



RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Réception des soumissions - TPSGC / Bid Receiving
- PWGSC
1550, Avenue d'Estimauville
1550, D'Estimauville Avenue
Québec
Québec
G1J 0C7

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 Hull monitoring sytem	
Solicitation No. - N° de l'invitation F3017-18N001/A	Date 2018-08-10
Client Reference No. - N° de référence du client F3017-18N001	
GETS Reference No. - N° de référence de SEAG PW-\$QCL-041-17457	
File No. - N° de dossier QCL-7-40281 (041)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2018-09-24	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Deblois, Vincent	Buyer Id - Id de l'acheteur qcl041
Telephone No. - N° de téléphone (418) 649-2712 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: MINISTERE DES PECHEES ET DES OCEANS NGCC DES GROSEILLIERS 101 BOUL.CHAMPLAIN QUEBEC Québec G1K7Y7 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
TPSGC/PWGSC
601-1550, Avenue d'Estimauville
Québec
Québec
G1J 0C7

Delivery Required - Livraison exigée Voir doc	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

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Hull structural monitoring system for use onboard medium Canadian Coast Guard icebreakers.

PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement applicable to the Contract.

1.2 Introduction

The bid solicitation and resulting contract document is divided into seven parts plus 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 and states that the Bidder agrees to be bound by the clauses and conditions contained in all parts of 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, if applicable, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Requirement, the Basis of Payment and other annexes.

The Annexes include the Statement of Requirement, the evaluation criteria, the basis of payment, the list of individual who are currently directors and or owner of the bidder, the technical specifications (drawings) and other annexes.

1.3 Requirement

To provide the Canadian Coast Guard (CCG) with one (1) hull structural monitoring system for use onboard one medium icebreakers and also the option to acquire two (2) separate systems for two (2) other ships.

The system must measure global hull girder stresses, compare these to established (values to be supplied by CCG) safe levels and provide warnings if these levels are exceeded.

Detection of slamming using accelerometer(s) is required and will be used with strain gauge information to provide on-board guidance of the loading of the hull.

The system must provide a continuous recording and analysis of data is required and will be used to establish loading profiles and fatigue life predictions and may be used to improve practices and life assessments.

Hence, the deliverable consist of:

- a) The supply all material, equipment and programming necessary for the full installation of a Hull structural monitoring system as specified at Annex A.
- b) All material has to be delivered as stated in the present Request For Proposal (RFP) for the selected ship. The first ship subject to the installation of the system is intended to be CCGS DesGroseilliers in refit up to December 2018.
- c) The commissioning of the Hull structural monitoring system onboard the selected ship.
- d) The Dock trials of the Hull structural monitoring system onboard the selected ship.
- e) The see trials of the Hull structural monitoring system onboard the selected.
- f) The training needed to operate the Hull structural monitoring system installed onboard the selected ship.

Optional:

The installation of the system by the supplier will be on optional bases. The Canadian Coast Guard may request the installation to be performed by the supplier of the system or may decide that the installation would be performed by a third party.

See the Statement of Requirement (SoR) at Annex A for details.

1.4 Debriefings

Bidders may request a debriefing on the results of the bid solicitation. Bidders should make the request to the Contracting Authority within **fifteen (15)** working days of receipt of notification that their bid was unsuccessful. The debriefing may be provided in writing, by telephone or in person.

1.5 Trade Agreements

If the material is supplied but not installed by the winning bidder of this Request For Proposal (RFP):

The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA), the Canadian Free Trade Agreement (CFTA), the Chili, the Columbia, the Honduras, the Korean Free Trade Agreement, the Panama, the Peru and Ukraine Free Trade Agreement.

If the material is supplied and installed by the winning bidder of this Request For Proposal (RFP):

The requirement is subject to the Canadian Free Trade Agreement (CFTA) only.

1.6 epost Connect service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<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](#) (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated in the bid solicitation, i.e.:

2.2.1 By using the epost Connect service provided by Canada Post Corporation (https://www.canadapost.ca/web/en/products/details.page?article=epost_connect_send_a) The email address of PWGSC Quebec region Bid Receiving Unit is: TPSGC.RQReceptionSoumissionsQRSupplyTendersReception.PWGSC@tpsgcpwgsc.gc.ca

NOTE THAT YOU SHOULD NOT SEND YOUR OFFERS DIRECTLY TO THIS EMAIL ADDRESS, BUT PROCEED THROUGH CANADA POST EPOST CONNECT SERVICE.

