



**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des  
soumissions - TPSGC**  
11 Laurier St./ 11 rue, Laurier  
Place du Portage, Phase III  
Core 0B2 / Noyau 0B2  
Gatineau, Québec K1A 0S5  
Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL  
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services 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 goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

E-mail/Courriel : mark.walton@tpsgc-pwgsc.gc.ca

**NOTICE TO BIDDERS:** This bid solicitation cancels and supersedes previous bid solicitation number W1786-150016/A dated July 10, 2015 with a closing of August 24, 2015 at 2:00 PM Eastern Daylight Time.

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

Scientific, Medical and Photographic Division / Division de l'équipement scientifique, des produits photographiques et pharmaceutiques  
11 Laurier St./ 11 rue, Laurier  
6B1, Place du Portage  
Gatineau, Québec K1A 0S5

<b>Title - Sujet</b> HD Terrestrial LiDAR System	
<b>Solicitation No. - N° de l'invitation</b> W1786-150016/B	<b>Date</b> 2015-11-13
<b>Client Reference No. - N° de référence du client</b> W1786-150016	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$PV-903-68367	
<b>File No. - N° de dossier</b> pv903.W1786-150016	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2016-01-05</b>	
<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Standard Time EST	
<b>F.O.B. - F.A.B.</b> Specified Herein - Précisé dans les présentes <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input checked="" type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Walton, Mark	<b>Buyer Id - Id de l'acheteur</b> pv903
<b>Telephone No. - N° de téléphone</b> (819) 956-3813 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF NATIONAL DEFENCE Mapping and Charting Establishment 360 Lebreton Street OTTAWA Ontario K1A 0K2 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b> 2016-01-29	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination	Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	HD Terrestrial LiDAR System, in accordance with the mandatory specifications at Annex A.	W1786	W1786	1	Each	\$	\$	2016-01-29	
2	Data processing software, in accordance with the mandatory specifications at Annex A.	W1786	W1786	1	Each	\$	\$	2016-01-29	
3	Training for the Software and Hardware, in accordance with the mandatory specifications at Annex A.	W1786	W1786	1	Lot	\$	\$	2016-01-29	

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## HD Terrestrial LiDAR System

### TABLE OF CONTENTS

<b>PART 1 - GENERAL INFORMATION .....</b>	<b>2</b>
1.1 SECURITY REQUIREMENTS .....	2
1.2 REQUIREMENT .....	2
1.3 DEBRIEFINGS .....	2
1.4 TRADE AGREEMENTS .....	2
<b>PART 2 - BIDDER INSTRUCTIONS .....</b>	<b>2</b>
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS .....	2
2.2 SUBMISSION OF BIDS .....	2
2.3 ENQUIRIES - BID SOLICITATION .....	2
2.4 APPLICABLE LAWS .....	3
<b>PART 3 - BID PREPARATION INSTRUCTIONS .....</b>	<b>3</b>
3.1 BID PREPARATION INSTRUCTIONS .....	3
<b>PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION .....</b>	<b>5</b>
4.1 EVALUATION PROCEDURES .....	5
4.2 BASIS OF SELECTION .....	6
<b>PART 5 - CERTIFICATIONS AND ADDITIONAL INFORMATION .....</b>	<b>6</b>
5.1 CERTIFICATIONS REQUIRED WITH THE BID .....	6
5.2 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION .....	6
<b>PART 6 - RESULTING CONTRACT CLAUSES .....</b>	<b>7</b>
6.1 SECURITY REQUIREMENTS .....	7
6.2 REQUIREMENT .....	7
6.3 STANDARD CLAUSES AND CONDITIONS .....	7
6.4 TERM OF CONTRACT .....	8
6.5 AUTHORITIES .....	8
6.6 PAYMENT .....	8
6.7 INVOICING INSTRUCTIONS .....	9
6.8 CERTIFICATIONS .....	9
6.9 APPLICABLE LAWS .....	9
6.10 PRIORITY OF DOCUMENTS .....	9
6.11 SACC MANUAL CLAUSES .....	9
6.12 SHIPPING INSTRUCTIONS - DELIVERY AT DESTINATION .....	9
<b>ANNEX "A" .....</b>	<b>10</b>
STATEMENT OF REQUIREMENT .....	10

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## HD TERRESTRIAL LiDAR SYSTEM

### PART 1 - GENERAL INFORMATION

**NOTICE TO BIDDERS:** This bid solicitation cancels and supersedes previous bid solicitation number W1786-150016/A dated July 10, 2015 with a closing of August 24, 2015 at 2:00 PM Eastern Daylight Time. A debriefing or feedback session will be provided upon request to bidders who bid on the previous solicitation.

