

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
**Bid Receiving Public Works and Government
Services Canada/Réception des soumissions
Travaux publics et Services gouvernementaux
Canada**
Pacific Region
401 - 1230 Government Street
Victoria, B.C.
V8W 3X4
Bid Fax: (250) 363-3344

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

Title - Sujet NFIRAOS OAP/BEAM	
Solicitation No. - N° de l'invitation 31034-149494/A	Date 2014-09-30
Client Reference No. - N° de référence du client 31034-149494	
GETS Reference No. - N° de référence de SEAG PW-\$VIC-250-6557	
File No. - N° de dossier VIC-4-37115 (250)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-10-16	Time Zone Fuseau horaire Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Sole, Mike	Buyer Id - Id de l'acheteur vic250
Telephone No. - N° de téléphone (250) 363-8444 ()	FAX No. - N° de FAX (250) 363-3344
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: NATIONAL RESEARCH COUNCIL CANADA 5071 WEST SAANICH RD VICTORIA British Columbia V9E2E7 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works and Government Services Canada - Pacific
Region
401 - 1230 Government Street
Victoria, B. C.
V8W 3X4

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

Solicitation No. - N° de l'invitation

31034-149494/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

vic250

Client Ref. No. - N° de réf. du client

31034-149494

File No. - N° du dossier

VIC-4-37115

CCC No./N° CCC - FMS No/ N° VME

- This page intentionally left blank -

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION

1. Introduction
2. Summary
3. Not Used
4. Debriefings
5. Communications
6. Conflict of Interest

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions
2. Submission of Bids
3. Former Public Servant (if applicable)
4. Communications - Solicitation Period
5. Applicable Laws
6. Improvement of Requirement During Solicitation Period
7. Maximum Funding

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions:
Section I : Technical Bid
Section II : Financial Bid
Section III : Certifications

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures
2. Basis of Selection

PART 5 - CERTIFICATIONS

1. Certifications Required Precedent to Contract Award
2. Additional Certifications Required Precedent to Contract Award

PART 6 - RESULTING CONTRACT CLAUSES

1. Statement of Work
2. Standard Clauses and Conditions
3. Security Requirement
4. Term of Contract
5. Authorities
6. Proactive Disclosure of Contracts with Former Public Servants (if applicable)
7. Payment
8. Invoicing Instructions
9. Certifications
10. Applicable Laws
11. Priority of Documents
12. Insurance
13. Shipping Instruction – Delivery at Destination
14. Government Site Regulations

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

List of Annexes:

Annex "A" Statement of Work
Annex "B" Basis of Payment
Annex "C" Contractor Disclosure of Foreground Information
Annex "D" Non-disclosure Agreement
Annex "E" Mandatory and Point Rated Technical Criteria

**Due to the highly technical nature of the design documents, they are only available in English.
The documents will be available on written request (email) to the Contracting Authority specified
herein, including submission of the completed Annex D Non-disclosure agreement.**

PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation document 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;
- 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 and other annexes.

2. Summary

National Research Council (NRC) requires engineering and design support services in support of the Thirty Metre Telescope (TMT) Near Field Infra Red Adaptive Optics System (NFIRAOS) subsystems indicated below.

This solicitation combines two (2) similar requirements into two (2) separate streams which may be awarded individually or combined. Canada reserves the right to award to one or more bidders. Each stream will be evaluated and awarded separately, but may result in a single contract to a single bidder if determined by the resulting evaluations.

STREAM 1: NFIRAOS Off Axis Paraboloid subsystems. – PHASE 1

STREAM 2: NFIRAOS Beamsplitter subsystems – PHASE 1

Due to the highly technical nature of the design documents, they are only available in English. The documents will be available on written request (email) to the Contracting Authority specified herein, including submission of the completed Annex D Non-disclosure agreement.

Lists of Attachments is included in Annex 1 – Statement of Work for each Stream.

Contractors bidding on this requirement must meet the required delivery dates as these are essential towards Canada meeting its deliverables towards the set timelines of the TMT project office.

Task Authorization Contract

The work required in this solicitation is limited to the defined **Phase 1 only**. Any subsequent work (if approved) will be conducted under a separate task authorization within the contract.

Note 1: . It is the intent of this project to continue subsequent phases with the successful bidder for Phase 1. However, Canada at its discretion may choose to either:

- (i) issue a task authorization to include the work under Phase 2 and or, Phase 3,

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

or

(ii) competitively tender the works for Phase 2 and or Phase 3

Note 2: Bidders in responding to this solicitation are agreeing they have the capabilities and capacity to execute the work.

3. Not Used

4. Debriefings

After contract award, 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 of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

5. Communications

As a courtesy and in order to coordinate any public announcements pertaining to this contract, the Government of Canada requests that successful Bidders notify the Contracting Authority 5 days in advance of their intention to make public an announcement related to the recommendation of a contract award, or any information related to the contract. The Government of Canada retains the right to make primary contract announcements.

6. Conflict of Interest

The Work described herein and the deliverable items under any resulting Contract specifically exclude the development of any statement of work, evaluation criteria or any document related to a bid solicitation. The Contractor, its subcontractor(s) or any of their agent(s) directly or indirectly involved in the performance of the Work and/or in the production of the deliverables under any resulting Contract will not be precluded from bidding on any potential future bid solicitation related to the production or exploitation of any concept or prototype developed or delivered under any resulting Contract.

PART 2 - BIDDER INSTRUCTIONS

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 (2014-03-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

1.1 SACC Manual Clauses

A7035T (2007-05-25) List of Proposed Subcontractors
A9033T (2012-07-16) Financial Capability

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.

3. Former Public Servant

Contracts awarded to 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 the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, bidders must provide the information required below before contract award. 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" is any 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. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a 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 size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means 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 in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension?

Yes () No ()

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

- 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 Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive?

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 adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

4. Communications - Solicitation Period

All enquiries must be submitted to the Contracting Authority no later than 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.

5. Applicable Laws

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

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

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

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.

6. Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least 5 days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

7. Maximum Funding

The maximum funding available for the contract(s) resulting from the bid solicitation is:

Stream 1 – OAP subsystems CAD \$105,000.00
Stream 2 – Beamsplitter subsystems CAD \$110,000.00

(Applicable Taxes extra, as appropriate). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

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

- Section I : Technical Bid (1 hard copies)
- Section II : Financial Bid (1 hard copies)
- Section III : Certifications (1 hard copies)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft 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; and
- (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>).

To assist Canada in reaching its objectives, bidders should:

- (1) use 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, print double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I : Technical Bid

– MUST BE SUBMITTED FOR EACH STREAM BIDDERS ARE CHOOSING TO BID ON

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 clearly address 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

– MUST BE SUBMITTED FOR EACH STREAM BIDDERS ARE CHOOSING TO BID ON

1.1 Bidders must submit their financial bid in accordance with the following :

- a) Bidders must submit a firm all-inclusive price for the work.
- b) The information must be provided in accordance with the Basis of Payment in Annex B.

Section III : Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

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.
- (c) The evaluation team will determine first if there are two (2) or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

1.1 Technical Evaluation

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.

The technical bid consists of the following:

All the information required to demonstrate its conformity with the Point Rated Technical Criteria described in Annex E.

The solicitation package contains electronic documents that are essential for bidders to understand the technical nature of the work and must be requested from the PWGSC Contracting Authority in writing.

1.1.1 Supporting Information

In the event that the Bidder fails to submit any supporting information pursuant to technical evaluation criteria, the Contracting Authority may request it thereafter in writing, including after the closing date of the bid solicitation. It is mandatory that the Bidder provide the supporting information within three (3) business days of the written request or within such period as specified or agreed to by the Contracting Authority in the written notice to the Bidder.

1.1.2 Mandatory and Point Rated Technical Evaluation

Mandatory and Point Rated Technical Evaluation Criteria are included in Annex E.

1.2 Financial Evaluation

1.2.1 Mandatory Financial Criteria

Proposal which exceed the following financial limits will be deemed non-responsive.

Stream 1 – OAP Subsystem CAD\$105,000.00

Stream 2 – Beamsplitter subsystem CAD\$110.000.00

1.2.2 Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, Canadian customs duties and excise taxes included.

2. Basis of Selection

2.1 Basis of Selection - Highest Rated Within Budget

To be declared responsive, a bid must:

- (a) comply with all the requirements of the bid solicitation;
- (b) meet all mandatory technical evaluation criteria;
- (c) obtain the required minimum points for each criterion with a pass mark; and
- (d) obtain the required minimum points overall for the technical evaluation criteria which are subject to point rating.

Bids not meeting (a) or (b) or (c) or (d) 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. In the event that the highest number of points is obtained by more than one responsive bid, the responsive bid with the lowest evaluated price will be recommended for award of a contract.

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation 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 may render the bid non-responsive or constitute a default under the Contract.

1. Certifications Required Precedent to Contract Award

1.1 Integrity Provisions – Associated Information

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of Standard Instructions [2003](#). The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

1.2 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) 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.

2. Additional Certifications Required Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid but may be submitted afterwards. If any of these required certifications 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 comply with the request of the Contracting Authority and to provide the certifications within that time frame provided will render the bid non-responsive.