2.2.2 Tenders can also be transmitted by fax to 418-648-2209.

2.2.3 By mail or in person at:
Public Works and Government Services Canada (PWGSC)
1550, Avenue of Estimaerville
Quebec City, Quebec G1J 0C7

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to Vincent.deblois@tpsgc-pwgsc.gc.ca, the Contracting Authority no later than **(7) calendar days** before the bid closing date. Enquiries received after that time may not be answered.

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

2.4 Applicable Laws

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

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

2.5 Bidders' Conference (Not mandatory)

No bidder's conferences intended for this project

2.6 Viewing - Vessel (Not mandatory)

No bidder's conferences intended for this project

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. Bidders must provide their bid in a single transmission. The epost Connect service has the capacity to receive multiple documents, up to 1GB per individual attachment.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid
Section II: Financial Bid
Section III: Certifications
Section IV: Additional Information

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid one (1) hard copy.
Section II: Financial Bid one (1) hard copy.
Section III: Certifications one (1) hard copy.
Section IV: Additional Information one (1) hard copy.

If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

If there is a discrepancy between the wording of the soft copy on electronic media 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 hard copy of their bid:

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). To assist Canada in reaching its objectives, bidders should:

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

Section I: Technical Bid

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

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

3.2 Certifications

Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

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

4.1.1 Technical Evaluation - Mandatory Technical Criteria at bids opening:

The bidder must clearly demonstrate with his proposal, he meets and complies with the requirement.

- 4.1.1.1 Demonstrate that it has 5 or more years of expertise in the field of fiber optic systems for Structural Hull Monitoring Systems.
- 4.1.1.2 Demonstrate that the bidder installed 3 systems over the last 5 years. Provide references that will confirm the installation. Installation meaning any system supervising deflection of Hull supervision.
- 4.1.1.3 Demonstrate that the hull monitoring system comply with the requirements of at least one classification society. The classification societies are to be limited to Recognized Organizations by Transports Canada.
- 4.1.1.4 Demonstrate that the sensors are to be approved or have type approval.
- 4.1.1.5 Demonstrate the processing units are certified.

4.1.2 Mandatory Requirements

Bids will be assessed in accordance with the entire requirement of the bid solicitation including compliance with the mandatory certifications and table of deliverable requirements as detailed in Parts 2, 4, 5 and 6. Only those bids which are found to meet all the mandatory requirements within the specified time frames will be deemed responsive.

4.1.3 Table of Mandatory Requirements to be met by bid closing

Notwithstanding deliverable requirements specified anywhere else within this solicitation and its associated Technical Specification, the following are the only mandatory deliverables that must be submitted with the Bid at the time of bid closing. The following are mandatory and the Bidder must be compliant on each item to be considered responsive.

Item	Description	Completed and attached
1	Completed Financial Bid presentation Sheet in compliance with Annex "B" Deliverables and basis of payment;	
2	Completed Technical presentation sheet in compliance with Annex "C" - Evaluation criteria – Table 1;	

4.1.4 Other information upon request only

The following information, which supports the bid, may be requested by the Contracting Authority from the bidder and it must be provided within **two (2)** working days of the written request:

Item	Description	Completed and attached	To be forwarded if requested by the CA
1	Certification "Type Approval" or other certification recognized by Transports Canada, as per article 1 of Part 6		Prior to contract award
2	ISO Registration Certificate or Quality Assurance Documentation, as per article 2 of Part 6		Prior to contract award
3	Work Schedule, as per article 4.1 of Part 7		Prior to contract award
4	Sub-contract and Sub-contractor List , as per clause 7.15 of Part 7		Prior to contract award

4.2 Financial Evaluation

Evaluation of Price - Bid (2014-06-26) A0220T - Bid:

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

Unless the bid solicitation specifically requires bids to be submitted in Canadian currency, bids submitted in foreign currency will be converted to Canadian currency for evaluation purposes. The rate given by the Bank of Canada in effect on the bid solicitation closing date, or on another date specified in the bid solicitation, will be applied as a conversion factor to the bids submitted in foreign currency.

Notice: The resulting contract will be award in CDN dollars.

4.2 Basis of Selection (2007-05-25) A0069T – Mandatory technical criteria's

A bid must comply with the requirements of the bid solicitation to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

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

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

5.1 Certifications Required with the Bid

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

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

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

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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.