#### 1.1 Security Requirements

There is no security requirement associated with this bid solicitation.

#### 1.2 Requirement

The Contractor must provide the items detailed under the "Line Item Detail", and further detailed under the "Statement of Requirement" at Annex "A".

#### 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.

#### 1.4 Trade Agreements

"The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT)."

### 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.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

- Delete: sixty (60) days
- Insert: ninety (90) days

#### 2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

#### 2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **ten (10) 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 **Ontario**.

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 - Two (2) hard copies
- Section II: Financial Bid - One (1) hard copy
- Section III: Certifications - At least one (1) hard copy

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

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) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

### Section I: Technical Bid

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

#### 1.1.1 Manuals

Manuals are considered a part of the equipment. One (1) operator and one (1) service manual (paper or CD-ROM format), in English or French, must be sent together with the equipment.

Solicitation No. - N° de l'invitation  
W1786-150016/B  
Client Ref. No. - N° de réf. du client  
W1786-150016

Amd. No. - N° de la modif.  
File No. - N° du dossier  
pv903.W1786-150016

Buyer ID - Id de l'acheteur  
pv903  
CCC No./N° CCC - FMS No./N° VME

### 1.1.2 Training

On-site user training must be provided for up to eighteen (18) users. All costs associated with the on-site training must be included in the price.

On-site training will be completed within two (2) months of acceptance. Provide complete details of training e.g. duration, scope, etc,

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### 1.1.3 Service

Purchase of the system must include: regional technical support; technical phone support; support via the Internet; and support via a fax-back document system.

Response for service shall be within 24 hours or less.

Also, provide the following with your bid:

a) Location of available service facilities (after sales service and repair). List the service facilities closest to the destination.

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b) Locations of available replacement parts from consumables to major components.

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c) Response time re: service calls, and escalation schedule, i.e. (how many days with no resolution to a problem until a more experienced person is called in, and from which location).

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d) List the frequency of routine maintenance visits provided by a qualified service technician during the warranty period, if applicable and included in the price.

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### 1.1.4 Product(s) Offered

The Bidder must indicate the make and model number of the products offered (identify specific components which make up the system):

Name of Manufacturer: \_\_\_\_\_

Model/Part Number: \_\_\_\_\_

Literature attached: Yes (\_\_\_\_) No (\_\_\_\_)

### 1.1.5 Delivery

While delivery is requested by **January 29, 2016**, the best delivery that could be offered by the Bidder is \_\_\_\_\_.

### 1.1.6 Software Updates *(If applicable)*

The contractor shall provide all software updates and new releases to the purchaser for a period of one (1) year following the acceptance, at no additional cost.

**Note:** The word "updates" means all enhancements, extensions or other modifications to the software. The word "releases" means enhancements or modifications to the software or new modules or supplementary modules that function in conjunction with the software, that represent the next generation of software, and which the Contractor has decided to make available to its customers usually for an additional charge.

#### 1.1.7 Contacts

Bidders are requested to provide the following: Information pertaining to Article 5.3 Contractor Representatives under Part 6, Resulting Contract Clauses.

#### Section II: Financial Bid

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

##### 3.1.1 Exchange Rate Fluctuation

- [C3011T](#) (2013-11-06), Exchange Rate Fluctuation

#### Section III: Certifications

Bidders must submit the certifications required under Part 5.

### PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

#### 4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

##### 4.1.1 Technical Evaluation

###### Factors for Evaluation

1. PRICING BASIS (MANDATORY): Prices must be firm, DDP Delivered Duty Paid.
2. ABILITY TO MEET THE TECHNICAL REQUIREMENT (MANDATORY):
  - a) **For Items Defined by Specifications:** The bidder is requested to cross reference the mandatory technical criteria contained herein to their supporting technical documentation.
  - b) **Provision of Supporting Technical Documentation:** Supporting technical documentation for the stores offered shall be provided with the bid at time of bid closing. Technical brochures or technical data MUST be provided to verify compliancy to the technical mandatory specifications.
3. COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS REQUEST FOR PROPOSAL (MANDATORY)
4. FOR CANADIAN SUPPLIERS ONLY: Please note that the requirements of the Federal Contractors Program for Employment Equity may apply - see herein. (MANDATORY)

##### 4.1.1.1 Mandatory Technical Criteria

- Technical Compliance
- Compliance with Pricing Basis
- Proposal complete and signed
- Employment Equity

#### 4.1.2 Financial Evaluation

- SACC Manual Clause [A0222T](#) (2014-06-26), Evaluation of Price - Canadian / Foreign Bidders

#### 4.2 Basis of Selection

##### 4.2.1 SACC Manual Clause

SACC Reference	Title	Date
<a href="#">A0069T</a>	Basis of Selection	2007-05-25

### 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](#), 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 provided 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.

##### 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](#)" list ([http://www.labour.gc.ca/eng/standards\\_equity/eq/emp/fcp/list/inelig.shtml](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.

## 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 Security Requirements

6.1.1 There is no security requirement applicable to this Contract.

### 6.2 Requirement

The Contractor must provide the items detailed under the "Line Item Detail", and further detailed under the "Statement of Requirement" at Annex "A".

#### Service

- a) Location of available service facilities (after sales service and repair). Service facilities closest to the destination.
- b) Locations of available replacement parts from consumables to major components.
- c) Response time re: service calls, and escalation schedule, i.e. (how many days with no resolution to a problem until a more experienced person is called in, and from which location).
- d) List the frequency of routine maintenance visits provided by a qualified service technician during the warranty period, if applicable and included in the price.

#### Manuals

Manuals are considered a part of the equipment. One (1) operator and one (1) service manual (paper or CD-ROM format), in English or French, must be sent together with the equipment.

#### Training

On-site user training must be provided for up to eighteen (18) users. On-site training will be completed within two (2) months of acceptance.

#### Software Updates *(If applicable)*

The contractor shall provide all software updates and new releases to the purchaser for a period of one (1) year following the acceptance, at no additional cost.

**Note:** The word "updates" means all enhancements, extensions or other modifications to the software. The word "releases" means enhancements or modifications to the software or new modules or supplementary modules that function in conjunction with the software, that represent the next generation of software, and which the Contractor has decided to make available to its customers usually for an additional charge.

### 6.3 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.

#### 6.3.1 General Conditions

[2010A](#) (2015-07-03), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

### 6.3.2 Supplemental General Conditions

- **4003** Supplemental General Conditions - Licensed Software (2010-08-16) and
- **4004** Supplemental General Conditions - Maintenance and Support Services for Licensed Software (2013-04-25)

apply to and form part of the Contract.

### 6.4 Term of Contract

#### 6.4.1 Delivery Date

All the deliverables must be received on or before (*date to be inserted at contract award*).

### 6.5 Authorities

#### 6.5.1 Contracting Authority

*The Contracting Authority for the Contract is:*

Mark Walton  
Supply Officer  
Public Works and Government Services Canada  
Acquisitions Branch  
Commercial Consumer Products Directorate  
Scientific, Medical, and Photographic Division "PV"  
6A2, Phase III, Place du Portage,  
11 Laurier Street,  
Gatineau, Quebec, Canada K1A 0S5  
Telephone: 819-956-3813  
Facsimile: 819-956-3814  
E-mail address: [mark.walton@tpsgc-pwgsc.gc.ca](mailto:mark.walton@tpsgc-pwgsc.gc.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 Technical Authority: To be identified at contract award

The Technical 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 Technical Authority, however the Technical 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.