2.1 Canadian Content Certification

This procurement is subject to a preference for Canadian goods and/or services.

The Bidder certifies that:

() the service(s) offered is (are) a Canadian service as defined in paragraph 2 of clause A3050T.

2.1.1 Canadian Content Definition

1. **Canadian good:** A good wholly manufactured or originating in Canada is considered a Canadian good. A product containing imported components may also be considered Canadian for the purpose of this policy when it has undergone sufficient change in Canada, in a manner that satisfies the definition specified under the *North American Free Trade Agreement* (NAFTA) Rules of Origin. For the purposes of this determination, the reference in the NAFTA Rules of Origin to "territory", is to be replaced with "Canada". (Consult Annex 3.6(9) of the *Supply Manual*.)

For photocopiers, computers and office equipment within Federal Supply Classification (FSC) groups 36, 70 and 74, see paragraph 6.(a)).

2. **Canadian service:** A service provided by an individual based in Canada is considered a Canadian service. Where a requirement consists of only one service, which is being provided by more than one individual, the service will be considered Canadian if a minimum of 80 percent of the total bid price for the service is provided by individuals based in Canada.
3. **Variety of goods:** When requirements consist of more than one good, one of the two methods below is applied:
 - a. aggregate evaluation: no less than 80 percent of the total bid price must consist of Canadian goods; or,
 - b. item by item evaluation: in some cases, the bid evaluation may be conducted on an item-by-item basis and contracts may be awarded to more than one supplier. In these cases, suppliers will be asked to identify separately each item that meets the definition of Canadian goods.
4. **Variety of services:** For requirements consisting of more than one service, a minimum of 80 percent of the total bid price must be provided by individuals based in Canada.
5. **Mix of goods and services:** When requirements consist of a mix of goods and services, no less than 80 percent of the total bid price must consist of Canadian goods and services (as defined above).

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the Supply Manual.
6. **Other Canadian goods and services:**
 - a. For photocopiers, computers and office equipment within FSC groups 36, 70 and 74, only the products of the following firms are considered Canadian goods:
 - i. MERIT Partner under the MERIT Partnership Program (administered by Industry Canada [IC] and Public Works and Government Services Canada [PWGSC]);
 - ii. Companies which, on March 31, 1992, were allocated to Priority Group 1 under the Priority Groups Policy in effect at that time; or
 - iii. CIRCLE Canada companies as agreed on by IC and PWGSC.
 - b. Textiles: Textiles are considered to be Canadian goods according to a modified rule of origin, copies of which are available from the Clothing and Textiles Division, Commercial and Consumer Products Directorate.

2.2 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

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

2.3 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.

2.4 Language Capability

The Bidder certifies that it has the language capability required to perform the Work, as stipulated in the Statement of Work.

PART 6 - RESULTING CONTRACT CLAUSES

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

1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A.

1.1 Task Authorization

The Work or a portion of the Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

1.1.1 Task Authorization Process

1. The Project Authority will provide the Contractor with a description of the task using the Task Authorization form specified in Annex E. .
2. The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis(bases) and methods of payment as specified in the Contract.
3. The Contractor must provide the Project Authority, within 14 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.
4. The Contractor must not commence work until a TA authorized by the Project Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

1.1.2 Task Authorization Limit

The Project Authority may authorize individual task authorizations up to a limit of \$40,000.00, Applicable Taxes included, inclusive of any revisions.

Any task authorization to be issued in excess of that limit must be authorized by the Project Authority and Contracting Authority before issuance.

1.1.3 Portion of the Work - Task Authorizations

Canada's obligation with respect to the portion of the Work under the Contract that is performed through task authorizations is limited to the total amount of the actual tasks performed by the Contractor.

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>) issued by Public Works and Government Services Canada.

2.1 General Conditions

2040 (2014-03-01), General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

2.1.1 Canada to Own Intellectual Property Rights in Foreground Information

1. The general conditions 2040 are amended by deleting the sections entitled "Records and Disclosure of Foreground Information", Ownership of Intellectual Property Rights in Foreground Information", "Licenses to Intellectual Property Rights in Foreground and Background Information", "Contractor's Rights to Grant Licenses", "Waiver of Moral Rights", "License to Intellectual Property Rights in Canada's Information", "Transfer or License of Contractor's Rights", "Transfer of Intellectual Property Rights upon Termination of the Contract for Default", and "Products Created Using the Foreground Information" in their entirety. This section applies in lieu of those sections.
2.
 - a. During and after the performance of the Contract, the Contractor must keep detailed records of the Foreground Information, including details of its creation. The Contractor must report and fully disclose to Canada all Foreground Information as required by the Contract. If the Contract does not specifically state when and how the Contractor must do so, the Contractor must provide this information if requested by the Contracting Authority, whether before or after the completion of the Contract.
 - b. Before and after final payment to the Contractor, the Contractor must provide Canada with access to all records and supporting data that Canada considers pertinent to the identification of Foreground Information.
 - c. For any Intellectual Property that was developed or created in relation to the Work, Canada will be entitled to assume that it was developed or created by Canada, if the Contractor's records do not list that Intellectual Property or do not indicate that it was created by the Contractor, or by someone on behalf of the Contractor, other than Canada.
3.
 - a. All Intellectual Property rights in the Foreground Information belong to Canada as soon as they come into existence. The Contractor has no right in or to any such Intellectual Property Rights in the Foreground Information, except any right that may be granted in writing by Canada.
 - b. The Contractor must incorporate the copyright symbol and one of the following notices, as appropriate into all Foreground Information that is subject to copyright regardless of the form or medium upon which it is recorded: © Her Majesty the Queen in Right of Canada (year), or © Sa Majesté la Reine du chef du Canada (year).
 - c. The Contractor must execute any documents relating to the Intellectual Property Rights in the Foreground Information as Canada may require. The Contractor must, at Canada's expense, provide Canada all reasonable assistance in the preparation of applications and in the prosecution of any applications for registration of any Intellectual Property Rights in any jurisdiction, including the assistance of the inventor in the case on inventions.
4.
 - a. The Contractor grants to Canada a license to use the Background Information to the extent that it is reasonably necessary for Canada to exercise fully all its rights in the deliverables and in the Foreground Information. This license is non-exclusive, perpetual, irrevocable, worldwide, fully-paid and royalty-free. The license cannot be restricted in any

way by the Contractor providing any form of notice to the contrary, including the wording on any shrink-wrapped license attached to any deliverable.

- b. For greater certainty, Canada's license in the Background Information includes, but is not limited to:
 - i. the right to disclose the Background Information to third parties bidding on or negotiating contracts with Canada and to sublicense or otherwise authorize the use of that information by any contractor engaged by Canada solely for the purpose of carrying out such contracts. Canada will require these third parties and contractors not to use or disclose that information except as may be necessary to bid, negotiate or carry out those contracts;
 - ii. the right to disclose the Background Information to other governments for information purposes;
 - iii. the right reproduce, modify, improve, develop or translate the Background Information or have it done by a person hired by Canada. Canada, or a person designated by Canada, will own the Intellectual Property Rights associated with reproduction, modification, improvement, development or translation.
 - iv. without restricting the scope of any license or other right in the Background Information that Canada may otherwise hold in relation to any custom-designed or custom-manufactured part of the Work, the right to use and disclose to a contractor engaged by Canada the Background Information for the following purposes:
 - A. For the use, operation, maintenance, repair or overhaul of the custom-designed or custom-manufactured parts of the Work;
 - B. In the manufacturing of spare parts for maintenance, repair or overhaul of any custom-designed or custom-manufactured part of the Work by Canada if those parts are not available on reasonable commercial terms to enable timely maintenance, repair or overhaul.
 - c. The Contractor agrees to make the Background Information, including in the case of Software, the source code, promptly available to Canada for any purpose mentioned above. The license does not apply to any Software that is subject to detailed license conditions that are set out elsewhere in the Contract. Furthermore, in the case of commercial off-the-shelf software, the Contractor's obligation to make the source code promptly available to Canada applies only to source code that is within the control of or can be obtained by the Contractor or any subcontractor.
5. The Contractor represents and warrants that it has the right to grant to Canada the license and any other rights to use the Background Information. If the Intellectual Property Rights in any Background Information are owned by a subcontractor or any other third party, the Contractor must have a license from that subcontractor or third party that permits compliance with paragraph 4 or arrange, without delay, for the subcontractor or third party to grant promptly the required license directly to Canada.
6. If requested by Canada, during and after the Contract, the Contractor must provide a written permanent waiver of moral rights, as defined in the *Copyright Act*, R.S., 1985, c. C-42, from every

author that contributes to any Foreground Information subject to copyright protection that is a deliverable to Canada under the Contract. If the Contractor is an author of the Foreground Information, the Contractor permanently waives the Contractor's moral rights in that Foreground Information.

