



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 681-2010**

**SUPPLY AND DELIVERY OF AUDIBLE SIGNAL CONTROLLERS**

## TABLE OF CONTENTS

### PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

### PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Enquiries	1
B4. Addenda	1
B5. Substitutes	2
B6. Bid Submission	2
B7. Bid	3
B8. Prices	4
B9. Qualification	4
B10. Representative Sample	5
B11. Opening of Bids and Release of Information	5
B12. Irrevocable Bid	6
B13. Withdrawal of Bids	6
B14. Evaluation of Bids	6
B15. Award of Contract	7

### PART C - GENERAL CONDITIONS

C0. General Conditions	1
------------------------	---

### PART D - SUPPLEMENTAL CONDITIONS

#### General

D1. General Conditions	1
D2. Scope of Work	1
D3. Contract Administrator	1
D4. Notices	1
D5. Returned Goods	1

#### Submissions

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

#### Schedule of Work

D7. Commencement	2
D8. Delivery	2
D9. Orders	3
D10. Records	3

#### Measurement and Payment

D11. Invoices	3
D12. Payment	3

#### Warranty

D13. Warranty	4
---------------	---

### PART E - SPECIFICATIONS

#### General

E1. Applicable Specifications and Drawings	1
E2. Goods	1
E3. Performance Requirements	2
E4. Physical and Environmental Requirements	7
E5. Inspection and Sample Item Requirement	7
E6. Documentation	7

## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 SUPPLY AND DELIVERY OF AUDIBLE SIGNAL CONTROLLERS

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, September 15, 2010.

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 promptly notify the Contract Administrator of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B3.3 If the Bidder is unsure of the meaning or intent of any provision therein, the Bidder should request clarification as to the meaning or intent prior to the Submission Deadline.

B3.4 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.

B3.5 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.

B3.6 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 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 seven (7) 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 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 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.
- B5.10 Notwithstanding B5.2 to B5.9, and in accordance with B6.7, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

## **B6. BID SUBMISSION**

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

- (a) Form A: Bid;
  - (b) Form B: Prices.
- 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 Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B6.5 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 Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1
- B6.5.1 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.
- B6.6 Bidders are advised not to include any information/literature except as requested in accordance with B6.1.
- B6.7 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).
- B6.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178.
- B6.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B6.9 Bids 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 and the corporate seal, if the corporation has one, should 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 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;
  - (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.
- 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.

## **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; 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 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.
- B9.5 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. REPRESENTATIVE SAMPLE**

- B10.1 The Bidder shall submit, within fifteen (15) Calendar Days of a request by the Contract Administrator, a sample for detailed inspection and approval.
- B10.2 Should the Bidder submit a sample which does not meet the requirements of the specifications, their bid may be determined to be non-responsive.
- B10.3 The sample (if required) shall be fully assembled upon delivery to the City.
- B10.4 The Bidder shall be responsible for all freight costs associated with the delivery and return of any said samples.
- B10.5 The detailed inspection, testing and approval will be based upon meeting the requirements of the specifications in the Bid Opportunity document.
- B10.6 Upon completion of testing and inspection the Contract Administrator will communicate to the Bidder that the pre-production sample has been:
- (a) Approved as submitted
  - (b) Approved subject to changes; or
  - (c) Rejected and must be resubmitted.
- B10.7 Where the Contract Administrator has requested the sample to be modified and re-submitted, in accordance with the specifications of the Bid Opportunity document, the Bidder shall:
- (a) Re-submit the modified sample within five (5) Business Days, unless otherwise directed by the Contract Administrator.
  - (b) Notify the Contract Administrator, in writing, of any changes to the sample other than those requested.
- B10.8 The Bidder shall be responsible for all freight costs associated with the delivery and return of samples.

#### **B11. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B11.1 Bids will not be opened publicly.
- B11.2 Following the Submission Deadline, the names of the Bidders and their bid prices (unevaluated, and pending review and verification of conformance with requirements or evaluated prices) 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 9 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 for the time period specified in Paragraph 9 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 C21, 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 10 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 10 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.

## **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 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 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.
- B14.5 This Contract will be awarded as a whole.

## **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.
- B15.4 Notwithstanding C4 and Paragraph 6 of Form A:Bid, the City will issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B15.5 The Contract Documents, as defined in C1.1(n)(ii), 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**

### **C0. GENERAL CONDITIONS**

- C0.1 The *General Conditions for the Supply of Goods* (Revision 2008 05 26) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for the Supply of Goods* 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](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 Supply of Goods*.