#### 6.5.3 Contractor's Representative

*The telephone number, with extension if applicable, of the person responsible for:*

##### General enquiries

Name: \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
Facsimile No: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

##### Delivery Follow-up

Name: \_\_\_\_\_  
Telephone No. \_\_\_\_\_  
Facsimile No: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

### 6.6 Payment

#### 6.6.1 Basis of Payment - Firm Unit or Lot Price(s)

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid the firm unit or lot price(s), as specified in the contract, for a cost of \$ (*amount to be inserted 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.

## 6.6.2 SACC Manual Clauses

SACC Reference	Title	Date
<u>H1000C</u>	Single Payment	2008-05-12

## 6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

2. Invoices must be distributed as follows:

(a) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

(b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

## 6.8 Certifications

### 6.8.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing associated 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 associated 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.

## 6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in **Ontario**.

## 6.10 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 supplemental general conditions 4003 Supplemental General Conditions - Licensed Software (2010-08-16) and 4004 Supplemental General Conditions - Maintenance and Support Services for Licensed Software (2013-04-25)
- (c) the general conditions 2010A (2015-07-03), General Conditions - Goods (Medium Complexity),
- (d) Annex A, Statement of Requirement;
- (e) the Contractor's bid dated \_\_\_\_\_

## 6.11 SACC Manual Clauses

SACC Reference	Title	Date
<u>A2000C</u>	Foreign Nationals (Canadian Contractor)	2006-06-16
<u>A9062C</u>	Canadian Forces Site Regulations	2011-05-16
<u>B1501C</u>	Electrical Equipment	2006-06-16

## 6.12 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and Delivered Duty Paid (DDP) Ottawa, Ontario, Incoterms 2000 for shipments from a commercial contractor.

## ANNEX "A"

### STATEMENT OF REQUIREMENT

**NOTE: BIDDERS MUST INDICATE CLEARLY WHERE THEIR BID OR ANY ATTACHMENT THERETO STATES THAT THE ITEM(S) OFFERED MEET(S) EACH OF THE FOLLOWING MANDATORY SPECIFICATIONS. FAILURE TO DO SO, OR NON-COMPLIANCE WITH ANY OF THEM, WILL RENDER YOUR BID NON-RESPONSIVE.**

#### BACKGROUND

1. The DND Survey Team from Mapping and Charting Establishment (MCE) is currently collecting all point data using modern traditional survey methods employing a pole mounted GNSS antenna and an ETS on a tripod. These methods produce highly accurate position data of all points of collection but consume a great deal of man power and time to collect.
2. With the advances of terrestrial laser 3D scanners (LiDAR technology), survey grade accuracies of within 1 cm are now possible. Employing such a scanner on future surveys would greatly enhance the troop capabilities and relieve the troop work load which is currently advancing to a high tempo.
3. The main focus of the device is the collection of high resolution topographic data as well as highly accurate building and infrastructure survey point data. The current equipment employed by 2 Troop operates within an accuracy of reference  $\pm 0.5\text{mm}$  for the GNSS static,  $\pm 1\text{ cm}$  for RTK horizontal, and  $\pm 1\text{ Sec}$  for the ETS.

#### REQUIREMENT

The contractor must provide a proposal that includes hardware, software and training in accordance with the following specifications:

- Section 1: One (1) High Definition Terrestrial LiDAR System (HDTLS).
- Section 2: One (1) set of data processing software.
- Section 3: Training