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qc1041
CCC No./N° CCC - FMS No./N° VME

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

6.1 Certification "Type Approval" or other certification recognized by Transpots Canada

The Contractor must, before contract award, provide certificates from a classification society recognized by Transpots Canada, with drawings and other technical documentation.

6.2 ISO 9001:2008 - Quality Management Systems

Upon written request from the Contracting Authority, the Bidder must provide its current ISO Registration Documentation indicating its registration to ISO 9001:2008.

Documentation and procedures of bidders not registered to the ISO standards may be subject to a Quality System Evaluation (QSE) by the Inspection Authority before award of a contract.

PART 7 - RESULTING CONTRACT CLAUSES

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

7.1 Security Requirements

There is no security requirement applicable to this Contract.

7.2 Requirement

To provide the Canadian Coast Guard (CCG) with one (1) hull structural monitoring system for use onboard one medium icebreakers and also the option to acquire two (2) separate systems for two (2) other ships.

The system must measure global hull girder stresses, compare these to established (values to be supplied by CCG) safe levels and provide warnings if these levels are exceeded.

Detection of slamming using accelerometer(s) is required and will be used with strain gauge information to provide on-board guidance of the loading of the hull.

The system must provide a continuous recording and analysis of data is required and will be used to establish loading profiles and fatigue life predictions and may be used to improve practices and life assessments.

Hence, the deliverable consist of:

- a) The supply all material, equipment and programming necessary for the full installation of a Hull structural monitoring system as specified at Annex A.
- b) All material has to be delivered as stated in the present Request For Proposal (RFP) for the selected ship. The first ship subject to the installation of the system is intended to be CCGS DesGroseilliers in refit up to December 2018.
- c) The commissioning of the Hull structural monitoring system onboard the selected ship.
- d) The Dock trials of the Hull structural monitoring system onboard the selected ship.
- e) The see trials of the Hull structural monitoring system onboard the selected.
- f) The training needed to operate the Hull structural monitoring system installed onboard the selected ship.

Optional:

The installation of the system by the supplier will be on optional bases. The Canadian Coast Guard may request the installation to be performed by the Contractor or may decide that the installation would be performed by a third party.

See the Statement of Requirement (SoR) at Annex A for details.

7.3 Standard Clauses and Conditions

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

7.3.1 General Conditions

[General Conditions - Higher Complexity - Goods \(2018-06-21\) 2030](#) apply to and form part of the Contract.

7.3.2 Supplemental General Conditions

The supplemental general conditions

- [Ship Repairs \(2010-08-16\) 1029](#)
- 4001 (2015-04-01) Hardware Purchase, Lease and Maintenance
- 4003 (2010-08-16) Licensed Software
- 4004 (2013-04-25) Maintenance and Support Services for Licensed Software

apply to and form part of the Contract.

7.4 Term of Contract

The contract period is from the date of the contract award until the end of the warranty period, inclusively.

7.4.1 Delivery Date A0011T

All the deliverables must be received at the latest on October 30th, 2018.

1. The Contractor must provide a detailed project schedule in *Gantt chart or detailed bar chart* format to the Contracting Authority and the *Technical* Authority three (3) weeks after award of Contract. This schedule must highlight the specific dates for the events listed below and all items listed in Annex C.
2. The Contractor's schedule must include target dates for each of the following significant events:

Activité	year/month/day
Delivery of all documentation describing the results of any Factory Acceptance testing for approval	
Delivery of a complete standalone hull structural monitoring system	
Delivery of the all ancillary equipment, all technical drawings, manuals and technical reports	
Time required for installation of one Hull monitoring system	_____ working days

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7.4.2 Delivery Date, Optional deliverables

All optional deliverables must be received within 4 months following the application of the options.

7.4.3 Delivery Points

Delivery of the requirement will be made to delivery point specified on the first page of the Contract.

7.4.4 Optional Goods and/or Services (2007-11-30) A0070C

The Contractor grants to Canada the irrevocable option to acquire the goods, services or both described at Annex A of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option at any time before the expiry of the Contract by sending a written notice to the Contractor.

7.5. Authorities

7.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Mathieu Gagnon
Supply Leader (marine)
Public Works and Government Services Canada
Eastern Quebec Directorate
Marine Section

Represented by:

Vincent DeBlois
Supply Specialist
Telephone: 418-649-2712
Facsimile: 418-648-2209
E-mail address: vincent.deblois@pwgsc-tpsgc.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.

