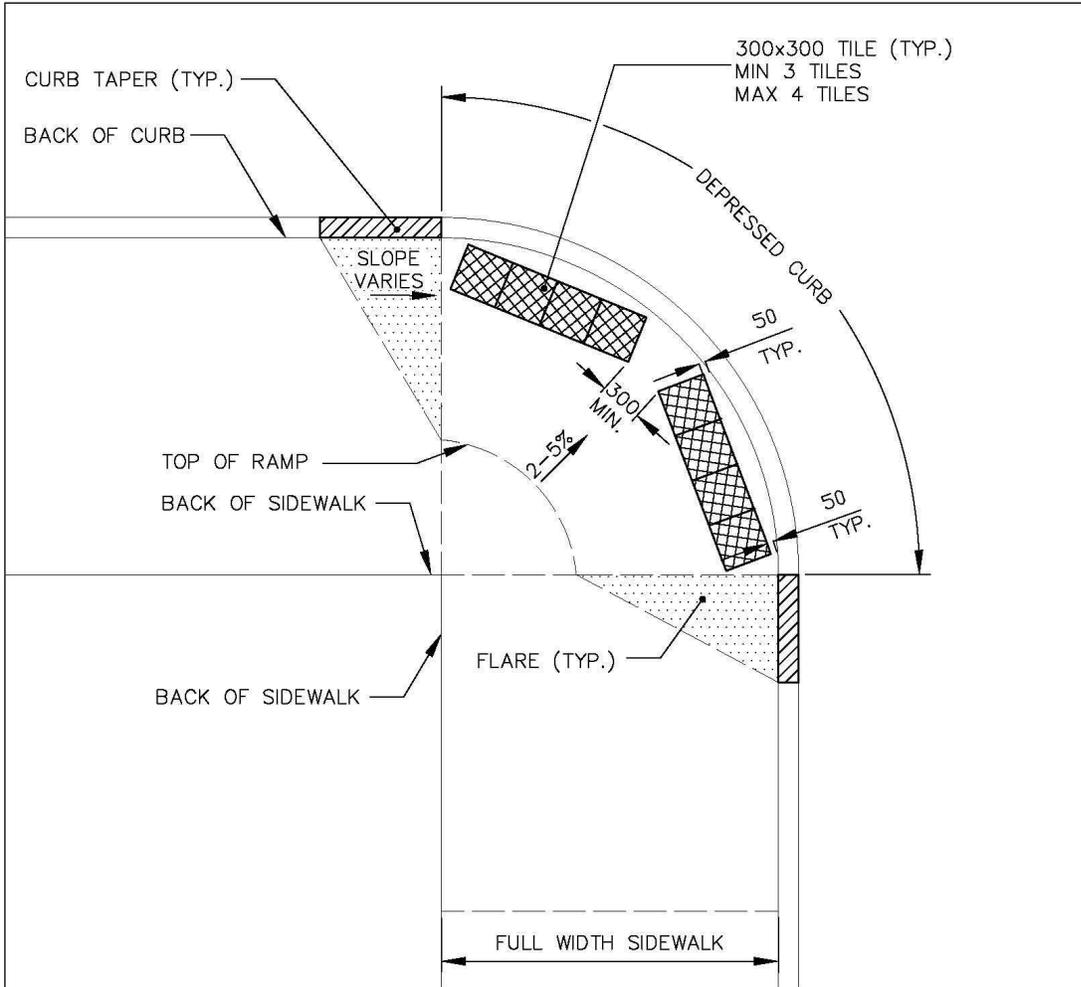
Designed By: B.P.	Drawn By: T.G.A.	Scale : N.T.S.
Checked By: F.W.C.	Date: 11-02-10	Drawing No.
Approved:	SDE-229AA	



NOTES:
 1. PLACE 300x300 DETECTABLE WARNING SURFACE TILES IN ACCORDANCE WITH "SELECTION OF LAYOUT OPTIONS" IN THIS SPECIFICATION.

 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT	DIMENSIONS ARE IN MILLIMETRES		
	Reference Spec. No. E-SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES	Designed By: B.P.	Drawn By: R.R.
300 X 300 mm DETECTABLE WARNING SURFACE TILE LAYOUT OPTION 3	Checked By:	Date: 11-02-10	Drawing No.
	Approved:	SDE-229AC	

Template Version: C420110321 - RW



NOTES:

1. WHEN THE SIDEWALK AREA AT THE TOP OF THE RAMP IS $\geq 1500\text{mm}$ OR $< 1500\text{mm}$ IN WIDTH, CONSTRUCT THE SLOPE OF THE CURB RAMP AND THE CURB TAPER IN ACCORDANCE WITH SECTION 1.6 OF THIS SPECIFICATION.

 **THE CITY OF WINNIPEG**
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DIVISION
 TECHNOLOGY SERVICES BRANCH
 185 - 1155 PACIFIC AVE

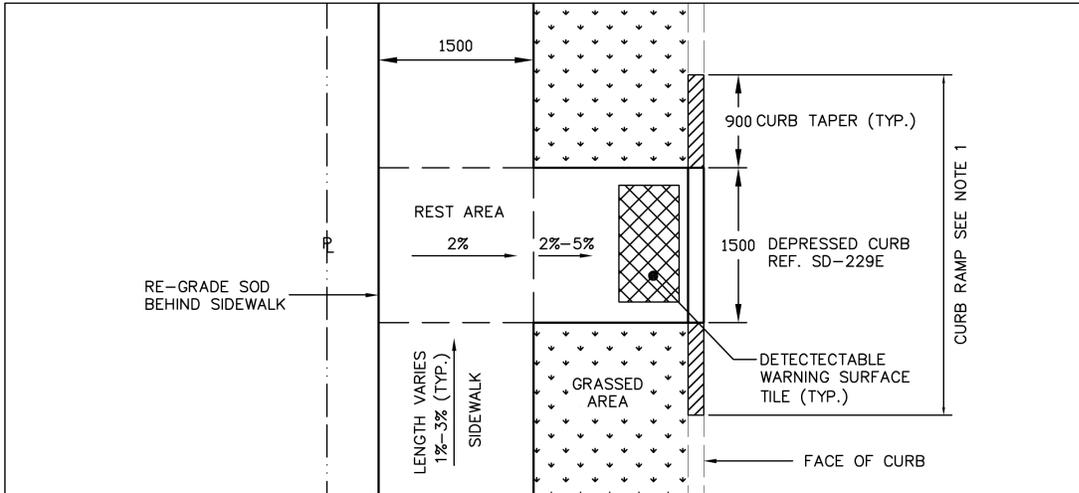
Reference Spec. No.
 E-SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES

DIMENSIONS ARE IN MILLIMETRES

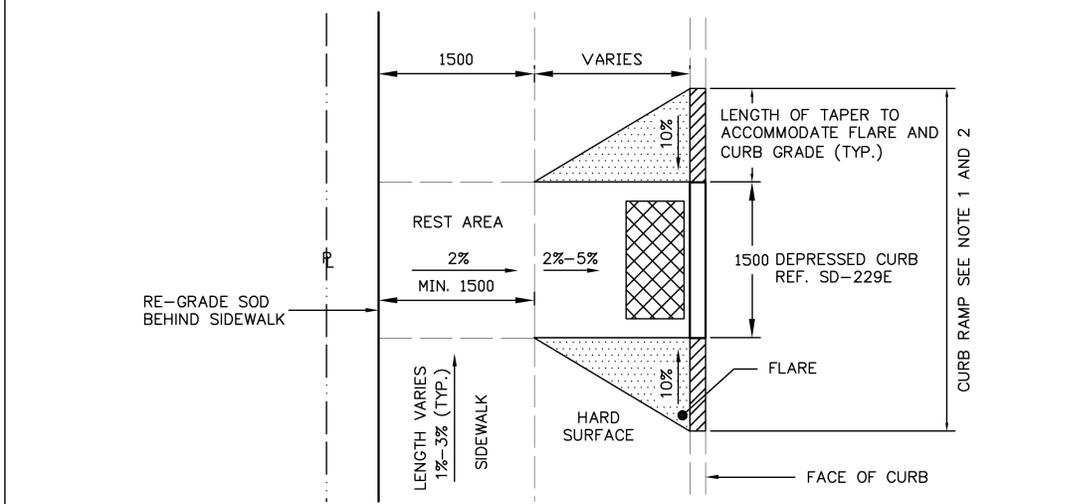
300x300mm DETECTABLE WARNING SURFACE TILE LAYOUT OPTION 3 DETAIL

Designed By: B.P.	Drawn By: R.R.	Scale: N.T.S.
Checked By:	Date: 11-02-10	Drawing No.
Approved:	SDE-229AD	

Template Version: C420110321 - RW



1500 WIDE SIDEWALK

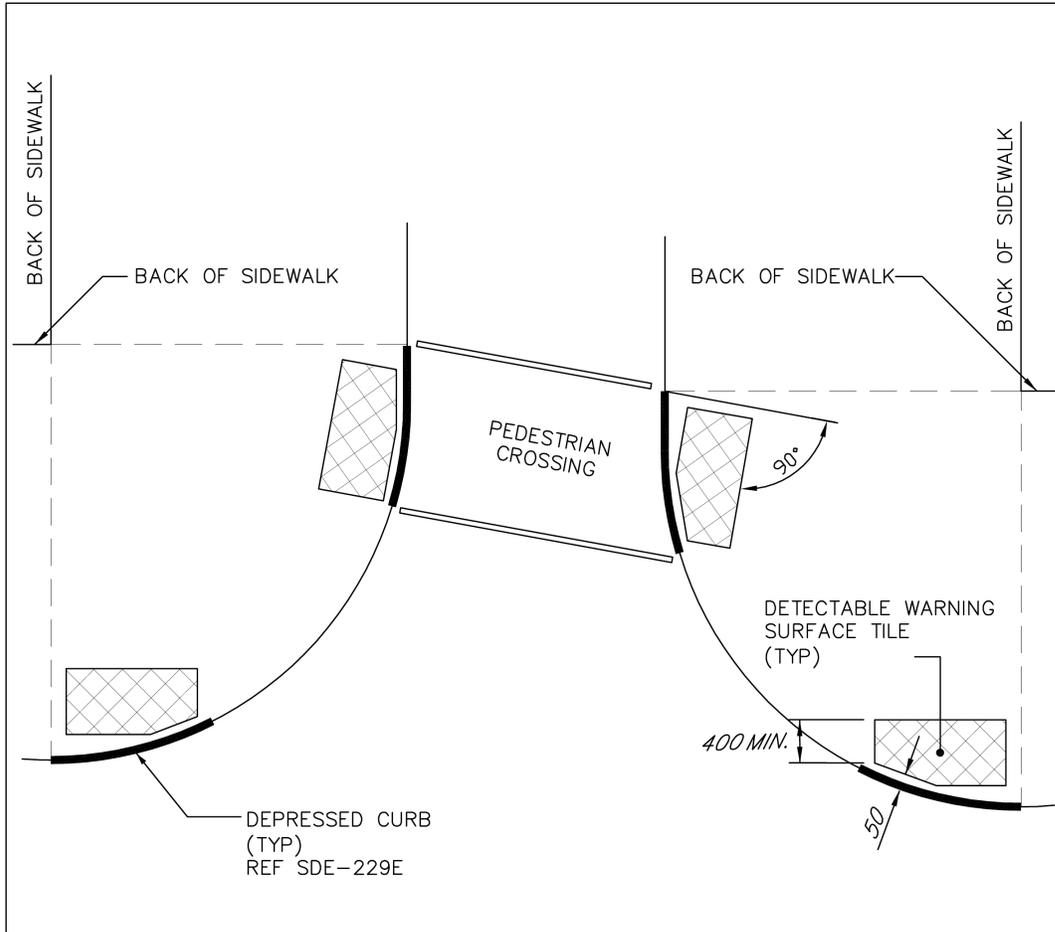


FULL WIDTH SIDEWALK

- NOTES:**
1. FULL DEPTH SAWCUT REQUIRED THROUGH THE STREET SLAB ALONG THE CURB RAMP. REF. SD-229C, SD-229D
 2. IF THE LENGTH OF THE SIDEWALK RAMP DOES NOT LEAVE SPACE FOR THE REST AREA, CONSTRUCT THE FLARE AND CURB TAPER IN ACCORDANCE WITH SECTION 1.6 OF THIS SPECIFICATION

DIMENSIONS ARE IN MILLIMETRES

 <p>THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION TECHNOLOGY SERVICES BRANCH 106 - 1155 PACIFIC AVE</p>	Reference Spec. No.		
	E-SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES		
<p>CURB RAMP FOR PEDESTRIAN CORRIDOR WITH A TRAFFIC CONTROL DEVICE</p>	Designed By: B.P.	Drawn By: R.R.	Scale: N.T.S.
	Checked By:	Date: 11-02-10	Drawing No.
	Approved:		SDE-229AE



NOTES:

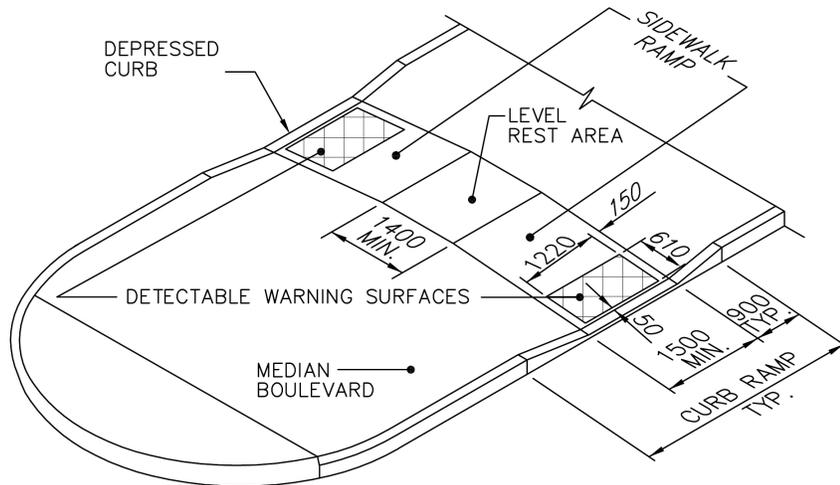
1. LOCATE END OF DEPRESSED CURB IN LINE WITH PROJECTED BACK OF SIDEWALK.
2. CONSTRUCT FLARES IN ACCORDANCE WITH SDE-229A

 **THE CITY OF WINNIPEG**
 PUBLIC WORKS DEPARTMENT

Reference Spec. No.
 CW 3235, CW 3310, CW 3325
 E-SUPPLY & INSTALL DETECTABLE WARNING
 SURFACE TILES

DIMENSIONS ARE IN MILLIMETRES

DETECTABLE WARNING SURFACE TILE ORIENTATION FOR OFFSET INTERSECTIONS	Designed By: B.P.	Drawn By: T.G.A.	Scale : N.T.S.
	Checked By: F.W.C.	Date: 11-02-10	Drawing No.
	Approved:		SDE-229AF

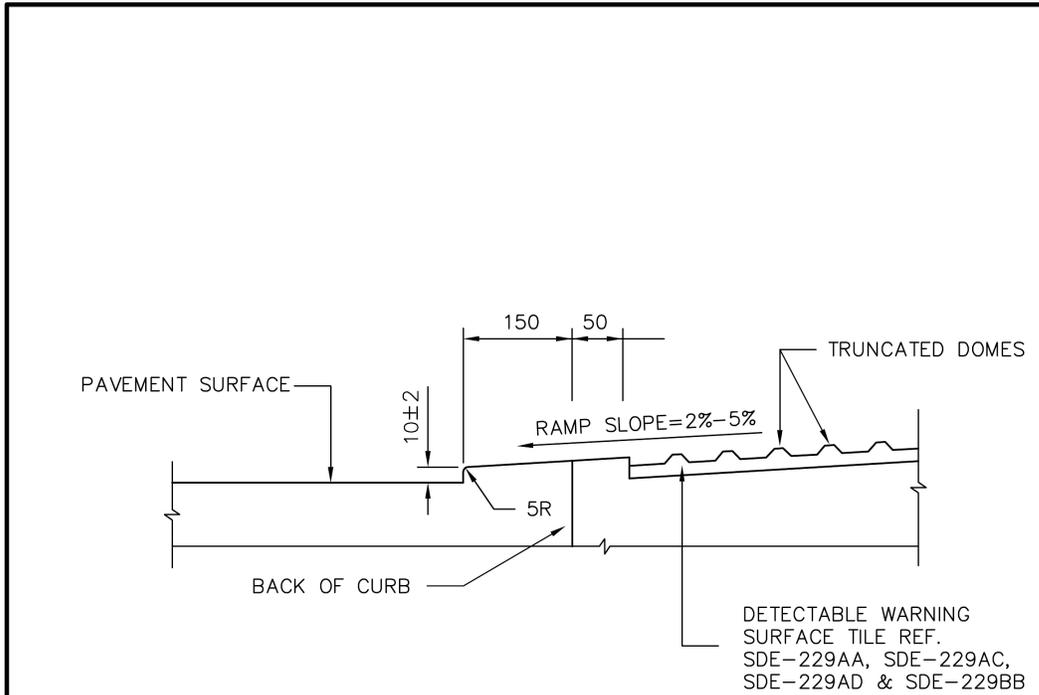


MEDIAN SIDEWALK CROSSING
 (REF. SD-229B)

NOTE:

- FOR NARROW MEDIANS AND REFUGE ISLANDS < 1.32m IN WIDTH, PLACE DETECTABLE WARNING SURFACE FULL WIDTH, MAINTAINING 50mm SPACING FROM BACK OF CURB.

 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT	DIMENSIONS ARE IN MILLIMETRES		
	Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE	Designed By: B.P.	Drawn By: T.G.A.
DETECTABLE WARNING SURFACE TILE IN CURB RAMPS FOR MEDIANS	Checked By: F.W.C.	Date: 11-02-10	Drawing No. SDE-229BB
	Approved:		



DEPRESSED CURB

NOTES:

- 1) SIDEWALK RAMP SURFACE SHALL BE GIVEN A PARALLEL TEXTURED BROOM FINISH.
- 2) INSTALL DETECTABLE WARNING SURFACE SO THAT THE TOP OF THE TRUNCATED DOMES ARE FLUSH WITH THE SURFACE FO THE ADJACENT SIDEWALK.

 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT	DIMENSIONS ARE IN MILLIMETRES		
	Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE	Designed By: B.P.	Drawn By: T.G.A.
CURB RAMP DEPRESSED CURB	Checked By: F.W.C.	Date: 11-02-10	Drawing No. SDE-229E
	Approved:		

E13. TEMPORARY DETOUR DIVERSION

E13.1 General

E13.1.1 This Specification covers the supply, erection and maintenance of all applicable traffic control devices in accordance with the provision contained in the latest edition of the "Manual of Temporary Traffic Control in Work Areas on City Streets", issued by the City of Winnipeg and specified herein. It also includes construction of the Works necessary for the detour diversion as specified herein and shown on the Figures attached to the end of this Specification.

E13.2 Materials

E13.2.1 General

- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.
- (b) Unless specified otherwise herein, supply material in accordance with the City of Winnipeg Standard Construction Specifications for the applicable Works.

E13.2.2 Crushed Sub-Base Material

- (a) Crushed Sub-base material will have a maximum aggregate size of 50 millimetres and be supplied and installed in accordance with Section's 1, 2 and 3 of CW 3110-R14.

E13.2.3 Asphalt Material

- (a) Asphalt material will be Type 1A and will be supplied and constructed in accordance with CW 3410-R8 excluding Section's 12 and 13.

E13.3 Construction Methods

E13.3.1 Signage

- (a) The Contractor will be required to supply and erect traffic control signings and road and sidewalk closure barricades for the construction of the surface Works related to the temporary detour diversion.
- (b) If the Contractor requires lanes to be closed on Corydon during construction or removal of the temporary detour diversion, he must supply and erect the necessary signage. The following conditions will also apply:
 - (i) One of the two lanes in Eastbound Corydon and Westbound Corydon must be open at all times.
- (c) City of Winnipeg Traffic Services will sign the temporary detour diversion while it is in operation.

E13.3.2 Detour Diversion Construction

- (a) The Contractor will be responsible for the Detour Diversion shown on the Figures and in accordance but not necessarily limited to the following list:
 - (i) Remove existing curb and boulevard and construct a temporary asphalt traffic detour lane through the existing median boulevard to allow one lane of Diverted Eastbound Corydon to re-enter the existing median lane of Westbound Corydon for temporary bi-directional traffic on the existing Westbound lanes of Corydon between Lanark Street and Borebank Street. The detour lane will be located in the median boulevard between Beaverbrook Street and Lanark Street, Renfrew Street and Sir John Franklin Road, Sir John Franklin Road and Lindsay Street, and Borebank Street and Campbell Street.
 - (ii) Remove existing boulevard and pavement at locations as shown on the Drawings or as directed by the Contract Administrator in accordance with Section 3.1 and 3.2 of Specification CW 3110-R14.
 - (iii) Excavate to a depth of 350 millimetres below the top of the existing pavement.

- (iv) Compact existing sub-grade to a minimum of 95% Standard Proctor Density.
 - (v) Place and compact crushed sub-base material in accordance with CW 3110 to a 300 millimetres compacted depth. Compact to a minimum of 100% Standard Proctor Density.
 - (vi) Place and compact asphalt material to a 50 millimetres compacted depth matching the top of the existing concrete pavement. Compact to an average of 95% percent of the 75 Blow Marshall Density of the paving mixture with no individual test being less than 90% percent.
 - (vii) Restore the above Works to their original or better condition once Eastbound Corydon between Lanark Street and Borebank Street is reopened to traffic and normal traffic operations have been restored.
- (b) The following Works are to be constructed in accordance with The City of Winnipeg Standard Construction Specifications indicated and as shown on the Figures.
- (i) Excavation and Granular Base: CW 3110-R14: Sub-grade, Sub-base and Base Course Construction;
 - (ii) Asphalt: CW 3410-R8: Asphaltic Concrete Pavement Works;
 - (iii) Curb Renewal: CW 3240-R8: Renewal of Existing Curbs; and
 - (iv) Boulevard Restoration: CW 3520-R7: Seeding.

E13.4 Method of Measurement

- E13.4.1 The detour diversion installation, removal and restoration will be paid for on a lump sum basis, as accepted by the Contract Administrator and no measurement will be made for these Works.

E13.5 Basis of Payment

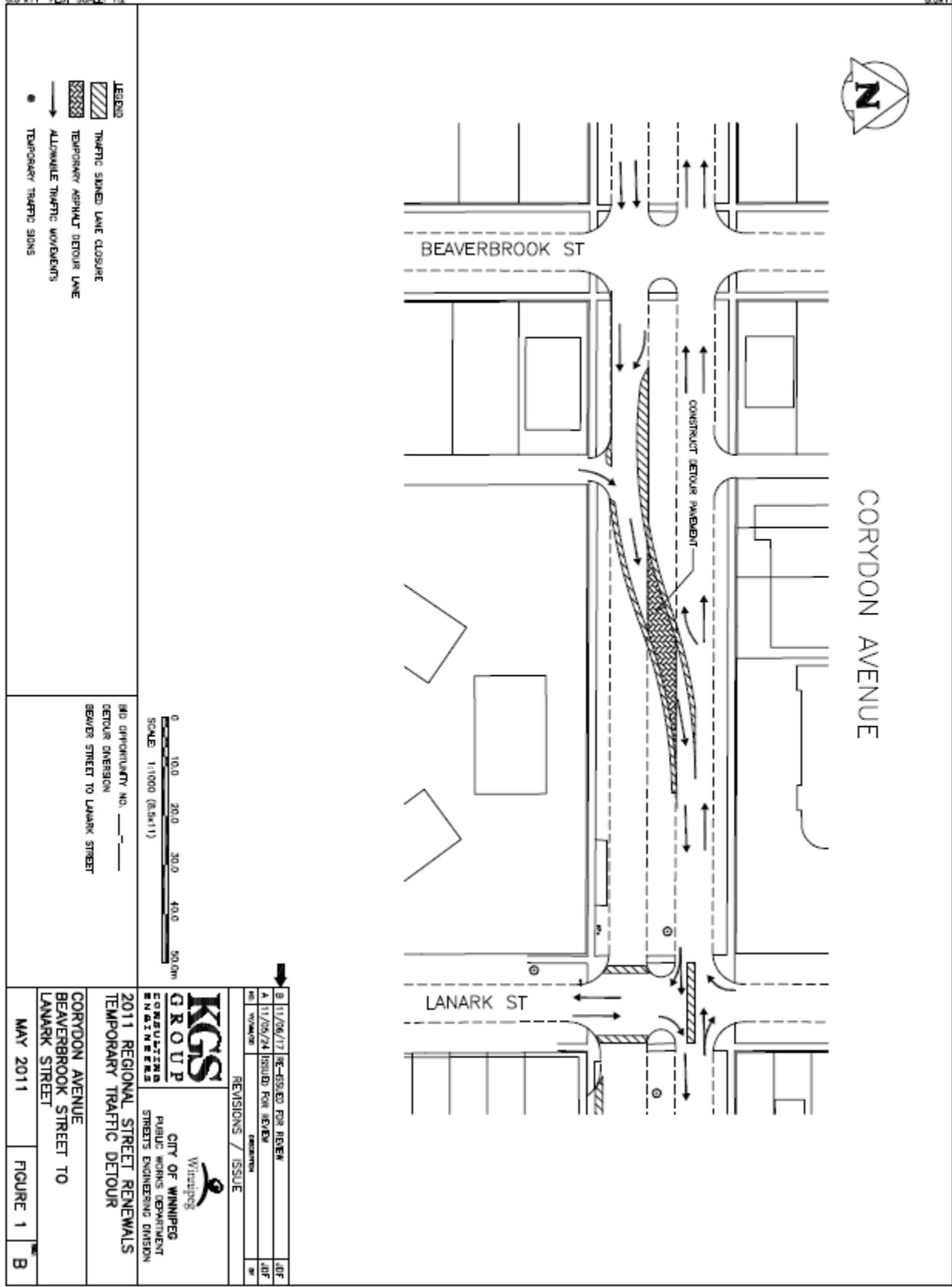
- E13.5.1 The detour diversion will be paid for at the Contract Lump Sum Price for 'Temporary Detour Diversion' which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification and as shown on the Figures. 50% of the price shall be paid upon installation and construction of the detour diversion. The remaining 50% shall be paid upon completion of removal and restoration of the detour diversion.

