



THE CITY OF WINNIPEG

TENDER

TENDER NO. 157-2019

LIDAR SURVEY OF THE CITY OF WINNIPEG AND ADJACENT AREAS

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 LIDAR SURVEY OF THE CITY OF WINNIPEG AND ADJACENT AREAS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, August 23, 2019.

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 D4.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Tender, 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 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Tender 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 Tender 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. CONFIDENTIALITY

B4.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Tender, or clarifying the meaning or intent of any provision therein.

- B5.2 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.
- B5.3 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>
- B5.4 The Bidder is responsible for ensuring that he/she 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.
- B5.5 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.
- B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D4.

B6. SUBSTITUTES

- B6.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 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.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Total Performance.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her 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.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her 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 B16.
- B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B7. BID SUBMISSION

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid; and
 - (b) Form B: Prices.
 - (c) Specifications of LiDAR equipment proposed to be used for the acquisition and a sample tile (1 km²) in LAS form from a previous capture with similar specifications provided on a DVD disk or USB memory stick.
 - (d) Specifications of the camera proposed to be used for the acquisition of the aerial photographs including camera manufacturer and model number.
 - (e) Sample raw image(s) in TIFF format, taken with the camera proposed to be used for the acquisition of the aerial photographs. The image should show a river or stream with banks or a similar topographic feature. The image is to be provided on a DVD disk or USB memory stick. The resolution of the image (ie. the ground level dimensions covered by a single pixel) should be indicated on the disk.
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 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.
- B7.4 The Bid may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B7.5 If the Bid is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Tender 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
- B7.5.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Tender number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B7.6 If the Bid is submitted by facsimile transmission, it shall be submitted to 204-949-1178.
- B7.6.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time or guarantee the successful receipt of a faxed Bid Submission.
- B7.7 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.

B7.8 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B16.1(a)

B7.9 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B8. BID

B8.1 The Bidder shall complete Form A: Bid, making all required entries.

B8.2 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/her own name, his/her 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/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

B8.3 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.

B8.4 Paragraph 11 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/her 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/her 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.

B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B8.4.2 All signatures shall be original.

B8.5 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.

B9. PRICES

B9.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.

B9.1.1 Notwithstanding C11.1.3, the price on Form B: Prices shall not include the Goods and Services Tax (GST) or Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B9.2 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. DISCLOSURE

B10.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full

disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B10.2 The Persons are:

- (a) ATGIS Geomatics, provided price estimates, sample tiles and technical information
- (b) Airborne Imaging Inc., provided price estimates and technical information

B11. CONFLICT OF INTEREST AND GOOD FAITH

B11.1 Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B11.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
- (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B11.3 In connection with its Bid, each entity identified in B11.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B11.4 Without limiting B11.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B11.5 Without limiting B11.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;

- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B11.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B11.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

B12. QUALIFICATION

B12.1 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.

B12.2 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>

B12.3 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) have minimum five (5) years experience in this type of work; and
- (c) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (d) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);

B12.4 Further to B12.3(d), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
 - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or

by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program;
or

- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. OPENING OF BIDS AND RELEASE OF INFORMATION

B13.1 Bid Submissions will not be opened publicly.

B13.2 Following the Submission Deadline, the names of the Bidders and their bid prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

B13.3 After award of Contract, the name(s) of the successful Bidder(s), their address(es) 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/>

B13.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

B13.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B14. IRREVOCABLE BID

B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B14.2 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.

B15. WITHDRAWAL OF BIDS

B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B15.1.1 Notwithstanding C22.5, 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.

B15.1.2 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 11 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

- B15.1.3 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 11 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.

B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 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.

B16. EVALUATION OF BIDS

B16.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation therefrom (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12(pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6;

B16.2 Further to B16.1(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.

B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.

B16.4 Further to B16.1(c), the Total Bid Price shall be the lump sum price shown on Form B: Prices.

B16.5 This Contract may be awarded on the basis of:

- (a) Alternative 1 - LIDAR SURVEY; or
 - (b) Alternative 2 - LIDAR SURVEY AND RIVERBANK AERIAL ORTHOPHOTOGRAPHY ;
- as identified on Form B: Prices. Each alternative will be evaluated in accordance with the specified evaluation criteria.

