



Request For Proposal (RFP):	NRCAN-5000019821
Client Reference No	129644
Title:	Study on the potential of Lidar data for the extraction of cartographic objects other than the elevation
Date of Solicitation:	11 December 2015 (Heure normale de l'Est (HNE))
Solicitation Closing Date and Time:	7 January 2015 à 14h (Heure normale de l'Est (HNE))
Address Inquiries To Contracting Authority:	Julie Gallant Natural Resources Canada Procurement team leader Email : julie.gallant@canada.ca
Security:	There is no security requirement associated with this solicitation.
Send Bids To:	NRCAN.quebec_bid_soumission-quebec_bid_soumission.RNCAN@canada.ca
Procurement Business Number (PNB) _____ In order to be able to receive a Natural Resources Canada (NRCAN) contract, all suppliers MUST have a PBN. Companies who do not have a PBN MUST register for a PBN in the Supplier Registration Information system, on line at the Business Access Canada (formerly Contracts Canada) Internet site: <Supplier Registration>	
Vendor/Firm name and full postal address (please print): Legal name : _____ Address : _____ Contact : _____ Telephone: _____ Facsimile : _____ Email: _____	
Name and title of person authorized to sign on behalf of bidder (please print): Name : _____ Title : _____	
Bid to : Natural Resources Canada We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the services listed herein and on any attached sheets at the price(s) set out therefore. Signature of person authorized to sign on behalf of Vendor/firm: _____ Date : _____	



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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into six parts plus attachments and annexes, as follows:

- Part 1 **General Information:** provides a general description of the requirement;
- Part 2 **Bidder Instructions:** provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 **Bid Preparation Instructions:** provides bidders with instructions on how to prepare their bid;
- Part 4 **Evaluation Procedures and Basis of Selection:** indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 **Certifications:** includes the certifications to be provided; And
- Part 6 **Resulting Contract Clauses:** includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment, the Technical Evaluation, and any other annexes.

1.2 Summary

By means of the RFP, NRCan is seeking proposals from bidders to perform a review of those methods and tools used for the extraction of cartographic objects from aerial LiDAR data commonly used in the mapping field (density of 2–4 points/m²) and basic classification (bare earth only).

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.



PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation with the modifications to the text below. If there is a conflict between the provisions of 2003 and this document, this document prevails.

- **In the complete text content (except Section 3) Delete:** Public Works and Government Services Canada” and **Insert:** “Natural Resources Canada.” **Delete:** “PWGSC” and **Insert:** “NRCAN”
- **Section 2: Delete:** “Suppliers are required to” and **Insert:** “It is suggested that suppliers”
- **Subsection 1 of Section 8:**
Delete: Unless specified otherwise in the bid solicitation, bids may be submitted by facsimile. The only acceptable facsimile number for responses to bid solicitations issued by PWGSC headquarters is 819-997-9776 or, if applicable, the facsimile number identified in the bid solicitation. The facsimile number for responses to bid solicitations issued by PWGSC regional offices is identified in the bid solicitation
Insert: Unless specified otherwise in the bid solicitation, bids may be submitted by facsimile. The only acceptable facsimile number for responses to bid solicitations is the facsimile number identified in the bid solicitation.
- **Under Subsection 2 of Section 20:** Not applicable

2.2 Submission of Bids

It is the Bidders responsibility to ensure that proposals are delivered to the following location, by the time and date indicated on page 1 of this RFP document:

NRCAN.quebec_bid_soumission-quebec_bid_soumission.RNCAN@canada.ca

IMPORTANT

Write the following information in object: RNCAN-500019821 - Study on the potential of Lidar data

The financial proposal should be presented in a separate document from the technical proposal.

The address above is reserved for the presentation of the proposals. No other communication must be sent there.

NRCAN will not assume responsibility for proposals directed to any other location.