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

D1.1 In addition to the *General Conditions for the Supply of Goods*, 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 supply and delivery of audible signal controllers for the period from November 1, 2010 until October 31, 2011, with the option of three (3) mutually agreed upon one (1) year extensions.

D2.1.1 The City may negotiate the extension option with the Contractor within sixty (60) Calendar Days prior to the expiry date of the Contract. The City shall incur no liability to the Contractor as a result of such negotiations.

D2.1.2 Changes resulting from such negotiations shall become effective on November 1st of the respective year. Changes to the Contract shall not be implemented by the Contractor without written approval by the Contract Administrator.

D2.2 The Work shall be done on an "as required" basis during the term of the Contract.

D2.2.1 The type and quantity of Work to be performed under this Contract shall be as authorized from time to time by the Contract Administrator and/or Users.

D2.2.2 Notwithstanding C7, the City shall have no obligation under the Contract to purchase any quantity of any item in excess of its actual operational requirements.

#### **D3. CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is:  
Michael Cantor, P. Eng., PTOE  
Traffic Signals Engineer  
821 Elgin Avenue  
Winnipeg, MB R3E 3R1  
Telephone No.: (204) 986-2619  
Facsimile No.: (204) 772-6306

#### **D4. NOTICES**

D4.1 Notwithstanding C21.3, 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. RETURNED GOODS**

D5.1 Further to C.7 and C.11, the Contract Administrator or designate shall inform the Contractor of the item(s) being returned and the reason for the return. The Contractor shall provide the Contract Administrator with a "Return Material Authorization (RMA) including shipping instructions, within five (5) Calendar Days of the request.

D5.1.1 The Contractor shall be responsible for all transportation charges on returned goods and further to C.8 the goods will be held at the Contractor's risk pending instruction.

- D5.2 Further to D5.1, the RMA shall include the following information, as a minimum:
- (a) Company name, if different than the Contractor, and ship to address;
  - (b) Written authorization for the return and for a collect shipment;
  - (c) Preference of carrier/shipping method, a contact person with either a local Winnipeg telephone number or a toll-free telephone number;
  - (d) A contact person, responsible for the returned goods, with a toll-free telephone number.
- D5.3 The Contract Administrator shall provide, as a minimum:
- (a) The City department returning the goods, including an address and contact information for pick up;
  - (b) The City account number, if applicable;
  - (c) The City department and address;
  - (d) Two (2) copies of the written authorization/RMA, one (1) copy on the outside and one (1) copy within the package;
  - (e) Total number of packages, weight and dimensions.

## **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 notice of award from the City authorizing the commencement of the Work.
- D7.2 The Contractor shall not commence any Work until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence of authority to carry on business specified in D6.
  - (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

### **D8. DELIVERY**

- D8.1 Goods shall be delivered on an "as required" basis during the term of the Contract, f.o.b. destination, freight prepaid,  
Public Works Stores  
1277 Pacific Avenue  
Winnipeg, MB
- D8.2 Goods shall be delivered within thirty (30) Calendar Day(s) of the placing of an order, unless otherwise allowed by the User at the time of ordering
- D8.3 Goods shall be delivered between 8:30 a.m. and 2:30 p.m. on Business Days.

D8.4 The Contractor shall off-load goods as directed at the delivery location.

**D9. ORDERS**

D9.1 The Contractor shall provide a local Winnipeg telephone number or a toll-free telephone number at which orders for delivery may be placed.

**D10. RECORDS**

D10.1 The Contractor shall keep detailed records of the goods supplied under the Contract.

D10.2 The Contractor shall record, as a minimum, for each item listed on Form B: Prices:

- (a) user name(s) and addresses;
- (b) order date(s);
- (c) delivery date(s); and
- (d) description and quantity of goods supplied.

D10.3 The Contractor shall provide the Contract Administrator with a copy of the records for each quarter year within fifteen (15) Calendar Days of the end of that quarter.

**MEASUREMENT AND PAYMENT**

**D11. INVOICES**

D11.1 Further to C10, the Contractor shall submit an invoice for each order delivered to:

The City of Winnipeg  
Corporate Finance - Accounts Payable  
4th Floor, Administration Building, 510 Main Street  
Winnipeg MB R3B 1B9

Facsimile No.: (204) 949-0864  
Email: [CityWpgAP@winnipeg.ca](mailto:CityWpgAP@winnipeg.ca)

D11.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of goods delivered;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D11.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D11.4 Bids Submissions must be submitted to the address in B6.5

**D12. PAYMENT**

D12.1 Further to C10, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

D12.2 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D13. WARRANTY**

D13.1 Warranty is as stated in C11.

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
ST-150	Mounting Plate for Audible Signals Controller Drilling Plan

E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B5.

