

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

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**

11 Laurier St. / 11, rue Laurier

Place du Portage , Phase III

Core 0B2 / Noyau 0B2

Gatineau

Québec

K1A 0S5

Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

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

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

Comments - Commentaires

Title - Sujet BOW THRUSTER SYSTEM		
Solicitation No. - N° de l'invitation F7049-150111/A		Date 2015-09-16
Client Reference No. - N° de référence du client F7049-150111		
GETS Reference No. - N° de référence de SEAG PW-\$\$ML-035-25363		
File No. - N° de dossier 035ml.F7049-150111	CCC No./N° CCC - FMS No./N° VME	
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-10-27		Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
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: Tinkess, Dianne		Buyer Id - Id de l'acheteur 035ml
Telephone No. - N° de téléphone (819) 956-0178 ()		FAX No. - N° de FAX (819) 956-0897
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes		

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

**Marine Machinery and Services / Machineries et services
maritimes**

11 Laurier St. / 11, rue Laurier

6C2, Place du Portage

Gatineau

Québec

K1A 0S5

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	

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F7049-150111

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File No. - N° du dossier

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Buyer ID - Id de l'acheteur

035ml

CCC No./N° CCC - FMS No/ N° VME

Please See Attached

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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement applicable to this Contract.

1.2 Requirement

Canada has a requirement to supply a Bow Thruster System (BTS) for the Canadian Coast Guard, T1100 Class Vessel, Sir William Alexander (SWA). This will include the design, manufacture, factory test and delivery, ready for installation in accordance with the Statement of Work (SOW) Annex "A". The implementation which consists of the removal of the existing Bow Thruster System (BTS) and the install of the Replacement BTS, are not part of this requirement. However, the Contractor (supplier of the Replacement BTS) will have to provide the Field Services during the implementation contract. The Field Services contract will be awarded by the shipyard (VLE refit contractor).

This requirement includes an option to purchase an additional five (5) Bow Thruster Systems for the remaining T1100 class vessels. Canada may exercise the option within four (4) years of contract award.

1.3 Debriefings

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

1.4 Delivery Schedule

- 1.4.1 The Bidder shall propose a delivery schedule to meet the requirements contained herein. Canada requires that the deliverables to be ready for acceptance, that is, complete in all respects and with all testing successfully completed, when applicable, this in accordance with the contract, no later than:

#	Description	Weeks after Contract Award (CA)
1	Development of the Approval Design Package (ADP detailed as per the SOW 4.4.3	CA + 4 weeks
2	Submission of ADP including Shipyard	CA + 4 weeks
3	Period of approval by Classification Society, and TCMS	CA + 8 weeks
4	Period of manufacturing and procurement of components	CA + 12 weeks
5	Period of Factory assembly of components	CA + 14 weeks
6	Period of Factory Acceptance Tests	CA + 16 weeks
7	Delivery of the Replacement Bow Thruster System for the CCGS SWA to the CCG	On or before March 31, 2016

1.5 Trade Agreements

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Agreement on Internal Trade (AIT) and Canada FTAs with Peru/Columbia/Panama.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The 2003 (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.1.1 SACC Manual Clauses

B1000T (2014-06-26) Condition of Material - Bid

2.2 Submission of Bids

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

2.3 Enquiries - Bid Solicitation

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

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

2.5 Mandatory Site Visit - Vessel

It is mandatory that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for the site visit to be held at **Dartmouth, NS on 30 September 2015**. The viewing will begin at 0900 hrs ADT at Bedford Institute of Oceanography, Dartmouth, NS and the conference will begin at 1300 hrs ADT at CCG Building, 50 Discovery Drive, Dartmouth, NS. **Please provide your email address as soon as possible to the contracting authority at Dianne.Tinkess@tpsgc-pwgsc.gc.ca to be advised of any changes to the Mandatory Site Visit.**

Bidders must communicate with the Contracting Authority no later than five (5) working days before the scheduled visit to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders will be required to sign an attendance sheet. Bidders should confirm in their bid that they have attended the site visit. Bidders who do not attend the mandatory site visit or do not send a representative will not be given an alternative appointment and their bid will be declared non-responsive. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

It is the Bidder's responsibility to ensure that all questions and request for clarification are addressed in accordance with the RFP Part 2 clause 2.3 "Enquiries - Bid Solicitation" in order that they become contractual.

It is the Bidder's responsibility to ensure that all available, accessible or visible information has been seen, noted and validated. Canada will assume that Bidders are in possession of that information, that they validated it and will not consider any request for adjustment related to that information from the successful Contractor once in contract.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

Volume I

Section I: Technical Bid (2 hard copies)

Volume II

Section I: Financial Bid (1 hard copy)

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

Section II: Certifications (1 hard copy)

Section III: Delivery Schedule (1 hard copy)

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

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

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

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

VOLUME 1

Section I: Technical Bid

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

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

Bids shall follow all instructions, general terms, conditions and clauses identified herein by title, number and date. All references to descriptive material, technical manuals and brochures included as part of this Bid should be referenced accordingly.