B16.5.1 Notwithstanding B9.1, the Bidder may, but is not required to, bid on all alternatives.

B16.5.2 Notwithstanding B17.3, 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/she shall have no claim against the City if his/her partial Bid is rejected in favour of an award of the Contract on the basis of an alternative upon which he/she has not bid.

B17. AWARD OF CONTRACT

B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B17.2 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 qualified, and the Bids are determined to be responsive.

- B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work as per D2.2;
 - (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.
- B17.3 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid in accordance with B16 .
- B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B17.4 Notwithstanding C4.1, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B17.5 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 Supply of Services* (Revision 2019-01-15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Supply of Services* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Supply of Services*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Supply of Services*, 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 the supply of labour, material, supervision and equipment necessary to perform an airborne LiDAR survey of the City of Winnipeg extents and parts of the surrounding municipalities (as illustrated in E1.2). The contractor will also provide the processed LiDAR data.

D2.2 The funds available for this Contract are as follows:

- (a) ALTERNATIVE 1 : \$138,000
- (b) ALTERNATIVE 2 : \$168,000

D3. DEFINITIONS

D3.1 When used in this Tender:

- (a) “**ANPD**” means Aggregate Nominal Pulse Density
- (b) “**ANPS**” means Aggregate Nominal Pulse Spacing
- (c) “**CGVD28**” means Canadian Geodetic Vertical Datum 1928;
- (d) “**DEM**” means Digital Elevation Model
- (e) “**GNSS**” means Global Navigational Satellite System;
- (f) “**LiDAR**” means Light Detection and Ranging;
- (g) “**NAD83 (June 1990)**” means North American Datum of 1983, June 1990 Realization;
- (h) “**RMSE**” means Root Mean Square Error;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is:

Stephanie Dela Cruz, E.I.T.
Land Drainage and Flood Protection
Telephone No. 204- 391-5858
Email Address: SDelaCruz@winnipeg.ca

D4.2 At the pre-commencement meeting, the Contract Administrator will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D5.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D5.2 The information provided to or acquired by the Contractor shall become exclusive property of the City and the City will have the right to publicly distribute the products.

- D5.3 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D5.4 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and
 - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D5.5 A Contractor who violates any provision of D5 may be determined to be in breach of Contract.

D6. NOTICES

- D6.1 Notwithstanding C22.3, all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer.

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

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

D8. INSURANCE

- D8.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured; such liability policy to also contain a cross-liability clause, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work;
 - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Service. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
 - (c) Aircraft Liability Insurance providing coverage in the amount of at least five million dollars (\$5,000,000.00) inclusive. This policy shall include The City of Winnipeg as an additional insured, and shall contain a cross liability clause;
- D8.2 Deductibles shall be borne by the Contractor.
- D8.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D8.4 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

SCHEDULE OF WORK

D9. COMMENCEMENT

- D9.1 The Contractor shall not commence any Work until he/she is in receipt of a notice of award from the City authorizing the commencement of the Work.
- D9.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D7;
 - (ii) evidence of the workers compensation coverage specified in C6.14; and
 - (iii) evidence of the insurance specified in D8;
 - (iv) submission of complete Mission Planning report as per E2.3(b)(i)
 - (b) The Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.
- D9.3 The Contractor shall not commence the Work on the Site before October 7, 2019.
- (i) Airborne survey schedule must be confirmed with the Contract Administrator before any flights.

D10. TOTAL PERFORMANCE

- D10.1 The Contractor shall achieve Total Performance by February 15, 2020.
- D10.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the City shall ensure compliance in accordance with the specifications in PART E - by completing independent quality checks. Any defects or deficiencies in the Work noted during that verification shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-verified.
- D10.3 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.