#### E2. GOODS

E2.1 The Contractor shall supply and deliver Audible Signals Controllers in accordance with the requirements hereinafter specified.

E2.2 This specification is based and expands upon the standards prescribed by the current Manual on Uniform Traffic Control Devices for Canada. It is not intended to impose restrictions upon design or materials, which conform to the AASHTO, ASTM, ITE, or IMSA Standards. All AASHTO, ASTM, ITE or IMSA standards not mentioned in this specification shall still apply.

E2.3 The Audible Signals Controller device shall be an **"Internal"** style device, (i.e. bare board or module intended for mounting onto a City of Winnipeg standard mounting plate - Drawing No. ST-150), within a controller cabinet, a 300mm (12-inch) square pedestrian signal head or similar enclosure and shall be designed to drive two (2) or more series-connected, externally-mounted "standard" City speakers described in clause E2.9. Each audible signals controller device shall be supplied complete with a microphone and associated wiring to provide for ambient noise compensated sound output levels as detailed per clause E3.8. Physical dimensions and characteristics of the device are contained in clause E4.2.

E2.4 The City of Winnipeg shall install audible signals controller devices and the (vendor-supplied) ambient noise compensation microphone. The City shall install the audible signals controller module using a standard mounting plate (Drawing ST-150). The City shall furnish, install and connect to each audible signals controller device the appropriate associated push-button(s) inputs, the standard output speakers to generate all specified output sounds described in E3 and the "Walk" and "Don't Walk" pedestrian signal field wiring connections.

E2.5 The audible signals controller device(s) either automatically or (as a selectable option) via pushbutton command, shall issue one (1) of two (2) selectable "Bird Call" sounds during the "Walk" interval or a portion thereof, to indicate the appropriate interval for people to begin to cross a street. Preferably the same device can be programmed to issue one of two "Auxiliary" sounds during "Walk" to handle more complex intersection designs and/or signal phasing.

E2.6 The volume of the "Bird Call" (or "Auxiliary") sounds shall be variable, adjustable and ambient noise compensated for minimal neighbourhood disturbance as detailed in clause E3.8.

E2.7 The device(s), when controlled by push-buttons, shall issue a very low-volume "Locator Sound" to alert pedestrians of the presence of audible signals controller devices, and to help visually impaired people locate the appropriate push-button. The device(s) shall provide audible feedback "Confirmation Clicks" - one (1) "button click" issued immediately upon every activation of a push-button.

E2.8 The device(s) shall become silent and all sounds deactivated when the associated visual pedestrian signals are dark, such as during flashing operation of the traffic control signal.

- E2.9 The City of Winnipeg standard speaker for the audible signals controller devices is the Atlas Soundolier Model VT-158U. This speaker has 8-ohm coil resistance, sensitivity of 96.9 dB for an input of one (1) watt input power at a distance of one (1) foot and 15-watt power rating. Either two (2) or four (4) such speakers shall be connected in series to the output circuit of each audible signals controller device.
- E2.10 All sounds (“Bird Calls”, “Auxiliary Sounds”, “Locator Sounds” and “Push-button/Call Confirmation Clicks”) produced by the audible signals controller unit shall be generated by the above noted speakers.

**E3. PERFORMANCE REQUIREMENTS**

- E3.1 Each audible signals controller device shall be capable of emitting at least the following four (4) different sounds [i.e. two (2) “Bird Call” Sounds, a “Locator Sound” and “Push-button/Call Confirmation Click”].
- E3.2 Bird Call Sounds: Each audible signals controller device shall be able to emit two (2) audible “Bird Call” sounds as described within the current Manual of Uniform Traffic Control Devices for Canada and as specified in Table 1 below. Each device shall be capable of being programmed by the City to provide at any one time, either one of two specified “Bird Call” sounds. The selected “Bird Call” shall be output during all or a portion of the appropriate associated “Walk” pedestrian signal interval (its function being to give a “Proceed” notification to pedestrians). Additional “Bird Call” sound characteristics are detailed in clause E3.9(a).