7.5.2 Technical Authority

The Technical Authority for the Contract is:

Name will be determined at Contract award

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

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.

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qc1041
CCC No./N° CCC - FMS No./N° VME

7.5.3 Technical Representative

The Technical Representative for the Contract is:

Name will be determined at Contract award

Telephone: _____

Facsimile: _____

E-mail address: _____

The Technical Representative 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.

7.5.4 Inspection Authority/Inspector

The Inspection Authority for the Contract is:

See section 5.2

The Inspection Authority is the Department of Public Works and Government Services Canada, who for the purposes of this requirement is the inspector responsible for inspection of the work and acceptance of the finished work under this requirement. The Inspection Authority will be represented on-site by a designated inspector and such other Government of Canada inspectors who will from time to time be assigned in support of the designated Inspector.

7.5.5 Contractor's representative

The Technical Authority for the Contract is:

Name will be determined at Contract award

Name: _____

Title: _____

Telephone: _____

Facsimile: _____

E-mail address: _____

7.6 [Proactive Disclosure of Contracts with Former Public Servants \(2013-03-21\) A3025C](#)

7.7 Payment – C0211C

7.7.1 Basis of Payment

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

7.7.2 [Limitation of price \(2017-08-17\) C6000C:](#)

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

7.7.3 **Travel and Living Expenses**

The Contractor will be reimbursed for the authorized travel and living expenses reasonably 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 Appendices B, C and D of the [Treasury Board Travel Directive](#), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority of the Call-Up.

All payments are subject to government audit.

7.7.4 **Terms of payment** [Multiple Payments \(2008-05-12\) H1001C](#)

Canada will pay the Contractor upon completion and delivery of units in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

7.7.5 **Electronic Payment of Invoices – Contract**

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);

7.8 **Invoicing Instructions (2008-12-12) H5001C**

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

Each invoice must be supported by:

- a. a copy of time sheets to support the time claimed;
- b. a copy of the release document and any other documents as specified in the Contract;
- c. a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses;
- d. a copy of the monthly progress report.

2. Invoices must be distributed as follows:
- a. The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
OR
 - a. The original and one (1) copy must be forwarded to the following address for certification and payment.
_____ (*Insert the name of the organization*)
_____ (*Insert the address of the organization*)
 - b. One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.
 - c. one (1) copy must be forwarded to the consignee.

7.9 Certifications and Additional Information

7.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

7.10 Applicable Laws

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

7.11 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 supplementary general conditions [Ship Repairs \(2010-08-16\) 1029](#) ;
- (c) the supplementary general conditions [Hardware Purchase, Lease and Maintenance \(2015-04-01\) 4001](#)
- (d) the [General Conditions - Higher Complexity - Goods \(2018-06-21\) 2030](#) ;
- (e) Annex A, Requirement;
- (f) Annex B Basis of payment;
- (g) the Contractor's bid dated _____ , as clarified on _____ " **or** ", as amended on _____ "

7.12 Inspection and Acceptance

The Technical Authority is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements of the Statement of Work and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

Solicitation No. - N° de l'invitation
F3017-18N001/A
Client Ref. No. - N° de réf. du client
F3017-18N001

Amd. No. - N° de la modif.
File No. - N° du dossier
QCW-7-40281

Buyer ID - Id de l'acheteur
qc1041
CCC No./N° CCC - FMS No./N° VME

ANNEX "A"

STATEMENT OF REQUIREMENT

Hull Structural Monitoring System (HSMS) for Canadian Coast Guard Icebreaker

To provide the Canadian Coast Guard with one (1) Hull Structural Monitoring System for use onboard one of its medium icebreakers to monitor global hull response.

General Particulars of the first ship subject to this installation.

Name: CCGS Des Groseilliers
Type: Type 1200 Medium Icebreaker
Ice class: Lloyd's Register 100A1 Ice Class 1A Super LMC
Arctic Shipping Pollution Prevention Regulations
Arctic class: 4
Year built: 1982
Class of voyage: Unlimited - more than 200nm
Builder: Port Weller Dockyards, St-Catherines, (On)

Main dimensions:

Overall length: 90.22 m
Moulded breadth: 19.51 m
Draft (full load): 9.6 m
Gross tonnage: 6 097.8 gross tons,
Net tonnage : 1799.88 gross tons

Propulsion system:

Six ALCO 251F, V16 cylinder diesel engines, 2200 kW each.
Two DC electric propulsion motors, 5073 kW each

REQUIREMENT

CCG has a requirement for a structural monitoring system to monitor hull girder bending stresses for a vessel. The system will be used to measure global hull girder stresses, compare these to established (values to be supplied by CCG) safe levels and provide warnings if these levels are exceeded.