2.1.2 License to Intellectual Property Rights in Foreground Information

1. Subject to subsection 2, if the Contractor wishes to make use of the Foreground Information for purposes of its commercial exploitation or further development, then the Contractor may make a written request for a license to the minister for whose department or agency the Work is being or was carried out. Such a request should be made within thirty (30) working days following completion of the Work. The Contractor shall give that minister an explanation as to why such a license is required. That minister shall respond in writing to any request for such a license within a reasonable period of time. If the request is refused the response shall provide an explanation for the refusal. Should the minister for whose department the work is being or was carried out agree to grant such a license, it shall be on terms and conditions to be negotiated between the Contractor and that minister.

2. Where the Work under the Contract involves the preparation of a database or other compilation using information or data supplied by Canada, or personal information (as this term is defined in the Privacy Act (R.S.C., c. P-21)) collected by the Contractor as part of the Work, then the license referred to in subsection 1 shall be restricted to the Intellectual Property Rights in Foreground Information that are capable of being exploited without the use of such information or data or personal information.

2.2 Non-disclosure Agreement

The Contractor must obtain from its employee(s) or subcontractor(s) the completed and signed non-disclosure agreement, attached at Annex D, and provide it to the Contracting Authority before they are given access to information by or on behalf of Canada in connection with the Work.

3. Security Requirement

There is no security requirement applicable to this Contract.

4. Term of Contract

4.1 Period of Contract

The period of the Contract is from date of Contract to 31 March 2015 inclusive.

4.2 Option to extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to two (2) additional one (1) year period(s) under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor at least 30 calendar days before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Mike Sole
Title: Supply Specialist

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

Public Works and Government Services Canada
Acquisitions Branch
Telephone: 250-363-8444
E-mail address: Mike.Sole@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.

5.2 Technical Authority

The Technical Authority for the Contract is: _____ (to be provided on 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.

5.3 Contractor's Representative

Contact for:	Name	Telephone	Email
Contracting issues			
Technical issues			
Invoicing issues			

5.4 Procurement Authority

The Procurement Authority for the Contract is: _____ (to be provided on award)

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

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.

7. Payment

7.1 Basis of Payment

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work as determined in accordance with the Basis of Payment in Annex B, to a ceiling price of \$ (insert the amount at contract award) . Customs duties are included and Applicable Taxes are extra.

The ceiling price is subject to downward adjustment so as not to exceed the actual costs reasonably incurred in the performance of the Work and computed in accordance with the Basis of Payment.

7.1.1 Basis of Payment – Limitation of Expenditure – Task Authorizations

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work specified in the authorized Task Authorization (TA), as determined in accordance with the Basis of Payment in the Task Authorization to the limitation of expenditure specified in the authorized TA.

Canada's liability to the Contractor under the authorized TA must not exceed the limitation of expenditure specified in the authorized TA. Customs duties are excluded and Applicable Taxes are extra.

No increase in the liability of Canada or in the price of the Work specified in the authorized TA resulting from any design changes, modifications or interpretations of the Work will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been authorized, in writing, by the Contracting Authority before their incorporation into the Work.

7.2 Limitation of Price

SACC Manual Clause C6000C (2011-05-16), Limitation of Price

7.3 Method of Payment

7.3.1 Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>), Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.3.2 Schedule of Milestones

The schedule of milestones for which payments will be made is in accordance with the Annex B.

7.3.3 SACC Manual Clause H1001C (2008-05-12), Multiple Payments

7.4 SACC Manual Clauses

A9117C (2007-11-30), T1204 - Direct Request by Customer Department
H4500C (2010-01-11), Lien - Section 427 of the *Bank Act*

8. Invoicing Instructions – Progress Payment Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment (attached at Annex F).

Each claim must show:

- a. all information required on form PWGSC-TPSGC 1111;

- b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
- c. a list of all expenses;
- d. the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

- a. a copy of time sheets to support the time claimed;
 - b. a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;
 - c. a copy of the monthly progress report.
2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.
3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Procurement Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.
- The Procurement Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.
4. The Contractor must not submit claims until all work identified in the claim is completed.

9. Certifications

9.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the entire contract period. If the Contractor does not comply with any certification, provide the related documentation 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.

9.2 SACC Manual Clauses

A0285C (2007-05-25) Workers Compensation
A3060C (2008-05-12) Canadian Content Certification

10. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in (to be inserted at contract award).

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 2040 (2011-05-16), General Conditions – Research and Development, as amended in Section 2.1 above;
- c) Annex A, Statement of Work;
- d) Annex B, Basis of Payment / Schedule of Milestones;
- e) Annex D, Non-disclosure Agreement;
- f) the signed Task Authorizations (including all of its annexes, if any) (if applicable);
- g) the Contractor's bid dated _____ (insert date of bid) (If the bid was clarified or amended, insert at the time of contract award: "as clarified on _____" **or** ", as amended on _____" and insert date(s) of clarification(s) or amendment(s))

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.

13. Shipping Instructions – Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered DDP (Delivered Duty Paid) to National Research Council of Canada, 5071 West Saanich Road, Victoria , British Columbia Canada V9E2E7, Inco terms 2000 for shipments from a commercial contractor.

14. Government Site Regulations

The Contractor must comply with all regulations, instructions and directives in force on the site where the Work is performed.

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

ANNEX A - STATEMENT OF WORK

Each stream is defined separately in the following sections:

- A.1 Stream 1 – OAP subsystem**
- A.2 Stream 2 – Beamsplitter subsystem**

• **Annex A.1 Stream 1 – OAP subsystem**
PHASE 1: Final design of NFIRAOS OAP Subsystems

Phase 1 of the work to be performed is the final design of NFIRAOS Off Axis Paraboloid (OAP) mirror mount Subsystems including four mirrors, cell and mount assemblies for the science path OAP1, OAP2, OAP3 and OAP4-S, two mirrors, cell and mount assemblies for the visible light wavefront sensors in the laser guide star (LGS) path OAP4-L and natural visible path OAP4-V. Five OAPs are in vertical orientation with their optical axis horizontal except OAP4-V which is tilted by 50 degrees from the vertical. Since all six OAP mirrors are similar in size, it is highly desirable to have a common design for all six cell and mount assemblies to simplify the subsequent alignment and serving processes.

Specifically, the work includes:

1. Advance the OAP Subsystems (for all six mirror cell and assemblies) from Preliminary Design Review (PDR) level development to Final Design Review (FDR) level design in context with the Thirty Meter Telescope Project Office (TMTPO) design review level definitions¹.
 - PDR design has demonstrated a design and defined the outline of associated processes resulting in the subsystem. Major design tasks verified at the NFIRAOS PDR review were:
 - Sufficiently detailed design to demonstrate that (i) the majority of design and interface requirements are met and (ii) significant design choices are made at the subsystem assembly level
 - Enabling technologies established
 - Major technical risks retired
 - Outline of assembly, integration, and verification of overall NFIRAOS system integration at NRC Herzberg and TMT observatory sites
 - Long lead time procurement plans for optics
 - Associated schedule and cost of final design phase
 - Bottom-up fabrication and construction cost estimate for subsystems
 - Integrated fabrication and construction schedule with the overall TMT project schedule
 - Initial FMEA and Hazard Risk Assessment
 - FDR design development work supplied by Contractor shall demonstrate the detailed subsystem design can be realized as well as the realization processes. Major subsystem design tasks that the contractor is responsible for advancing are:
 - Final, construction/production ready design and work scopes for fabrication and procurements
 - Key technologies industrialized
 - Compliance with requirements and interfaces
 - Vendor QA/QC plans
 - Failure Mode and Effects Analysis (FMEA) and reliability prediction
 - Operations/maintenance procedures
 - Refined fabrication and construction plan, budget and schedule
2. Develop a binding fixed-price quote, cost and schedule, for fabrication and first article² testing of OAP cell and mount assembly to verify performance and requirement compliance.
 - One of the five vertical OAPs with its cell and mount assembly is selected for prototyping
 - Prototype test shall include a mounted mirror assembly (including cell, mount and interface plate) in order to test design compliance under operational conditions.
 - A metrology bench shall be designed as part of the prototype test setup.

¹ TMT Reviews: Definitions, Guidelines, And Procedures,TMT.SEN.SPE.12.002

² It is highly desirable to be able to redeploy the prototype as an actual OAP mount in NFIRAOS to save cost.