**Table 1 Audible “Bird Call” Signal Output Parameters**

Parameter	Sound #1	Sound #2
Sound Type	Bird Call "Peep" or "Chirp"	Bird Call "Cuckoo"
Walk Direction	East-West	North-South
Sound Pattern	Short Duration Tone of "Ramped" Rapidly Descending Frequency	Two (2) Tone Pattern of Alternating High then Low Frequency Tones
Pattern Sequence Period	1.0 second (+/- 20%)	1.5 second (+/- 20%)
Sound Duration	170 milliseconds (+/- 20%)	500 milliseconds (+/- 20%)
Initial Frequency	2,800 Hz (+/- 20%)	1,250 Hz (+/- 20%)
Frequency Deviation	-1,000 (+/- 20%)	-120 Hz (+/- 20%)

- E3.3 Locator Sound: Each device shall also be capable of generating a “Locator Sound”. The purpose of the “locator sound” is in part to alert pedestrians that audible signals are present, also to assist pedestrians with visual impairments to more readily locate the appropriate pedestrian push-button which governs the corresponding pedestrian signal and to provide some directional guidance to those still crossing when the “Bird Call” terminates. The “locator sound” should be a constant pattern of repetitive short duration pulses, and shall be dissimilar from the two (2) specified “Bird Call” sounds or the two (2) “Auxiliary” sounds as defined below. Additional “locator sound” characteristics are detailed in clause E3.9(b).
- E3.4 Push-button Click: Each device shall be capable of generating a “push-button click” immediately in response to each push-button press to initiate a call for the “Bird Call” sound.

- E3.5 The purpose of “push-button click” is to provide audible feedback that the push-button has been pressed, registered and acknowledged by the Audible Signals Controller unit. The “push-button click” shall be a single short duration sound, similar to the metallic click of a conventional light switch, and shall be dissimilar from any of the other sounds specified herein. The push-button interface is described in clause E3.13. Additional “push-button click” characteristics are detailed in clause E3.10.
- E3.6 **Optional and Future Sound Outputs:** Each device preferably should be designed so as to have the capability of emitting the following optional “Proceed” sounds and possible future “Pedestrian Clearance” sounds: (a) **Auxiliary Sounds:** (optional) in addition to the above noted mandatory required sounds, the bidder shall indicate whether the equipment offered is also capable of generating the following described two (2) additional “Auxiliary” sounds, without substantial additional costs nor extensive modification of hardware. Similar in purpose to the “Bird Call” sounds, only one (1) of these Auxiliary sounds would be used per crosswalk by a specific device, but each device should be capable of being programmed by the City to provide either one of the two specified Auxiliary sounds. The purpose of the Auxiliary sounds is for application where complex signal phasing, unusual geometry or other circumstance requires more than the two (2) audible “Bird Call” sounds at an intersection.

**Table 2: Auxiliary Audible “Proceed” Sounds for Special Complex Phasing Conditions**

Parameter	Sound #3	Sound #4
Sound Type	High Frequency "Beep-Beep-Beep"	Low Frequency "Beeeeeep"
Walk Direction	First complex phasing anomaly	Second complex phasing anomaly
Sound Pattern	Continuous Equal "On-Off" Pulses of a Single Frequency	Constant Low Frequency Tone
Pattern Sequence Period	100 milliseconds (+/- 20%)	Constant "On"
Sequence Rate	Five (5) Pulses per second	Not Applicable
Frequency Base	2,800 Hz (+/- 20%)	>700 Hz (+/- 20%)

- E3.7 Provision for “Pedestrian Clearance” Sounds for the visual “Flashing Don’t Walk” Interval: (future option) in addition to the four (4) above noted Bird Call and Auxiliary “Proceed” sounds, it is possible that up to four (4) additional sounds may be defined in future, intended to sound concurrently with the “Pedestrian Clearance” signal interval. A specific “Pedestrian Clearance” sound would be defined for each of the two (2) “Bird Call” sounds, and potentially two more, one for each of the two (2) “Auxiliary” sounds:
- Although the characteristics of any future “Pedestrian Clearance” sounds are currently undefined, the equipment offered should preferably be designed so as to provide the option to incorporate future “Clearance” sounds within the audible signals controller device offered, with minimal hardware alterations being required for the upgrade (e.g. device upgradeable via replacement only of socket-mounted memory device(s) or programmable logic integrated circuit(s) and setting of pin(s) or jumper(s), for example); and
  - The future “Pedestrian Clearance” sound would emit from the same speaker(s) as the corresponding “Bird Call” sound, should be ambient-noise compensated, and should have the same sound pressure level (\*) characteristics as the “Bird Call” sounds. The future “Pedestrian Clearance” sound would be generated only when it would follow its companion “Bird Call” sound, that is, it would be provided only after the corresponding “Bird Call” (or corresponding “Auxiliary” sound) had been issued during all or a portion of the immediately

preceding "Walk" interval. If initiated, the future "Pedestrian Clearance" sound would be emitted during the entire portion of the flashing "Don't Walk" interval, and would cease to sound within one (1.0) second after the flashing "Don't Walk" signal becomes non-flashing (or dark).