Detection of slamming using accelerometer(s) is required and will be used with strain gauge information to provide on-board guidance of the loading of the hull.

Continuous recording and analysis of data is required and will be used to establish loading profiles and fatigue life predictions and may be used to improve practices and life assessments.

SPECIFICATIONS

1.0 Scope:

The system must include a Hull Structural Monitoring System (HSMS) which consist of strain and accelerometer sensors, analyzer and processing unit, display, software, complete signal cabling, power supply cabling and manuals.

- The system must meet all of the Technical Requirements identified in section 2.0.
- Installation and commissioning support identified in section 2.0 must be provided to the Technical Authority (TA).
- The product Support in accordance with section 3.0 must be provided to the TA.
- The ancillary equipment that meets the requirements identified in section 4.0 must be provided to the TA.
- The maintenance guidelines and spares that meet the requirements identified in section 5.0 must be provided to the TA.

1.1 General Terms and technical requirements:

- a. All components as well as the software support of the Hull Structural Monitoring System (HSMS) proposed must be commercially available.
- b. The preliminary engineering details must be provided one month at the latest after contract award.
- c. CCG will supply finite element analysis and calculations to support installation and programming of the system by the Contractor.
- d. The deliverable must include final installation and commissioning services. This is anticipated to occur from July to December 2018.

2.0 Technical Requirements of the System and Support for Installation and commissioning:

2.1 General System Features:

- a. System must be a complete standalone hull structural monitoring system.
- b. System must utilize a minimum of 4 fiber optic short base strain gauges. Location to be finalized and approved by the TA. However it is anticipated that 3 will be located starboard side (1/4L, 1/2L and 3/4 L) and 1 at mid ship portside. Final positions intended for monitoring global stresses. The number of gauges must be in a sufficient quantity to determine and monitor hull girder response.
- c. The contractor must include a unit price for the strain gauges. Will be incorporated in the call for tender
- d. The system must utilize fiber optic accelerometer
- e. The system must be provided with all necessary junction boxes and fiber optic cabling including all connectors
- f. The system must include signal receiver and analyzer
- g. The system must include processing computer, mouse, keyboard, video display and software complete with cabling and mounting kits in the control room that will support all technical requirements of this statement of work.
- h. The system must include copy of backup system software on discs.
- i. The system must include hardcopies of manuals and drawings in English and French
- j. The system must include Uninterruptible power supply as seen in item 4.1.
- k. The system must include interface to GPS and Gyro

2.2 Data, Analysis and Interpretation

- a. Hull Monitoring system shall provide real time data on stresses that the ship is experiencing including guidance of loading information and trends to warn of extreme loading events so that risk of structural overload may be avoided.
- b. Basic system shall measure hull girder stresses and compare them with previously established reference levels (values provided by CCG within 4 weeks following the confirmation of the contract). System shall also provide visual and audio indication in case of extreme loading events. (Audio shall be able to be silenced). The stored data shall be capable of being analyzed to obtain in-service information of the fatigue loads to which the ship is exposed.

- c. The system must provide data for analysis of long term fatigue loads to which the ship is exposed. The system must provide indication of the accumulative damage effects of cyclic loading on the structure.
- d. Measurements are to be displayed on a user interface to show statistical calculation graphs including threshold values. An accelerometer is to be installed in the bow region in order to evaluate bow slamming. This accelerometer is to be used with the strain gauges to provide information of the loading of the hull and to warn if corrective action is required. The loading condition and strain information of the structure to which the gauges are to be attached shall be provided by CCG within 10 weeks of contract award, with input from Contractor. This information shall be used by the Contractor to calibrate their supplied system.
- e. The finite element analysis to identify/ justify placement of the strain gauges will be conducted by CCG with input and recommendations by the Contractor. Based on the vessel's structural configuration, The objective it is to obtain an optimum gauge layout to measure the highest strains directly. The input from the Contractor is expected to support the effort of the Finite Element Analysis (FEA) team to locate the gauges in strategic locations which will lead to overall structural deflections and in turn this can be used to predict stress concentrations elsewhere.
- f. Final location of the deck sensors and the appropriate warning levels will be established based on recommendations by the Contractor subject to CCG approval.
- g. Requested Data to include to the deliverable: warnings and trend predictions for statistical parameters of all sensor measurements, minimal and maximal values, mean value, standard deviation, maximal peak to trough value, mean zero crossing period, number of reversals, number of slams, peak histogram
- h. Slam warning is to be indicated. Slam event history must be recorded.
- i. The Fatigue Analysis must be part of the deliverable - Stress Range and numbers of cycles must be recorded. Hull girder fatigue indication shall be presented onboard. Hull girder fatigue calculations are to be based on the assumed lifetime loading profile and cross sectional properties of the hull girder. The Palmgren-Miner linear damage hypothesis is to be used with S-N (Stress range – No of Cycles) curves for welded structures to establish fatigue life for each hull girder section. The FEA will be used to infer stresses at these locations based on those monitored by strain gauges. Afterwards, structural hot spots identified by the FEA will be identified and used onboard to help maintain and inspect the ship.