The onus is on the Bidder to ensure that the proposal is delivered to the location above. Not complying with the above instructions may result in NRCAN’s inability to ascertain reception date and/or to consider the bid prior to contract award. Therefore, NRCAN reserves the right to reject any proposal not complying with these instructions.



2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority at julie.gallant@canada.ca no later than five (5) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.



PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (1 electronic copy)

Section II: Financial Bid (1 electronic copy) in a separate file

Section III: Certifications (1 electronic copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

All fees, associated with the transfer of data or of all documents as may be required by NRCAN as part of the solicitation process, are the responsibility of the Bidder. No costs incurred by the Bidder before receipt of a signed contract or specified written authorization from the Contracting Authority can be charged to any resulting contract.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) format;
- (b) use a numbering system that corresponds to the bid solicitation.

Section I: Technical Bid

In their technical bid, Bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability and describe their approach in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with Annex B - Basis of Payment. The total amount of Applicable Taxes must be shown separately.

Section III: Certifications

Bidders must submit the certifications required under Part 5.



PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

Bids will be evaluated in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria and in conjunction with Annex "A" - Statement of Work;

If the Bidder is deemed non-responsive as a result of evaluation, the bid will be set aside and not considered for contract award.

The proposed successful bidder will be determined in accordance with the contractor selection method stated in this Part.

All proposals shall be treated as CONFIDENTIAL and will be made available only to those individuals authorized to participate in the evaluation process. All bidders will be subject to the terms of the *Access to Information Act* and to other applicable law or orders of courts or other tribunals having jurisdiction.

An evaluation team will evaluate the proposals on behalf of NRCAN. While the evaluation team will normally be comprised of representatives of NRCAN, it *may* also include representatives from other Government Departments and Agencies or third party participants as selected by NRCAN.

4.1.1 Technical Evaluation

Mandatory and point rated technical evaluation criteria are included in Annex C – Technical Evaluation.

4.1.2 Financial Evaluation

Bidders should submit their financial bid on the document provided in Annex B – Basis of Payment.

4.1.2.1 Mandatory Financial Criteria

The maximum funding available for the Contract resulting from the bid solicitation is **\$ 40 000** (Applicable Taxes extra). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

4.1.2.1 Evaluation of Price

All bids are evaluated in Canadian currency. Therefore, for evaluation purposes, the noon rate quoted by the Bank of Canada as being in effect on date of bid closing will be applied as the initial conversion factor for the specified currency.

Canada will pay the exchange rate adjustment amount in Canadian currency using the prevailing noon rate on the date of payment by Canada.

4.2 Basis of Selection - Highest Rated Within Budget

1. To be declared responsive, a bid must:
 - a. comply with all the requirements of the bid solicitation;



- b. meet all mandatory technical evaluation criteria; and
 - c. obtain the required minimum of 70 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 115 points."
2. Bids not meeting (a) or (b) or (c) will be declared non responsive. The responsive bid with the highest number of points will be recommended for award of a contract, provided that the total evaluated price does not exceed the budget available for this requirement.



PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Declaration of Convicted Offences

As applicable, pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide with its bid, a completed Declaration Form (<http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

5.2.1 Integrity Provisions – List of Names

Bidders, who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

Name of Bidder: _____

OR

Name of each member of the joint venture:

Member 1: _____ Member 3: _____

Member 3: _____ Member 4: _____



Directors Identification:

NAME	SURNAME	TITLE

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Employment and Social Development Canada \(ESDC\) - Labour's](#) website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list at the time of contract award.

5.2.3 Former Public Servant Certification

Contracts with former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny and reflect fairness in spending public funds. In order to comply with Treasury Board policies and directives on contracts with FPS, bidders must provide the information required below. . If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause,

"Former public servant" means a former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police and includes:

- (a) An individual;
- (b) An individual who has incorporated;
- (c) A partnership made up of former public servants; or
- (d) Sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.



"Lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the Public Service.