E13.6 Figures

Template Version: C420110321 - RW

Filename: P:\Projects\2011\11-0107-05\Draw\Map\DETOUR FIG\CORYDON DETOUR PLOT.dwg - Tab: FIG 1 Plotted By: DWeber 11/06/17 [Pl 10:23am]
 8.5"x11" PLOT SCALE: 1:2

8.5x11



LEGEND

- TRAFFIC SIGNED LANE CLOSURE
- TEMPORARY ASPHALT DETOUR LANE
- ALLOWABLE TRAFFIC MOVEMENTS
- TEMPORARY TRAFFIC SIGNS

NO OPPORTUNITY NO. _____
 DETOUR DIRECTION
 BEAVERBROOK STREET TO LANARK STREET

SCALE: 1:1000 (8.5x11)

0 10.0 20.0 30.0 40.0 50.0m

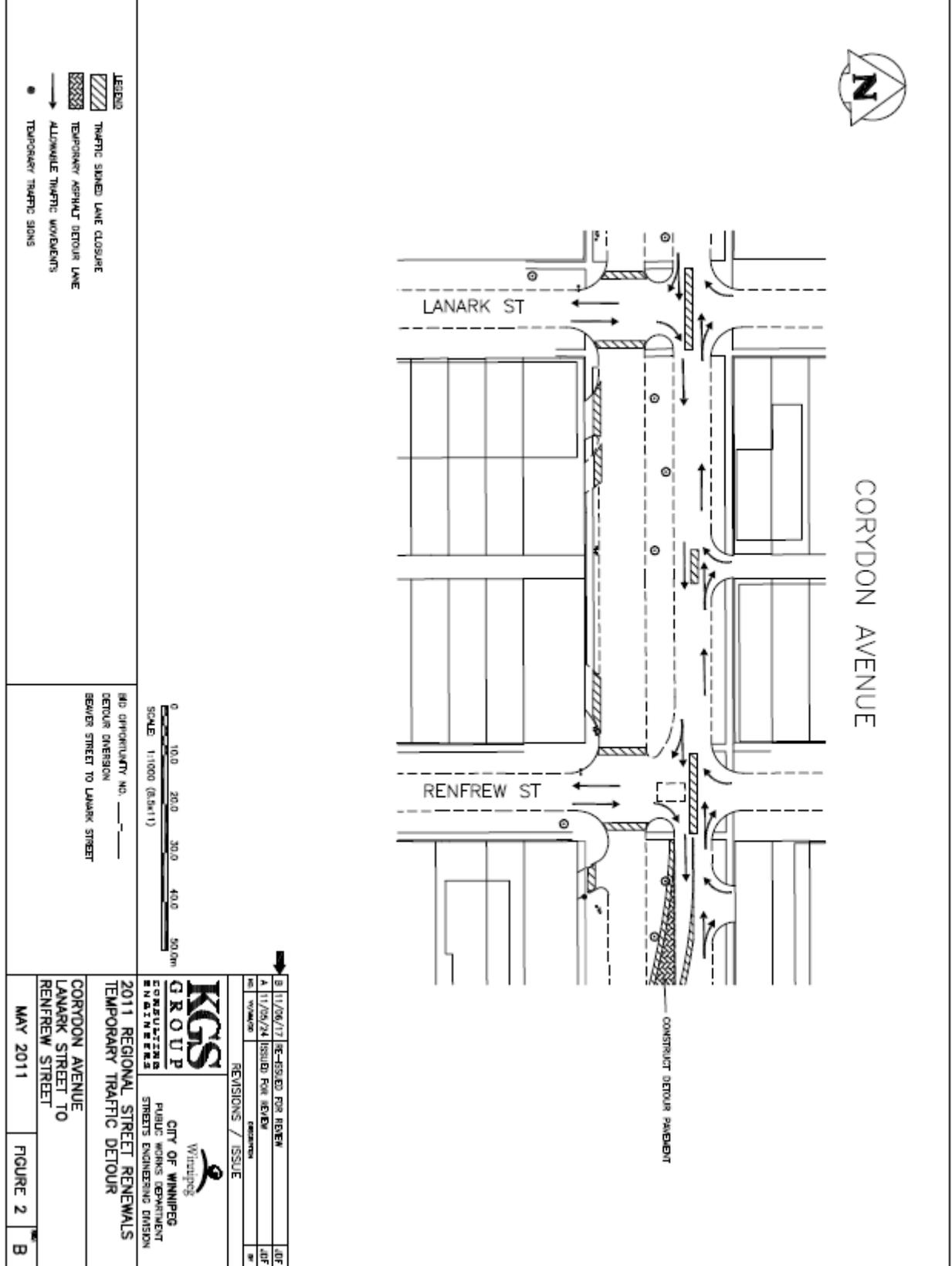
2011 REGIONAL STREET RENEWALS TEMPORARY TRAFFIC DETOUR		CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT STREETS ENGINEERING DIVISION	
CORYDON AVENUE BEAVERBROOK STREET TO LANARK STREET		MAY 2011	
FIGURE 1		B	

NO.	DATE	REVISIONS / ISSUE	BY
B	11/06/17	RE-ISSUED FOR REVIEW	JLF
A	11/05/24	ISSUED FOR REVIEW	JLF
1			AW

Template Version: C420110321 - RW

Filename: P:\Projects\2011\11-0107-05\Draw\Main\DETOUR RD\CORYDON DETOUR PLOT.dwg - Tab: FIG 2 Plotted By: DWieber 11/06/17 [Fri 10:26am]
 8.5"x11" PLOT SCALE: 1:2

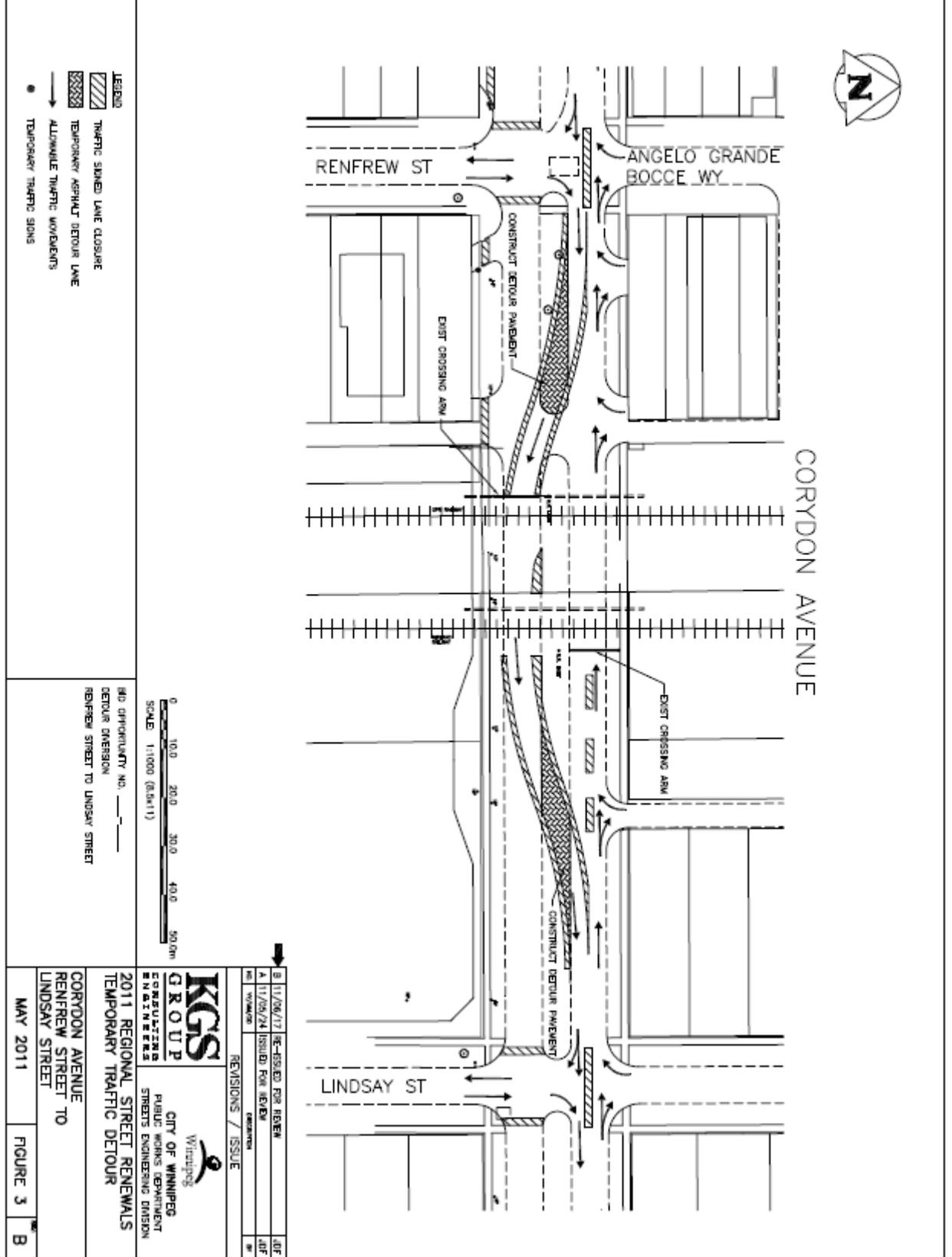
8.5x11



Template Version: C420110321 - RW

Filename: P:\Projects\2011\11-0107-08\Draw\Map\DETOUR FIG3\CORYDON DETOUR PLOT.dwg - Tab: FIG 3 Plotted By: DWeber 11/06/17 [Fri 10:25am]
 8.5x11" PLOT SCALE: 1:2

8.5x11"



LEGEND
 [Hatched Box] TRAFFIC SIGNAL LANE CLOSURE
 [Hatched Box] TEMPORARY ASPHALT DETOUR LANE
 [Arrow] ALLOWABLE TRAFFIC MOVEMENTS
 [Circle with Arrow] TEMPORARY TRAFFIC SIGNS

BID OPPORTUNITY NO. _____
 DETOUR DIRECTION
 RENREW STREET TO LINDSAY STREET

SCALE 1:1000 (0.6in=1')