2.3 Strain Gauges:

- a. Fiber optic type
- b. Thermal strains must be identified and eliminated from measurements. Temperature compensation for strain gauges must be provided.
- c. Compensation Temperature range: -20 to +60 C
- d. Set up of sensors shall be conducted at a known loading condition with temperature effects minimalized.
- e. Fatigue limit: >1 million cycles
- f. Accuracy: smaller than 20 μ strain and 3% of measured value
- g. Frequency: 0 – 5 Hz
- h. Minimal quantity: 4

2.4 Accelerometer(s):

- a. Fiber optic type
- b. Accuracy: smaller than the greater of 0.01 g or 2% of measured value
- c. Frequency Range : 0 – 100 Hz,
- d. Minimal quantity: 1

2.5 Interfaces:

- a. System must include interfacing with GPS via RS-422/485 serial bus in the NMEA 0183 protocol or Modbus Slave must be included. The system must also be able to operate without the GPS or heading interface.
- b. System to be configured to allow Ethernet connection to ships network.
- c. The following NMEA0183 devices are to be supported for interface:
 - GPS (sentence details - \$GPRMC)
 - Heading (sentence details - \$HEHDT)
- d. The system shall be capable of expandability to add up to 3 additional strain gauges and output from an Inertial Motion Unit.

2.6 Data Management, Format and Storage:

- a. Format -Recorded data shall be provided in (or easily converted to) a text format and self-explanatory.
- b. System must have central recorder for all data storage.
- c. System must have sufficient storage for recording one (1) year minimum of processed data, at intervals not greater than 15 minutes must be provided.
- d. System must have capacity for continuous raw data storage for one week, without interruption.
- e. System must provide for capturing of time history records for short periods surrounding events that exceed predetermined threshold levels must be incorporated

and able to be set by operator. This Raw data is additional to that noted at paragraph d.

- f. System must provide for all collected, stored and analyzed data shall be transferable by USB.

2.7 Installation and Commissioning:

- a. The deliverable must comprise the documentation describing the results of any Factory Acceptance testing that was conducted prior to the shipment of the system. These tests will also be approved by the Technical Authority of the Canadian Coast Guard.
- b. The deliverable must comprise the on-site installation support services. This on-site support shall consist of at least 1 field support engineer from the time installation starts until final acceptance by the TA after the system is considered by the TA fully operational.
- c. Engineering services to mount sensors must be include in the deliverable, terminate all cables, and connect components. System startup and serial interface tests are to be included.
- d. The contractor will be responsible for all aspects of the installation including; all watertight penetrations, junction boxes, main cabling, cable supports and other mechanical work (grinding, coating, installation of racks, etc). Scaffolding and heating if necessary will be responsibility of the contractor.
- e. The deliverable must comprise the system start up and calibration.
- f. The deliverable must comprise the technical drawings, manuals and reports to clearly identify all necessary input/output interfaces to the ship and its systems. These items must be supplied within 4 weeks of contract award.
- g. The contractor must comprise all the engineering details to allow the system's installation and integration onboard.
- h. CCG to provide relevant hull data for input into system including bending moment limits, hull section inertia, within 4 weeks of contract award.
- i. Testing:**
 - (1) The processing functions of the HSMS shall be tested as per manufacturer's standard factory acceptance testing procedures. Results shall be provided to the Technical Authority for approval.
 - (2) The operation of the HSMS is to be verified upon installation to ensure that the value of the stress as defined is compatible with the calculated value for the loading condition.
 - (3) Examination of the recorded data for compliance with the requirements.