"pension" means, in the context of the fee abatement formula, a pension or annual allowance paid under the *Public Service Superannuation Act* (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the *Supplementary Retirement Benefits Act*, R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the *Canadian Forces Superannuation Act*, R.S., 1985, c. C-17, the *Defence Services Pension Continuation Act*, 1970, c. D-3, the *Royal Canadian Mounted Police Pension Continuation Act*, 1970, c. R-10, and the *Royal Canadian Mounted Police Superannuation Act*, R.S., 1985, c. R-11, the *Members of Parliament Retiring Allowances Act*, R.S., 1985, c. M-5, and that portion of pension payable to the *Canada Pension Plan Act*, R.S., 1985, c. C-8.

Former Public Servant (FPS) in Receipt of a Pension

Is the Bidder a FPS in receipt of a pension as defined above?

YES () NO ()

If so, the Bidder must provide the following information:

- (a) Name of former public servant;
- (b) Date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program?

YES () NO ()

If so, the Bidder must provide the following information:

- (a) Name of former public servant;
- (b) Conditions of the lump sum payment incentive;
- (c) Date of termination of employment;
- (d) Amount of lump sum payment;
- (e) Rate of pay on which lump sum payment is based;
- (f) Period of lump sum payment including start date, end date and number of weeks;
- (g) Number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction program.

For all contracts awarded during the lump sum payment period, the total amount of fee that may be paid to a FPS who received a lump sum payment is \$5,000, including the Goods and Services Tax or Harmonized Sales Tax.



5.2.4 Additional Certifications Precedent to Contract Award

5.2.4.1 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability.

5.2.4.2 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

Signature of Authorized Company Official

Date



PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A and the Contractor's technical bid entitled _____, dated _____. (*To be completed at contract award*)

6.2 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual)(<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.2.1 General Conditions

[2010B](#) (2015-09-03), General Conditions – Professional Services - Medium Complexity, apply to and form part of the Contract.

- As applicable, replace references to Public Works and Government Services Canada (PWGSC) with Natural Resources Canada (NRCAN).

6.3 Security Requirements

There is no security requirement applicable to this Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The Work is to be performed during the period of contract award to March 31, 2016.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Julie Gallant

Head, Regional Procurement and Material Management Services
Natural Resources Canada

Telephone : (418) 648-7635

Facsimile : (418) 648-5849

E-mail address : julie.gallant@canada.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.



6.5.2 Project Authority (to be provided at contract award)

The Project Authority for the Contract is:

Name: _____
 Title: _____
 Organization: _____
 Address: _____

 Telephone: ____-____-_____
 Facsimile: ____-____-_____
 E-mail address: _____

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority; however, the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment – Firm Price, Firm Unit Price(S) or Firm Lot Price(s)

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in Annex B, for a cost of \$ _____ (*insert the amount at contract award*). Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.7.2 Method of Payment - Single payment

Payment by Her Majesty, to the contractor, for the work shall be made within thirty (30) days following the delivery and acceptance of all deliverables specified in the contract or the date of receipt of a duly completed invoice, whichever date is the later.

6.8 Invoicing Instructions

Invoices shall be submitted using **one of the following methods:**

E-mail: _____ **OR** Fax: _____



NRCAN.invoice_imaging-service_dimagerie_des_factures.RNCAN@canada.ca

Local NCR region: **613-947-0987**
Toll-free: **1-877-947-0987**

Note:

Attach "PDF" file. No other formats will be accepted

Note:

Use highest quality settings available.

Please do not submit invoices using more than one method as this will not expedite payment.

Invoices and all documents relating to a contract must be submitted on the Contractor's own form and shall bear the following reference numbers: Contract number: _____

Invoicing Instructions to suppliers: <http://www.nrcan.gc.ca/procurement/3485>

6.9 Certifications

6.9.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

6.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____. (*Insert the name of the province or territory as specified by the Bidder in its bid, if applicable.*)

6.11 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2010B (2015-09-03), Professional Services - Medium Complexity;
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) Annex C, Technical Evaluation
- (f) the Contractor's bid dated _____, (*insert date of bid*).