#### **Section 1: One (1) HDTLS. The following items must be included with the unit:**

- a. One (1) HDTLS transportation case; **PROPOSAL REFERENCE:** \_\_\_\_\_
- b. Four (4) HDTLS internal batteries w/cables and basic charging unit\*; **PROPOSAL REFERENCE:** \_\_\_\_\_
- c. One (1) external battery module w/case, tripod bracket, cables and charging unit\*; **PROPOSAL REFERENCE:** \_\_\_\_\_
- d. One (1) AC/DC adapter for basic charging unit; **PROPOSAL REFERENCE:** \_\_\_\_\_
- e. One (1) Car-adapter for basic charger unit; **PROPOSAL REFERENCE:** \_\_\_\_\_
- f. One (1) data transfer cable; **PROPOSAL REFERENCE:** \_\_\_\_\_
- g. One (1) scanner height meter; **PROPOSAL REFERENCE:** \_\_\_\_\_
- h. Eight (8) B&W tilt and turn circular scanner targets; **PROPOSAL REFERENCE:** \_\_\_\_\_
- i. Four (4) fixed height target poles; **PROPOSAL REFERENCE:** \_\_\_\_\_
- j. Four (4) target tripods w/bags; **PROPOSAL REFERENCE:** \_\_\_\_\_
- k. Four (4) HDTLS target bags; **PROPOSAL REFERENCE:** \_\_\_\_\_
- l. Four (1) scanner target flat magnetic bases; **PROPOSAL REFERENCE:** \_\_\_\_\_
- m. Two (1) scanner target v-groove magnetic bases; **PROPOSAL REFERENCE:** \_\_\_\_\_
- n. One (1) tripod and tripod star; **PROPOSAL REFERENCE:** \_\_\_\_\_
- o. One (1) tribrach w/o optical plummet; and **PROPOSAL REFERENCE:** \_\_\_\_\_
- p. One (1) upside down mounting adapter. **PROPOSAL REFERENCE:** \_\_\_\_\_

Section 1 Hardware Specifications			PROPOSAL REFERENCE
1.	3D Positional Accuracy	The HDTLS must have a 3D positional accuracy (True Accuracy) of 7 mm @ 100 m. True accuracy is the accuracy when the angular error is propagated with the range error over the full distance. a.) The HDTLS must have an angular accuracy of less than ten seconds (10") in both horizontal and vertical angles, and a compensator accuracy of less than two seconds (2"). b.) The HDTLS must have a range accuracy of less than 1.5 mm + 10 ppm over the full range.	
2.	Scan Rate	> 750,000 pts/sec.	
3.	Field of View	> 360° Horizontal, > 250° Vertical	
4.	Distance Measurement to any surface (Range)	Must be able to record point information at a distance of at least 100 m. .	
5.	Laser Plummet	Must be onboard the HDTLS unit and have a centering accuracy of 1.5 mm @ 1.5 m.	
6.	HDTLS onboard Camera	Must have an onboard digital camera of no less than 5 MP to capture and store digital images of surveyed features.	
7.	Temperature Range - operating	-15° C to greater than +50° C.	
8.	Dust / Water Protection rating	Dust / Water Protection rating must be IP54 (Ingress Protection Rating) or higher.	
9.	Humidity	Non-condensing 95%	
10.	Data Storage Capacity	Min of 128 Gb onboard solid-state drive or external USB device	
11.	Communication	Must be able to communicate by two of the three methods below: a. Gigabit Ethernet; b. Integrated Wireless LAN; or c. Bluetooth	
12.	Power-supply	24V DC, 110-240V AC.	
13.	Internal Battery type	Must be Removable Li-Ion – air cargo shippable and charge in less than 4 hours. Must be hot swappable.	
14.	Internal Battery Operating Time	The HDTLS must be able to operate for > five (5) hours under normal use.	
15.	External Battery type	Removable Li-Ion preferred – must be able to be shippable by air If not air shippable, must have a cable (3 metre min) that would connect to unit to a 12V battery power supply	
16.	External Battery Operating Time	The HDTLS must be able to operate for a minimum of twelve (12) hours using both external and internal battery packs simultaneously.	

Section 1 Hardware Specifications			PROPOSAL REFERENCE
17.	Calibration	Must have the ability to check the internal accuracy and automatically calibrate and adjust the instrument.	

**Section 2: One (1) set of licensed data processing software**

- a. One (1) license for point cloud registration and geo-referencing software;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- b. One (1) license for topographic map creation and editing software using point cloud information;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- c. One (1) license for 3D visualization software for point cloud modeling and/or survey dimensions;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- d. One (1) license for AutoCAD® point cloud plug-in software  
**PROPOSAL REFERENCE:** \_\_\_\_\_;