E3.8 Ambient-Noise Compensated Sound Output Levels: the volume of the Audible "Bird Call" sounds and the "Auxiliary" sounds (if provided) and the "Locator Sound" shall be continuously adjustable to provide a "quiet" sound pressure level (\*) range from absolute silence to a volume of approximately 2 dB to 5 dB at one (1) metre above ambient during minimal (silent) street activity. During periods of greater ambient street noise, the sound volume shall be ambient noise level compensated, the volume automatically increasing in proportion to ambient noise, up to a maximum sound pressure level (\*) of approximately 90 dB at one (1) metre. The output volume shall vary proportionately to the relative level of ambient noise measured during the appropriate "Walk" indication. The response time of the automatic volume control circuitry (i.e. the time between measured increase in ambient noise and the corresponding change of the output sound volume) shall be between 150 to 200 milliseconds. Each device shall provide means to permit the City to field-adjust the minimum volume level above or below the above noted "quiet" sound pressure level (\*) of 2 to 5 dB level (i.e. to set the "minimum volume" level during minimal street activity).

E3.8.1 \* NOTE: Sound Pressure Level Test Conditions: respecting all specified "sound pressure levels" for audible signals controller devices, for test conditions assume a series connection of two (2) output speakers, each speaker having 8-ohm coil resistance, sensitivity (i.e. efficiency) of 96.9 dB for an input of one (1) watt input power at a distance of one (1) foot and 15-watt power rating. The City of Winnipeg standard audible signals controller speaker is an Atlas Soundolier Model VT-158U.

E3.9 Additional Sound Characteristics:

- (a) The "Bird Call" sound shall be programmable to issue concurrently with the associated "Walk" circuit, as long as that circuit is active. However, the following circumstances may modify the operation of the "Bird Call" output:
- (i) the sound shall be inhibited when the (optional) "device inhibit" function clause E3.12 is active;
  - (ii) the sound shall be deactivated whenever there is no voltage on either the "Walk" or "Don't Walk" circuit for a period greater than 1.5 seconds ("visual pedestrian signals dark" condition). Preferably the sound should be inhibited when there is energy concurrently on both the "Walk" and "Don't Walk" circuits which power the device (a fault condition);
  - (iii) there shall be means to program the device to limit the "Bird Call" sound duration to a maximum interval. This "Bird Call limit" shall be adjustable over a range of six (6) seconds or less to at least 18 seconds;
  - (iv) the "Bird Call" sound shall normally be initiated at the beginning of the associated "Walk" interval by default if the "no push-button control" option is selected, or when a valid push-button call has been registered prior to the beginning of the "Walk" interval;
  - (v) the "Bird Call" sound shall be capable of being initiated (or re-initiated) at "**any point**" during the associated "Walk" interval should a valid push-button call be received during "Walk" whenever the "Bird Call" is silent; and
  - (vi) the maximum interval shall not override audible signal termination control by the associated "Walk" circuit (i.e. whenever the associated "Walk" signal terminates, then shall the "Bird Call" sound also immediately terminate, regardless whether the maximum interval has expired).
- (b) "Locator Sound" Characteristics: The "locator sound" when selected shall be generated at all times, subject to the following exceptions:
- (i) it shall be inhibited when the (optional) "device inhibit" function is active;
  - (ii) it shall be deactivated whenever there is no voltage on either the "Walk" or "Don't Walk" circuit for a period greater than 1.5 seconds ("visual pedestrian signals dark"

condition). Preferably the sound should be inhibited when there is energy concurrently on both the "Walk" and "Don't Walk" circuits which power the device (a fault condition);

- (iii) optionally, it may be inhibited when the "Bird Call" (or "Auxiliary") sound is active;
- (iv) optionally, the "locator sound" may markedly increase in volume for a brief period immediately following termination of the "Bird Call" sound. This brief period of greater volume of the "locator tone" may serve as a "homing beacon" navigation aid to assist visually-impaired pedestrians to maintain their bearing and stay within the crosswalk; and
- (v) the "locator sound" minimum volume level shall be silent. It shall be ambient-noise compensated in similar manner as the "Bird Call" sounds. Its output volume should be continuously adjustable by means of a control separate from that for the "Bird Call" sounds. (The "locator sound" volume is field-adjusted not more than 2 to 5 dB louder than ambient, so as to be audible in the range of two (2) to four (4) metres from the appropriate push-button).