CONTROL OF WORK

D11. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D11.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

D12. SAFETY

- D12.1 The Contractor shall be solely responsible for safety at the Site and for compliance with all laws, rules, regulations and practices required by the applicable safety legislation.
- D12.2 The Contractor shall be solely responsible for securing the Site, and any existing facility thereon, and for the proper care and protection of the Work already performed.
- D12.3 The Contractor shall do whatever is necessary to ensure that:
- (a) no person, property, right, easement or privilege is injured, damaged or infringed by reason of the Contractor's activities in performing the Work;
 - (b) the health and safety of all persons employed in the performance of the Work or otherwise is not endangered by the method or means of its performance;

- (c) adequate medical services are available to all persons employed on the Work and at all times during the performance of the Work;

MEASUREMENT AND PAYMENT

D13. INVOICES

- D13.1 Further to C11, the Contractor shall submit an invoice for each portion of Work performed 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

- D13.2 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 work performed;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

- D13.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

- D13.4 **Bid Submissions must not be submitted to the above facsimile number. Bids must be submitted in accordance with B7.**

D14. PAYMENT

- D14.1 Further to C11, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

- D14.2 Further to C11, the City shall pay the Contractor in Canadian Funds according to the following schedule

- (a) A payment in the amount of twenty-five percent (25%) of the purchase order shall be made within net thirty (30) days of data acquisition with submission of Post-Survey Accuracy Report as per E2.3 (b) (ii) no later than December 13, 2019.
- (b) A payment in the amount of fifty percent (50%) of the purchase order shall be made within net thirty (30) days of submission of final data deliverables no later than February 15, 2020:
 - (i) Geodetic Control Report
 - (ii) Classified LAS data
 - (iii) Data Adjustment Report
 - (iv) Deliverable Report
- (c) A payment in the amount of twenty-five (25%) of the purchase order shall be made within net thirty (30) days of City verification of services no later than March 31st, 2020.

WARRANTY

D15. WARRANTY

D15.1 Warranty is as stated in C12.

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>
D-00001	Project Area and LiDAR Extent

- 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 B6. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B6.

E2. SERVICES

- E2.1 The Contractor shall collect and provide LiDAR data in accordance with the requirements hereinafter specified. It should be noted that the end use of the raw lidar data will be to create a bare earth model (DEM).
- E2.2 All survey control data used for the project must be supplied by the Contractor to ensure Quality Assurance of the survey operations.
- (a) The proposed control data design must be submitted and approved by the City prior to implementation.
 - (b) The primary ground control and check point surveys must be referenced to the Horizontal Datum NAD83 (June 1990), Zone 14 N
 - (c) Minimum of 28 control points or one for every 25 km²
 - (d) Equally spaced base stations no greater than 30 km of each other
- E2.3 LiDAR Survey of the City of Winnipeg and Adjacent Areas

Alternative 1 – LiDAR Survey

- (a) The specifications for LiDAR data acquisition shall include:
- (i) The airborne survey is to be performed under no snow cover ground conditions;
 - (ii) The airborne survey is to be performed with minimal foliage remaining;
 - (iii) The airborne survey is to be performed no earlier than October 20th with consideration of E2. 3(a)(i) and E2. 3(a)(ii) and while the Red River is below the regulated summer water level. Airborne survey schedule must be confirmed with the Contract Administrator before any flights.
- (a) In the event of non-optimal conditions in the fall of 2019, the work would be undertaken in the fall of 2020, whichever season allows for the conditions required. If the flight must be performed in 2020 an escalation in price under Form B may be negotiated.
- (b) If conditions in the fall of 2019 are such that only E2. 3(a)(i) and E2. 3(a)(ii) are satisfied the contract administrator may solely award Alternative 1 – LiDar Survey.
- (iv) The flying height should be maintained throughout the survey (plus or minus 10%), subject to topographic complexity and aircraft capability constraints.