Section 2 Software – must meet the following specifications:		
1.	General	<p>All software must meet following general specifications:</p> <ol style="list-style-type: none"> <li>a. Metric or Imperial units of measure,</li> <li>b. DD or DMS angular units of measure, <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. 64-bit graphics support, <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. Continuous auto-save, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. Multi-thread capable to make use of multiple processors, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. Multi-user profile support, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. Online help. <b>PROPOSAL REFERENCE:</b> _____</li> </ol>
2.	Cross-software compatibility	<p>All software must have (but not limited too) the following capabilities:</p> <ol style="list-style-type: none"> <li>a. Selectable level of point cloud density, <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. View point cloud data with intensity, image and elevation based colour mapping; <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. View texture mapped colours on point cloud, <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. Unify point cloud, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. Measure slope distances, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. Measure X, Y, Z distances, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. Measure angle to horizontal, <b>PROPOSAL REFERENCE:</b> _____</li> <li>h. Measure angle to vertical, <b>PROPOSAL REFERENCE:</b> _____</li> <li>i. Measure back angle, <b>PROPOSAL REFERENCE:</b> _____</li> <li>j. Multiple coordinate support, <b>PROPOSAL REFERENCE:</b> _____</li> <li>k. Create and manage layers, <b>PROPOSAL REFERENCE:</b> _____</li> <li>l. Elevation checks, <b>PROPOSAL REFERENCE:</b> _____</li> <li>m. Ortho image output. <b>PROPOSAL REFERENCE:</b> _____</li> </ol>
3.	Data Import	<p>All software must have (but not limited to) the ability to import data in the following formats:</p> <ol style="list-style-type: none"> <li>a. ASCII text files (XYZ, SVY, PTS, PTX, TXT), <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. Binary point cloud data, <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. BMP file; <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. TIFF, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. JPEG, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. PNG, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. LandXML, <b>PROPOSAL REFERENCE:</b> _____</li> <li>h. LAS. <b>PROPOSAL REFERENCE:</b> _____</li> </ol>

<b>Section 2 Software – must meet the following specifications:</b>		
4.	Data Export	<p>All software must have (but not limited to) the ability to export data in the following formats:</p> <ul style="list-style-type: none"> <li>a. AutoCAD® DXF, <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. ASCII text files (XYZ, SVY, PTS, PTX, TXT), <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. BMP file; <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. TIFF, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. JPEG, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. PNG, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. GeoTIFF w/TWF. <b>PROPOSAL REFERENCE:</b> _____</li> </ul>
5.	Registration and Geo-referencing Software	<p>Registration software must have (but not limited too) the following capability:</p> <ul style="list-style-type: none"> <li>a. Global registration of multiple scans, <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. Geo-referencing, <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. Cloud to cloud registration, <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. Automated registration using scanner targets, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. Automated registration using point clouds, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. Automated B&amp;W target extraction, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. Export binary point cloud data. <b>PROPOSAL REFERENCE:</b> _____</li> </ul>
6.	Topographic Mapping Software	<p>Topographic Mapping Software must have (but not limited too) the following capability:</p> <ul style="list-style-type: none"> <li>a. Import codelists (XLS, TXT, DBX), <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. Export coded points (TXT, DBX, LandXML), <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. Export lines, points to DXF w/layer control, <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. Export Tin surface to DXF, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. Vertical exaggeration, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. Return selection (i.e. first or highest, last or ground and lowest), <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. Feature coding. <b>PROPOSAL REFERENCE:</b> _____</li> </ul>
7.	3D Visualization Software For Point Cloud Modeling and/or Survey Dimensions	<p>Visualization software must have (but not limited too) the following capability:</p> <ul style="list-style-type: none"> <li>a. Basic design tools, <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. Replication and editing of objects, <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. Region growing by plane and cylinder, <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. Ability to assign feature codes to points, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. Create and edit TIN, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. Create contours, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. Determine object volume, <b>PROPOSAL REFERENCE:</b> _____</li> <li>h. Determine object area. <b>PROPOSAL REFERENCE:</b> _____</li> </ul>