- The metrology bench shall be a shared test facility suitable for optical system tests of NFIRAOS.
 - NRC can provide an Imagine Optic HASO-128 wavefront sensor (WFS), www.imagine-optics.com, and its insulation enclosure for cold testing on-loan to the Contractor for use as part of the metrology bench. The contractor may choose to use the NRC supplied HASO with the bench or supply another WFS given the most cost effective option.
 - Prototype test plan and test report shall be included.
 - The binding fixed-price quote shall require the cost breakdown for labour, materials, freight, quotations from any sub-trades and suppliers confirming time frames and costing for the aforementioned activities.
 - For the optics, NRC-Herzberg will provide the supplier information such as specifications and price quotes collected at Preliminary Design Review and subsequent cost reviews. The Contractor shall include detailed optics cost breakdown in the fixed-price quote along with specific information on their cost and schedule contingency associated with the risks of the optics procurement. This information will allow NRC to access the most cost effective procurement strategy for optics, i.e. Contractor procured vs. NRC supplied, for the NFIRAOS project.
 - The Contractor is required to independently inspect and verify all procured optics.
3. Provide final design documentation set for the subsystem listed according to the Deliverables list in Annex A. Statement of Work.
4. Develop an Order of Magnitude (ROM) price quote, cost and schedule, for the fabrication, integration and verification of the complete subsystem, i.e. six cell and mount assemblies with OAP mirrors, to be delivered to NRC Herzberg, according to the design and interface requirements, with the systems engineering documents and project control documents listed in Annex A. Statement of Work.
- The fabrication cost shall include the cost breakdown for labour, materials, freight, quotations from any sub-trades and suppliers confirming time frames and costing.
 - For the optics, NRC-Herzberg will provide the supplier information such as specifications and price quotes collected at Preliminary Design Review and subsequent cost reviews. The Contractor shall include detailed optics cost breakdown in the fixed-price quote along with specific information on their cost and schedule contingency associated with the risks of the optics procurement. This information will allow NRC to access the most cost effective procurement strategy for optics, i.e. Contractor procured vs. NRC supplied, for the NFIRAOS project.
 - The Contractor is required to independently inspect and verify all procured optics.
1. Subsystems Final Design activities
- a. Develop final design, including documentation of design description and engineering analysis, according to the design documents supplied
 - b. Tabulate compliance matrix according to design and interface requirements and document how the requirements are fully met by the design developed including FMEA, reliability prediction and spare list
 - c. Final design shall include shipping containers, special tools, assembly fixtures and handling jig required for the subsystems.
 - d. Produce fabrication drawings, bill-of-materials with long lead-time items
 - e. Develop fabrication and assembly plan with vendor QA/QC plans that ensure production compliance
 - f. Document maintenance procedures of the proposed design to meet the design life requirement

2. Binding Fixed-Price Quote Development Activities

- a. Develop a binding fixed-price quote, with cost and schedule, for fabrication and first article testing including a mounted mirror assembly (including cell and mount and interface plate) and a metrology bench, the quote should be based on the cost for production and testing including the labour effort to perform systems engineering, project management, and control activities such QA/QC reports, verification & testing plans, reports and documentation to demonstrate full requirement compliance of an OAP cell and mount assembly to verify performance and requirement compliance under operational conditions
- b. Compare and recommend the mirror for the prototype, spherical mirror vs. one of the actual six OAPs, based on risk, cost and schedule considerations.
- c. Include all special tools, assembly fixtures, and handling jigs required
- d. Develop a metrology bench design as part of the prototype test setup, the metrology bench shall be suitable for the optical system test for NFIRAOS integration according to NRC-Herzberg optical alignment and test plan.
- e. The fixed-price quote shall include shipping containers, special tools, assembly fixtures, handling jigs and spare parts required for the subsystems.

3. ROM price quote Development Activities

- a. Develop ROM price quote, with cost and schedule, for the fabrication, integration and verification of the complete subsystems, i.e. six cell and mount assemblies with OPA mirrors, to be delivered to NRC Herzberg, according to the subsystem design developed in Phase 1 and the systems engineering and project control activities required to support production as per documentation listed in Deliverables section.
- b. The ROM price quote shall include cost and schedule, documentation list, shipping containers, special tools, assembly fixtures, handling jigs and spare parts required for the subsystems.

Deliverables:

- Deliverables pertaining to documentation, designs and drawings shall be delivered in English and in a format determined by the NRC Project Authority.
- Telecon kickoff meeting³ with project plan
 - The project plan shall contain sufficient information to define the work breakdown for all engineering, systems engineering and project control tasks required to execute the Phase 1 tasks. Each scheduled task shall contain its associated: Resource assignments; duration; labour, material and procurement costs; predecessor and successor link-logic for the workflow. In addition, key milestones shall be clearly identified in the project plan according to the milestone schedule in the Schedule of Key Activities section.
 - The project plan shall be provided in the native file format of the applicable project management software as well as PDF format.
- Telecon bi-weekly progress meetings with progress report

³ NRC-Herzberg reserves the option to hold the kickoff meeting at the Contractor's site.

- Progress reports shall be available two days prior to the bi-weekly progress meeting. This is a concise summary of the current status of the work in progress according to the project plan including descriptions of the results achieved in the current period and planned work for the next period. In addition, the progress report shall identify unresolved issues and problems which may be technical, programmatic and financial, that could potentially impact the project schedule and budget. The Contractor will further propose corrective actions to mitigate and/or resolve the issues so that the project may advance in a timely manner.
- The progress report shall be in MS Word or PDF format.
- For the first bi-weekly report of each month, up-to-date program information such as % complete, labour cost and procurement expenses shall be available for reporting. This should extend to each scheduled task in the project plan at the progress meeting for the purpose of earned-value calculations by the NRC Project Authority.
- Design description report (OAP cell and mount assemblies and metrology bench)
 - The design description report is a document that outlines the form and function of the final design in context with the subsystem design and interface requirements
 - The report shall include schematic and block diagram to illustrate subsystem decomposition and functionalities.
 - The report shall be in MS Word format.
- Engineering analysis report (OAP cell and mount assemblies and metrology bench)
 - The design analysis report shall contain sufficient engineering information for a technical reader to understand the design assumptions, engineering theories and analytical tool used to realize the design. The report shall state the achieved design margin, e.g. safety factor as well as limitations and uncertainties of the analysis with respect to the design requirements.
 - The design analysis shall be calculated in SI Units and the design analysis report shall be in the native file format of the analytical software as well as PDF format.
- Compliance matrix, verification and test plan (OAP cell and mount assemblies only)
 - Compliance matrix is a tabulated list of all design and interface requirements and the corresponding justifications of how the requirements are fully met by the final design as developed.
 - The verification and test plan documents the test setup and procedures of those requirements that must be tested in order to verify their compliances. Verification and test plan shall outline the timeline of the tests to be performed in the fabrication phase.
 - The verification & test plan shall tabulate the pass-or-fail methodology to verify the design and interface requirements, as supplied by NRC, and outline the proposed equipment and test setup to verified performance. Auxiliary information such as calibration certificates, equipment specifications and accuracy of the test equipment shall be provided.
 - The compliance matrix, and verification and test plan shall be in MS Word or MS Excel file format.
- Downtime prediction document set (OAP cell and mount assemblies only)

- This is a document set including FMEA, reliability prediction, repair time estimate and a list of spare list for all critical components to demonstrate the proposed subsystem meets the required downtime budget.
 - The downtime prediction shall be provided in the native file format of the analytical software as well as PDF format.
- Fabrication drawings, bill-of-materials with long lead-time items identified (cell and mount assemblies including prototype OAP assembly, metrology bench assembly and all OAP optics)
 - This is a document set which supports component and material procurements, and fabrication of the subsystem.
 - This includes the six cell and mount assemblies, prototype setup (with mounted mirror) and metrology bench.
 - The drawing set shall include fabrication information for optical, mechanical, electrical and control systems, metrology bench, shipping containers, special tools, assembly fixtures and handling jigs.
 - The fabrication drawings shall follow established Canadian drawing standard and provided in the native CAD software format as well as PDF format.
 - The bill-of-materials shall be provided in MS Excel format or PDF format.
- Fabrication and assembly plan with vendor QA/QC plans (OAP cell and mount assemblies and metrology bench)
 - This is a document set to outline the Contractor's plan to implement the production of the subsystem and the associated procedures to ensure quality assurance and control.
 - The plan shall be provided in MS Word or PDF format.
- Maintenance procedures (OAP cell and mount assemblies only)
 - This is a document that outlines the inspections and preventive maintenance required to ensure the proposed design meets the design life requirement.
 - The Contractor shall identify all spare/replacement parts required for the design life of the subsystem.
 - The Contractor shall identify all special tools, assembly fixtures and handling jigs for the maintenance process required.
 - The procedure shall be provided in MS Word format.
- Binding Fixed-Price Quote (Prototype OAP cell and mount assembly and metrology bench)
 - The fixed-price quote shall include the cost of supplying: fabrication, schedule estimates, verification and testing plan as well as the corresponding verification test report in order to deliver fully verified subsystems to NRC-Herzberg.
 - The verification & test plan shall tabulate the pass-or-fail methodology to verify the design and interface requirements, as supplied by NRC, and outline the proposed equipment and test setup to verify performance. Ancillary information such as calibration certificates, equipment specifications and accuracy of the test equipment shall also be provided.
 - The verification & test plans shall be provided in MS Word or MS Excel format.