The Technical Bid must include:

- (a) Duly completed Mandatory Technical Criteria as per Annex "E".

VOLUME 2

Section I: Financial Bid

Bidders must submit their financial bid in accordance with the Annex "F" Financial Bid Presentation Sheet. The total amount of Applicable Taxes must be shown separately.

As per Part 1, Section 1.2, Canada may exercise the option within four (4) years of contract award to purchase an additional five (5) Bow Thruster Systems (BTS).

As per Financial Bid Presentation Sheet of Annex F, Bidders shall provide prices for the original order and for each of the option years. **All prices provided by the Bidders for the original order shall be good for one (1) year following contract award.**

Canada may decide to purchase the additional quantity of five (5) BTS or a portion of that quantity at any given time within the four (4) years following contract award. All quantities ordered by Canada shall be invoiced in accordance with the prices in the Basis of Payment of Annex "B".

As an example, if within the first (1st) year after contract award, Canada was to exercise the option to purchase an additional quantity of one (1) to five (5) BTS, the price charged to Canada shall be the same price as charged to Canada in the original order.

3.1.1 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

Section II: Certifications

Bidders must submit the certifications required under Part 5.

Section III: Delivery Schedule

Bidders must submit the Delivery schedule in accordance with Annex "D" – Delivery Schedule.

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 mandatory technical evaluation criteria and financial evaluation criteria.
- (b) Canada will make non-compliant a proposal that will contain caveat(s) and/or assumption(s) that were not raised by the Bidders and accepted by Canada as being part of all Bidder's proposal.
- (c) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Mandatory Technical Criteria

The Mandatory Deliverables required with any bid are described in the Annex "E" – Mandatory Technical Criteria.

4.1.2 Financial Evaluation Criteria

Evaluation of Price - Bid

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, DDP destination incoterms 2000, Canadian customs duties and excise taxes included.

The Unscheduled Work will be part of the Financial Evaluation. The level of effort used will be as per Annex "F". The amount of person-hours used the evaluation of the Unscheduled Work Hourly Rates and Overtime Premiums are based on historical experience and there is no minimum or maximum amount of hours for Unscheduled Work nor is there a guarantee of such Unscheduled Work.

4.2 Basis of Selection

A bid must comply with all the requirements of the bid solicitation and meet all mandatory technical evaluation criteria of Annex "E", statement of compliance and all Financial Evaluation Criteria 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. Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

5.1 Certifications Required with the Bid

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

5.1.1 Declaration of Convicted Offences

As applicable, pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide with its bid, a completed Declaration Form, to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

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

5.2.1 Integrity Provisions – List of Names

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

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

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

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP

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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.

PART 6 - RESULTING CONTRACT CLAUSES

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

6.1 Security Requirements

6.1.1 There is no security requirement applicable to this Contract.

6.2 Requirement

Canada has a requirement to supply a Bow Thruster System (BTS) for the Canadian Coast Guard, T1100 class Vessel, Sir William Alexander (SWA). This will include the design, manufacture, factory test and delivery, ready for installation in accordance with the Statement of Work (SOW) Annex "A". The implementation, that is to remove the existing Bow Thruster System and to install the Replacement BTS, is not part of this requirement. The implementation which consists of the removal of the existing Bow Thruster System (BTS) and the install of the Replacement BTS, are not part of this requirement. However, the Contractor (supplier of the Replacement BTS) will have to provide the Field Services during the implementation contract. The Field Services contract will be awarded by the shipyard (VLE refit contractor).

This requirement includes an option to purchase an additional five (5) Bow Thruster Systems for the remaining T1100 class vessels. Canada may exercise the option within four (4) years of contract award.

6.3 Standard Clauses and Conditions

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

6.3.1 General Conditions

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

In Section 2010A 09, Warranty, in subsection 1, delete the following sentence:

The warranty period will be 12 months after delivery and acceptance of the Work or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.

Insert the following:

The warranty period will be 12 months after delivery, installation and acceptance of the Bow Thruster System or the length of the Contractor's or manufacturer's standard warranty period, whichever is longer.

b) 1031-2 (2012-07-16), Contract Cost Principles, apply to Unscheduled Work and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Date

6.4.1.1 Delivery of the Replacement Bow Thruster System for the CCG Sir William Alexander on or before 31 March 2016.

6.4.1.2 The contract will remain active until the end of the fourth (4th) year following contract award or until Canada gives a written confirmation that the option will not be exercised.

