



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 312-2005

SUPPLY AND DELIVERY OF WAYFINDER SIGNS AND POSTS

TABLE OF CONTENTS

PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

PART B - BIDDING PROCEDURES

B1. Project Title	1
B2. Submission Deadline	1
B3. Enquiries	1
B4. Addenda	1
B5. Substitutes	2
B6. Bid Submission	3
B7. Bid	3
B8. Prices	4
B9. Qualification	4
B10. Opening of Bids and Release of Information	5
B11. Irrevocable Bid	5
B12. Withdrawal of Bids	5
B13. Evaluation of Bids	6
B14. Award of Contract	7

PART C - GENERAL CONDITIONS

C1. General Conditions	1
------------------------	---

PART D - SUPPLEMENTAL CONDITIONS

General

D1. General Conditions	1
D2. Scope of Work	1
D3. Bidder's Conference	1
D4. Contract Administrator	1
D5. Notices	2

Submissions

D6. Authority to Carry on Business	2
------------------------------------	---

Schedule of Work

D7. Commencement	2
D8. Substantial Performance	3
D9. Total Performance	3

Measurement and Payment

D10. Payment Schedule	3
-----------------------	---

PART E - SPECIFICATIONS

General

E1. General	1
E2. Goods	1
E3. Delivery	1
E4. Sign Boxes and Sign Plates	2
E5. Structural Steel Posts	7

PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 SUPPLY AND DELIVERY OF WAYFINDER SIGNS AND POSTS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, July 26, 2005.

B2.2 Bid Submissions 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet site for addenda shortly before submitting his Bid.

B4.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 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 materials, equipment, methods and products 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 material, equipment, method or product 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 Contract;
 - (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 Contract.
- 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 shall 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 B13.
- B5.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B6. BID SUBMISSION

- B6.1 The Bid Submission consists of the following components:
- (a) Form A: Bid; and
 - (b) Form B: Prices.
- B6.2 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.
- B6.3 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B6.4 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Branch
185 King Street, Main Floor
Winnipeg MB R3B 1J1
- B6.4.1 Samples or other components of the Bid Submission 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 Submission.
- B6.5 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178
- B6.5.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B6.6 Bid Submissions submitted by internet electronic mail (e-mail) will not be accepted.

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 10 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;
 - (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 shall be printed below such signatures.
- B7.4.2 All signatures shall be original.
- 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 Submission 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 Prices on Form B: Prices shall include:
- (a) duty;
 - (b) freight and cartage;
 - (c) Provincial and Federal taxes [except the Goods and Services Tax (GST) and Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable] and all charges governmental or otherwise paid; and
 - (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.

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, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business;
 - (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
 - (c) be financially capable of carrying out the terms of the Contract;
 - (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
 - (e) have successfully carried out work, similar in nature, scope and value to the Work;
 - (f) employ only Subcontractors who:
 - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and

- (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract; and
 - (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba).
- B9.2 The Bidder shall be prepared to 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.
- B9.3 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. OPENING OF BIDS AND RELEASE OF INFORMATION

- B10.1 Bid Submissions will not be opened publicly.
- B10.2 Within two (2) Business Days 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B10.3 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B10.4 The Bidder is advised that any information contained in any Bid Submission 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.

B11. IRREVOCABLE BID

- B11.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.
- B11.2 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 for the time period specified in Paragraph 9 of Form A: Bid.

B12. WITHDRAWAL OF BIDS

- B12.1 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.
- B12.1.1 Notwithstanding GC.7.05(2), 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.
- B12.1.2 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 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

- B12.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:
- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
 - (b) open the Bid Submission to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B12.1.3(b), declare the Bid withdrawn.

B12.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B11.2 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.

B13. EVALUATION OF BIDS

B13.1 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 (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9(pass/fail);
- (c) Bid Price; and
- (d) economic analysis of any approved alternative pursuant to B5.

B13.2 Further to B13.1 (a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission 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 if the interests of the City so require.

B13.3 Further to B13.1 (b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.

B13.4 Further to B13.1 (c), the Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B13.4.1 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.

B13.5 This Contract may be awarded on the basis of:

- (a) Alternative 1 – Sign Boxes; or
- (b) Alternative 2 – Sign Plates.

as identified on Form B: Prices. Each alternative will be evaluated in accordance with the specified evaluation criteria.

B13.5.1 Notwithstanding B8.1, the Bidder may, but is not required to, bid on all alternatives.

B13.5.2 The City shall have the right to choose the alternative that is in its best interests. If the Bidder has not bid on all alternatives, he shall have no claim against the City if his partial Bid is rejected in favour of an award of the Contract on the basis of an alternative upon which he has not bid.