2.8 Software/Computer

- a. The HSMS must be supplied with software to support a computer-controlled interface for the acquisition and display of data.
- b. The system must be supplied with computer hardware to operate the system.
- c. The system must provide means of networking with a computer subsystem and ancillary equipment via Ethernet connection and serial/parallel port.
- d. The deliverable must comprise to a minimum of five year subscription for all software licenses necessary to operate and maintain the system.

2.9 Processing:

- a. The deliverable must comprise the a processing personal computer, marinized type, with the processing software installed. A 19" video display including mouse, keyboard for desktop mount shall be included. Mounting kits must be provided.
- b. Windows operating system or Linux OS are acceptable.
- c. The deliverable must comprise the supply data analysis software for use onshore for further data analysis, running Microsoft WINDOWS XP or more recent. This analysis shall be undertaken directly by CCG personnel.
- d. Export of data must be capable through USB memory/sticks

3.0 Product Support

- a. The services must include technical support via telephone and/or email, within 72 hours of a request, to provide responses to routine technical questions.
- b. The deliverable must comprise the all product manuals at time of delivery in English and French must be provided (PDF format is preferred).
- c. Recommended sparing kits ranging from a minimum recommended list to a maximum recommended) must be provided.
- d. The system electrical interconnection drawings must be provided.
- e. The system general arrangement drawings must be provided.
- f. The engineering and installation manuals for all equipment must be provided.
- g. The detailed operator's manual describing the system equipment, setup and commissioning, test values and results shall be included must be provided. All functional controls, human interfaces and displays shall be fully described with actual images of the installed system. Identification of faults including repairs to be included. Maintenance and function testing including interpretation of measuring results is to show how components and systems are to be tested and what is to be observed during the tests.

4.0 Ancillary Equipment Supply

4.1 Uninterruptible Power Supply (UPS)

- a. A UPS sufficient to power their supplied equipment must be provided. UPS shall be capable of maintaining the system for not less than 30 minutes in the event of a ship's power failure (comes with mounting frame)
- b. Available power onboard is 120 VAC 60 Hz.

4.2 Fibre optic cable

- a. Cable must be (LSZH) low smoke, zero halogen, multi lead, fiber-optic cable, steel wire amour braided.

5.0 Maintenance and Spares:

- a. The deliverable must include recommended maintenance procedures, frequency and sparing parts for five (5) year cycle in English and French must be provided.

ANNEX B
Deliverables and basis of payment

A) KNOWN SCHEDULED WORK

ITEM	Description of deliverables:	Quantity	Unit of issue	Unit price firm price – Ship 1	Unit price firm price – Ship 2	Unit price firm price – Ship 3
1	<p>Delivery of all documentation describing the results of any Factory Acceptance testing for approval by CCG (Refer to paragraph 2.7 a of Annex A)</p> <p>Amount payable after approval of this item by GCC. The amount can not be grater than 10% of the total contract price.</p>	1	lot	\$ _____ / Lot	\$ _____ / Lot	\$ _____ / Lot
2	<p>Delivery of a complete standalone hull structural monitoring system (Refer to paragraph 2.7 a of Annex A)</p> <p>At point of delivery ((Refer to paragraphs 1.0 à 5.0 of the SoR) excluding the sub-items hereunder. Bidder can indicate 0\$)</p>	1	Lot	\$ _____ / Lot	\$ _____ / Lot	\$ _____ / Lot
3	<p>Delivery of all cables required for the project of Hull monitoring</p> <p>(Type and description – to be completed by the bidder)</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>_____ m</p> <p>(To be completed by the bidder)</p>	m	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship

4	Delivery of the strain gages required for the project of Hull monitoring: (Type and description – to be completed by the bidder) _____ _____ _____ _____	4 unités par navire	Lot de 4 Unités par navire	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship
5	Delivery of all components or any other related components of the Hull monitoring system (Item 001, 002 et 004) – excluding strain gages (item 4), the cables (item 3): (Type and description – to be completed by the bidder) _____ _____ _____ _____ _____ _____ _____	1	Lot	\$ _____ / Lot	\$ _____ / Lot	\$ _____ / Lot
Sous-total per ship:						
Prices will be evaluated in Canadian dollar, excluding applicable taxes, FOB destination, custom and excise taxes included. A) KNOWN SCHEDULED WORK – TOTAL FIRM PRICE						FOB Destination \$ _____