REV	DATE	DESCRIPTION	BY
A	11/09/14	ISSUED FOR REVIEW	JDF
B	11/06/17	RE-ISSUED FOR REVIEW	JDF

REVISIONS / ISSUE

KGS GROUP
 CONSULTING ENGINEERS

Winnipeg
CITY OF WINNIPEG
 PUBLIC WORKS DEPARTMENT
 STREETS ENGINEERING DIVISION

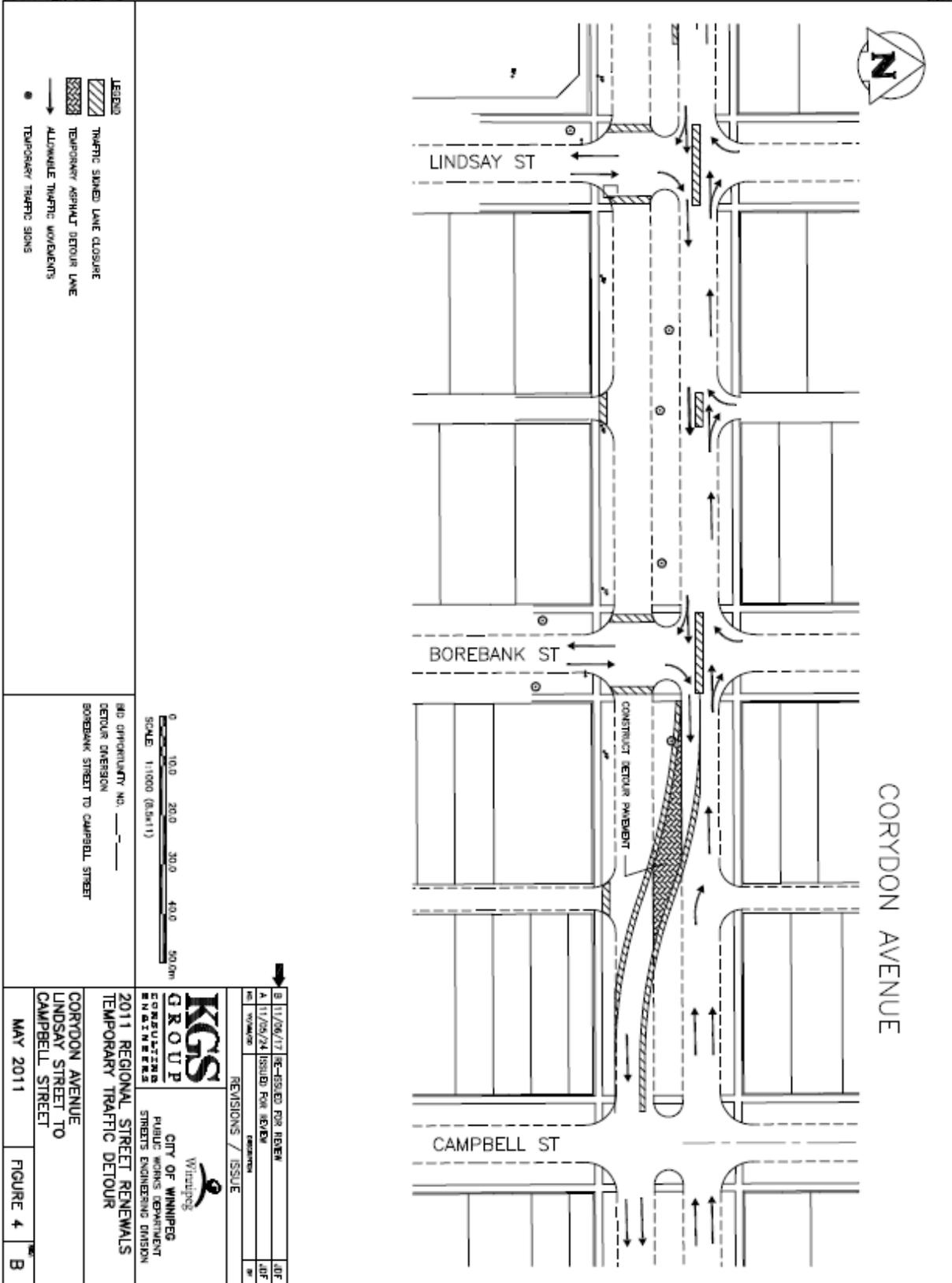
2011 REGIONAL STREET RENEWALS
 TEMPORARY TRAFFIC DETOUR
 CORYDON AVENUE
 RENREW STREET TO
 LINDSAY STREET
 MAY 2011

FIGURE 3
 B

Template Version: C420110321 - RW

Filename: P:\Projects\2011\11-0107-05\Map\DETOUR FIG\CORYDON DETOUR PLOT.dwg - Title: FIG 4 Plotted By: DWeber 11/06/17 [Fri 10:27am]
 8.5"x11" PLOT SCALE: 1:2

8.5x11



E14. TERASPAN CABLE

E14.1 Further to CW 1120-R1, the Contractor shall pay for any costs for TeraSpan site safety watch where required when the Contractor is working in close proximity to TeraSpan's fibre-optic cable. TeraSpan shall notify the Contractor when site safety watch is required. The Contractor shall pay for any repairs from damage to the fibre-optic cable that is caused by the Contractor. The City will pay for any lowering of TeraSpan cable to relocate it under pavement or sidewalk.

E15. WATERMAIN INSULATION BETWEEN CATCH BASINS AND EXISTING WATERMAIN

E15.1 Supply and install 100mm thick approved insulation as per CW2110 between new catch basins and the existing 400mm AC watermain on Corydon Avenue. Install Insulation 3 metres wide centred on the axis of the catch basin and full depth from the top to the bottom of the catchbasin.

E15.2 No payment will be made for the supply and installation of "Watermain Insulation Between Catch Basins and Existing Watermain" and will be considered incidental to the Work for CW 2130-R11 "Remove and Replace Existing Catch Basin".

E16. WORK WITHIN RAILWAY RIGHT-OF-WAYS

E16.1 The Contract Administrator shall arrange to acquire a flag person from Canadian Pacific Railway (CPR).

E16.2 The Contractor shall not perform work within the railway right-of-way unless a CPR flag person is present. The Contractor will be limited to work the same hours as the CPR flag person.

E16.3 The Contractor shall perform the required work within the railway right-of-way at the scheduled time that a flag person will be on site. The Contractor shall concentrate construction forces on the work within the rail right-of-way while the CPR flag person is available.

E16.4 The Contractor shall follow all construction and safety requirements while working within the CPR right-of way as specified within the manual "Canadian Pacific Minimum Safety Requirements for Contractors Working on CP Property in Canada". The manual is provided in Appendix 'B'.

E17. WATERMAIN INSULATION BENEATH ROADWAY

E17.1 Amend CW 2110-R11 Clause 3.12 to read:

- (a) Insulate watermains and water services in accordance with the Drawings as specified in E1 and where directed by the Contract Administrator.

E18. INSTALLATION OF MIDWEST GUARDRAIL AND END-TREATMENT

E18.1 General Conditions

E18.1.1 The General Conditions and Standard Provisions attached hereto shall apply to and be a part of this Specification.

E18.2 Description

E18.2.1 This Specification shall cover the installation of Midwest Guardrail and End-Treatment.

The work to be done by the Contractor under this Specification shall include the supply of all materials, and the furnishing of all superintendence, overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

E18.3 Materials

E18.3.1 General

The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

E18.3.2 Handling and Storage of Materials

W-Beam and guardrail posts shall be stored in neat regular piles, on blocks or built up platforms, in order to avoid damage or contamination, and for ease of checking, handling and inspection.

All other guardrail components shall be stored in such a manner as to avoid damage, contamination or deterioration.

All materials shall be handled carefully and transported in such a manner so as to ensure that the material is not damaged.

E18.3.3 Testing and Approval

All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the Contract Administrator. There shall be no charge to the City for any materials taken by the Contract Administrator for testing purposes.

E18.3.4 Midwest Guardrail Components

Midwest Guardrail components shall be as follows and as shown in the details provided at the end of this specification.

- (a) W-Beam and three-beam guardrail posts shall be manufactured using corrosion resistant steel using ASTM A709M grade 50W steel. The cross-sectional dimensions of the post shall conform to a W6x9 section as defined in ASTM A6M. The W6x8.5 is considered to be acceptable alternative to the W6x9 section.
- (b) Corrosion-resistant bolts shall conform to ASTM A325 Type 3 [ASTM F 568M Class 8.8.3], with tensile strength of 830 MPa [120 ksi] and yield strength of 660 MPa [92 ksi]
- (c) Corrosion-resistant nuts shall conform to ASASHTO M 291 (ASTM A 563) Grade C3 [AASHTO M 291M (ASTM A 563M) Class 8S3]
- (d) Stainless steel washers shall conform to ASTM Standard A296, Type 316.
- (e) Timber blockouts shall be treated.
- (f) All other materials not specifically described but required for a complete and proper installation are to be selected by the Contractor subject to the approval of the Contract Administrator.

E18.3.5 End-Treatment Components

End-treatment components shall be as follows and as shown in the details provided in the end of this specification.

All end-treatment materials and components shall conform with Trinity ET-Plus End-Treatment (manufactured by Trinity Highway Products, LLC. Dallas, Texas) or an approved equivalent meeting all minimum performance specifications that are provided by the Trinity ET-Plus End-Treatment. The Bidder shall make any request for a substitute in accordance with B5.

E18.3.6 Granular Backfill Material

Granular backfill material shall conform to the requirements of Section 2.2 of Specification CW 3110 for Base Course Material, or as otherwise shown on the Drawings. Crushed limestone base course is not allowed for use.

E18.3.7 Asphalt Concrete Material

Asphalt material shall conform to the requirements of Section 5 of Specification CW 3410-R8 for Asphaltic Concrete Pavement Works.

E18.3.8 Alkali-resistant Bituminous Paint

Alkali-resistant bituminous paint shall meet the requirements of CGSB Specification 31-GP-3M.

E18.4 Construction Methods

E18.4.1 Replacement of Damaged Materials

In the event of damage to any materials, the Contractor shall immediately notify the Contract Administrator and make all repairs or replacements necessary, at no expense to the City, to the satisfaction of the Contract Administrator.

In no case shall the Contractor install a damaged component on the guardrail.

E18.4.2 Site Inspection

Prior to commencing installation of the guardrail at a location, the Contractor shall verify that the guardrail can be installed in strict accordance with the Drawings.

This shall include contacting all Utilities and other owners of underground facilities, including Canadian Pacific Railway, in order to ensure that the proposed location of the posts is not in conflict with the location of any water pipe, gas line, electrical wire, cable, conduit, sewer, sprinkler system, or other existing facilities or equipment.

Should there be a conflict between a proposed guardrail post location and any underground facility, the Contract Administrator must be notified immediately.

E18.4.3 Installation of Guardrail Posts

The surfaces of posts that are in contact with the ground shall be painted with two coats, each one (1) mm in thickness, of alkali-resistant bituminous paint. Painted surfaces shall be dry prior to installation. Painting shall be incidental to the cost of installing guardrail posts

The guardrail posts shall be installed in a careful workmanlike manner to the grade and alignment shown on the Drawings.

A 300 mm diameter hole shall be augered through the asphalt pavement and into the ground to the specified depth, the post positioned and held accurately in place in the hole, and granular backfill material placed in the hole and compacted around the post to within 100 mm of shoulder grade. After the granular material has been satisfactorily compacted, 100 mm of asphalt is to be constructed on top flush with the adjacent pavement.

Where guardrail posts require cutting to clear utility lines or other obstructions, to a maximum of 150 mm, such work shall only be permitted with the written permission of the Contract Administrator. The cost of all cutting operations shall be incidental to their installation.

The grade of the guardrail posts must be averaged over the irregularities in the grade at the site in order to ensure a smooth and uniform grade on the W-Beam.

E18.4.4 Installation of W-Beam

The W-Beam shall be carefully installed on the posts. This shall be deemed to include the installation of all accessories as detailed on the drawings.

The completed W-Beam shall have a smooth and uniform grade.

E18.4.5 Acceptance of Midwest Guardrail System

A Midwest Guardrail System with inaccurate alignment and/or poor grade shall be corrected by the Contractor at his own expense to the satisfaction of the Contract Administrator.

E18.4.6 Midwest Guardrail Layout

The Midwest Guardrail shall be laid out in accordance with the drawings and the details provided at the end of this specification.

E18.4.7 Cleaning

After the installation of the W-Beam has been completed, the entire W-Beam shall be thoroughly cleaned by the Contractor to the satisfaction of the Contract Administrator.

E18.4.8 Installation of End-Treatment

Installation of the End-Treatment system shall be completed in accordance with the manufacturers specifications. The installation instructions for the Trinity ET-Plus End-Treatment has been provided in Appendix 'C' for reference to be used if the Contractor elects to use the Trinity ET-Plus End-Treatment

Where no specific installation specification exists for guardrail posts and W-Beams of the end treatment, the guardrail posts and W-Beams shall be installed in accordance with this specification for the Midwest Guardrail. All steel posts installed below grade shall be treated in accordance with section E17.4.3.

E18.4.9 The Contractor shall construct the shoulders prior to the installation of the guardrail and end treatment. The shoulders shall be constructed and paid for in accordance with specifications CW 3110-R14 and CW 3410-R8.

E18.5 Method of Measurement

E18.5.1 Supply and Installation of Guardrail Posts

The supply and installation of guardrail posts will be measured on a unit basis. The number of guardrail posts to be paid for shall be the total number of guardrail posts supplied in accordance with this Specification and accepted by the Contract Administrator, not including the posts that are considered part of the End-Treatment system.

E18.5.2 Supply and Installation of W-Beam

The supply and installation of W-beam will be measured on a linear measure basis. The length to be paid for shall be the total number of metres of W-beam supplied in accordance with this Specification and accepted by the Contract Administrator, as computed by measuring the total length of a W-Beam guardrail, not including the End-Treatment system or the sections of guardrail that are considered part of the End-Treatment system.

Measurement for the supply and installation of W-beam shall be deemed to include the fabrication, supply and installation of all hardware required for a complete installation, including the end rail assembly.

E18.5.3 Supply and Installation of End-Treatment

The supply and installation of End-Treatment will be measured on a unit basis. The total number of End-Treatment assemblies supplied and installed in accordance with this specification and accepted by the Contract Administrator. Measurement for the supply and installation of the End-Treatment assembly shall be deemed to include the fabrication, supply and installation of all hardware, posts and W-Beam rails that comprise the entire End-Treatment assembly.