<b>Section 2 Software – must meet the following specifications:</b>		
8.	AutoCAD® point cloud plug-in software	<p>AutoCAD® plug-in software must have (but not limited too) the following capability:</p> <ul style="list-style-type: none"> <li>a. Large point cloud support, <b>PROPOSAL REFERENCE:</b> _____</li> <li>b. Adjustable level of detail, <b>PROPOSAL REFERENCE:</b> _____</li> <li>c. Intensity and true colour mapping, <b>PROPOSAL REFERENCE:</b> _____</li> <li>d. Measure 3D point coordinate, <b>PROPOSAL REFERENCE:</b> _____</li> <li>e. Measure point to point, <b>PROPOSAL REFERENCE:</b> _____</li> <li>f. Interference checking, <b>PROPOSAL REFERENCE:</b> _____</li> <li>g. Modeling of 2D lines, <b>PROPOSAL REFERENCE:</b> _____</li> <li>h. Modeling of polylines, <b>PROPOSAL REFERENCE:</b> _____</li> <li>i. Points to grid, and <b>PROPOSAL REFERENCE:</b> _____</li> <li>j. Return selection (i.e. first or highest, last or ground and lowest). <b>PROPOSAL REFERENCE:</b> _____</li> </ul>

- Note:** The proposal must include the following software components for **each** licensed copy:
- a. The supplier can provide single solution software under one (1) license without penalty. **PROPOSAL REFERENCE:** \_\_\_\_\_
  - b. The supplier must provide at least one (1) license for every required software module. **PROPOSAL REFERENCE:** \_\_\_\_\_
  - c. The supplier must provide the software modules on CD or DVD. **PROPOSAL REFERENCE:** \_\_\_\_\_
  - d. The supplier must provide both hard and soft copy (PDF or MS Word on a CD or DVD) of software module user manuals. **PROPOSAL REFERENCE:** \_\_\_\_\_
  - e. No lite (LT, L) versions of any software will be allowed **PROPOSAL REFERENCE:** \_\_\_\_\_

### Section 3: Training

- The training must take place at Mapping and Charting Establishment, 615 Booth Street, Ottawa, Ontario or a site to be determined by MCE Svy Tp within the NCR from Monday to Friday between 0700 and 1500 hrs Eastern Time and have a minimum length of ten (10) days. Training manuals must be provided. **PROPOSAL REFERENCE:** \_\_\_\_\_
  - Training must be provided within two (2) months of receipt of all equipment. **PROPOSAL REFERENCE:** \_\_\_\_\_
- a. **Training for one (1) HDTLS.**
- (1) Presentation on the overall features and functions of the equipment; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (2) All operational functions of the HDTLS; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (3) Field to office procedures relating to HDTLS data collection and upload to accompanying office software; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (4) Tutorial on the field requirements for the import of project data; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (5) Tutorial on the field requirements for the export of project data; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (6) Tutorial on the field requirements for post-processing of HDTLS field collected data; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (7) Tutorial on the field calibration procedures of the HDTLS; **PROPOSAL REFERENCE:** \_\_\_\_\_
  - (8) Proper care and storage of HDTLS. **PROPOSAL REFERENCE:** \_\_\_\_\_

b. **One (1) copy of HDTLS office data processing software.**

- (1) Tutorial on topics and subcomponents of equipment/software in Section 2;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- (2) Tutorial on the import / export of point cloud data using software in Section 2;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- (3) Tutorial on registration and geo-referencing of point cloud data using software in Section 2;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- (4) Tutorial of extraction and creation of survey related data from point cloud data using software in Section 2; **PROPOSAL REFERENCE:** \_\_\_\_\_
- (5) Tutorial on post-processing of HDTLS point cloud data using software in Section 2;  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- (6) Tutorial on modelling 3D data from point cloud data using software in Section 2; and  
**PROPOSAL REFERENCE:** \_\_\_\_\_
- (7) Direction on best practices and SOPs to ensure capability efficiency.  
**PROPOSAL REFERENCE:** \_\_\_\_\_

MAINTENANCE AND SUPPORT

7. A 5-year maintenance and support contract to manage and facilitate warranty repairs during the warranty period and break and fix services for all equipment purchased under this contract. If a broken unit cannot be repaired within five (5) days, a replacement unit must be provided at no additional cost. The contract will also contain both 24/7 telephone support and online support.

**PROPOSAL REFERENCE:** \_\_\_\_\_