B14. AWARD OF CONTRACT

- B14.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B14.2 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.
- B14.2.1 Without limiting the generality of B14.2, 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.
- B14.3 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.
- B14.4 Notwithstanding GC.3.01 and GC.3.02, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B14.5 The Contract Documents, as defined in GC.1.01(7), in their entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that they are not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

C1.1 The *General Conditions for the Supply and Delivery of Goods* (Form 21: 88 03) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for the Supply and Delivery of Goods* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the *General Conditions for the Supply and Delivery of Goods*, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Board of Commissioners" or "Commissioner" wherever it appears in the General Conditions and substituting the "Chief Administrative Officer".
- D1.4 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.5 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.6 The General Conditions are amended by striking out "Bidding Instructions" wherever it appears in the General Conditions and substituting "Bidding Procedures".

D2. SCOPE OF WORK

- D2.1 The Work to be done under the contract shall consist of the supply and delivery of wayfinder signs and posts.
- D2.2 The major components of the Work are as follows:
- (i) Alternative 1: the supply and delivery of sign boxes and steel posts.
 - (ii) Alternative 2: the supply and delivery of sign plates and steel posts.

D3. BIDDER'S CONFERENCE

- D3.1 Further to GC:3.1, the Bidder should attend a Bidder's Conference in the 3rd Floor Boardroom at 100 Main Street, Winnipeg, Manitoba. The Bidder can attend on July 19, 2005 (10:00 a.m. - 11:30 a.m.) or July 20, 2005 (10:00 a.m. - 11:30 a.m.).
- D3.2 The Bidder is advised that, at the Bidder's Conference, the nature and extent of the Work will be discussed.
- D3.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Bidder's Conference unless that information or interpretation is provided by the Contract Administrator in writing.

D4. CONTRACT ADMINISTRATOR

- D4.1 The Contract Administrator is:
- Dillon Consulting Limited, represented by:
- Sital Rihal, P. Eng.
Project Manager
200 - 895 Waverley Street, Winnipeg, Manitoba R3T 5P4
Telephone No. (204) 453-2301, Ext. 247

Facsimile No. (204) 452-4412

D5. NOTICES

- D5.1 GC.7.05 is hereby amended to delete reference to "registered mail" and to replace same with "ordinary mail".
- D5.2 GC.7.05 is further amended hereby to include delivery by facsimile transmission (fax) as an acceptable means of delivering notices, consents, approvals, statements, authorizations, documents or other communications required or permitted to be given under this Contract. Deliveries by fax will be deemed to have been received on the day of delivery, if a business day, or if not a business day, on the business day next following the day of delivery.
- D5.3 Further to GC.7.05, all notices, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.4, D5.5 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.
- D5.4 All notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:
The City of Winnipeg
Chief Administrative Officer Secretariat
Administration Building, 3rd Floor
510 Main Street
Winnipeg MB R3B 1B9
Facsimile No.: (204) 949-1174
- D5.5 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
Corporate Services Department
Legal Services Division
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
Facsimile No.: (204) 947-9155

SUBMISSIONS

D6. AUTHORITY TO CARRY ON BUSINESS

- D6.1 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.

SCHEDULE OF WORK

D7. COMMENCEMENT

- D7.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order authorizing the commencement of the Work.

D8. SUBSTANTIAL PERFORMANCE

- D8.1 The Contractor shall achieve Substantial Performance by November 30, 2005.
- D8.2 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 reinspected.
- D8.3 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.

D9. TOTAL PERFORMANCE

- D9.1 The Contractor shall achieve Total Performance by December 31, 2005.
- D9.2 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 reinspected.
- D9.3 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.

MEASUREMENT AND PAYMENT

D10. PAYMENT SCHEDULE

- D10.1 Further to GC.9.01 and GC.9.03, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

PART E - SPECIFICATIONS

GENERAL

E1. GENERAL

E1.1 These Specifications shall apply to the Work.

E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
WF-05-01	Cover Sheet
WF-05-02	Scope of Work - Sheet 1 of 3 (includes list of PDF files per Clause 1.3)
WF-05-03	Scope of Work - Sheet 2 of 3
WF-05-04	Scope of Work - Sheet 3 of 3
WF-05-05	Alternative 1 (Sign Boxes) - Sign and Post Dimensions
WF-05-06	Alternative 1 (Sign Boxes) - Post Details
WF-05-07	Alternative 1 (Sign Boxes) - Sign Box Details - Sheet 1 of 2
WF-05-08	Alternative 1 (Sign Boxes) - Sign Box Details - Sheet 2 of 2
WF-05-09	Alternative 2 (Sign Plates) - Sign and Post Dimensions
WF-05-10	Alternative 2 (Sign Plates) - Sign Plate and Post Details

E1.3 Within Drawing WF-05-02, Scope of Work Sheet 1 of 3 lists two (2) groups of drawings in PDF format named: Design_Details.pdf and Sign_Artwork.pdf, which are applicable to the work.