E3.10 "Push-button Click" Characteristic: The "push-button click" generated immediately upon each press of the push-button, shall be functional at all times, excepting:

- (a) it shall be inhibited when the (optional) "device inhibit" function is active;
- (b) it shall be inhibited when the "Bird Call" or "Auxiliary" sound is active; and
- (c) it shall be deactivated whenever there is no voltage on either the "Walk" or "Don't Walk" circuit for a period greater than 1.5 seconds ("visual pedestrian signals dark" condition). Preferably the "click" sound should be inhibited when there is energy concurrently on both the "Walk" and "Don't Walk" circuits which power the device (a fault condition).

E3.11 The "push-button click" minimum volume level shall be silent. The maximum volume shall be at least 60 dB at one(1) metre. Preferably, the "click" should be ambient-noise compensated in similar manner as the "Bird Call" sounds. The "click" output volume shall be continuously adjustable by means of a control separate from that for the "Locator Sound." The "click" volume control may be independent, or set by means of the same volume control as the "Bird Call" sounds.

E3.12 Device Inhibit: (optional) The device should have a sound inhibit input. Application of 115 ( $\pm$  20) VAC at this input shall disable all sound outputs of the device ("Bird Call" sounds, "Auxiliary" sounds, the "locator sound" and the "push-button click"). Alternatively, in the event of non-conformance to this option, the bidder may submit with the bid a detailed description of the "inhibit input" characteristics of the equipment offered (including electrical interface details, performance details of the "inhibit" mode, etc).

E3.13 Push-button Interface:

- (a) Pedestrian Push-button Interface: The audible signals controller device shall be capable of connection to a pedestrian push-button control circuit for "demand-only" operation. The two (2) distinct pedestrian push-button electrical interfaces with which the device shall be compatible are specified as follows:
  - (i) the electrical interface shall accept all input voltages from 12 to 24 volts (plus or minus 2 volts) alternating or direct current. It shall recognize a short circuit as a true input. This short circuit shall be any voltage from zero to three volts; and
  - (ii) the audible signals controller device shall also be capable of supplying electrical energy into the push-button circuit through the push-button connection terminals. When programmed to supply power to the push-button circuit, the unit shall provide either DC or AC consistent with the above-described push-button interfaces.
- (b) Constant Push-button Call "Fault" Response: If the audible signals controller device is programmed for push-button activated operation and there is an indefinitely long period during which no energy is presented at the push-button interface (a common "stuck button" fault condition) the device shall default to the following operation:

- (i) at the onset of a “constant call” condition, a single “call confirmation click” shall sound during “Don’t Walk” (as usual) or the “Bird Call” sound shall issue during the “Walk” (as usual). No additional “call confirmation click” shall thereafter be issued until the following sequence of events shall occur;
  - (ii) at this point, if the “Walk” circuit is active, the “Bird Call” sound shall be issued. If the “Bird Call” sound exceeds its maximum interval (if programmed), it shall then become silent, and shall not be issued again until the next recurrence of the “Walk”;
  - (iii) if the “Don’t Walk” is active, no further “call confirmation click” shall be issued until the start of the next recurrence of the “Don’t Walk” following the next successive “Walk”; and
  - (iv) following restoration of normal push-button operation, the audible signals controller device shall automatically resume its normal mode of operation.
- E3.14 Sound Selection: The selection of the appropriate “Bird Call” sound shall be by such means as to permit the appropriate sound to be selected by the City by straightforward manual means, (i.e. by means of a long-life, moisture-proof switch or hermetically sealed switch, pin selected jumper, etc.). If more than one (1) of the “Bird Call” sounds is selected (either in error or due to failure of the selector mechanism), the unit shall default to a silent “fail-safe” mode which permits neither “Bird Call” sound to be emitted. Preferably, the “locator sound” and the “call confirmation click” would also be inhibited by this fault condition.
- E3.15 Electrical Requirements: Audible signals controllers may be CSA or UL approved and if so, shall bear a label on the housing.
- (a) Power: The device shall be powered from 115 VAC ( $\pm 20$  VAC), 60 Hz, which shall be derived from both the “Walk” and the “Don’t Walk” signal circuits. The device shall be capable of reliable uninterrupted operation when powered from a flashing “Don’t Walk” signal circuit, which input flashes at one (1) Hz. with a 50% on-time duty cycle. There shall be no power feedback or transfer between the “Walk” and “Don’t Walk” AC circuits resulting from the operation or presence of the audible signals controller device. Loss of power from both these circuits for 1.5 seconds or greater shall initiate a “device inhibit” state whereby the audible beginning of walk indication (Bird Call) is disabled, until power has been restored. Occurrence of voltage simultaneously on both the appropriate “Walk” and “Don’t Walk” circuits is a fault condition and should immediately establish a “device inhibit” state such that the audible beginning of walk indication (Bird Call) is inhibited unless and until the voltage on either circuit should terminate;
  - (b) Electrical Protection and Isolation: The device shall have a replaceable fuse. The printed circuit board(s) shall be protected with an acrylic conformal coating that conforms to MIL-I-46058. The coating thickness shall be 0.003 +0.002/-0.001 inch and shall be applied to both sides of the cleaned printed-wiring assembly. Movisters shall be used to protect the device from high voltage transients. Movisters shall be installed between AC+ and neutral, AC+ and ground; and neutral and ground. Electrical isolation between the (push-button) input pins and all AC input and common circuits shall be 1,000 Megohms and 2,500 volts DC;
  - (c) 2 kV High Energy Electrical Transient Tests: The audible signals controller shall withstand without damage the discharge of a 25 microfarad capacitor charged to 2,000 volts applied while the unit is energized and operational, across:
    - (i) each field input (push-button);
    - (ii) AC+ to Protective Ground;
    - (iii) AC- (Neutral) to Protective Ground; and
    - (iv) AC+ to AC- (Neutral).
  - (d) 1 kV Low Energy No-Load Input Test: the device shall be designed to withstand without failure the discharge of a 10 microfarad capacitor, charged to  $\pm 1,000$  volts, directly across the (push-button) input pins with no load present; and

