



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 128-2005

SUPPLY AND INSTALLATION OF SCADA RADIOS

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PART B

BIDDING PROCEDURES

PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 SUPPLY AND INSTALLATION OF SCADA RADIOS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time April 4, 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 in Adobe Acrobat (pdf) format on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division 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 Division 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 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 at 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 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.

B6. BID SUBMISSION

- B6.1 The Bid Submission consists of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices;
- (c) Proof of Certification from the Manufacturer to install equipment.

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 Division
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.

B7.6 All Bidders should become familiar, as required, with the City of Winnipeg Water and Waste Department's, Water SCADA Communication System, prior to bid submission.

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. CERTIFICATION

- (a) Further to B6.1(c), the Bidder shall provide proof of Certification from the Manufacturer, that the Bidder is authorized to install equipment being bid.

B10. QUALIFICATION

B10.1 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 Division 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;
- (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba);

B10.2 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.

B10.3 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.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 Bid Submissions will not be opened publicly.

B11.2 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 in Adobe Acrobat (pdf) format on the Closed Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site 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 page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at <http://www.winnipeg.ca/matmgt>.

B11.4 The Bidder is advised that any information contained in any Bid Submission may be released if required by City policy or procedures, or by other authorities having jurisdiction.

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 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.
- 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 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 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 Award Authority 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;
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9;
 - (c) Certification 25%
 - (d) Bid Price 75%;
 - (e) 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 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 Submission or in other information required to be submitted, that he is responsible and qualified.
- B14.4 Further to B14.1(c), certification shall be evaluated on the basis of the highest level original equipment manufacturers certification be given the most points. In the event two bidders have the same level certification, the bidder having had the certification the longest shall be determined to be the winner.
- B14.5 Further to B14.1(d), the Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B14.5.1 If there is any discrepancy between the Bid Price written in figures, the 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.

B15. AWARD OF CONTRACT

B15.1 The Award Authority 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.

B15.4 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.

B15.5 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

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 in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at <http://www.winnipeg.ca/matmgt>.

PART D

SUPPLEMENTAL CONDITIONS

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. DEFINITIONS

- D2.1 When used in this Bid Opportunity:
- (a) "**Business Day**" means any Calendar Day, other than a Saturday, Sunday, or a Statutory or Civic Holiday;
 - (b) "**Submission Deadline**" and "**Time and Date Set for the Final Receipt of Bids**" mean the time and date set out in the Bidding Procedures for final receipt of Bids;

D3. CONTRACT ADMINISTRATOR

- D3.1 The Contract Administrator is:
Charles JF Boulet, IT, P. Eng
Project Engineer
Water and Waste Department
Telephone No. (204) 986-7239
Facsimile No. (204) 224-0032

D4. NOTICES

- D4.1 GC.7.05 is hereby amended to delete reference to "registered mail" and to replace same with "ordinary mail".
- D4.2 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.

- D4.3 Further to GC.7.05, all notices, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D4.4, D4.5 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.
- D4.4 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
- D4.5 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

D5. AUTHORITY TO CARRY ON BUSINESS

- D5.1 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.

D6. INSURANCE

- D6.1 The Contractor shall provide and maintain commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) all inclusive, with The City of Winnipeg being added as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a products and completed operations endorsement to remain in place at all times during the performance of the Work;
- D6.2 Automobile liability insurance for owned and non-owned automobiles used for or in connection with the project in the amount of at least two million dollars (\$2,000,000.00) to remain in place at all times during the performance of the Work;
- D6.3 Deductibles shall be borne by the Contractor;
- D6.4 The Contractor shall provide the Contract Administrator with a certificate of insurance at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

D6.5 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

D7. MATERIAL SAFETY DATA SHEETS

D7.1 The Contractor shall provide the Contract Administrator with one (1) copy of Material Safety Data Sheets (MSDS's) for each product to be supplied under the Contract at least two (2) Business Days prior to the commencement of Work but in no event later than seven (7) Calendar Days from notification of the award of Contract.

D7.2 Throughout the term of the Contract, the Contractor shall provide the Contract Administrator with revisions or updates of the MSDS's as soon as may be reasonably possible.

SCHEDULE OF WORK

D8. SCHEDULE

D8.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order authorizing the commencement of the Work.

D8.2 The Contractor shall not commence any Work on the Site until:

(a) the Contract Administrator has confirmed receipt and approval of:

- (i) evidence that the Contractor is 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;
- (ii) evidence of the insurance specified in D6;
- (iii) the Material Safety Data Sheets specified in D7; and

D8.3 The work shall reach Total Performance by July 12, 2005.