E2. GOODS

E2.1 The Contractor shall supply and deliver wayfinder signs and posts in accordance with the requirements hereinafter specified.

E3. DELIVERY

E3.1 The Contractor shall deliver the goods on an as-required basis f.o.b. destination, freight prepaid to the following locations within the City:

- (a) Posts (Alternative 1 or Alternative 2) - The City of Winnipeg, Public Works Department, East Area Branch, Bridges Storage Yard, 849 Ravelston Avenue, Winnipeg, Manitoba, R3W 1S8.
- (b) Sign Boxes (Alternative 1) - The City of Winnipeg, Public Works Department, East Area Branch, Bridges Storage Yard, 849 Ravelston Avenue, Winnipeg, Manitoba, R3W 1S8.
- (c) Sign Plates (Alternative 2) - The City of Winnipeg, Public Works Department, Traffic Services Shop, 421 Osborne Street, Winnipeg, Manitoba, R3L 2A2.

E3.2 The Contractor shall provide at least two (2) working days notification of delivery. Contact the Contract Administrator.

E3.3 The Contractor shall off-load goods at the delivery location as directed by the Contract Administrator.

E3.4 All charges for packing and crating the goods shall be included in Form B: Prices. At all times goods must be boxed, crated, or packed by the Contractor to adequately protect them during transportation and storage.

- E3.5 All sign boxes/plates and miscellaneous hardware shall be packaged and labelled properly with the Structure No. (WFxxx) and Sign Installation Code No. The sign boxes for Alternative 1 shall be delivered completely assembled with the front sign message panel and sign-back panel.
- E3.6 The posts shall be lifted and secured with nylon ropes or other approved methods. Use of steel chains and steel hooks against hot-dip galvanized surfaces will not be permitted. All posts and brackets shall be wrapped in cardboard during transportation to the delivery location to protect the coated finish.

E4. SIGN BOXES AND SIGN PLATES

E4.1 Description

- E4.1.1 The Work covered under this Specification shall include all operations related to the supply, fabrication and delivery of sign boxes or sign plates for the wayfinder signage system.
- E4.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of the Work as hereinafter specified.
- E4.1.3 Where referred to in the Specifications, sign(s) shall mean sign box for Alternative 1, complete with sign message panel and sign back panel, or sign plate for Alternative 2, complete with sign message on outside face.

E4.2 Materials

E4.2.1 General

- (a) All materials used for fabrication of sign boxes and sign plates shall be new, previously unused material.

E4.2.2 Sign Box Extrusion (Alternative 1)

- (a) The sign box, as applicable to Alternative 1, shall consist of an aluminum extrusion along the outer edge, and shall be constructed in accordance with the details shown on the Drawings. An approved extrusion section is Alloy 6063, Shape No. 961875 manufactured by Altex Extrusion (450-629-4260) available from Summum Signs Inc. (800-561-4900) or SSS Inc. (450-978-5678).

E4.2.3 Sign Message Panels (Alternative 1)

- (a) The sign message panel for sign boxes shall consist of Gauge No. 12 sheet aluminum (.0808 in. or 2 mm thick), flat sheet tension levelled, sign grade aluminum alloys 5052-H38 or 6061-T6, conforming to the requirements of ASTM B 209M, "Specifications for Aluminum and Aluminum-Alloy Sheet and Plate." Tensioned levelling is a technique that gives aluminum sheets a superior flatness and resistance to tearing at connections.

E4.2.4 Sign Plates (Alternative 2)

- (a) Sign plates, as applicable to Alternative 2, shall consist of Gauge No. 10 sheet aluminum (0.125 in. or 3.2 mm thick), flat sheet tension levelled, sign grade aluminum alloys 5052-H38 or 6061-T6, conforming to the requirements of ASTM B 209M, "Specifications for Aluminum and Aluminum-Alloy Sheet and Plate." Tensioned levelling is a technique that gives aluminum sheets a superior flatness and resistance to tearing at connections.

E4.2.5 Aluminum Plates and Stiffener Bars

- (a) Aluminum plates and stiffener bars shall be in accordance with ASTM B209, Alloy 6351-T6 or 6061-T6. Sizes shall be as shown on the Drawings.

E4.2.6 Aluminum Pipe Sleeves

- (a) Aluminum pipe sleeves in the sign boxes shall be in accordance with ASTM B209, Alloy 6351-T6 or 6061-T6. Sizes shall be as shown on the Drawings.

E4.2.7 Bolts and Screws

- (a) Bolts, nuts, washers, and machine screws shall be in accordance with ASTM A276 Type 316 stainless steel.

E4.2.8 Bonding Tape

- (a) Bonding tape for attaching the stiffener bars to the aluminum sheets shall be 3M very high bond (VHB) tape used in the fabrication of traffic sign panels.