- (e) 2 kV Low Energy Dummy-Load Input Test: the device shall be designed to withstand without failure the discharge of a 10 microfarad capacitor, charged to  $\pm 2,000$  volts, directly across the (push-button) input pins and across either of the input pins and the Protective ground. For the duration of this test, a dummy resistive load of five (5) ohms shall be placed across the input terminals.

E3.16 Electrical Connections and Wiring: Each device shall be supplied with a minimum of 600mm (24-inch) long shield cable with the ambient-noise compensating microphone. The microphone wires shall be terminated on the audible signals controller device via screw-type terminals. All electrical interface terminals and connectors shall be clearly labelled or marked as to function. Screw-type terminals made of non-ferrous metal shall be used for all wiring connections.

#### **E4. PHYSICAL AND ENVIRONMENTAL REQUIREMENTS**

E4.1 Device Operating Conditions: Audible signals controller devices shall be mounted within an ITE standard twelve inch square pedestrian head, within the Traffic Signal Controller Cabinet or other suitable enclosure. The devices shall operate in a high relative humidity environment in temperatures from  $-37^{\circ}\text{C}$  to  $+74^{\circ}\text{C}$  ( $-35^{\circ}\text{F}$  to  $+165^{\circ}\text{F}$ ).

E4.2 Physical Size: The dimensions of the audible signals controller device (excluding microphone) may not exceed the following:

- (a) length of module, including all connectors 10-1/4 inches maximum;
- (b) width of module, including all connectors 4-5/8 inches maximum; and;
- (c) depth" of module (underside of PC board to topmost component) - 1-3/4 inches maximum.

E4.3 The device shall have a minimum of two (2) mounting holes, for mounting the audible signals controller device to a City of Winnipeg standard mounting plate (Drawing ST-150) by means of conventional 1/4-inch diameter fasteners.

E4.4 Electrical termination of all input and output circuits required by the audible signals controller device shall be done by means of standard electrical barrier terminals. All electrical interface terminals and connectors shall be clearly labelled or marked as to function. Screw-type terminals made of non-ferrous metal shall be used for all wiring connections.

#### **E5. INSPECTION AND SAMPLE ITEM REQUIREMENT**

E5.1 The City shall require the successful bidder to supply the City not more than two (2) "sample units" of the item(s) bid, complete with documentation package, for detailed inspection, testing and approval by the City of Winnipeg. Acceptance shall be based on meeting the essential requirements of this specification, product versatility and price. The successful bidder shall within ten (10) Business Days of a request by the Contract Administrator, provide a representative sample of the goods offered. Failure to supply the sample units within the prescribed time interval may result in cancellation of the order.