6.12 Insurance

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.



ANNEX A

STATEMENT OF WORK

Background

Of all the geospatial data distributed via GeoGratis and GeoBase, national elevation data are by far the most frequently used by the Canadian Geomatics Community. In recent years, LiDAR has become one of the main technologies used for the acquisition of high-accuracy elevation data. These data have also become essential to a number of sectors such as forestry, flood risk management, urban planning, the assessment of geological and mining resources, etc. To meet these growing demands, increasingly, LiDAR data are being acquired across the country by various levels of government. As a result, thanks to national initiatives involving NRCAN, such as the National Disaster Mitigation Program and the Forest Inventory Program, the federal government will acquire several million square kilometres of LiDAR data. For the next few years, these two projects are expected to acquire LiDAR data that will cover approximately 40 percent of the country.

These data, which will be managed by NRCAN, will be important sources of information to generate other layers of information in addition to elevation. In fact, due to the multiple information layers they contain, LiDAR data represent more than elevation, as they also extract other features such as critical infrastructure, hydrography and vegetation. Although they provide a great deal of information, the structure of LiDAR data is such that they require special tools and methodologies that are adapted for this type of data. Nevertheless, today these data represent a perfect opportunity for our organization to update our existing hydrography or infrastructure data layers and to greatly improve the quality and accuracy of these data in a cost-effective manner.

Objective

When combined with elevation, some of the information contained in the LiDAR data such as intensity is used to detect a number of cartographic objects. Currently there is a range of work that addresses the issue of detecting cartographic objects from LiDAR data. The work and tools that address this issue have reached various degrees of maturity and automation, and consequently the choice of tools capable of supporting mass production represents a real challenge. Therefore, the main objective of this invitation to tender is, first, to determine the potential of aerial LiDAR data for the extraction of cartographic objects and then to identify the relevant methods and tools necessary for the extraction of objects with greater potential.

Work to be performed

In general, the work to be performed to fulfill this Statement of Work consists of a review of those methods and tools used for the extraction of cartographic objects from aerial LiDAR data commonly used in the mapping field (density of 2–4 points/m²) and basic classification (bare earth only). In particular, the following items must be included in the study:



- A review of automatic and semi-automatic methods relevant to the extraction of cartographic objects from aerial LiDAR data and the preparation of a report;
- For information layers with greater potential, a review of currently available tools to extract this information and proposal of a methodology for bridging gaps that hinder production. Findings will be presented in the form of report;
- Presentation of the study findings and delivery of a training session on the main tools selected for the extraction of objects.

Deliverables

Deliverable 1: Preliminary meeting

The preliminary meeting will be held within two (2) weeks of the signing of the contract. The date, type of meeting (telephone, video conference, WebEx, in person) and place of the meeting (if in person) will be decided jointly between NRCAN and the supplier. The objective of the meeting is to discuss the proposal as a whole and to clarify the timelines included in the work breakdown table. The supplier may use the language of his choice (English or French) for the preliminary meeting.

Deliverable 2: Report on the methods of extraction

The purpose of this report is to summarize current knowledge on methods of extracting cartographic objects from aerial LiDAR data. This report must contain the extraction of the following cartographic objects, among other features:

- The hydrographic network (watercourses and lakes) as well as the methods used to determine the flow of rivers and the flattening of lakes
- Buildings
- Road network
- Energy transportation lines

For each element, an analysis of the degree of maturity of the approach and its potential for use in a production context must be presented. This report must also submit a preliminary list of tools that will be tested and the preliminary approach for the tests that will be conducted.