WARRANTY

D9. WARRANTY

D9.1 Further to GC.10.01, if a defect or deficiency prevents the full and normal use or operation of the Work or any portion thereof, for purposes of calculating the warranty period, time shall be deemed to cease to elapse for the defective or deficient portion, and for any portion of the Work whose use or operation is prevented by such defect or deficiency, as of the date on which the defect or deficiency is observed or the use or operation is prevented and shall begin to run again when the defect or deficiency has been corrected or the Work may be used or operated to the satisfaction of the Contract Administrator.

D9.2 Notwithstanding GC.10.01, GC.10.02 and D9.1, if any law of Manitoba or of the jurisdiction in which the Work was manufactured requires, or if the manufacturer provides, a longer warranty period or a warranty which is more extensive in its nature, then the provisions of such law or manufacturer's warranty shall apply.

IMPLEMENTATION

D10. IMPLEMENTATION PLAN

D10.1 The existing Radio system, is an integral part of our SCADA system, which is a working facility and is critical to maintaining the supply of water to the City of Winnipeg. During the installation

of the new radios, interruptions to operations must be minimized and only planned shutdowns for short periods of time will be tolerated. The contractor shall therefore provide an implementation plan, as per D10.2 below.

- D10.2 The bidder, who has been awarded the contract, shall create an implementation plan that satisfies City of Winnipeg requirements. The implementation plan must be submitted to the City of Winnipeg's Contract Administrator 2 weeks prior to field work commencement.

PART E

SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. GENERAL

- E1.1 These Specifications shall apply to the Work.
- E1.2 The contractor will be accompanied by a City employee during all site work.

E2. GOODS

- E2.1 The Contractor shall supply SCADA Radios in accordance with the requirements hereinafter specified.

- E2.2 Item No. 1 - MDS 9790AR shall be MDS 9790 Redundant Master Station with Full Network Wide Diagnostics with the following salient features:

- (i) Frequency Range: 800 to 960 MHz
 - (ii) Tx / Rx Split: Simplex to 160 MHz
 - (iii) Data Interface: RS-232, DB-25 Female Connector
 - (iv) Freq. Programmability: 6.25 kHz increments to any MAS channel pair
 - (v) Operational Modes: Async. - Simplex, half-duplex, full-duplex (synchronous available in MDS 4790B, and MDS 9790B)
 - (vi) Agency Approvals FCC Part 101 Industry Canada
- (b) Transmitter
- (i) Carrier Power: 0.1 to 5 Watts Programmable
 - (ii) Duty Cycle: Continuous
 - (iii) Output Impedance: 50 Ohms
 - (iv) Frequency Stability: +/- 0.00015% (1.5 ppm)
 - (v) Carrier Power Accuracy: Normal +/- 1.5 dB
- (c) Receiver
- (i) Type: Double Conversion Superheterodyne
 - (ii) Frequency Stability: +/- 0.00015% (1.5 ppm)
 - (iii) Adjacent Channel (EIA): 60 dB nominal
 - (iv) Power Primary Power: 100-240 Vac (50/60 Hz)
 - (v) 24/48 Vdc (21 to 60 Vdc)
 - (vi) 125 Vdc external
 - (vii) 12 Vdc external
 - (viii) Power Required: < 60 Watts nominal
- (d) Modem
- (i) Modulation: Digital / CPFSK
 - (ii) Latency (Rx-Tx-Rx): 10 ms including RTS/CTS delay
 - (iii) CTS Delay: 0-255 msec programmable in 1 msec increments
 - (iv) PTT Delay: 0-255 msec programmable in 1 msec increments
 - (v) Data Rate (data): 110 bps - 38.4 kbps
 - (vi) Bit Error Rate Sensitivity
 - 9600 bps: BER 1×10^{-6} @ -110 dBm typical