E18.6 Basis of Payment

E18.6.1 Supply and Installation of Guardrail Posts

Supply and Installation of guardrail posts will be paid for at the Contract Unit Price for "Supply and Installation of Midwest Guardrail Steel Barrier Posts", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

E18.6.2 Supply and Installation of W-Beam

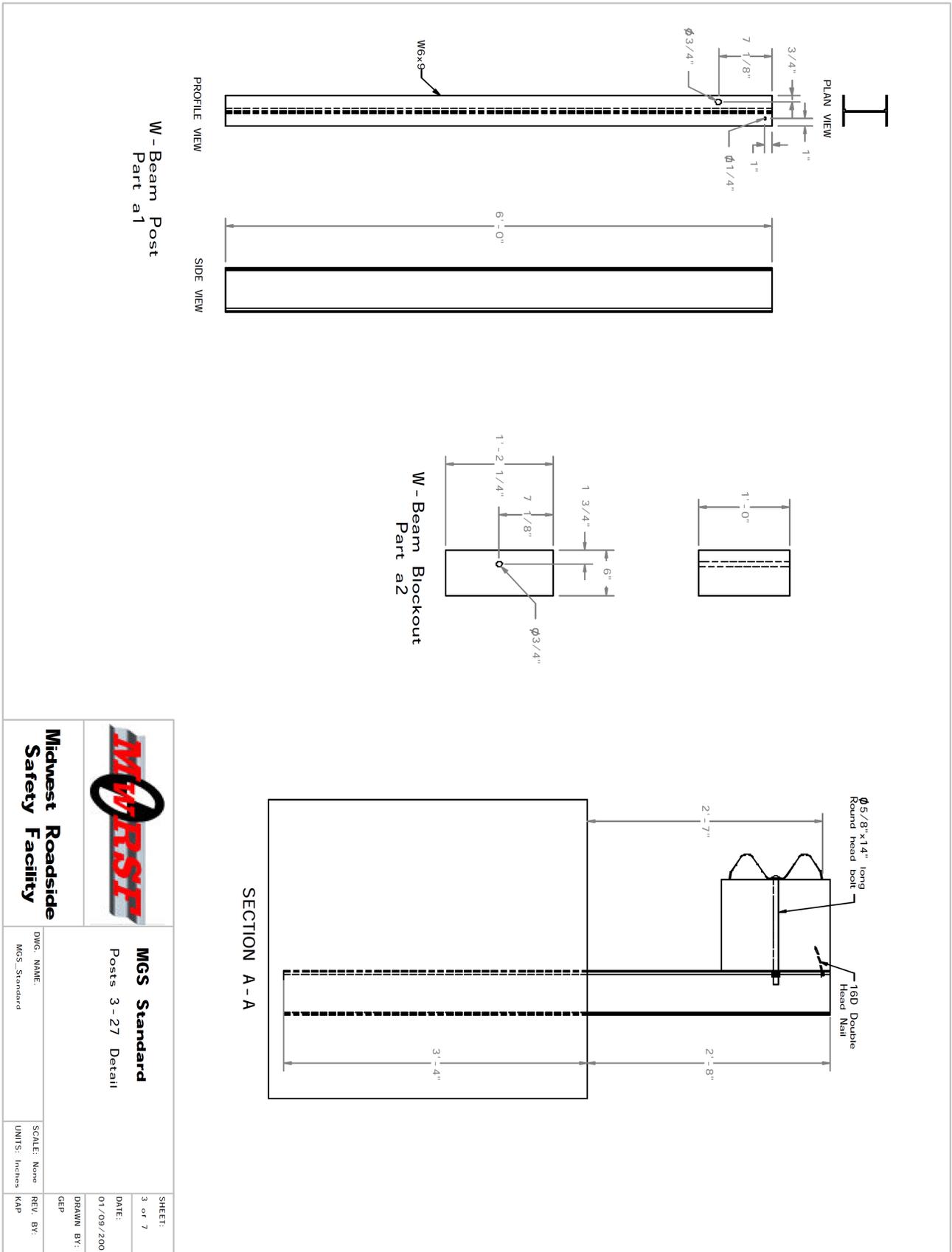
Supply and Installation of W-Beam will be paid for at the Contract Unit Price per metre for "Supply and Installation of Midwest Guardrail Barrier Rails", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

E18.6.3 Supply and Installation of End-Treatment

Supply and installation of End-Treatment will be paid for at the lump sum unit price per End-Treatment assembly measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in the specification.

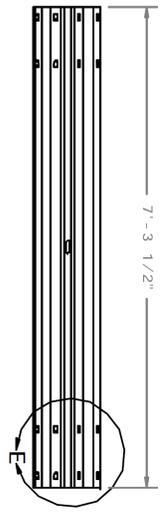
STANDARD MIDWEST GUARDRAIL SYSTEM

Template Version: C420110321 - RW

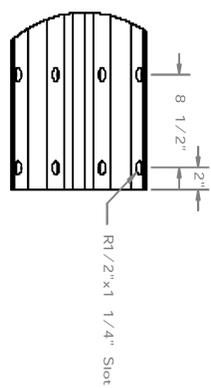


		MGS Standard Posts 3-27 Detail	
Midwest Roadside Safety Facility		DWG. NAME: MGS_Standard	SCALE: None UNITS: Inches
		REV. BY: KAP	SHEET: 3 of 7
		DATE: 01/09/2005	DRAWN BY: GEP

Template Version: C420110321 - RW



6'-3" W-Beam Section, 12 gauge

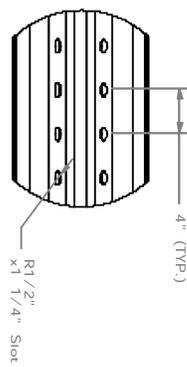


DETAIL E
 SCALE 1 : 15

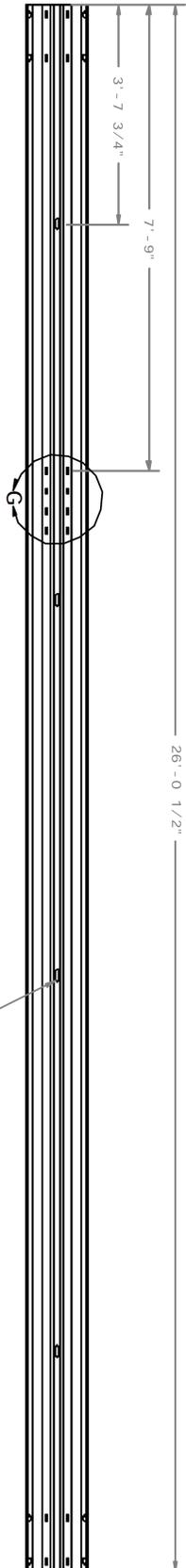


12'-6" W-Beam Section, 12 gauge

SECTION F - F



DETAIL G
 SCALE 1 : 15



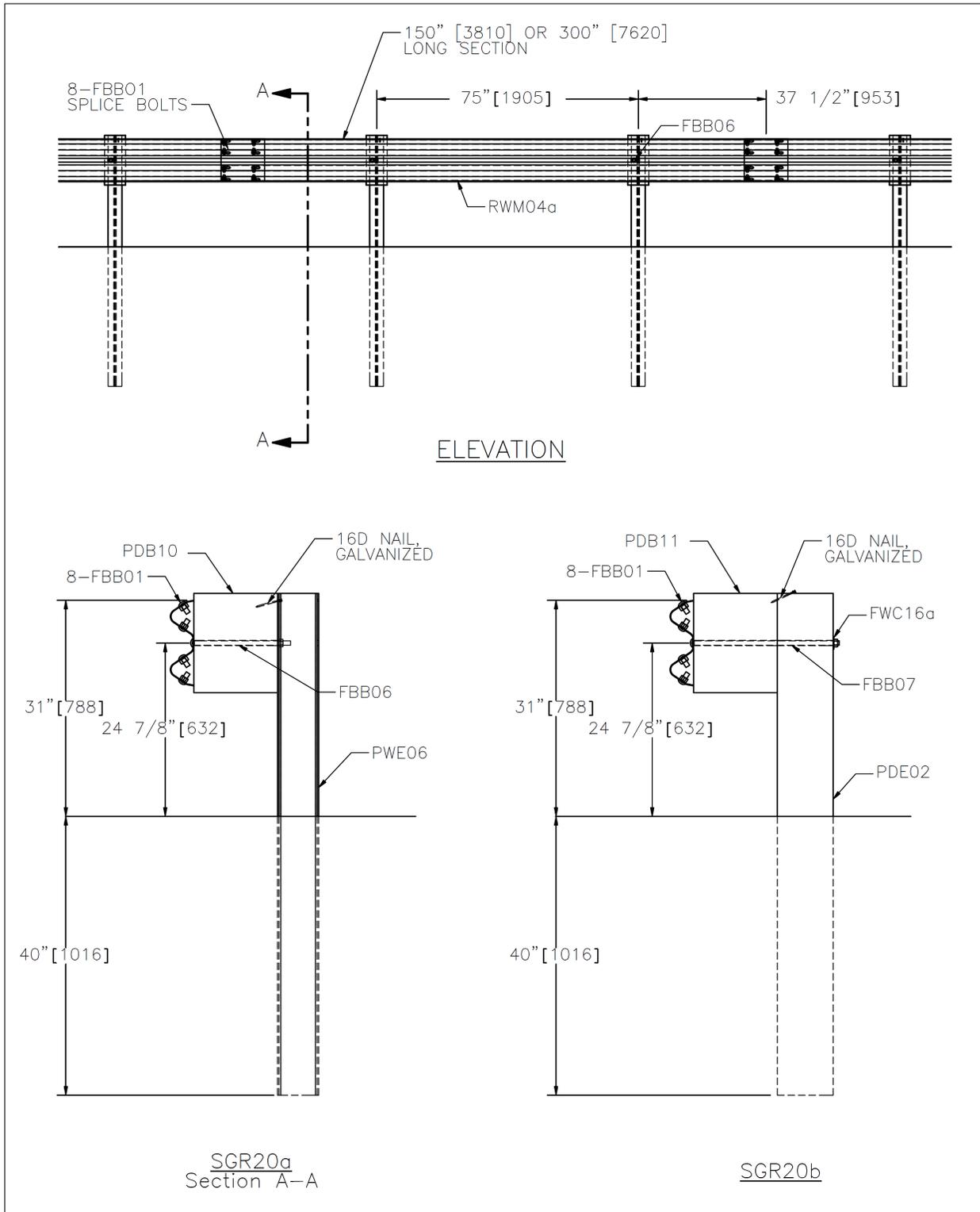
25' W-Beam Section, 12 gauge, End Section



**Midwest Roadside
 Safety Facility**

MGS Standard
 Rail Section Details

DWG. NAME: MGS_Standard	SCALE: None UNITS: Inches	REV. BY: KAP
SHEET: 7 of 7		DATE: 01/09/2005
DRAWN BY: GEP		



MIDWEST GUARDRAIL SYSTEM WITH STANDARD POST SPACING



SGR20a-b

SHEET NO.

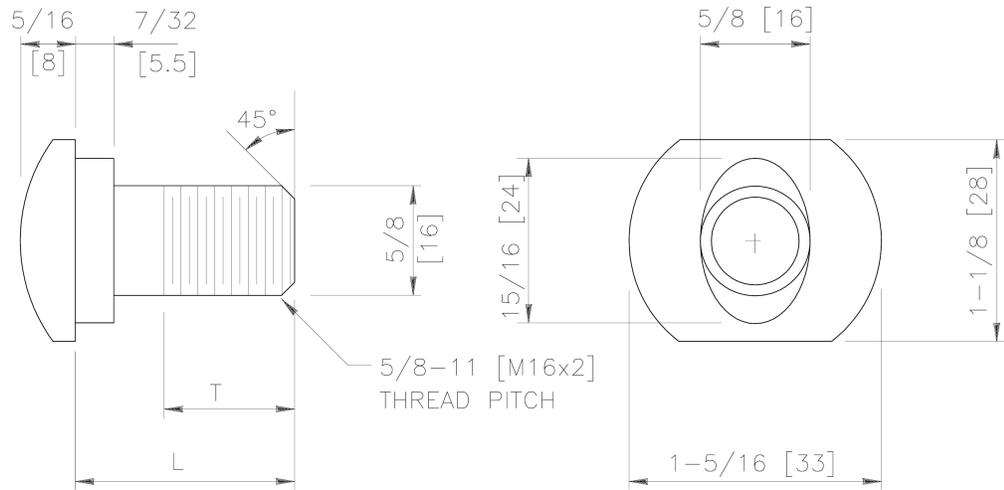
DATE:

1 of 4

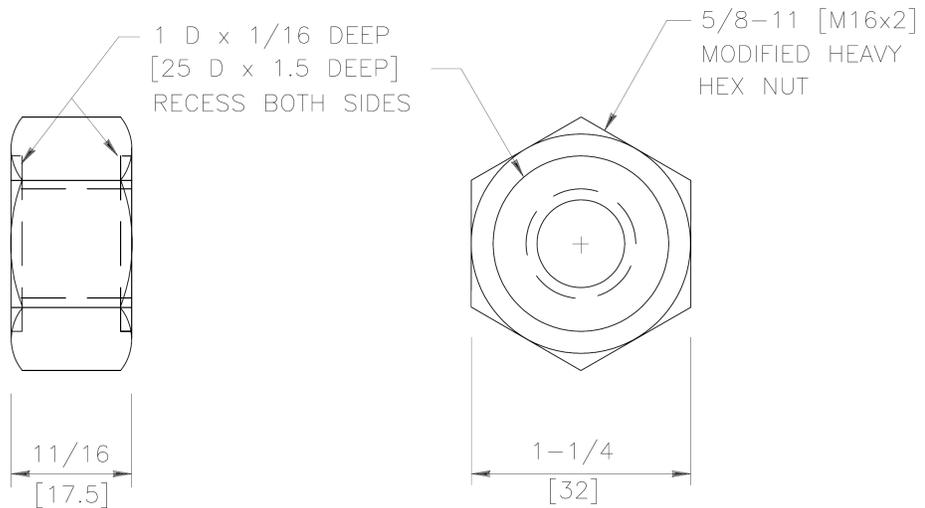
8/23/2007

Template Version: C420110321 - RW

- NOTES:** 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16 [2].
 2. IF THE BOLT EXTENDS MORE THAN 1/4 [6] FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.