- The fixed-price quote shall contain cost breakdown at the component level such as optics, cell, framework, mechanism, actuator, sensors, switches, cabling and utilities, shipping containers, special tools, assembly fixtures, handling jigs and spare parts etc.
- The fixed-price quote shall include documentation list, shipping containers, special tools, assembly fixtures and handling jigs required for the subsystems
- The fixed-price quote shall identify the cost and schedule contingencies assumed.
- The quote shall be in tabulated in MS Word or MS Excel file format.
- The design verification and test plan must be in MS Word or MS Excel format.
- ROM Price Quote (OAP cell and mount assemblies and an additional metrology bench)
 - The fixed-price quote shall include the cost of supplying: fabrication, schedule estimates, verification and testing plan as well as the corresponding verification test report in order to deliver fully verified subsystems to NRC-Herzberg.
 - The verification & test plan shall tabulate the pass-or-fail methodology to verify the design and interface requirements, as supplied by NRC, and outline the proposed equipment and test setup to verify performance. Ancillary information such as calibration certificates, equipment specifications and accuracy of the test equipment shall also be provided.
 - The verification & test plans shall be provided in MS Word or MS Excel format.
 - The fixed-price quote shall contain cost breakdown at the component level such as optics, cell, framework, mechanism, actuator, sensors, switches, cabling and utilities, shipping containers, special tools, assembly fixtures, handling jigs and spare parts etc.
 - The fixed-price quote shall include documentation list, shipping containers, special tools, assembly fixtures and handling jigs required for the subsystems
 - The fixed-price quote shall identify the cost and schedule contingencies assumed.
 - The fixed-price quote shall contain provision to revise documentation such as assembly plan, drawings and maintenance procedures based on lesson learned from the aforementioned prototype test.
 - The quote shall be in tabulated in MS Word or MS Excel file format.
 - The design verification and test plan must be in MS Word or MS Excel format.

Additional considerations

- The Contractor shall identify cost and design drivers in the design and interface requirements for discussion at the bi-weekly progress meeting as soon as they are discovered in the final design phase.
- Unless explicit written permission is granted, the Contractor design shall adhere to advancing the design developed for the Preliminary Design Review as stated in the design report [AD4] and requirement documents [AD1, AD2, AD3].
- The proposed final design work is the preamble for the fabrication and construction phase of the NFIRAOS subsystem. The Contractor who is selected for this phase and meets the stated performance requirements shall be required to supply the subsystem.
- Closeout meeting

- The purpose of the closeout meeting is for NRC Herzberg to provide feedback to the Contractor for their work and at NRC's discretion to discuss and plan the Phase 2 work including the design changes and documentation revision to move forward to the fabrication phase.

Schedule of Key activities (following Date of Contract Award - Estimated)

a.	Kickoff meeting	2 weeks
b.	Design description report	3 months
c.	Engineering analysis report	3-1/2 months
d.	Compliance matrix and downtime prediction	4 months
e.	Verification and test plans	5 months
f.	Fabrication drawings and bill-of-materials	5 months
g.	Fabrication, assembly, QA/QC plans	5-1/2 months
h.	Maintenance procedures	5-1/2 months
i.	Binding fixed price quote	6 months
j.	ROM price quote	6 months
k.	Closeout meeting	March 31 2015

LIST OF ATTACHMENTS: Non-Disclosure Agreement (ANNEX D) Required

AD1 - TMT.AOS.DRD.11.002.REL01 NFIRAOS OAP (NOAP) Design Requirements Document

The subsystem design requirements document for the Off Axis Paraboloid Subsystems

AD2 - TMT.AOS.ICD.14.006.REL01 Interface Control Document NFIRAOS to OAP Subsystems

The interface requirements for the Off Axis Paraboloid Subsystems.

AD3 - TMT.AOS.SPE.14.002.REL01 NFIRAOS Common Design Standard Document

This document defines the common elements and their design requirements among the NFIRAOS opto-mechanical subsystems to facilitate design, servicing and maintenance.

AD4 - TMT.AOS.PDD.11.005.REL01 NFIRAOS PDUR Book This report documents the NFIRAOS subsystems design at the Preliminary Design Review level.

AD5 - TMT.AOS.DRD.14.017.REL01 NFIRAOS Metrology Bench

This document describes the usage and design requirements of the metrology bench for OAP testing.

LIST OF REFERENCE INFORMATION:

RD1 – NFIRAOS Design Requirements Document, (TMT.AOS.DRD.07.002)

RD2 – NFIRAOS Operations Concept Document (TMT.AOS.CCD.05.001)

RD3 – Preliminary design report and technical documents associated with the subsystem

RD4 – NFIRAOS Optical Alignment Plan (TMT.AOS.TEC.09.053)

RD5 – NFIRAOS AO Testing and Verification Plan (TMT.AOS.TEC.11.069.REL01)

The following additional phases are for **information only**: It is the intent of this project to continue subsequent phases with the successful bidder for Phase 1.

PHASE 2: Prototype Test – fabrication and first article testing of OAP cell & mount assembly

The Contractor shall performance prototype test of one OPA cell and mount assembly with mirror according to the Contractor's binding fixed-price quote.

Estimated expenditure for this Phase is \$141,000.00.

PHASE 3: OAP Subsystems Fabrication, Assembly and Verification

The Contractor shall fabricate and deliver a fully qualified subsystem to NRC-Herzberg. Delivery shall be to the National Research Council of Canada, 5071 West Saanich Road Victoria, British Columbia Canada.

Estimated expenditure for this Phase is \$1,125,000.00.

• **ANNEX A2 – STREAM 2 – BEAMSPLITTER SUBSYSTEM**
PHASE 1: Final design of NFIRAOS Beamsplitter Subsystems

Phase 1 of the work to be performed is the final design of NFIRAOS Beamsplitter Subsystems including three cell assemblies for the science light beamsplitter (BS), engineering BS and visible light laser guide star (LGS) BS and the changer mechanism that switches between the science light BS and engineering BS. The science BS transmits the infrared science light and directs it to the client instruments, and reflects the visible wavefront sensor (WFS) light to the visible light BS in the WFS path. The visible light BS further separates the WFS light into two paths: reflected LGS path for LGS wavefront sensing and transmitted visible natural WFS (VNW) path for natural guide star (NGS) wavefront sensing. The BS changer switches to the engineering BS to facilitate NFIRAOS alignment in the assembly and integration phase.

Specifically, the work includes:

5. Advance the Beamsplitter Subsystems from Preliminary Design Review (PDR) level development to Final Design Review (FDR) level design in context with the Thirty Meter Telescope Project Office (TMTPO) design review level definitions⁴.
 - PDR design has demonstrated a design and defined the outline of associated processes resulting in the subsystem. Major design tasks verified by the review are:
 - Sufficiently detailed design to demonstrate that (i) the design and interface requirements are met and (ii) all significant design choices are made
 - Enabling technologies developed
 - Major risks retired
 - Outline of assembly, integration, and verification (at NRC Herzberg and TMT observatory sites)
 - Long lead time procurement plans
 - Bottom-up fabrication and construction cost estimate
 - Fabrication and construction schedule
 - Schedule and cost of next phase
 - Initial ES&H plan, QA/QC plans, FMEA, Hazard Risk Assessment
 - FDR design development work supplied by Contractor shall demonstrate the detailed subsystem design can be realized as well as the realization processes. Major subsystem design tasks that the contractor is responsible for advancing are:
 - Final, construction/production ready design and work scopes for fabrication and procurements
 - Key technologies industrialized
 - Compliance with requirements and interfaces
 - Vendor QA/QC plans
 - Failure Mode and Effects Analysis (FMEA) and reliability prediction
 - Operations/maintenance procedures
 - Refined fabrication and construction plan, budget and schedule
6. Provide final design documentation set for the subsystem listed according to the Deliverables list in Annex A. Statement of Work.
7. Develop a binding fixed-price quote for the fabrication, integration and verification of the subsystem to be delivered to NRC Herzberg, according to the design and interface requirements, with the systems engineering documents and project control documents listed in Annex A. Statement of Work.

⁴ TMT Reviews: Definitions, Guidelines, And Procedures,TMT.SEN.SPE.12.002

- For the binding fabrication cost, this deliverable shall require the cost breakdown for labour, materials, freight etc., and shall include quotations from any sub-trades and suppliers confirming time frames and costing.
- For the optics, NRC-Herzberg will provide the supplier information such as specifications and price quotes collected at Preliminary Design Review and subsequent cost reviews. The Contractor shall include detailed optics cost breakdown in the fixed-price quote along with specific information on their cost and schedule contingency associated with the performance risks of the optics procurement. This information will allow NRC to access the most cost effective procurement strategy for optics, i.e. Contractor procured vs. NRC supplied, for the NFIRAOS project.
- The Contractor is required to independently inspect and verify all procured optics.

Description of Work:

4. Subsystems Final Design activities
 - a. Develop final design, including documentation of design description and engineering analysis, according to the design documents supplied
 - b. Tabulate compliance matrix according to design and interface requirements and document how the requirements are fully met by the design developed including FMEA, reliability prediction and spare list
 - c. Produce fabrication drawings, bill-of-materials with long lead-time items
 - d. Develop fabrication and assembly plan with vendor QA/QC plans that ensure production compliance
 - e. Document maintenance procedures of the proposed design to meet the design life requirement
5. Binding Fixed-Price Quote Development Activities
 - a. The fixed-price quote development should be based on the cost to advance the final design to the final product and include the labour effort to perform systems engineering, project management and control activities such QA/QC reports, verification & testing plans, and verification & testing reports to demonstrate full requirement compliance.
 - b. The fixed-price quote shall include shipping containers, special tools, assembly fixtures, handling jigs and spare parts required for the subsystems.