E4.2.9 Paint

- (a) The paint system for sign boxes shall consist of an epoxy primer and two coats of urethane topcoat. The paint finish colour shall be dark blue to match Pantone Matching System PMS 2738.

E4.2.10 Miscellaneous Materials

- (a) Miscellaneous materials incidental to this work shall be as approved by the Contract Administrator.

E4.3 Construction Methods

E4.3.1 General Requirements

- (a) Shop drawings showing fabrication details and dimensions of all the different types of sign boxes/plates, consisting of prints on 11" x 17" sheets, shall be submitted to the Contract Administrator at least fifteen (15) calendar days prior to start of fabrication, except for submissions as per E4.4.1.
- (b) The shape and dimensions of the signs shall be in accordance with the details shown on the Drawings. The dimensions of the sign panel shall be within $1.5 \pm$ mm of those specified and the finished sign panel shall be flat with a maximum allowable deflection of $.005 (D)$ where (D) is the maximum dimension of the sign blank in any direction. The signs shall conform in quality and accuracy of detail to the dimensional and tolerance requirements of the specification. Where no tolerances are specified, the standard of workmanship shall be in accordance with normally accepted good practice. In the case of the box sign alternative, the sign message panel shall fit securely in the aluminum extrusion as shown in the Drawings, and shall become an integral element of the box structure when the top of the extrusion is secured in place.
- (c) All fabrication, including shearing, cutting, and drilling shall be completed before treating the metal and applying the face material. Cut all metal message panels to size and shape as per the dimensions for each sign. The panels shall be free of buckles, warp, dents, cockles, burrs, and defects resulting from fabrication. Edges of all substrate panel material shall be de-burred to provide a smooth finished edge. Each face of the panel shall be finished to be a plain surface and flat.
- (d) Welding of aluminum plates and pipe sleeves in the sign boxes shall conform to the requirements of CSA Standards CAN3-S157, "Strength Design in Aluminum," W47.2, "Certification of Companies for Fusion Welding of Aluminum, and W59.2, "Welded Aluminum Construction." Where welding is called for on the Drawings, it shall be done by qualified welders using the Metal Inert Gas (MIG) process. All areas to be welded should be thoroughly cleaned with a suitable solvent followed by wire brushing if surfaces are heavily oxidized.

- (e) The sign box extrusion, including screw heads, shall be painted dark blue to match Pantone Matching System 2738. The paint system shall be applied as follows:
 - (i) Vinyl wash the aluminum surface on outside and inside.
 - (ii) One coat of epoxy primer on both outside and inside surface with 4 mil dry film thickness.
 - (iii) Two coats of urethane topcoat on both outside and inside surfaces, each coat to be 2 mils dry film thickness.
- (f) Each sign box shall contain a front sign panel and a back sign panel. The vast majority of the sign boxes contain a message only on the front sign panel. In such cases where there is a message only on the front sign panel, the outside surface of the back sign panel shall be painted dark blue to match Pantone Matching System 2738 using the same paint system application as above. See Drawing 2.24 in "Kit_of_Parts.pdf" in Appendix A.
- (g) Alternative 2 consist of sign plates attached directly onto steel braces welded to the vertical shaft of the post. For this alternative, the backs of the sign plates are not to be painted.
- (h) Aluminum stiffener bars shall be attached to the back side of sign message panels and plates using 3M VHB tape in accordance with the manufacturer's instructions.

E4.3.2

Sign Fabrication

- (a) The surface of the substrate material shall be appropriately prepared prior to the application of sheeting or painting. Such preparation shall include degreasing and etching to promote adhesion of reflective materials as hereinafter recommended or as may be recommended by the sheeting manufacturer. The metal shall be treated by using conversion coating or anodizing to finish the metal before painting or applying reflective sheeting. The finished sign message panel shall have a uniform, light-coloured appearance, without splotches or stains. If the finishing procedure produces an iridescent colour, the shade should be uniform. The metal shall be thoroughly cleaned before finishing. The cleaning process shall begin by cleaning with an etch-type alkaline cleaner or with a vapour degreaser, using a trichloroethylene or perchloroethylene solvent. The cleaner shall be used according to the manufacturer's specifications. After using an alkaline etching cleaner, the metal shall be treated with an acid solution or desmutting compound. The desmutting compound shall be used according to the manufacturer's specifications. The metal shall be finished with a chromate conversion coating or by anodizing with a chromic acid anodizing solution. The conversion-coating compound shall be used according to the manufacturer's specifications. The metal shall be carefully handled with a device or with clean cotton gloves between all cleaning and finishing operations and before applying the finish material. The metal shall never come in contact with greases, oils, dust, or other contaminants before applying the finish material.
- (b) Sheeting and taping for the sign faces shall comply with the Canadian Standards Board "Standard for: Marking Material, Retro-reflective Enclosed Lens, Adhesive Backing" document number 62-GP-11M dated May/1978. Specifically, for Type 1 material (sheeting) and for Type 2 material (tape which includes lettering and other stick-ons), the reflective material shall be Class 1, being pressure sensitive adhesive backing, and Level 1, being the highest reflectivity; wide angle, long durability. The Standard specifies Silver White, Yellow, Red, Dark Red, Brown, Orange, Green, Blue, and Gold colours that shall meet the chromaticity limits shown in Table 1 of the Canadian Standards Board standard when tested as described in paragraph 8.2.3 of the Canadian Standards Board standard. The reflective intensity values, expressed in candelas per lux per square metre, of the material shall be not less than the values specified in Table 2 for each reflectivity level and colour. As a minimum, the signs must meet the Colour Specification Limits and Reference Standards specified in Table