Deliverable 3: Report on the extraction tools

The purpose of this report is to assess current technologies (Open-source and commercial) available for the extraction of cartographic objects from aerial LiDAR data. Following deliverable 2, in agreement with NRCAN, a list of features with high potential for extraction will be established. This list will include at least three themes. This report must contain, but is not limited to, the following:

- The general approach to be used for the tests.
- For each feature, several tools should be tested using data sets that will be defined in collaboration with the project officer.



- For each tool tested, the report must show the following elements: cost, user-friendliness, degree of automation, quality of the results, strengths and weaknesses.
- For each theme, the best extraction tool and the gap to bridge for the use of this tool in a production context must be presented

Deliverable 4: Final presentation of the study and training

The purpose of this deliverable is to present the final findings of this study to the NRCAN team and to discuss revisions that will be made to the final versions of the two previous reports. In addition, this presentation will be followed by a one-day training session on the tools tested and selected. The presentation of findings and the training session will take place at NRCAN in Sherbrooke.

Acceptance of deliverables

The last deliverable must be returned before March 31, 2016. The resource person for NRCAN is responsible for the acceptance of each deliverable. The timeline for the acceptance of a deliverable can go up to three weeks. To be accepted, a deliverable must be operational, must meet the specifications described in this SOW for this deliverable, and be fully satisfactory to NRCAN.



ANNEX B

BASIS OF PAYMENT

FIRM PRICE

The price is **firm and all inclusive**, including without limitation all of the expertise, supervision, materials, equipment, travel and living expenses and other items necessary for the execution of the work described in the Statement of Work in Annex A, GST and QST not included.

Item	Description	Firm Price
1	Firm lot price all-inclusive for all deliverables described in Annex A – Statement of Work (Canadian funds, GST and QST not included).	_____ \$CAD

***** FOR EVALUATION PURPOSE: FUNDING LIMITATION**

NRCAN has allocated a maximum of \$ 40 000\$ in funding for this requirement, **inclusive of a) the Price to perform the Work, and b) any Travel and Living and c) Miscellaneous Expenses that may be required**; Goods and Services Tax (GST) or Harmonized Sales Tax (HST) is extra to the Funding Limitation; **any bids received in excess of this maximum funding will be automatically deemed non-responsive and will not be evaluated.**



ANNEX C

TECHNICAL EVALUATION

MANDATORY TECHNICAL CRITERIA

The Mandatory Criteria listed below will be evaluated on a simple pass/fail basis. Proposals which fail to meet the mandatory criteria will be deemed non-responsive.

Bidders are advised to address each criterion in sufficient depth to permit a complete requisite analysis and assessment by the evaluation team. Proposals failing to adequately respond to the mandatory criteria may be excluded from further considerations. The technical proposal should address each of the criteria in the order in which they appear.

Bidders are advised that only listing experience without providing any supporting data to describe responsibilities, duties and relevance to the criteria will not be considered demonstrated for the purpose of this evaluation.

The Bidder should provide complete details as to where, when (month and year) and how (through which activities/ responsibilities) the stated qualifications/experience were obtained. Experience gained during formal education shall not be considered work experience. All criteria for work experience shall be obtained in a legitimate work environment as opposed to an educational setting. Co-op terms are considered work experience provided they are related to the required services.

Bidders are also advised that the month(s) of experience listed for a project whose time frame overlaps that of another referenced project will only be counted once. For example: project one time frame is July 2001 to December 2001; project two time frame is October 2001 to January 2002; the total months of experience for these two project references is seven (7) months.