DESIGNATOR	L	T (MIN)
FBB01	1-1/4 [35]	1-1/8 [30]
FBB02	2 [50]	1-3/4 [45]
FBB03	10 [255]	4 [100]
FBB04	18 [460]	4 [100]
FBB05	25 [640]	4 [100]



1976

GUARDRAIL BOLT AND RECESSED NUT

FBB01-05

SHEET NO.

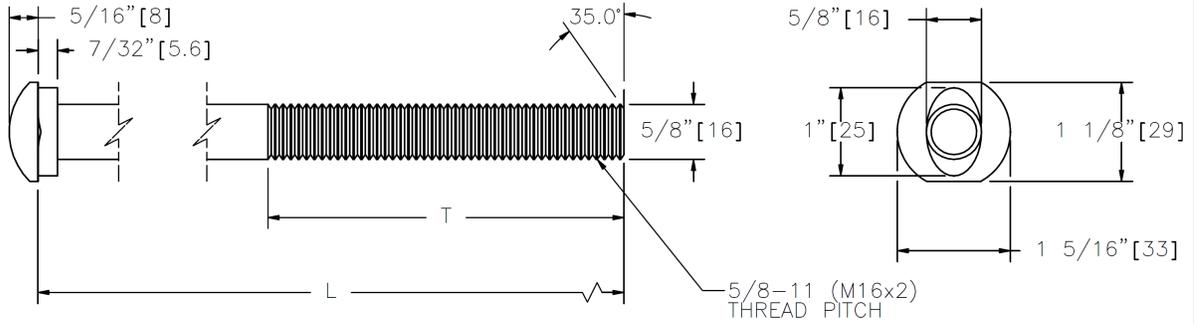
DATE:

1 of 2

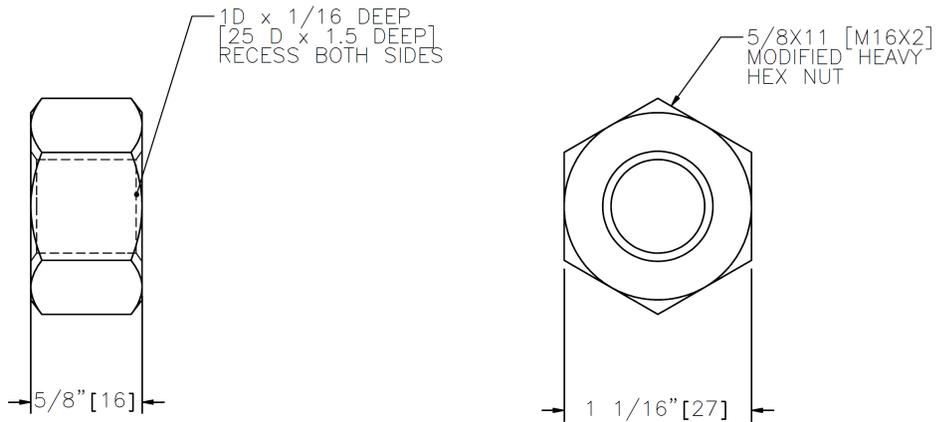
6/30/2005

Template Version: C420110321 - RW

- NOTES:**
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16 [2]
 2. IF THE BOLT EXTENDS MORE THAN 1/4 [6] FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK



DESIGNATOR	L	T(min)
FBB06	14 [356]	4 1/16 [103]
FBB07	21 [533]	4 1/16 [103]



GUARDRAIL BOLT AND RECESSED NUT



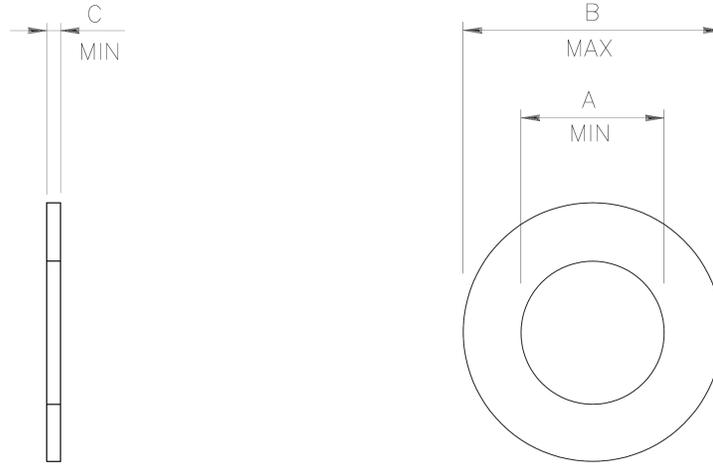
FBB06-07

SHEET NO.

DATE:

1 of 2

5/15/2007



DESIGNATOR	A MIN	B MAX	C MIN	ANSI SIZE
FWC06a	0.276 [6.65]	0.749 [18.80]	0.056 [1.20]	1/4 [6]
FWC08a	0.339 [8.90]	0.890 [25.40]	0.056 [1.60]	5/16 [8]
FWC10a	0.401 [10.85]	1.015 [28.00]	0.056 [2.00]	3/8 [10]
FWC12a	0.526 [13.30]	1.280 [34.00]	0.090 [2.50]	1/2 [12]
FWC14a	0.589 [15.25]	1.499 [39.00]	0.090 [2.50]	9/16 [14]
FWC16a	0.649 [17.25]	1.780 [44.00]	0.090 [3.00]	5/8 [16]
FWC20a	0.805 [21.80]	2.030 [50.00]	0.090 [3.50]	3/4 [20]
FWC24a	1.055 [25.60]	2.530 [56.00]	0.146 [4.00]	1 [24]
FWC30a	1.305 [32.40]	3.030 [72.00]	0.146 [4.50]	1-1/4 [30]
FWC36a	1.552 [38.30]	3.545 [90.00]	0.234 [5.00]	1-1/2 [36]

PLAIN ROUND WASHER

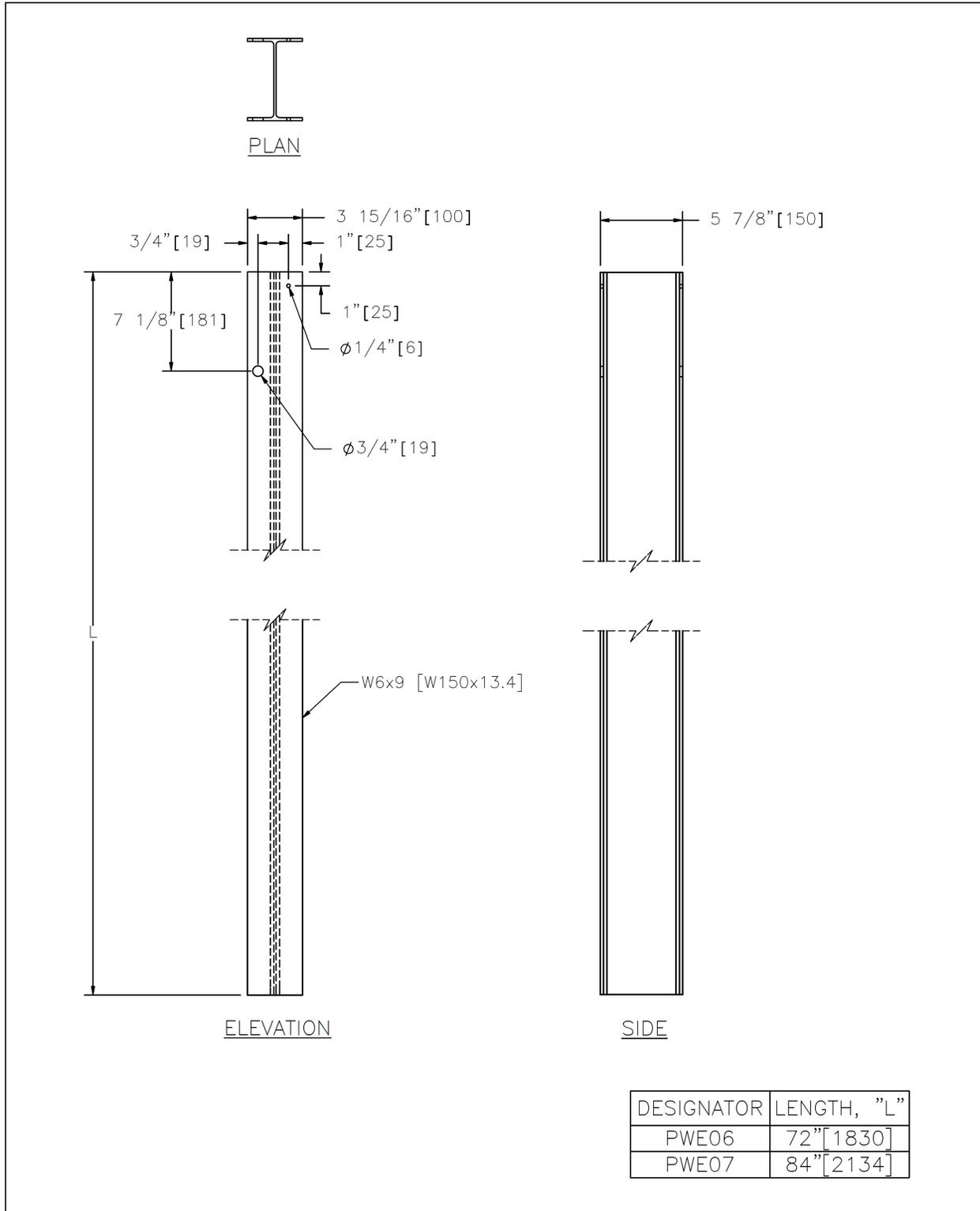
FWC06a-36a

SHEET NO.

DATE:

1 of 2

6/27/2005



DESIGNATOR	LENGTH, "L"
PWE06	72" [1830]
PWE07	84" [2134]

WIDE-FLANGE GUARDRAIL POST



PWE06-07

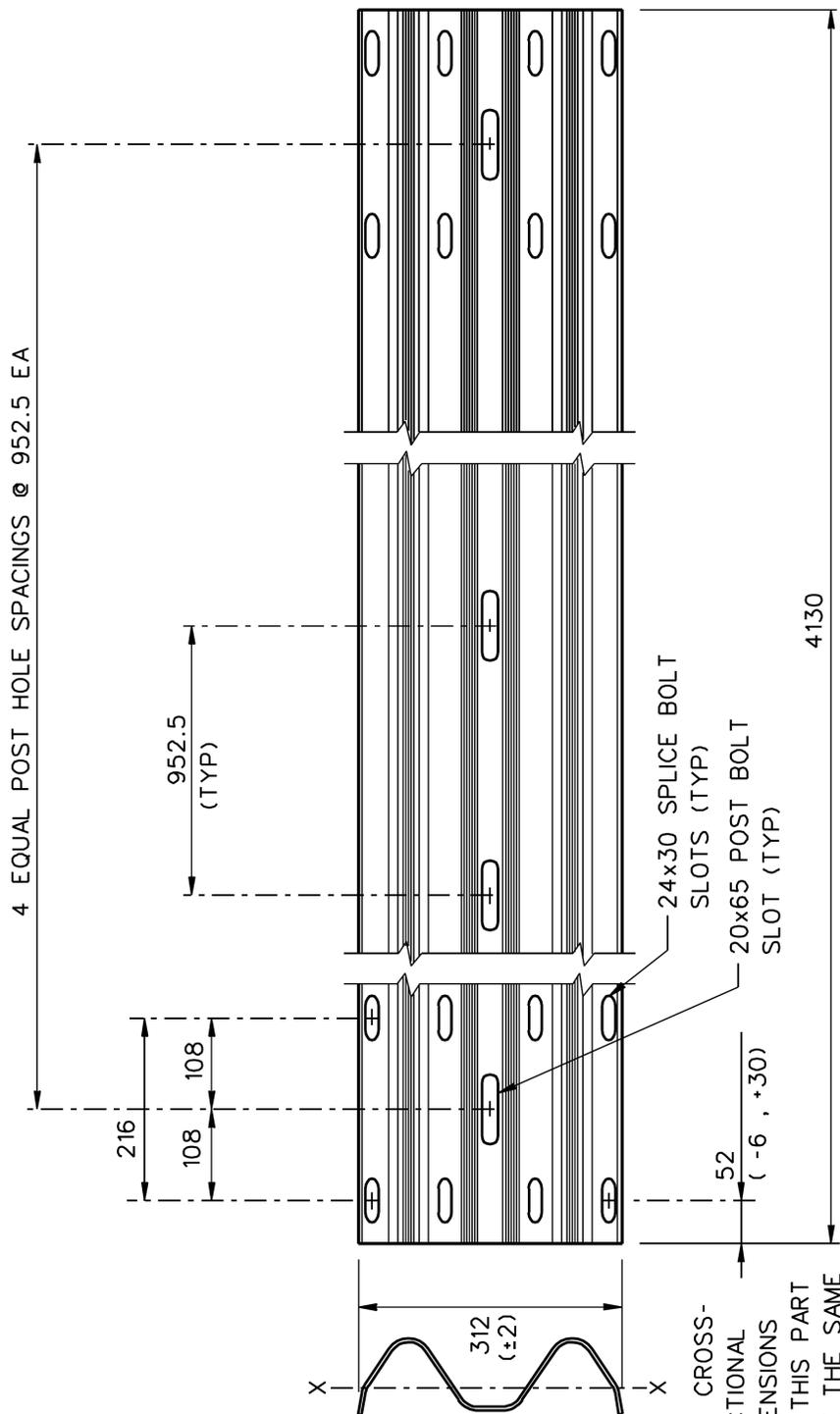
SHEET NO.