1, and the minimum Reflective Intensity Values specified in Table 2 of the Canadian Standards Board document number 62-GP-11M in all respects. Notwithstanding the above statement, the signs must also meet the most stringent of the following two requirements: (1) the sheeting and tape product types Colour Specification Limits and Reference Standards and a minimum Reflective Intensity Values as specified for 3M Scotchlite High Intensity Grade Reflective Sheeting as described in 3M Product Bulletin dated January 2000, and Avery Dennison High Intensity Grade Reflective Sheeting as described in Avery Dennison Product Data Bulletin # T-6500 Issued: 05/01; in all other respects, these proprietary products shall comply with the requirement of the Canadian Standards Board Specification. (2) the required minimum level of reflectance is a contrast ratio of 70% in reflectance readings of lettering against background colour; specifically, a 2.3 to 1 contrast ratio for traffic yellow lettering against the Pantone Matching System PMS 3135 aqua blue background, being the US ADA recommended minimum, with reflectance readings of the aqua blue colour for entrance angle of -4 and observation angle of .2 to be between 85 and 90. At the specified minimum reflectance readings for the yellow to aqua blue, the ratio for white to aqua blue will be 3.4 to 1, and the ratio for yellow and white to dark blue will exceed those specified for aqua blue.

- (c) Sign sheeting material for the message plate shall consist of pre-coloured reflective sheeting, Traffic White in colour. The white sheeting shall be screened with compatible transparent ink to match dark blue, Pantone Matching System PMS 2738, and light blue Pantone Matching System PMS 3135 as specified herein. Standard Traffic White, Standard Traffic Yellow, and Standard Traffic Black taping/stick-ons shall be used to produce the message as specified on the drawings for the signs. Swatches will be made available to assist the sign manufacturer to match the intended colours. Sign sheeting material shall be correctly applied in accordance to the sheeting manufacturer's recommendations and industry accepted quality practices. The sheeting shall be applied so that it does not contain air pockets and the sheeting shall not have holes, tears, scrapes, compressed cells or patches. Any joints must be sealed in accordance with the sheeting manufacturer's recommendations. The sign fabricator must ensure the signs are adequately protected from damage during shipping.
- (d) Ink used for silk screening must be designed for use on highway signs and recommended by the sheeting manufacturer. Inks shall be warranted to be effective for a period of time commensurate with the warranted life of the retro-reflective sheeting.
- (e) Typeface lettering shall be Clearview Highway 2-W cut from sheeting of the type specified, Standard Traffic White, Standard Traffic Yellow, or Standard Traffic Black in colour as specified on the drawings for the signs. The Colour Specification Limits and Reference Standards and a minimum Reflective Intensity Values shall be as specified above.
- (f) Bob Firth of Informing Design Inc. may be contacted by e-mail at bob@informingdesign.com <<mailto:bob@informingdesign.com>> to obtain PC-compatible font files for the cutting of the Clearview Highway 2-W lettering. Mr. Firth has agreed to make this font, which is patented, exclusively available to the successful bidder for use for outputting signs in this Contract only. For all other purposes, the font could be purchased commercially at www.terminaldesign.com.
- (g) The City of Winnipeg Logo shall be in accordance with the specifications shown on the Drawings.
- (h) The Parking "P" symbol shall be in accordance with the specifications shown on the Drawings.
- (i) The "Star" symbol shall be in accordance with the specifications shown on the Drawings.

- (j) The "Route Number" shall be in accordance with the specifications shown on the drawings contained herein.