- (v) Fundamental Horizontal Accuracy $\leq \pm 20$ cm at 95% confidence interval ($1.7308 \times$ RMSE)
 - (vi) Fundamental Vertical Accuracy $\leq \pm 9.8$ cm at 95% confidence interval ($1.96 \times$ RMSE)
 - (vii) Vertical Accuracy Vegetated Area $\leq \pm 14.7$ cm at 95% confidence interval
 - (viii) Aggregate Nominal Pulse Density (ANPD) ≥ 10 points per square meter (PPSM)
 - (ix) Aggregate Nominal Pulse Spacing (ANPS) ≤ 0.32 meters
 - (x) No less than 50% flight line overlap
 - (xi) Scan angle not exceeding 40 degrees FOV ($\pm 20^\circ$ from nadir).
 - (xii) Bidders shall collect GNSS Kinematic ground data for check points;
 - (xiii) Data voids of areas greater than or equal to $(4 \times \text{ANPS})^2$ which are measured using first and only returns are not acceptable. Data voids within a single swath are not acceptable, except where caused by water bodies or low near infrared reflectivity areas, or where voids have been appropriately filled in by data from another swath. Overlapping swath used for fill in must meet all requirements as specified in this guideline.
- (b) The contractor shall provide deliverables as follows:
- (i) A Mission Planning report must contain the plan for the project area and be submitted prior to the start of data acquisition. This report should include the following:
 - (i) Schedule for data acquisition
 - (ii) Equipment/Instrumentation List
 - (iii) Detailed work flow with quality control measures and survey work
 - (iv) Planned GNSS stations and control points
 - (v) Maps and/or images displaying the boundaries and flight plan, flight line location, overlap, calibration
 - (vi) Any planned data processing details including software, methods, filtering, and ancillary data to be used in data processing (include schematic work flow diagram showing data processing steps and the quality control procedures)
 - (ii) The Accuracy Report is a detailed report of validation that is limited to the Fundamental Spatial Accuracy measured in clear, open areas. This report should be submitted upon completion of data acquisition. The report will include the following:
 - (i) Flight trajectories, which will be supplied in Shapefiles (must include the date of capture, local start and end time and which reference station was used for each trajectory) Results of relative (flight run) matching and details of any adjustments made
 - (ii) Source of primary ellipsoidal height control.
 - (iii) Details of ellipsoid to orthometric corrections applied including any final adjustment.
 - (iv) All survey control coordinates, site id and check point comparisons in both Excel spreadsheet and Shapefile formats.
 - (v) Results of vertical and horizontal accuracy validation
 - (vi) Regularity and point density check
 - (vii) Details of system calibration checks
 - (iii) The Geodetic Control Report should include:
 - (i) validation of active and passive station data including location and any monument station, date stamp, GNSS data collected
 - (ii) Control points used to calibrate and process the pulse data (to include NAD83 (June 1990) Zone 14 N and CSRS2010 values)
Photos of survey control and a map of the base station locations

- (iv) A Data Adjustment report must be provided on any data adjustments that are performed, which includes the following:
 - (i) Software or application used
 - (ii) Detailed explanation of methodology
 - (iii) All input parameters
 - (iv) Full output results

- (v) A Deliverable report must contain the actual operating conditions, flight lines and any supporting metadata to demonstrate the specifications have been met. The Contractor shall provide Metadata documents which include but are not limited to the following:
 - (i) Identification information
 - (ii) Data Quality information
 - (iii) Spatial Data Organization Information
 - (iv) Spatial Reference Information
 - (v) Entity and Attribute Information

- (vi) The LiDAR point data shall be properly calibrated and classified in LAS file format. The following classes shall be included:
 - (i) Class 1 – Unclassified / Miscellaneous
 - (ii) Class 2 -Valid ground;
 - (iii) Class 5 - High vegetation (greater than two (2) metre above ground);
 - (iv) Class 6 - Top of building (for buildings with area of a single family residential structure or larger, one (1) storey in height or larger);
 - (v) Class 7 - Low vegetation (between 0 and 0.3 metre above ground);
 - (vi) Class 9 - Water;
 - (vii) Class 17 - Bridges;

- (vii) One kilometre (1 km) tile index grid shall be delivered in Shapefile format or AutoCAD DWG format;

- (viii) Horizontal Datum shall be NAD83 (June 1990), Zone 14 N;

- (ix) Vertical Datum shall be CGVD28 with orthometric heights derived from HT2.0 Geoid;

- (x) All units shall be in meters

E2.3.1 The shapefile version of the LiDAR survey extents is available from the Contract Administrator upon request.