B) OPTIONAL WORK :

ITEM	Description of deliverables:	Quantity	Unit of issue	Unit price firm price – Ship 1	Unit price firm price – Ship 2	Unit price firm price – Ship 3
1	Installation of all cables required for the project of Hull monitoring: (Type and description – to be completed by the bidder) _____ _____ _____	____ hrs (Number of hours required - to be completed by the bidder)	____ \$ / hr	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship
2	Installation of the strain gages required for the project of Hull monitoring: (Type and description – to be completed by the bidder) _____ _____ _____	____ hrs (Number of hours required - to be completed by the bidder)	____ \$ / hr	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship.
3	Installation of all components of the Hull monitoring system (Item 001, 002 et 004) – excluding strain gages (item 4) and cables (item 3):	____ hrs (Number of hours required - to be completed by the bidder)	____ \$ / hr	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship
4	Commissioning of the Hull monitoring system and complete tests: a) Commissioning based on days not exceeding ten (10) hours per day b) Dock trial, based on days not exceeding ten					

	(10) hours per day c) Sea trial, based on days not exceeding ten (10) hours per day	1	Lot	\$ _____ / Lot	\$ _____ / Lot	\$ _____ / Lot
5	Training of GCC personnel (Type and description – to be completed by the bidder) _____ _____ _____	1	Lot	\$ _____ / Lot	\$ _____ / Lot	\$ _____ / Lot
6	Supplementary perpetual licence	1	Licence per navire	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship
7	Strain gage	1 unit per ship	Lot of 1 Unit per ship	\$ _____ / ship	\$ _____ / ship	\$ _____ / ship.
Sub-total per ship :				\$ _____ / ship	\$ _____ / ship	\$ _____ / ship
FOB Destination Prices will be evaluated in Canadian dollar, excluding applicable taxes, FOB destination, custom and excise taxes included. B) OPTIONAL – TOTAL FIRM PRICE						\$ _____

Note: PWGSC reserves the right to exercise all the options or partial options.

The Contractor grants to Canada the irrevocable option to acquire the goods, services or both described at Annex A of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment. The Contracting Authority may exercise the option within **5 days** after beginning of work by sending a written notice to the Contractor.

TOTAL PRICE FOR EVALUATION:

	TOTAL (A) SCHEDULED WORK	TOTAL (B) OPTIONAL WORK	TOTAL KNOWN WORK FIRM PRICE ((A) + (B))
Ship 1	_____ \$	_____ \$	_____ \$
SHIP 2 - Optional	_____ \$	_____ \$	_____ \$
SHIP 3 - Optional	_____ \$	_____ \$	_____ \$
TOTAL PRICE FOR EVALUATION : SHIP 1 ((A) + (B)) + SHIP 2 ((A) + (B)) + SHIP 3 ((A) + (B)) =			_____ \$

- Customs duties must be included and all applicable taxes are extra.
- All mandatory criteria must be met before a financial evaluation is done. A price must be indicated for all items.
- Delivery cost : Insert 0\$ if no cost.
- * At bid deposit, no option is applicable. However, supplementary options will require same deliverable. Two (2) optional systems are anticipated.
- ** Travel and living expenses are to be treated as per article 7.7.3.

Remark to Bidders:

Canada may reject the bid if any of the prices submitted do not reasonably reflect the cost of performing the part of the work to which that price applies.

ANNEX C

Evaluation criteria - Table 1

Certification an evaluation criteria	
The bidder must:	
Certifications and criteria	To be supplied in accordance with paragraph 5.2. Indicate the page of the certification in the proposal.
<p>Expertise of the firm: Demonstrate that it has 5 or more years of expertise in the field of fiber optic systems for Structural Hull Monitoring Systems.</p>	
<p>Proof of achievements: Demonstrate that the bidder installed 3 systems over the last 5 years. Provide references that will confirm the installation. Installation meaning any system supervising deflection of Hull supervision.</p>	
<p>Compliance to classification society: Demonstrate that the hull monitoring system comply with the requirements of at least one classification society. The classification societies are to be limited to Recognized Organizations by Transports Canada.</p>	
<p>Approval: Demonstrate that the sensors are to be approved or have type approval.</p>	
<p>Certifications: Demonstrate the processing units are certified.</p>	