Deliverables:

- Deliverables pertaining to documentation, designs and drawings shall be delivered in English and in a format determined by the NRC Project Authority.
- Telecon kickoff meeting⁵ with project plan
 - The Project plan shall contain sufficient information to define the work breakdown for all engineering, systems engineering and project control tasks required to execute the project. Each scheduled task shall contain its associated: resource assignments; duration; labour, material and procurement costs; predecessor and successor link-logic for the workflow. In

⁵ NRC-Herzberg reserves the option to hold the kickoff meeting at the Contractor's site.

- addition, key milestones shall be clearly identified in the project plan according to the milestone schedule in the Schedule of Key Activities section.
- The Project plan shall be provided in the native file format of the applicable project management software as well as in PDF format.
 - Telecon bi-weekly progress meetings with progress reports
 - Progress reports shall be available two days prior to the bi-weekly progress meeting. This is a concise summary of the current status of the work in progress according to the project plan including descriptions of the results achieved in the current period and planned work for the next period. In addition, the progress report shall identify unresolved issues and problems which may be: technical; programmatic and financial, that could potentially impact the project schedule and budget. The Contractor will further propose corrective actions to mitigate and/or resolve the issues so that the project may advance in a timely manner.
 - The progress report shall be in MS Word or PDF format.
 - For the first bi-weekly report of each month, up-to-date program information such as % complete, labour costs and procurement expenses shall be available for reporting. This should extend to each scheduled task in the project plan at the progress meeting for the purpose of earned-value calculations by the NRC Project Authority.
 - Design description report
 - The Design description report is a document that outlines the form and function of the final design in context with the subsystem design and interface requirements
 - The report shall include schematic and block diagrams to illustrate subsystem decomposition and functionalities.
 - The report shall be in MS Word format.
 - Engineering analysis report
 - The Design analysis report shall contain sufficient engineering information for a technical reader to understand the design assumptions, engineering theories and analytical tools used to realize the design. The report shall state the achieved design margin, e.g. safety factor as well as the limitations and uncertainties of the analysis with respect to the design requirements.
 - The design analysis shall be calculated in SI Units and the design analysis report shall be provided in the native file format of the analytical software as well as in PDF format.
 - Compliance matrix, verification and test plan
 - The Compliance matrix is a tabulated list of all design and interface requirements and the corresponding justifications of how the requirements are fully met by the final design as developed.
 - The Verification and test plan documents the test setup and procedures of those requirements that must be tested in order to verify their compliances. Verification and test plan shall outline the timeline of the tests to be performed in the fabrication phase.
 - The compliance matrix, and verification and test plan shall be in MS Word or MS Excel file format.

- Downtime prediction document set
 - This is a document set including FMEA, reliability prediction, repair time estimate and a list of spares for all critical components to demonstrate the proposed subsystem meets the required downtime budget.
 - The downtime prediction shall be provided in the native file format of the analytical software as well as in PDF format.
- Fabrication drawings, bill-of-materials with long lead-time items identified
 - This is a document set which supports component and material procurements, and fabrication of the subsystem.
 - The drawing set shall include fabrication information for optical, mechanical, electrical and control systems, shipping containers, special tools, assembly fixtures and handling jigs.
 - The fabrication drawings shall follow established Canadian drawing standards and provided in the native CAD software format as well as in PDF format.
 - The bill-of-materials shall be provided in MS Excel format or PDF format.
- Fabrication and assembly plan with vendor QA/QC plans
 - This is a document set to outline the contractor's plan to implement the production of the subsystem and the associated procedures to ensure quality assurance and control.
 - The plan shall be provided in MS Word or PDF format.
- Maintenance procedures
 - This is a document that outlines the inspections and preventive maintenance required to ensure the proposed design meets the design life requirement.
 - The Contractor shall identify all spare/replacement parts required for the design life of the subsystem.
 - The Contractor shall identify all special tools, assembly fixtures and handling jigs for the maintenance process required.
 - The procedure shall be provided in MS Word format.
- Binding Fixed-Price Quote
 - The fixed-price quote shall include the cost of supplying: fabrication, schedule estimates, verification and testing plan as well as the corresponding verification test report in order to deliver fully verified subsystems to NRC-Herzberg.
 - The verification & test plan shall tabulate the pass-or-fail methodology to verify the design and interface requirements, as supplied by NRC, and outline the proposed equipment and test setup to verify performance. Ancillary information such as calibration certificates, equipment specifications and accuracy of the test equipment shall also be provided.
 - The verification & test plans shall be provided in MS Word or MS Excel format.
 - The fixed-price quote shall contain cost breakdown at the component level such as optics, cell, framework, mechanism, actuator, sensors, switches, cabling and utilities, shipping containers, special tools, assembly fixtures, handling jigs and spare parts etc.
 - The fixed-price quote shall include documentation list, shipping containers, special tools, assembly fixtures and handling jigs required for the subsystems

- The fixed-price quote shall identify the cost and schedule contingencies assumed.
- The quote shall be in tabulated in MS Word or MS Excel file format.
- The design verification and test plan must be in MS Word or MS Excel format.

Additional considerations

- The Contractor shall identify cost and design drivers in the design and interface requirements for discussion at the bi-weekly progress meeting as soon as they are discovered in the final design phase.
- Unless explicit written permission is granted, the Contractor designs shall adhere to advancing the design developed for the Preliminary Design Review as stated in the design report [AD4] and requirement documents [AD1, AD2, AD3].
- The proposed final design work is the preamble for the fabrication and construction phase of the NFIRAOS subsystem. The Contractor who is selected for this phase and meets the stated performance requirements shall be required to supply the subsystem.

Schedule of key activities (following Date of Contract Award - Estimated)

l.	Kickoff meeting	2 weeks
m.	Design description report	3 months
n.	Engineering analysis report	3-1/2 months
o.	Compliance matrix and downtime prediction	4 months
p.	Verification and test plans	5 months
q.	Fabrication drawings and bill-of-materials	5 months
r.	Fabrication, assembly, QA/QC plans	5-1/2 months
s.	Maintenance procedures	6 months
t.	Binding fixed price quote	March 31 2015

LIST OF ATTACHMENTS: NON-DISCLOSURE AGREEMENT (ANNEX D) REQUIRED

AD1 - TMT.AOS.DRD.14.005.REL01 NFIRAOS Beamsplitter Design Requirements Document
The subsystem design requirements document for the Beamsplitter Subsystems.

AD2 - TMT.AOS.ICD.14.004.REL01 Interface Control Document NFIRAOS to Beamsplitter Subsystems
The interface requirements for the Beamsplitter Subsystems.

AD3 - TMT.AOS.SPE.14.002.REL01 NFIRAOS Common Design Standard Document
This document defines the common elements and their design requirements among the NFIRAOS opto-mechanical subsystems to facilitate servicing and maintenance.

AD4 - TMT.AOS.PDD.11.005.REL01 NFIRAOS PDUR Book
This report documents the NFIRAOS subsystems design at the Preliminary Design Review level.

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

Reference Information Documents

Reference documents contain information complementing, explaining, detailing, or otherwise supporting the information included in the current document.

RD1 – NFIRAOS Design Requirements Document, (TMT.AOS.DRD.07.002)

RD2 – NFIRAOS Operations Concept Document (TMT.AOS.CCD.05.001)

The following additional phase is for **information only**: : It is the intent of this project to continue subsequent phases with the successful bidder for Phase 1.

PHASE 2: Beamsplitter Subsystems Fabrication, Assembly and Verification

The Contractor shall fabricate and deliver a fully qualified subsystem to NRC-Hertzberg according to the work, cost and schedule, outlined the fixed-price quote. Delivery shall be to the National Research Council of Canada, 5071 West Saanich Road Victoria, British Columbia Canada.

Estimated expenditure for this Phase is \$656,000.00.

**ANNEX B - BASIS OF PAYMENT / SCHEDULE OF MILESTONES (Phase 1)
BIDDERS MUST COMPLETE TABLE FOR EACH STREAM FOR WHICH THEY ARE BIDDING**

TABLE B1 - STREAM 1 - OAP

Mile-stone No.	Description	% of total Bid price	Firm Amount CAD\$	Due Date
1	Completion of activities a,b	35%		On or before 3 months following contract award (estimated) or Contractor's best Date of _____.
2	Completion of Activities c, d, e, f Note: NRC is responsible for all costs to travel to Contractor's site to review Contractor's Factory acceptance test results and inspect deliverables	35%		On or before 5 months following contract award (estimated) or Contractor's best Date of _____.
3	Completion of activities: g, h, i, j, k Note: bid price includes Includes all delivery and insurance costs	30%		On or Before March 31 2015 (Mandatory).
Total EVALUATED BID PRICE (GST Extra as applicable) STREAM 1 - OAP				

TABLE B2 – STREAM 2 - BEAMSPLITTER

Mile-stone No.	Description	% of total Bid price	Firm Amount CAD\$	Due Date
1	Completion of activities a,b	35%		On or before 3 months following contract award (estimated) or Contractor's best Date of _____.
2	Completion of Activities c, d, e, f Note: NRC is responsible for all costs to travel to Contractor's site to review Contractor's Factory acceptance test results and inspect deliverables	35%		On or before 5 months following contract award (estimated) or Contractor's best Date of _____.
3	Completion of activities: g, h, i, Note: bid price includes Includes all delivery and insurance costs	30%		On or Before March 31 2015 (Mandatory).
Total EVALUATED BID PRICE (GST Extra as applicable) STREAM 2 - BEAMSPLITTER				

Additional Expenses

i) Travel

Travel for additional services beyond the scope of the tender and requested by NRC, shall be invoiced as per the following.