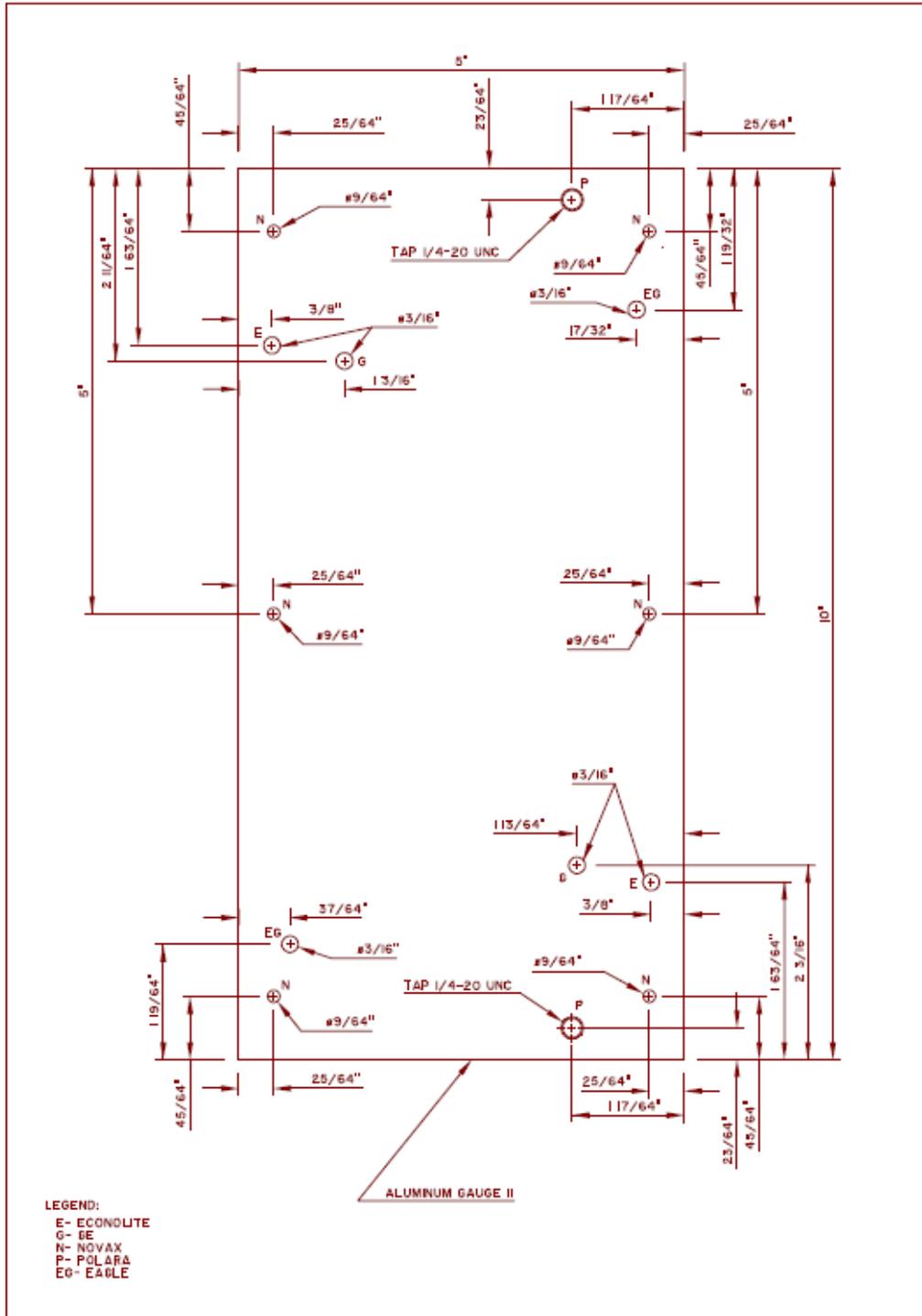
E5.2 Bidders shall specify with their bid what specific elements of the abovementioned service documentation package shall not be supplied to the City for reasons of proprietary design, patent protection, etc. Such restriction of product information not necessarily disqualify the unit bid from consideration.

#### **E6. DOCUMENTATION**

E6.1 Every device shall be accompanied by a complete documentation package for the audible signals controller, each package to include: make and model reference; installation, programming and adjustment procedures; test and check list procedures; electrical characteristics and specifications; basic theory of operation; complete and fully-dimensioned wiring drawings, assembly drawings and hardware layout sketches; printed circuit board layout

drawings and complete circuit schematics (including part numbers and circuit board reference numbers).

- E6.2 The Manufacturer's trademark, product identification, date of manufacture and serial number shall be labelled on each device, in an easily identifiable location.



LEGEND:  
 E- ECONOLITE  
 G- GE  
 N- NOVAX  
 P- POLARA  
 EG- EADLE

REFERENCE SPEC. NO. _____		DESIGNER'S SEAL _____		THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT TRANSPORTATION DIVISION	SHEET OF _____
DESIGNED BY _____	CHECKED BY _____	DRAWN BY _____	SCALE N.T.S.		CAD FILE/DWG. NUMBER _____
A. PREPARED THE DRAWING _____	REVISIONS _____	APPROVED BY _____	DATE _____	CITY DRAWING NUMBER ST-150	_____