Criterion ID	Mandatory Criteria	Proposal Page #	Pass/Fail
M1	<p><u>Bidder experience</u></p> <p>The bidder must demonstrate that it has experience in the execution of projects in the following areas:</p> <ul style="list-style-type: none"> • A minimum of one (1) project in the extraction of cartographic objects from LiDAR data; <p><u>AND</u></p> <ul style="list-style-type: none"> • A minimum of one (1) project in the collection of information, compilation of information, analysis of information, synthesis of information and the presentation of information. <p>Note: The projects must have been executed and completed within the past 10 years. The same project can fulfill both areas of competence.</p>		



Criterion ID	Mandatory Criteria	Proposal Page #	Pass/Fail
M2	<p><u>Experience of resources</u></p> <p>At least one of the proposed resources must have 12 months of experience in the field of LiDAR (including the extraction of cartographic objects);</p> <p><u>AND</u></p> <p>At least one of the proposed resources must have 12 months of experience in the acquisition or the updating of topographic data.</p> <p>Note: Experience must have been obtained within the past 10 years. Experience is determined by the curriculum vitae. The same resource may possess all the experience criteria required.</p>		

POINT RATED TECHNICAL CRITERIA

The criteria contained herein will be used by NRCAN to evaluate each proposal that has met all of the mandatory criteria. Bidders are advised to address these criteria in the following order and in sufficient depth in their proposals to enable a thorough assessment. NRCAN's assessment will be based solely on the information contained within the proposal. NRCAN may confirm information or seek clarification from bidders.

Proposals must achieve the stated minimum points required for each rated criterion to be assessed as responsive under the point rated technical criteria section; proposals not meeting the minimum required points will be deemed non-responsive.

Only those proposals which are responsive (compliant) with all of the mandatory criteria and then achieve (or exceed) the stated minimum points required for the point rated technical criteria section (which is equivalent to 70 points of the total points available) will be further considered for award of a contract. Proposals not meeting the minimum points required will be deemed non-responsive.

Criterion ID	Point Rated Technical Criteria	Method of scoring evaluation criteria	Maximum number of points
C1	<p><u>Clarity, organization and logic of the proposal</u></p> <p>1. The bidder should present their proposal in a clear, logical and well organized way.</p>	<ul style="list-style-type: none"> The document is easy to understand and the sections are well identified. (10 Points maximum): <ul style="list-style-type: none"> 0 = Unacceptable 2 = Poor 4 = Unsatisfactory 6 = Good 8 = Very good 10 = Excellent 	20



		<ul style="list-style-type: none"> • Degree of logic in the expression of ideas. (10 Points maximum): <ul style="list-style-type: none"> • 0 = Unacceptable • 2 = Poor • 4 = Unsatisfactory • 6 = Good • 8 = Very good • 10 = Excellent <p>See the evaluation grid at the end of the document.</p>	
<p>C2</p>	<p><u>Approach and method</u> The bidder should present a method clearly demonstrating an approach that will lead to the success of the project.</p> <p>The proposal will be evaluated based on the following factors:</p> <ol style="list-style-type: none"> 1. Understanding of the needs and objectives of the project; 2. Method of information gathering; 3. Sources of information to be consulted; 	<ul style="list-style-type: none"> • Understanding of the needs and objectives of the project (10 points maximum): <ul style="list-style-type: none"> • 0 = Unacceptable • 2 = Poor • 4 = Unsatisfactory • 6 = Good • 8 = Very good • 10 = Excellent • Method of information gathering (10 points maximum): <ul style="list-style-type: none"> • 0 = Unacceptable • 2 = Poor • 4 = Unsatisfactory • 6 = Good • 8 = Very good • 10 = Excellent • Sources of information (10 points maximum): <ul style="list-style-type: none"> • 0 = Unacceptable • 2 = Poor • 4 = Unsatisfactory • 6 = Good • 8 = Very good • 10 = Excellent 	<p>40</p>