DATE:

1 of 2

5/8/2007

DESIGNATOR	BASE METAL THICKNESS
RWM04a	2.67
RWM04b	3.43



THE CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE THE SAME AS PART RWM02a (SHT 3 of 4).

1994

4-SPACE W-BEAM GUARDRAIL

RWM04a-b

SHEET NO.

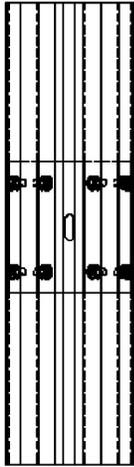
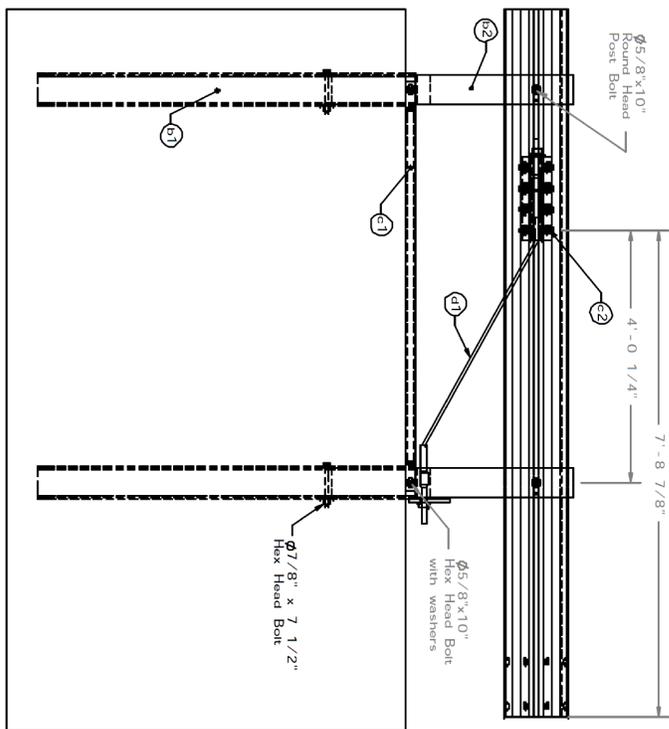
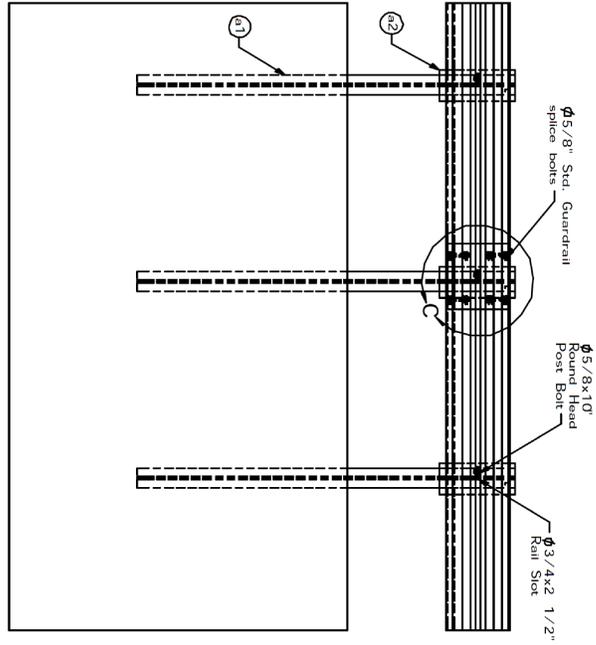
REF. NO.