E4.4 Submission of Sample Sign Box and Sign Plate

- E4.4.1 The successful bidder shall, within fifteen (15) calendar days of the request of the Contract Administrator, submit a sample traffic wayfinder sign box or sign plate under Alternative 1 or Alternative 2 respectively in accordance with this Specification.
- E4.4.2 The sample shall be a full scale traffic wayfinder sign consisting of a sign box/plate, complete with front message panel and a sign-back panel (sign box only), for Structure No. WF078.
- E4.4.3 The sample sign box/plate shall be delivered to Jean Belair, Superintendent of Traffic Services, 421 Osborne Street, Winnipeg, Manitoba, R3L 2A2, Fax: 204-986-6317, Phone: 204-986-5841. Provide two (2) working days notification of delivery.
- E4.4.4 In addition, a separate 900 millimetre by 900 millimetre swatch of the sign sheeting proposed for use in the fabrication of the sign, and a 300 millimetre by 300 millimetre swatch of the tape proposed for use in the white, yellow, and black lettering/stick-ons shall be submitted to the office of Jean Belair, within fifteen (15) calendar days of the request of the Contract Administrator. The Contractor shall provide the Contract Administrator with the name of the supplier of the sign sheeting and lettering/stick-ons, as well as the supplier's product name and product number for the sign sheeting and stick-ons.
- E4.4.5 The Contractor shall demonstrate the assembly and mounting of the signs on the sample post as part of the sample submission.

E4.5 Quality Control

- E4.5.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection by the Contract Administrator, including all operations from the selection and production of materials, through to final acceptance of the work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or works that are not in accordance with the requirements of this Specification.
- E4.5.2 The Contractor shall be responsible for making a thorough inspection of materials to be supplied under this Specification. All material shall be free of surface imperfections and other defects.
- E4.5.3 The Contractor shall, at his own expense, correct such work or replace such materials found to be defective under this Specification in an approved manner to the satisfaction of the Contract Administrator.
- E4.5.4 The Contract Administrator will reject reflective sheeting if the material fails to meet any one of the designated requirements, if the material meets the requirements but later fails during sign fabrication or in actual field use. Cracks, wrinkles, delamination, colour change, or abnormal loss of reflectivity constitute failure.
- E4.5.5 The Contractor shall transfer to the Contract Administrator a performance warranty for the reflective sheeting used by the manufacturer, ensure that the warranties cover the full replacement cost, including material and labour, include in these warranties a provision that the warranty is subject to a transfer to the Contract Administrator, and submit a warranty from the manufacturer that states that the reflective sheeting – processed, applied to sign blank materials, and cleaned – meets the outdoor weathering photometric requirements of Canadian General Standards Board Specification 62-GP-11M.
- E4.5.6 The Contractor shall submit to the Contract Administrator the manufacturer's certification with respect to the sign sheeting. The certification shall: state that the named product

conforms to the specifications contained herein and that representative samples thereof have been sampled and tested as specified; either be accompanied with a certified copy of the test results, or certify that such test results are on file with the manufacturer and will be furnished to the Contract Administrator upon demand; give the name and address of the manufacturer and the testing agency and the date of the tests, and set forth the means of identification which will permit field determination of the product delivered to the project as being the product covered by the certification. The Contractor shall be responsible for any costs of certification or for any costs of the sampling and testing of products in connection therewith. The Contract Administrator reserves the right to require samples to be submitted in addition to the requirement referred to above, and to test products for compliance with pertinent requirements irrespective of prior certification of the products by the manufacturer.

E5. STRUCTURAL STEEL POSTS

E5.1 Description

- (a) The Work covered under this Specification shall include all operations related to the supply, fabrication and delivery of new structural steel posts for the Traffic Wayfinder Signage System.
- (b) The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of the Work as hereinafter specified.

E5.2 Materials

E5.2.1 General

- (a) All materials used for fabrication of structural steel posts shall be new, previously unused material.

E5.2.2 Structural Steel

- (a) All hollow structural sections (HSS) for the steel posts shall conform to the requirements of CAN/CSA-G40.20M, Grade 350 W, Class H or Class C. Round steel pipe material for sign brackets shall conform to ASTM A53, Gr. 241 MPa, welded and seamless steel pipe. All other structural steel shall be CSA Standard G40.21 M, Grade 300 W.
- (b) The Contractor is advised that copies of mill test certificates showing the chemical and physical properties of all structural steel to be supplied under this Specification must be submitted to the Contract Administrator at least seven (7) days prior to the scheduled commencement of fabrication. Fabrication shall not commence until directed in writing by the Contract Administrator.

E5.2.3 High-Strength Bolts, Nuts and Washers

- (a) High-strength bolts, nuts and washers for connecting the brackets to the posts shall be hot-dip galvanized Accurate Tension Torque Control Bolts, as supplied by Infasco, 700 Ouellette, Marieval, PQ, Canada J3M 1P6 (450) 658-8741, or equal as accepted by the Contract Administrator, and shall conform to the requirements of ASTM Specification A325, Type 1. Nuts shall be hot-dip galvanized and conform to the requirements of ASTM Specification A563, Grade C. Washers shall be hot-dip galvanized and conform to the requirements of ASTM Specification F436, Type 1.

E5.2.4 Other Bolts, Nuts, and Washers

- (a) All other bolts, nuts, washers and screws shall be in accordance with ASTM A276 Type 316 stainless steel.