E2.4 LiDAR Survey of the City of Winnipeg and Adjacent Areas:

Alternative 2 – LiDAR Survey and Riverbank Aerial Orthophotography

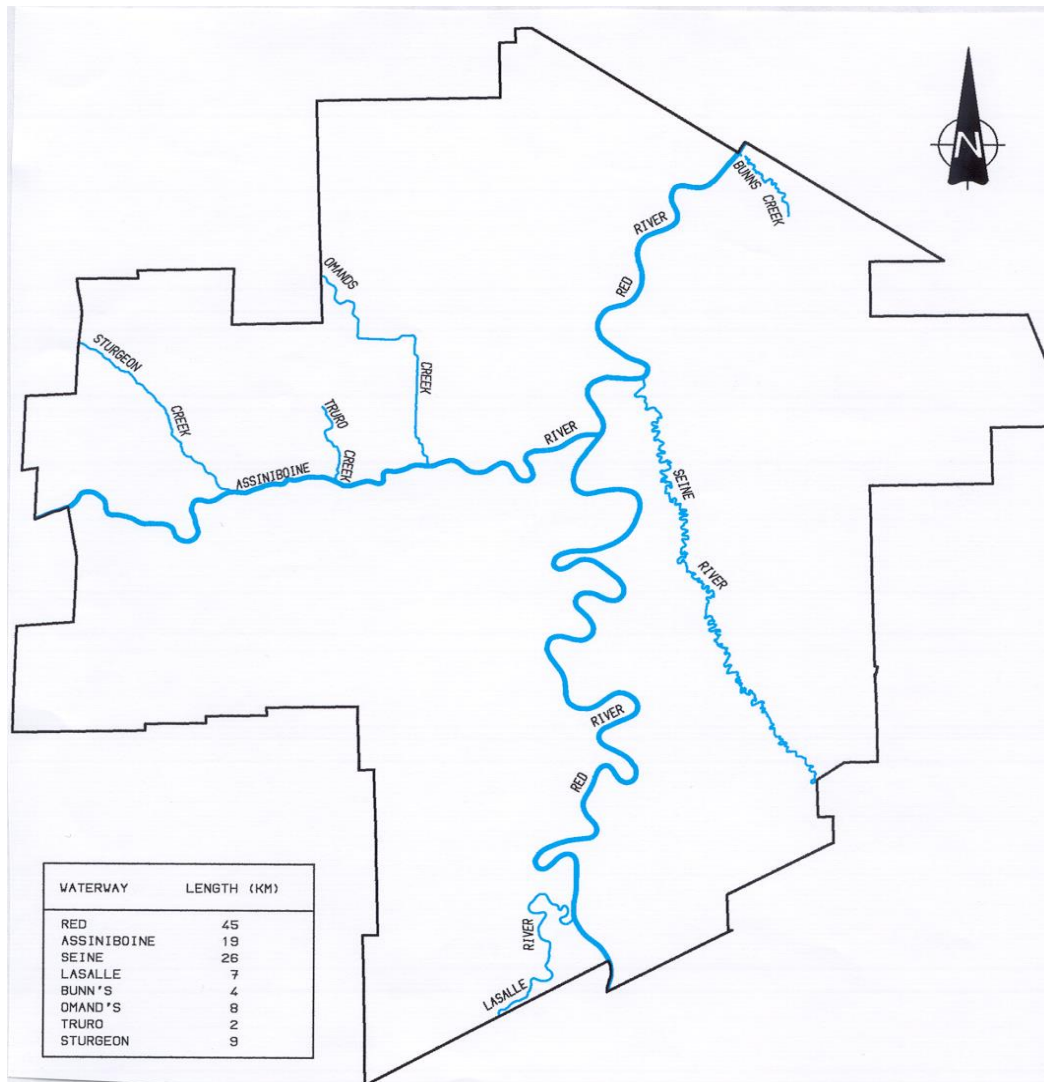
- (a) The Contractor shall supply LiDAR survey as described in E2.3; and
- (b) The Contractor shall supply low level aerial photography and ortho-rectified imagery along the City of Winnipeg's waterways in digital format in accordance with the requirements hereinafter specified.

E2.4.1 The Contractor shall capture color vertical (nadir) aerial photography along the following waterways within the City of Winnipeg:

- (a) Red River
- (b) Assiniboine River
- (c) Seine River

- (d) La Salle River
- (e) Sturgeon Creek
- (f) Truro Creek
- (g) Omand's Creek
- (h) Bunn's Creek

E2.4.2 The following figure shows the general locations and lengths of the rivers which are to be captured in the aerial photography.