	<p>4. Research method: proposal, schedule, information gathering mechanisms, instruments used, tools that will be used to compile data (10 points);</p>	<ul style="list-style-type: none"> • Research method (10 points maximum) <ul style="list-style-type: none"> • 0 = Unacceptable • 2 = Poor • 4 = Unsatisfactory • 6 = Good • 8 = Very good • 10 = Excellent <p>See the evaluation grid at the end of the document.</p>	
<p>C3</p>	<p>General description of the work to performed</p> <p>The bidder should provide a proposal that includes a detailed work plan breaking down the project, that is, describe the work to be done, the requirements to meet and a complete description of the way in which all the deliverables described in this Statement of Work will be provided.</p> <p>Note: The work plan should contain:</p> <ul style="list-style-type: none"> • Detailed information on the work to be carried out, a full description of the activities to be carried out and resources employed; • Work breakdown table, including the number of hours allocated to each task, the date of delivery of each task as well as the name of the resource. 	<ul style="list-style-type: none"> • Work Plan (10 points maximum): <ul style="list-style-type: none"> • 0 = Unacceptable • 2 = Poor • 4 = Unsatisfactory • 6 = Good • 8 = Very good • 10 = Excellent <p>See the evaluation grid at the end of the document.</p>	<p>10</p>
<p>C4</p>	<p>Qualification of resources</p> <p>The bidder should demonstrate that the proposed resources have knowledge and experience directly relating to the project requirements.</p> <p>Note 1: The number of months of experience corresponds to the number of months during which the proposed resource has worked on the execution of projects in the related fields of activities. This can be interpreted as the duration of the project multiplied by the percentage of participation of the resource.</p> <p>The bidder should describe each project</p>	<ul style="list-style-type: none"> • Experience in the field of LiDAR (5 points maximum) : <ul style="list-style-type: none"> • 0 = Less than 23 months of experience • 3 = Between 24 and 47 months of experience • 4 = Between 48 and 71 months of experience • 5 = More than 72 months of experience • Experience in the acquisition/updating of topographic data. (5 Points maximum) : <ul style="list-style-type: none"> • 0 = Less than 23 months of 	<p>45</p>



	<p>as follows:</p> <ul style="list-style-type: none"> • <i>title;</i> • <i>contact information of the client or the company;</i> • <i>start and end dates (year/month);</i> • <i>brief description;</i> • <i>participation and responsibility of the resources proposed in the framework of the project.</i> <p>Note 2: The experience requested may be cumulative if the bidder proposes more than one resource. However, for each requirement (next column), the bidder may submit a maximum of two resources.</p>	<p>experience</p> <ul style="list-style-type: none"> • 3 = Between 24 and 47 months of experience • 4 = Between 48 and 71 months of experience • 5 = More than 72 months of experience <ul style="list-style-type: none"> • Experience in the field of LiDAR applied to the extraction of cartographic objects (5 points maximum) : <ul style="list-style-type: none"> • 0 = Less than 23 months of experience • 3 = Between 24 and 47 months of experience • 4 = Between 48 and 71 months of experience • 5 = More than 72 months of experience • Experience in the research, gathering, compilation, analysis and synthesis of data for conducting literature reviews in the field of LiDAR and geographical information systems (15 points maximum): <ul style="list-style-type: none"> • 0 = Less than 23 months of experience • 5 = Between 24 and 47 months of experience • 10 = Between 48 and 71 months of experience • 15 = More than 72 months of experience • Experience in the delivery of technical training services in the field of geomatics (15 points maximum): <ul style="list-style-type: none"> • 0 = Less than 23 months of experience • 5 = Between 24 and 47 months of experience • 10 = Between 48 and 71 months of experience • 15 = More than 72 months of experience 	
Total points			115



GRID OF EVALUATION	
Excellent (10 points)	The rated criteria are covered in depth and the information provided shows a complete and thorough understanding of all elements of the rated criteria
Very good (8 points)	The information provided clearly shows full comprehension of all elements of the rated criteria.
Good (6 points)	The information provided clearly shows full comprehension of most of the elements of the rated criteria, but not all.
Unsatisfactory (4 points)	The information provided shows a limited comprehension of the criteria set forth but does not show a complete understanding of all the elements of the rated criteria.
Poor (2 points)	The information provided shows that the bidder has a minimum comprehension of the rated criteria.
Unacceptable (0 points)	The information provided does not meet any of the criteria.