E5.2.5 Hot-Dip Galvanizing

- (a) All hot-dip galvanizing shall be in accordance with CSA G164 for a minimum net retention of 600 g/m².

E5.2.6 Repair of Hot-Dip Galvanizing

- (a) Repair of hot-dip galvanizing shall be done with self-fluxing, low-temperature, zinc-based alloy rods in accordance with ASTM A780-80 for "Repair of Damaged Hot-Dip Galvanized Coatings." Approved products are Galvalloy as manufactured by Metalloy Products Company, P.O. Box No. 3093, Terminal Annex, Los Angeles, California, and Welco Gal-Viz Galvanizing Alloy, as manufactured by Thermocote Welco, Highway 161, York Road, Kings Mountain, North Carolina. Locally, both products are available from Welder Supplies Limited, 25 McPhillips Street, Winnipeg.

E5.2.7 Welding Consumables

- (a) Welding consumables for all processes shall be certified by the manufacturer to be complying with the requirements of CSA Standard W59-M1984 and the following Specifications:
 - (i) Manual shielded metal arc welding (SMAW):
All electrodes shall be basic-type electrodes conforming to CSA W48.1-M1991 or W48.3-M1982, classification E480XX, or imperial equivalent.
 - (ii) Gas metal arc welding (GMAW):
All electrodes shall conform to CSA W48.4-M1980, classification ER480S-X, or imperial equivalent.
 - (iii) Flux cored arc welding (FCAW):
All electrodes shall conform to CSA W48.5-M1982, classification E480XT-X or imperial equivalent. Electrodes shall be controlled by hydrogen (CH) designation.
 - (iv) Submerged arc welding (SAW):
All electrodes shall conform to CSA W48.6-M1980, classification F480X-EXXX or imperial equivalent.
 - (v) Shielding gas shall be welding grade carbon-dioxide with a guaranteed dew point of -46°C.
 - (vi) All electrodes, wires, and fluxes used shall be of a classification requiring a minimum impact of 27 joules at -18°C.
 - (vii) The proposed welding procedures and welding consumable certificates shall be submitted to the Contract Administrator for his approval at least two (2) days prior to the scheduled commencement of any fabrication.

E5.2.8 Miscellaneous Materials

- (a) Miscellaneous material incidental to this work shall be as approved by the Contract Administrator.

E5.3 Construction Methods

E5.3.1 General Requirements

- (a) Shop drawings, showing fabrication details and dimensions of all the different types of steel posts, consisting of prints on 11" x 17" sheets, shall be submitted to the Contract Administrator at least fifteen (15) days prior to start of fabrication.
- (b) For Alternative 1 steel posts, particular care should be given to ensure that the holes on the posts align with the flange holes on the sign box brackets. Poor matching of holes will be cause for rejection.
- (c) Each post shall be provided with a "raised" structure identification number with a welding electrode in accordance with the details shown on the Drawings. The post identification number shall be placed before hot-dip galvanizing.
- (d) Holes in the base plates shall be as shown on the Drawings.
- (e) Steel may be cut to size by sawing, shearing, flame cutting, or machining.
- (f) Prior to fabrication, the dimensional limitations on the size and shape imposed by the galvanizing facilities shall be determined for hot-dip galvanizing.

E5.3.2 Fabrication

- (a) All fabrication shall be carried out in accordance with this Specification and the Contract Drawings, as well as AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals - 2001 - 4th Edition, plus all subsequent revisions.
- (b) The punching of identification marks on the members will not be allowed.
- (c) Any damage to members during fabrication shall be drawn to the attention of the Contract Administrator in order that the Contract Administrator may approve remedial measures.
- (d) Dimensions and fabrication details that control the field matching of parts shall receive very careful attention in order to avoid field adjustment.
- (e) All portions of the work shall be neatly finished. Shearing, cutting, clipping, and machining shall be done neatly and accurately. Finished members shall be true to line, free from twists, bends, sharp corners, and edges.
- (f) Cut edges shall be true and smooth and free from excessive burrs or ragged breaks. Edges of flame cut edges shall be ground to a radius of 2 mm. Re-entrant cuts shall be filleted to a radius of not less than 19 mm. Special attention shall be given to the cutting of cover plates or flange plates. Welds at cover plates shall be ground smooth prior to hot-dip galvanizing. Sheared edges of plates more than 16 mm in thickness shall be planed to a depth of 6 mm. All holes shall be provided by drilling with twist drills not burning. All holes shall be free of burrs and rough edges. Holes shall be pre-drilled prior to hot-dip galvanizing.

E5.3.3 Welding

- (a) Welding of steel posts shall be in accordance with CSA W59, "Welded Steel Construction."
- (b) All longitudinal welds and butt welds shall be ground smooth and flush with the adjacent surface prior to hot-dip galvanizing.