The Contractor will be reimbursed for the authorized travel and living expenses reasonable and properly incurred in the performance of the work, at cost without any allowance for overhead or profit, in accordance with the meal, private vehicle and incidental expense allowances specified in Appendix B, C, D of the Treasury Board Travel Directive, and with the other provisions of the directive referring to "travellers", rather than those referring to "employees". http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/tbm_113/menu-travel-voyage-eng.asp

All Travel must have the prior authorization of the Project Authority. All Payments are subject to government audit.

ii) Additional Labour

Labour for additional services beyond the scope of the tender and requested by NRC, shall be invoiced as per the following rates:

Project Man \$_____/ hourly

Sen Engineer \$_____/ hourly

Engineer \$_____/ hourly

Technologist \$_____/ hourly

Note: The cost for additional expenses as per i) and ii) above shall **not** be included in the Financial Evaluation.

ANNEX C - Contractor Disclosure of Foreground Information

CONTRACTOR DISCLOSURE OF FOREGROUND INFORMATION

Please refer to **Article 1 - Interpretation of 2040 General Conditions** for the definition of Foreground Information to determine what information must be disclosed.

The Contractor must provide the following information:

1. Contract No.:
2. What is the descriptive title of the FIP (Foreground Intellectual Property)?
3. Abbreviated description of the FIP and, if applicable, of the different systems and subsystems.
4. What is or was the objective of the project?
5. Explain how the FIP meets the objective of the project (for example: the advantage of the new solution, what problem did the FIP resolve or what benefits did the FIP deliver).
6. Under which category(ies) would you best describe the FIP and why: Patents, Inventions, Trade Secrets, Copyright, Industrial Designs, Rights in Integrated Circuit Topography, Know-how, Other?
7. Describe the features or aspects of the FIP that are novel, useful and not obvious.
8. Has the FIP been tested or demonstrated? If yes, please summarise the results.
9. Has any publication or disclosure to others been made? If so, to whom, when, where and how?
10. Provide names and addresses of the inventors.
11. Provide an explicit and detailed description of the FIP developed during the contract (Refer to pertinent section of the technical report, if necessary).

Please specify name and position of person approving / authorizing this disclosure. This person is to sign and date the disclosure.

Signature Date
Name Title

Signature Date

Name Title (Technical authority)

Solicitation No. - N° de l'invitation
31034-149494/A
Client Ref. No. - N° de réf. du client
31034-149492

Amd. No. - N° de la modif.
File No. - N° du dossier
VIC-4-37074

Buyer ID - Id de l'acheteur
vic250
CCC No./N° CCC - FMS No./N° VME

ANNEX D - NON - DISCLOSURE AGREEMENT

I _____, (*Print Name*) recognize that in the course of my work as an employee or

subcontractor of _____, I may be given access to information by or on behalf of Canada in connection with the Work, pursuant to **Solicitation No 31034-149494/A** between Her Majesty the Queen in right of Canada, represented by the Minister of Public Works and Government Services and National Research Council, including any information that is confidential or proprietary to third parties, and information conceived, developed or produced by the Contractor as part of the Work. For the purposes of this agreement, information includes but not limited to: any documents, instructions, guidelines, data, material, advice or any other information whether received orally, in printed form, recorded electronically, or otherwise and whether or not labeled as proprietary or sensitive, that is disclosed to a person or that a person becomes aware of during the performance of the Contract.

I agree that I will not reproduce, copy, use, divulge, release or disclose, in whole or in part, in whatever way or form any information described above to any person other than a person employed by Canada on a need to know basis. I undertake to safeguard the same and take all necessary and appropriate measures, including those set out in any written or oral instructions issued by Canada, to prevent the disclosure of or access to such information in contravention of this agreement.

I also acknowledge that any information provided to the Contractor by or on behalf of Canada must be used solely for the purpose of the Contract and must remain the property of Canada or a third party, as the case may be.

I agree that the obligation of this agreement will survive the completion of the solicitation

No 31034-149492/A and any resultant Contract(s).

Signature

Date

NOTE:

Once the information is in the custody of the identified firm, ALL employees or subcontractors of the identified firm given access to the information **MUST** sign and return a non-disclosure agreement **PRIOR** to release of that information to the individual by the identified firm.

ANNEX E - TECHNICAL EVALUATION CRITERIA

Bidders who do not meet these mandatory criteria will be deemed non-responsive.

Technical Evaluation Criteria is applicable to provide the work required under Phase 1 and may be considered acceptable for subsequent phases.

Substantial Information:

Bidders must demonstrate their compliance with EACH AND EVERY section of the evaluation criteria by providing substantial information describing completely and in detail how the requirement is met or addressed. Bidders must provide with their technical bid, a page reference indicating clearly where the substantial information for each of the sections identified below can be found (*example, fill in right hand column of evaluation tables*)

Mandatory Technical Criteria	Evaluation Scale	Notes:	Page #
<p>1.0 Equipment/Infrastructure</p> <p>Bidders must demonstrate they have a refrigerant supply, appropriate equipment and facilities to complete the design, fabrication and testing * of the elements detailed in the NRC Documents list</p> <p>*Testing at room temperature</p> <p>STREAM 1 – OAP – TMT.AOS.DRD.11.002.REL01 TMT.AOS.ICD.14.006.REL01 TMT.AOS.SPE.14.002.REL01 TMT.AOS.PDD.11.002.REL01 TMT.AOS.DRD.14.017.REL01</p> <p>STREAM 2 – Beamsplitter TMT.AOS.DRD.14.005.REL01 TMT.AOS.ICD.14.004.REL01 TMT.AOS.SPE.14.002.REL01 TMT.AOS.PDD.11.005.REL01</p>	Mandatory	Bidders are to include a comprehensive list of equipment / facilities in their proposal.	
<p>2.0 Equipment/Infrastructure for cold temperature testing</p> <p>Since NFIRAOS operates at -</p>	Mandatory	The bidder's proposal <u>must include</u> a full description of the cold temperature facility, arrangement of usage, availability and logistics of transportation between bidder's own facility and cold test facility.	

<p>30°C and must survive at lower temperature, bidders must show that they have secured access to a cold temperature facility to complete the testing* of the elements detailed in the NRC Documents list</p> <p>*Costs associated with cold testing shall be included in the total proposal price.</p>			
<p>3.0 RESOURCES PROPOSED</p> <p>Provide a list of the key personnel (and CVs) that will be assigned to the project.</p>	<p>Mandatory</p>	<p>The CVs must clearly demonstrate that the proposed resources can perform the requirements called for in the statement of work.</p> <p>Bidders shall include an estimated breakdown of resources proposed.</p> <p>(I.e Project Manager 20% , Senior Engineer 20%, Engineer 40%, technologist 20%)</p> <p>Bidders choosing to submit bids for BOTH streams must demonstrate capacity to support the conduct of the work simultaneously.</p>	

POINT RATED TECHNICAL CRITERIA

Max = maximum number of points; Min = mandatory passing mark; Page # = the page number in your bid that references the required substantiating documentation.

Bidders must obtain the required minimum points for **EACH** criterion with a pass mark. Bids not meeting this criteria will be declared non-responsive and not evaluated further.

Point Rated Technical Criteria	Evaluation Scale	Max	Min	Page #
1.0 Technical Proposal				
<p>1.1 Understanding of the 'Statement of Work' The bidder should demonstrate its understanding of the 'Statement of Work' by providing in its own words a convincing demonstration of its understanding of the context, scope and objectives of the resulting contract. The demonstrated understanding of the context, scope and objectives should be complete and should not be limited to the description of the statement of work.</p> <p>The understanding of the three elements (context, scope and objectives) will be evaluated independently. The score given will be the average of the individual scores for the three elements.</p> <p>Example of calculation : The score of the bidder is as follows : - 15 points for context - 12 points for scope - 6 points for objectives The total score of the bidder is (15+12+6)/3 = 11 points</p>	<p>EXCELLENT – 15 pts VERY GOOD – 12 pts GOOD – 9 pts ACCEPTABLE – 6 pts WEAK – 3 pts INADEQUATE – 0 point</p> <p>Please note that the definition of each element of the evaluation scale is available at the end of this attachment.</p>	15	9	
<p>2.0 Bidder's Experience The bidder should demonstrate its experience by describing past projects (e.g. design, fabrication assembly and testing of large precision opto-mechanical systems that operate at low temperature) which pertains to the following information:</p> <p>a. the topic, the context, the objectives and the scope of the project, b. the project periods (exact month and year of the beginning and exact month and year of the end), c. the exact dates of the involvement of the bidder in the project, d. the role(s) of the bidder in the project (prime contractor, subcontractor, etc.), e. the budget, f. the name of the client , g. the number of resource (equivalent of full-time employee)involved in the project for each year of the project, h. any other relevant information.</p> <p>A project will be considered by the evaluation team only if the bidder demonstrates that the project involved the equivalent of at least one full time employee working on the project for at least one year and meet the related criterion.</p>				
2.1 Bidder's experience in performing projects in a field related to the statement of work.				