1 of 2

RE-3-73

STANDARD MIDWEST GUARDRAIL END RAIL

Template Version: C420110321 - RW



SCALE 1 : 15



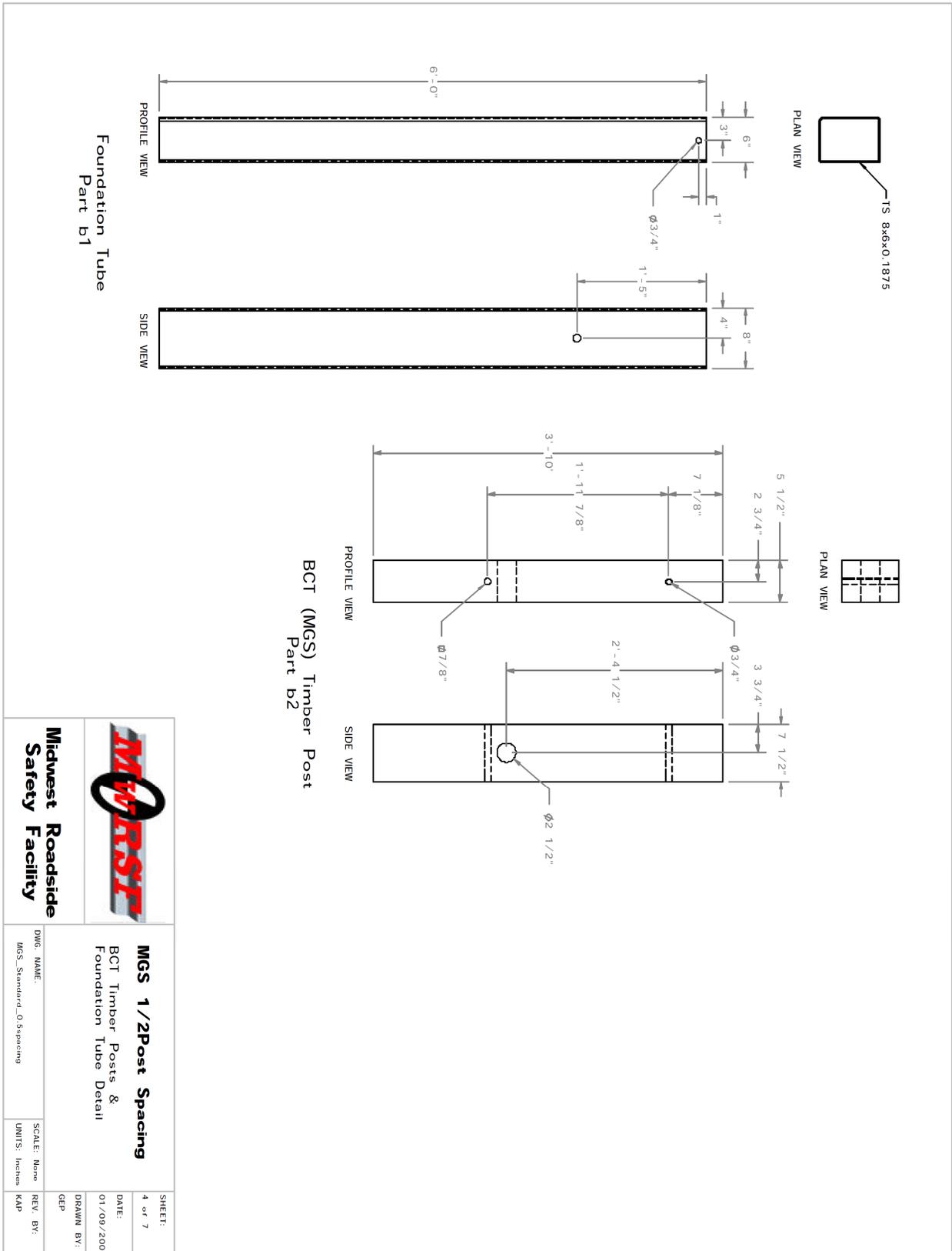
Midwest Roadside Safety Facility

MGS 1/2 Post Spacing
 End Rail Detail
 Splice Detail

DWG. NAME: MGS_Standard_0 Spacing
 SCALE: None
 UNITS: Inches

SHEET: 2 of 7
 DATE: 01/09/2005
 DRAWN BY: CEP
 REV. BY: KAP

Template Version: C420110321 - RW



Midwest Roadside Safety Facility

MGS 1/2 Post Spacing
 BCT Timber Posts &
 Foundation Tube Detail

DWG. NAME:
 MGS_Standard_0 Spacing

SCALE: None
 UNITS: Inches

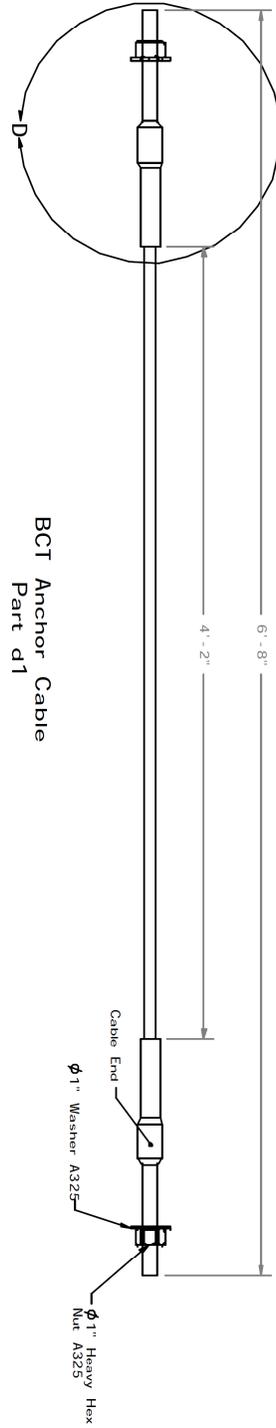
REV. BY:
 KAP

SHEET:
 4 of 7

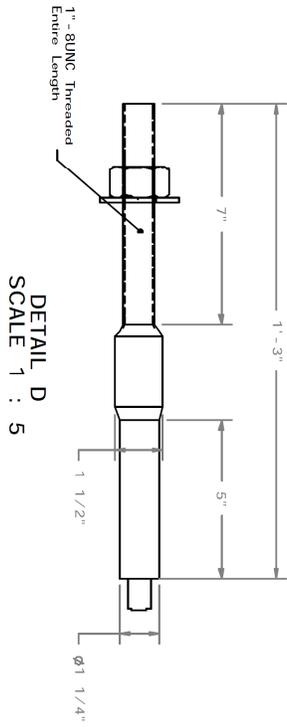
DATE:
 01/09/2005

DRAWN BY:
 GEP

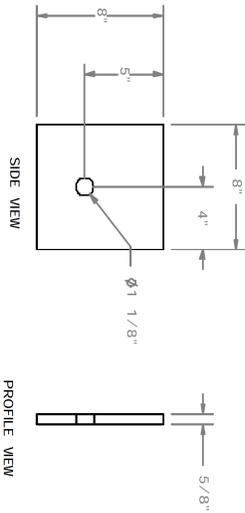
Template Version: C420110321 - RW



BCT Anchor Cable
 Part d1



DETAIL D
 SCALE 1 : 5



Anchor Cable
 Bearing Plate
 Part d2



Midwest Roadside
 Safety Facility

MGS 1/2Post Spacing
 BCT Anchor Cable Detail

DWG. NAME:
 MGS_Standard_0 Spacing

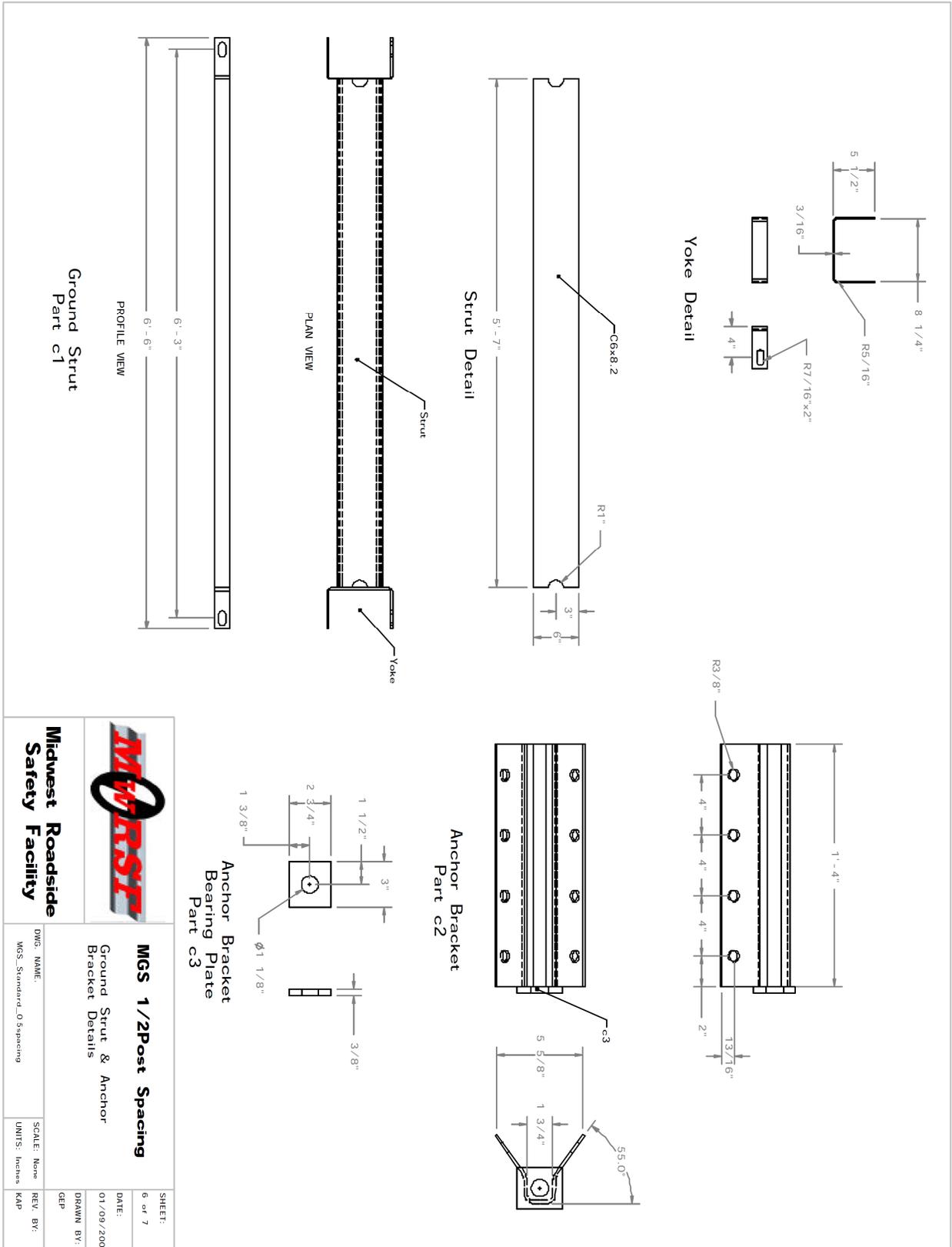
SCALE: None
 UNITS: Inches

REV. BY:
 KAP

SHEET:
 5 of 7

DATE:
 01/09/2005

DRAWN BY:
 GEP



Ground Strut
 Part c1

Strut Detail

Yoke Detail

Anchor Bracket
 Part c2

Anchor Bracket
 Bearing Plate
 Part c3



**Midwest Roadside
 Safety Facility**

MGS 1/2 Post Spacing
 Ground Strut & Anchor
 Bracket Details

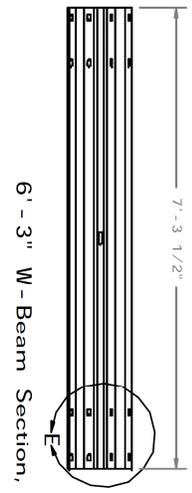
DWG. NAME:
 MGS_Standard_0 Spacing

SCALE: None
 UNITS: Inches

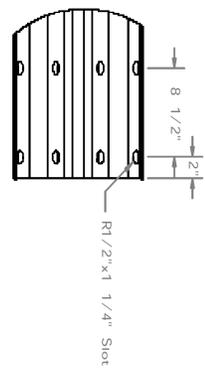
REV. BY:
 KAP

SHEET:
 6 of 7
 DATE:
 01/09/2005
 DRAWN BY:
 GEP

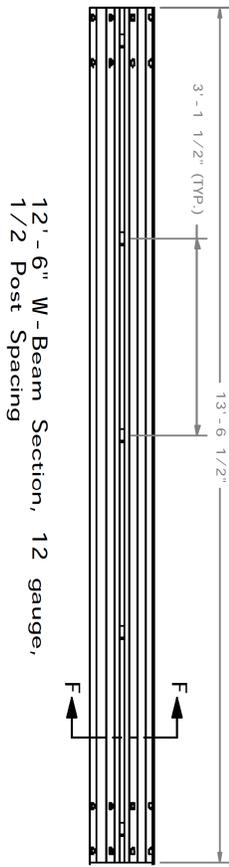
Template Version: C420110321 - RW



6'-3" W-Beam Section, 12 gauge

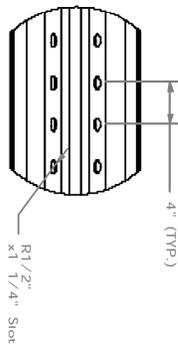


DETAIL E
 SCALE 1 : 15

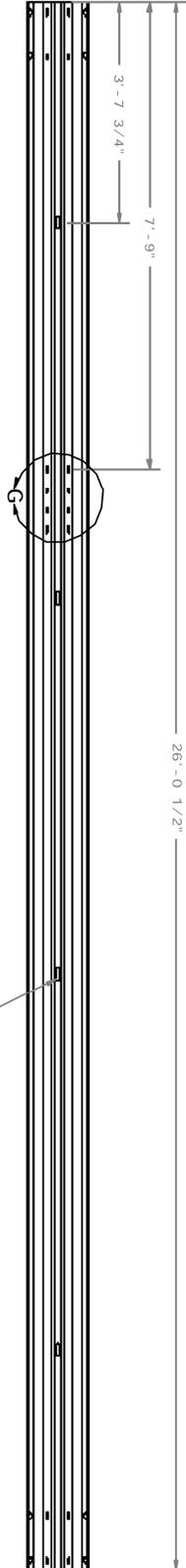


12'-6" W-Beam Section, 12 gauge,
 1/2 Post Spacing

SECTION F-F



DETAIL G
 SCALE 1 : 15



25' W-Beam Section, 12 gauge, End Section



**Midwest Roadside
 Safety Facility**

MGS 1/2Post Spacing
 Rail Section Details

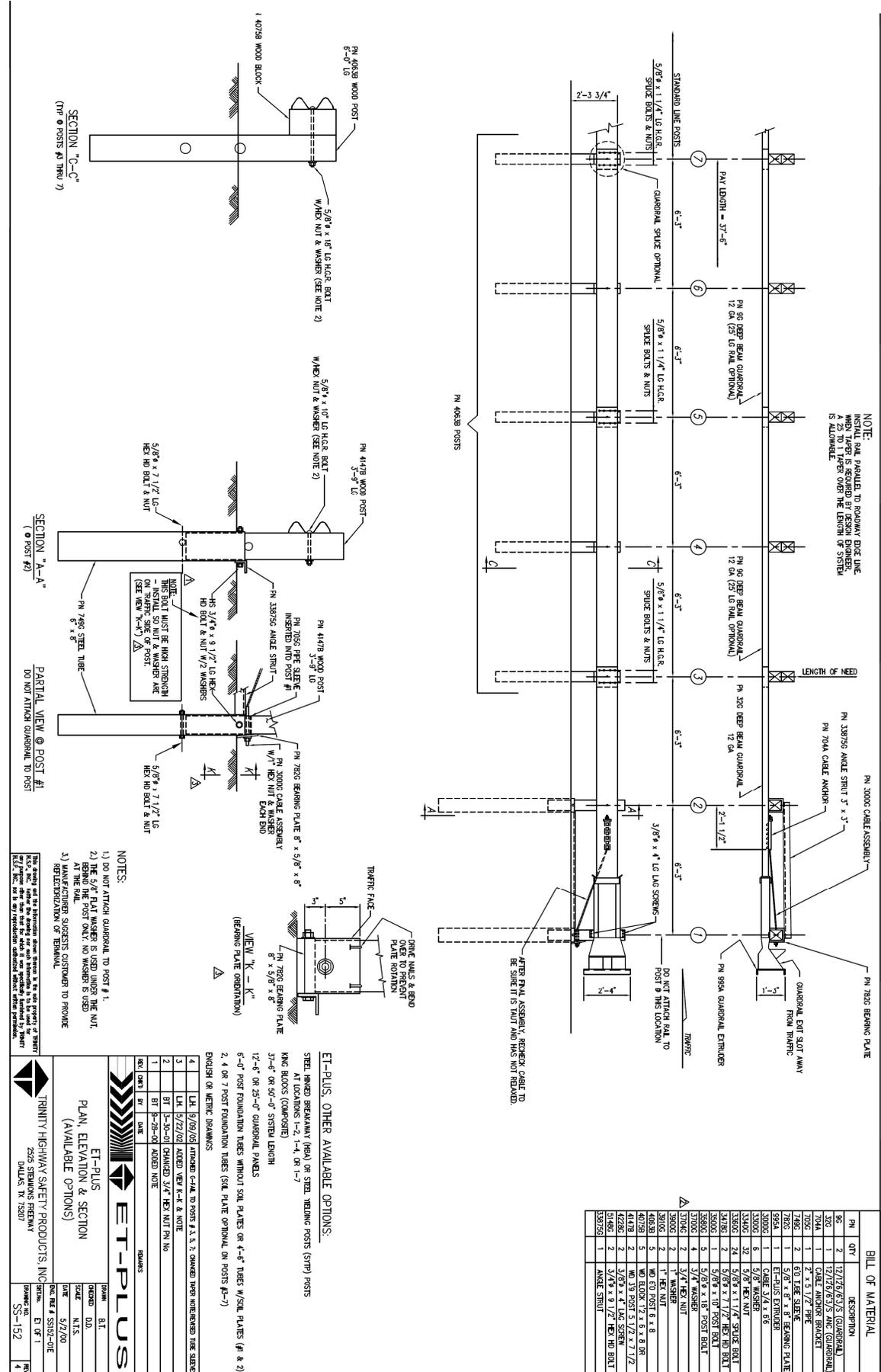
DMG: NAME
 MGS_Standard_0.5spacing

SCALE: None
 UNITS: Inches

SHEET: 7 of 7
 DATE: 01/09/2005
 DRAWN BY: GEP
 REV. BY: KAP

TRINITY ET-PLUS END-TREATMENT

Template Version: C420110321 - RW



- NOTES:**
- DO NOT ATTACH QUADRANTAL TO POST # 1.
 - THE 6/4" FLAT WASHER IS USED UNDER THE NUT AT THE RAIL.
 - REFER TO OTHER SPECIFICATIONS TO PROMOTE THE BEST INTERESTS OF THE USER.

ET-PLUS

ET-PLUS
 PLAN, ELEVATION & SECTION
 (AVAILABLE OPTIONS)

TRINITY HIGHWAY SAFETY PRODUCTS, INC.
 2250 CENTRE STREET
 CALULAS, TX 75007

DATE: 5/7/00
 SCALE: N.T.S.
 SHEET: 001
 DRAWING NO.: 55152-01E
 PROJECT NO.: 55152-01E
 SHEET NO.: 551-152

ET-PLUS, OTHER AVAILABLE OPTIONS:

STEEL WEAVER BREAKAWAY (HBA) OR STEEL WELDING POSTS (SWTP) POSTS AT LOCATIONS 1-2, 1-4, OR 1-7

WING BLOCKS (COMPOSITE)
 3'-6" OR 5'-0" STIBAL LENGTH
 12'-6" OR 25'-0" QUADRANTAL PANELS

6"-Ø POST FOUNDATION TUBES WITHOUT SOUL PLATES OR 4'-Ø TUBES W/ SOUL PLATES (#1 & 2)

2, 4 OR 7 POST FOUNDATION TUBES (SOUL PLATE OPTIONAL ON POSTS #3-7)

ENGLISH OR METRIC DIMENSIONS