E5.3.4 Surface Preparation and Cleaning

- (a) Surface preparation and cleaning of materials prior to hot-dip galvanizing shall be in accordance with CSA G164 and SSPC Specification SP:10, "Near White Metal Blast Cleaning," unless otherwise specified herein. The Contractor shall ensure that all exterior surfaces of the posts and brackets are blast cleaned prior to pickling to

achieve the minimum zinc coating mass of 600 g/m². All welding and provision of holes is to be completed prior to surface preparation and cleaning, except where shown on the Drawings.

- (b) The sandblasting and cleaning of posts shall be done in the shop. After the posts and brackets have been sandblasted and cleaned, the Contract Administrator will carry out a visual inspection of the blast-cleaned items in the shop before they are shipped to the galvanizing plant.

E5.3.5 Hot-Dip Galvanizing

- (a) The hot-dip galvanizing plant shall be a Regular Member of the American Galvanizers Association, Inc. and certified to CSA G164.
- (b) All outside surfaces of the posts and brackets shall be hot-dip galvanized in accordance with the requirements of this Specification.
- (c) Adequate venting and drainage holes shall be provided in enclosed sections for hot-dip galvanizing. The galvanizing facility shall be consulted regarding the size and location of these holes. Such holes shall be provided by drilling not burning.
- (d) The galvanizing coating on outside surfaces of the posts shall be generally smooth and free of blisters, lumpiness and runs. In particular, the outside surfaces of the bottom 3.0 m of the posts shall have a smooth finish equal to the finish on hot-dipped galvanized handrails.
- (e) In addition to the provision of corrosion protection by the galvanized coating, the aesthetic appearance of the posts after hot-dip galvanizing will also be a criteria in the acceptance or rejection of the galvanized coating. The galvanized coating on the entire post shall have a uniform "silver" colour and lustre. Galvanizing with parts of the post having dull grey coating or streaks or mottled appearance will not be acceptable. If the galvanizing is rejected for aesthetic reasons, the Contractor shall rectify the appearance by applying spray-on molten zinc metallizing with 85/15 zinc/aluminum alloy. The metallizing shall be carried out in the shop before the post is delivered.
- (f) Minor defects in the galvanizing coating shall be repaired in accordance with E5.2.6 of this Specification. The Contract Administrator shall be consulted before repairs are made. Use of cold applied spray-on galvanizing will not be permitted and will be cause for rejection.
- (g) Other defects and contaminants in the galvanizing coating, such as heavy dross protrusions, flux inclusions and ash inclusions shall be grounds for rejection of the galvanizing coating system.
- (h) The Contractor shall verify the thickness of galvanized coatings as directed by the Contract Administrator.
- (i) The steel items shall be stored on timber blocking after hot-dip galvanizing.

E5.4 Submission of Sample Post

- E5.4.1 The successful bidder shall, within fifteen (15) calendar days of the request of the Contract Administrator, submit a sample of Alternative 1 or Alternative 2 post in accordance with this Specification.
- E5.4.2 The sample post shall be for Structure No. WF078 and shall be submitted to the Contract Administrator through the office of Jean Belair, Superintendent of Traffic Services, 421 Osborne Street, Winnipeg, Manitoba, R3L 2A2, Fax: 204-986-6317, Phone: 204-986-5841.
- E5.4.3 The Contractor shall demonstrate the assembly of the sample sign box/plate and mounting on the appropriate sample post as part of the sample submission.

E5.5 Quality Control

E5.5.1 General

- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator, including all operations from the selection and production of materials, through to final acceptance of the work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or works that are not in accordance with the requirements of this Specification.
- (b) The Contractor shall be responsible for making a thorough inspection of materials to be supplied under this Contract. All material shall be free of surface imperfections and other defects.

E5.5.2 Testing

- (a) In addition to the Contractor's own quality control testing of all materials, welding procedures and steel fabrication will be inspected by the Contract Administrator to ascertain compliance with the Specifications and Drawings.
- (b) The Contract Administrator will hire and pay for a testing agency certified by the Canadian Welding Bureau to carry out the following inspection:
 - (i) Magnetic particle inspection and testing of a random 25% of base plate welds.
 - (ii) Surface preparation prior to hot-dip galvanizing.
 - (iii) Inspection of finish and zinc coating thickness of hot-dip galvanized steel items.
- (c) The Contract Administrator shall have access to all of the fabricator's normal quality control records for this Contract, specified herein.
- (d) Welds that are found by any of the inspection methods to be inadequate and unsatisfactory shall be repaired in accordance with CSA W59 and then retested. The cost of the repairs and the cost of the retest shall be paid for by the Contractor.
- (e) No repair shall be made until agreed to in writing by the Contract Administrator.

E5.5.3 Unacceptable Work

- (a) Any Work found to be unacceptable shall be corrected in accordance with CSA W59.
- (b) No repair shall be made until agreed to by the Contract Administrator.