<p>2.1.1 Bidder Design Experience Bidder's experience in performing projects in a field related to:</p> <p>STREAM 1 – OAP: <i>The Fabrication, Assembly and Verification of large OAP cell and mount assemblies or equivalents for low temperature applications</i></p> <p>STREAM 2 – Beamsplitter: <i>The Fabrication, Assembly and Verification of large Beamsplitter cells, mounts and changer mechanisms or equivalents</i></p> <p>To be awarded Points in this section, requires a minimum of 2 and up to 3 recent projects, within the last 5 years and at a minimum shall outline the following:</p> <p>At a minimum, examples should outline the mechanical design elements and materials selected, analytical and CAD tools used, describe any relevant load, deflection, seismic or thermal analysis performed corresponding to the overall operating and survival conditions such as temperature, range and rate, earthquake; mechanical stability and repeatability etc.; and or relevant design features applicable to the subsystems</p>	<p>EXCELLENT – 5 pts VERY GOOD – 4 pts GOOD – 3 pts ACCEPTABLE – 3 pts WEAK – 1 pts INADEQUATE – 0 point</p> <p>Please note that the definition of each element of the evaluation scale is available at the end of this attachment.</p> <p>Bidders shall be scored for each example up to a maximum of 3.</p>	15	6	
<p>2.1.1.1 (no minimum score) The dollar value of each project referenced in 2.1.1, shall be stated separately. Points will be calculated based on the total dollar value of the projects (up to a maximum of 3 projects)</p> <p>Example of calculation : The score of the bidder is as follows :</p> <ul style="list-style-type: none"> • >\$300K = 5pts, • \$225K - \$300K = 4pts • \$150K - \$225K = 3pts • \$75K - \$150K = 2pts • \$25K - \$75K = 1pts • <\$25K = 0pts 		5	No min	
<p>2.2.1 Bidder Construction Experience Bidder's experience in performing projects in a field related to:</p> <p>STREAM 1 – OAP: <i>The Fabrication, Assembly and Verification of large OAP cell and mount assemblies or equivalents for low temperature applications</i></p> <p>STREAM 2 – Beamsplitter: <i>The Fabrication, Assembly and Verification of large Beamsplitter</i></p>	<p>EXCELLENT – 5 pts VERY GOOD – 4 pts GOOD – 3 pts ACCEPTABLE – 2 pts WEAK – 1 pts INADEQUATE – 0 point</p> <p>Please note that</p>	15	6	

<p>cells, mounts and changer mechanisms or equivalents</p> <p>To be awarded Points in this section, requires a minimum of 2 and up to a maximum of 3. Project must be recent, i.e. within the last 5 years and at a minimum shall outline the following:</p> <p>At a minimum, examples should demonstrate the materials used; fabrication equipment, fabrication processes and techniques in context with the precision required; testing and metrology equipment; overall QA/QC process, the procedure and precision required in assembly work as well as the end performance, etc.</p>	<p>the definition of each element of the evaluation scale is available at the end of this attachment.</p> <p>Bidders shall be scored for each example up to a maximum of 3.</p>			
<p>2.2.1.1 (no minimum score)</p> <p>The dollar value of each project referenced in 2.2.1, shall be stated separately. Points will be calculated based on the total dollar value of the projects (up to a maximum of 3 projects)</p> <p>Example of calculation :</p> <p>The score of the bidder is as follows :</p> <p>>\$300K = 5pts, \$225K - \$300K = 4pts \$150K - \$225K = 3pts \$75K - \$150K = 2pts \$25K - \$75K = 1pts <\$25K = 0pts</p>		5	No min	
<p>3.0 Management proposal</p>				
<p>3.1 Personnel and task management method</p> <p>The bidder should describe the method and tools to be used to manage its personnel, in terms of contingency management, availability of resources, and work overload in the context completing the work under the contract.</p>				
<p>3.1.1 Management method:</p> <p>The management method described by the bidder should be realistic and take into account each of the following elements: contingency management, availability of proposed resources, work overload, and the potential unpredictable context specific to research and development contracts.</p>	<p>EXCELLENT – 8 pts VERY GOOD – 6 pts GOOD – 4 pts ACCEPTABLE – 2 pts WEAK – 1 pt INADEQUATE – 0 Pt</p> <p>Please note that the definition of each element of the evaluation scale is available at the end of this</p>	8	4	

	attachment.			
3.1.2 Tools used: The bidder should describe the planning and control tools that will be used to enable an efficient management methodology.	EXCELLENT – 8 pts VERY GOOD – 6 pts GOOD – 4 pts ACCEPTABLE – 2 pts WEAK – 1 pt INADEQUATE – 0 Pt Please note that the definition of each element of the evaluation scale is available at the end of this attachment.	8	2	
3.2 Work plan and schedule development method The bidder should describe its proposed work plan and schedule development method and demonstrate its effectiveness.				
3.2.1 Work plan and schedule development method The bidder should describe its proposed work plan and schedule development method. The bidder should describe how its work plan and schedule development method take into account the risk elements of the project and the unpredictable nature of a research and development contract.	EXCELLENT – 8 pts VERY GOOD – 6 pts GOOD – 4 pts ACCEPTABLE – 2 pts WEAK – 1 pt INADEQUATE – 0 pt Please note that the definition of each element of the evaluation scale is available at the end of this attachment.	8	2	
3.2.2 Demonstration of Effectiveness: The bidder should clearly demonstrate that its work plan and schedule development method has been successfully applied and tested in previous projects. To be awarded Points in this section, requires a minimum of 1 project and up to a maximum of 2. Project must be recent, i.e. within the last 5 years	EXCELLENT – 4 pts VERY GOOD – 3 pts GOOD – 2 pts ACCEPTABLE – 1 pts WEAK – 0 pt INADEQUATE – 0 pt Please note that	8	4	

	<p>the definition of each element of the evaluation scale is available at the end of this attachment.</p> <p>Bidders shall be scored for each example up to a maximum of 2.</p>			
<p>3.3 Quality control Process and Workflow management method. The bidder should describe its management method for overseeing the progress of the work and compliance with deadlines. It should also describe its quality control process and the tools to be used to ensure that deliverables meet requirements. Furthermore, it should demonstrate clearly and beyond a reasonable doubt that this method has been tested and shown to be effective in previous projects.</p>				
<p>3.3.2 Quality control process: The bidder should describe its quality control process that should at least include:</p> <ol style="list-style-type: none"> 1. Verification and validation of work performed 2. Validation of compliance with the client's requirements 3. Identification of future elements requiring improvement <p>The bidder should clearly demonstrate that quality control process have been successfully applied and tested in previous projects.</p>	<p>EXCELLENT – 8 pts VERY GOOD – 6 pts GOOD – 4 pts ACCEPTABLE – 2 pts WEAK – 1 pt INADEQUATE – 0 pt</p> <p>Please note that the definition of each element of the evaluation scale is available at the end of this attachment.</p>	8	4	
<p>1. Packaging for Shipping Methodology Bidder should demonstrate methodology to ensure large heavy fragile opto-mechanical components can be assembled and handled safely during fabrication and assembly, and with adequate packaging / crating to protect the contents from damage in the course of handling/shipping. Bidder should include examples of special tools, assembly fixtures, handling jigs, packaging/crating design used in previous projects and should include photos of examples packaging/crating used in previous shipments.</p>	<p>EXCELLENT – 8 pts VERY GOOD – 6 pts GOOD – 4 pts ACCEPTABLE – 2 pts WEAK – 1 pt INADEQUATE – 0 pt</p> <p>Please note that the definition of each element of the evaluation</p>	8	4	

	scale is available at the end of this attachment.			
--	---	--	--	--

Evaluation grid for qualitative criteria

INADEQUATE	WEAK	ACCEPTABLE	GOOD	VERY GOOD	EXCELLENT
Did not submit information which could be evaluated or inadequate information submitted.	Lacks complete or almost complete understanding of the requirements.	Has some understanding of the requirements.	Demonstrates a good understanding of the requirements.	Demonstrates a very good understanding of the requirements.	Demonstrates expert understanding of the requirements
.....	Weaknesses cannot be corrected or doubtful that weaknesses can be corrected.	Generally, there is a good chance that weaknesses can be easily corrected.	Weaknesses can be easily corrected.	No significant weaknesses.	No apparent weaknesses
.....	Poor; insufficient to meet performance requirements or little capability to meet performance requirements.	Minimum acceptable capability, should meet minimum performance.	Satisfactory capability, should ensure effective results.	Very satisfactory capability, should ensure very effective results.	Superior capability, should ensure superior results