(a) Upon request, the Contract Administrator will supply an approximate outline of the rivers and creeks to be photographed, in shape file format.

E2.4.3 The aerial photography will cover a minimum riverbank area of one hundred and twenty five metres (125 m) on both sides of the subject rivers and creeks, measured from the edge of the water. Full stereoscopic coverage is to be assured in this area.

E2.4.4 Aerial photos are to be taken under uniformly clear or uniformly cloudy conditions.

E2.4.5 No imagery shall be acceptable if taken under conditions of precipitation.

E2.4.6 The images shall be clear and sharp and evenly exposed across the format. The images shall be free from clouds and cloud shadows, smoke, haze, light streaks, snow, ice, flooding, static marks, hot spots and another ground surface blemishes that interfere with the intended purpose of the images.

- E2.4.7 Only modern, frame based digital cameras, suitable for photogrammetry and topographic mapping will be considered.
- E2.4.8 The dynamic range of the camera shall be such that detail within ground shadows can easily be resolved with no or small amounts of visible noise or grain while still avoiding blown highlights.
- (a) Exposure should be set to maximize the bit-depth within the range of the sensor and should not be overexposed or saturated.
- E2.4.9 The aerial photography will have a standard sixty (60) percent forward overlap and thirty (30) percent lateral overlap, suitable for stereo viewing and be of sufficient quality and accuracy for topographic mapping of a 0.5 metre contour interval guaranteed.
- E2.4.10 Vertical images should not show the effects of forward motion of the aircraft.
- E2.4.11 The camera shall be mounted vertically in the aircraft. The camera shall be isolated from the vibration of the aircraft. Angular vibration shall be reduced to a level that does not significantly affect the image resolution at the shutter speeds used.
- E2.4.12 For digital cameras that use pan-sharpening, the colour registration must be no less perceptibly accurate than images from a film camera. (For example, the green colour of grass shall not be shifted (bleed) over onto the sidewalk making the fringe of the sidewalk a shade of green).
- E2.4.13 The Contractor must supply the City with the following materials upon the completion of the Work:
- (a) Colour stereo image, uncorrected, and in raw TIFF format, suitable for stereoscopic viewing. Imagery is to have a ground sample distance no greater than 8 cm. Imagery cannot be up-sampled to obtain the designated resolution.
- (b) Colour orthophotos rectified (geo-referenced and geo-coded) to the city basemap within a 500m X 500m grid template which shall be provided by the City of Winnipeg:
- (i) TIFF images with associated word files
- (ii) A single ECW format mosaic file
- (c) Two complete sets of the raw (TIFF) and orthorectified (both ECW and TIFF formats) aerial photography shall be provided on two new hard drives. These hard drives shall become the property of the City.
- (d) The Contractor shall forward ECW compression rates and send sample image files to the Contract Administrator of the air photography at various compression rates. The contract administrator shall decide from the samples which compression rate the Contractor shall use for the ECW formatted image files.
- (e) The Contractor shall provide untouched raw TIFF image files, camera calibration reports, exterior orientation parameters and any other information required for the extraction of elevation values from the imagery, in digital format.
- (f) Ortho-rectified imagery shall have a horizontal error of no greater than 20cm.
- (g) The aerial photos shall be geo-referenced and geo-coded to the City's cadastral base.
- (h) A flight index map and an aerial photography film report are required. The flight index map shall consist of geo-coded points in shape or mapInfo format in UTM NAD 83 and Zone 14 that represent the location from where each photo was taken. Each point shall have the following attribute information at minimum.
- (i) Image Name – corresponding to the raw .TIFF image file names.
- (ii) Flight Direction
- (iii) Altitude
- (iv) Date acquired
- (v) Time acquired
- (vi) Forward overlap i.e. 60%
- (vii) Side overlap i.e. 30%

- (viii) Easting and Northing
- (ix) Aperture
- (x) Shutter speed
- (xi) Source
- (xii) Comments

E2.5 The Contractor shall notify the Contract Administrator or his designate at least two (2) Business Days before delivering the LiDAR data.