- 4800 bps: BER 1×10^{-6} @ -113 dBm typical
- (vii) Data Rate (rf) 9600 bps 4800 bps
- (e) Environmental
 - (i) Temperature Range: -30°C to +60°C (-22°F to +140°F) at 95% humidity (non-condensing)
 - (ii) Physical
 - (iii) Front Panel: Detachable for convenient location of Keypad/LCD panel
 - (iv) Rack Mount: Flush or 5 inch offset
- E2.3 Item No. 2 - MDS 9710A shall be MDS 9710A Remote Unit with Network Wide Diagnostics:
 - (i) Frequency Bands: 800 to 960 MHz
 - (ii) Freq. Programmability: 6.25 kHz increments to any MAS channel pair
 - (iii) Agency Approvals FCC E5MDS9710-1 Industry Canada & CE Mark FCC E5MDS9710
 - (iv) 4 Wire Analog Yes Yes
 - (v) Data Rate 9600 bps (rf) 9600 bps (rf)
 - (vi) Port Speed 110 bps-38.4 kbps (data) @ 12.5 kHz Channel Spacing 300-9600 bps (rf and data) @ 12.5 kHz Channel Spacing
 - (vii) Bit Error Rate:
 - BER 1×10^{-6} @ -110 dBm typical
 - 4800 bps: BER 1×10^{-6} @ -110 dBm typical
 - 9600 bps: BER 1×10^{-6} @ -108 dBm typical
 - (viii) Network Wide Diagnostics
 - (ix) Operational Modes: Async. - Simplex, half-duplex, (synchronous available (9600 bps only) in MDS 4710B, and MDS 9710B)
 - (x) Data Interface: RS-232, DB-25 Female Connector Supports: TXD, RXD, RTS, CTS, DCD, RUS, AUX POWER, DSR, and GND
- (b) Transmitter
 - (i) Carrier Power: 0.1 to 5 Watts Programmable
 - (ii) Duty Cycle: Continuous
 - (iii) Output Impedance: 50 Ohms
 - (iv) Frequency Stability: +/- 0.00015% 1.5 ppm
 - (v) Carrier Power Accuracy: Normal +/- 1.5 dB
- (c) Receiver
 - (i) Type: Double Conversion Superheterodyne
 - (ii) Frequency Stability: +/- 0.00015% (1.5 ppm)
 - (iii) Adjacent Channel (EIA): 60 dB nominal
 - (iv) Power
 - (v) Sleep Mode: 15 mA nominal
 - (vi) Primary Power: Voltage 13.8 Vdc nominal (10.5 to 16 Vdc operating range)
 - (vii) Tx Current: 2A Typical at 5 Watts
 - (viii) Rx Current: <125 mA
- (d) Modem
 - (i) Modulation: Digital / CPFSK
 - (ii) CTS Delay: 0-255 msec programmable in 1 msec increments

- (iii) PTT Delay: 0-255 msec programmable in 1 msec increments
- (e) Environmental
 - (i) Humidity: 95% at 40°C (104°F) non-condensing
 - (ii) Temperature Range: -30°C to +60°C (-22°F to +140°F)
 - (iii) Physical
 - (iv) Case: Rugged Die Cast Aluminium

E2.4 Item No. 3 - Upgrade Firmware on existing 97XX radios.

- (a) The firmware on all existing series 97XX radios in the system must be upgrade to "A" series and include Network Wide Diagnostics.
- (b) The radios to have firmware upgrades are identified as follows:
 - (i) McPhillips Master Radios (2 Master Radios)
 - (ii) Portage Stand Pipe
 - (iii) Shaftsbury Stand Pipe
 - (iv) Maclean Pumping Station
 - (v) Deacon Pumping Station
 - (vi) Plessis
 - (vii) Mile 17
 - (viii) Smugglers Cove
 - (ix) Redonda
 - (x) Waverley Stand Pipe

E2.5 Item No. 4 - Install, Configure, Test shall include, but not be limited to:

- (a) Remove existing 23XX series radios; City will retain these radios; contractor to deliver to Plinguet site.
- (b) Installation of new radios.
- (c) Contractor shall optimize the settings of all radios on the system; this includes newly installed and existing radios on the system. This shall include but not be limited to:
 - (i) Check and set all software settings to proper values pertaining to either a polling remote, master or repeater station.
 - (ii) Perform radio alignment
 - (iii) Sweep feedline/antenna system for return loss measurement across the appropriate frequency band.
 - (iv) Overall check of physical condition of the equipment and it's surrounding environment.
- (d) Test radios to ensure performance in accordance with manufacturers specifications and that optimal settings have been achieved for all radios on the system.
- (e) The radios to be upgraded are identified as follows:
 - (i) St. Boniface Master Radio
 - (ii) St. Boniface Repeater Radio
 - (iii) Tache Pumping Station
 - (iv) Hurst Pumping Station
 - (v) Rouge Road
 - (vi) St. James / Sargent
 - (vii) John Black
 - (viii) Inskster / Brookside

- (ix) Paddington / Charing Cross
- (x) Springfield
- (xi) University Crescent
- (xii) St. Norbert / Trappistes

E2.6 Item No. 5 - Documentation

- (a) Contractor shall submit documentation for
 - (i) All final radio settings for all radios on system; includes existing and newly installed radios; this information is to be provided in both electronic and paper form.
 - (ii) Results of all commissioning tests.

E2.7 Item No. 6 – Remote Diagnostic software

- (a) Supply
 - (i) Contractor to supply the latest and/or the most suitable version of the InSite Remote Diagnostic software by MDS.
- (b) Install, Configure and Test
 - (i) Contractor shall install, configure and test the software on all radios, including spare radios, that make up the communication network of our Water SCADA system.

E3. DELIVERY

- E3.1 Goods shall be delivered prior to field work commencement, f.o.b. 598 Plinguet St., Winnipeg, MB, freight prepaid.
- E3.2 Goods shall be delivered between 7:30 a.m. and 4:00 p.m. on Business Days