6.4.2 Optional Goods and/or Services

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 to purchase any or all of the five (5) additional Replacement Bow Thruster Systems for the remaining T1100 class vessels within the four (4) years following contract award.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Dianne Tinkess
Supply Officer
Public Works and Government Services Canada
Acquisitions Branch
Marine Systems Directorate
Place du Portage, Phase III -6C2
11 Laurier St.
Gatineau, QC
K1A 0S5
Telephone: 819-956-0178
Facsimile: 819-956-0897
E-mail address: Dianne.Tinkess@tpsgc-pwgsc.gc.ca

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

6.5.2 Technical Authority

The Technical Authority for the Contract is:

Name: _____
Title: _____
Organization: _____
Address: _____
Telephone: ____ _

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Facsimile: _____
E-mail address: _____

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

6.5.3 Contractor's Representative

Name: _____
Organization: _____
Address: _____
Telephone: _____
Facsimile: _____
E-mail address: _____

6.6 Payment

6.6.1 Basis of Payment - Firm Unit Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm unit price in accordance with the Basis of Payment Annex "B". Customs duties are included, and Applicable Taxes are extra. If applicable, payment for unscheduled work shall be in accordance with Annex "B".

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.

All prices provided by the Contractor for the original order shall be good for one (1) year following contract award and applicable to any following orders during that year.

Canada may decide to purchase the additional quantity of five (5) BTS or a portion of that quantity at any given time within the four (4) years following contract award. All quantities ordered by Canada shall be invoiced in accordance with the prices in Annex B.

As an example, if within the first (1st) year after contract award, Canada was to exercise the option to purchase an additional quantity of one (1) to five (5) BTS, the price charged to Canada shall be the same price as charged to Canada in the original order.

No travel and living expenses in the performance of the Work shall be reimbursed to the Contractor.

6.6.2 Payment for Unscheduled Work

The Contractor's certification that the price or rate is not in excess of the lowest price or rate charged anyone else, including the Contractor's most favoured customer, for the like quality and quantity of the goods, services or both, is subject to verification by government audit, at the discretion of Canada, before or after payment is made to the Contractor.

The Contractor will be paid in accordance with Annex "B" and in accordance with Contract Cost Principles 1031-2.

6.6.3 Limitation of Price

SACC Manual clause [C6000C](#) (2011-05-16) Limitation of Price

6.6.4 Method of Payment

SACC Manual [clause H1001C](#) (2008-05-12) Multiple Payments

6.6.5 SACC Manual Clauses

C2000C (2007-11-30) Taxes - Foreign-based Contractor

6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be submitted on the supplier's own invoice form and must be prepared to show:
 - (a) The date
 - (b) Name and address of the consignee
 - (c) Item number, quantity, part number, reference number and description
 - (d) Contract number.
3. Invoices must be distributed as follows:
 - (a) The original and one (1) copy of all invoices must be forwarded to the appropriate consignee.
 - (b) One (1) copy to:

DFOinvoicing-MPOfacturation@DFO-MPO.GC.CA
Attn: Kim White
 - (c) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.
4. Payment will only be made on receipt of satisfactory invoices duly supported by specific release documents and/or other documents called for under this document. Invoices are not be submitted prior to shipment of materiel.
5. If payment is to be made to an address other than the address on the cover page of the contract, it is to be clearly identified within the body of the contract as the "Remit to" address. This address should include the following:

Company name
Full Address
City
Province/State
Postal/Zip Code

6.8 Discretionary Audit for Unscheduled Work for change in the Scope of Work

1. The following are subject to government audit before or after payment is made:
 - a. The amount claimed under the Contract, as computed in accordance with the Basis of Payment, including time charged.
 - b. The accuracy of the Contractor's time recording system.
 - c. The estimated amount of profit in any firm-priced element, firm time rate, firm overhead rate, or firm salary multiplier, for which the Contractor has provided the appropriate certification. The purpose of the audit is to determine whether the actual profit earned on a single contract if only one exists, or the aggregate of actual profit earned by the Contractor on a series of negotiated contracts containing one or more of the prices, time rates or multipliers mentioned above, during a particular period selected, is reasonable and justifiable based on the estimated amount of profit included in earlier price or rate certification(s).
 - d. Any firm-priced element, firm time rate, firm overhead rate, or firm salary multiplier for which the Contractor has provided a "most favoured customer" certification. The purpose of such audit is to determine whether the Contractor has charged anyone else, including the Contractor's most favoured customer, lower prices, rates or multipliers, for like quality and quantity of goods or services.
2. Any payments made pending completion of the audit must be regarded as interim payments only and must be adjusted to the extent necessary to reflect the results of the said audit. If there has been any overpayment, the Contractor must repay Canada the amount found to be in excess.

6.9 Time Verification for Unscheduled Work for change in the Scope of Work

Time charged and the accuracy of the Contractor's time recording system are subject to verification by Canada, before or after payment is made to the Contractor. If verification is done after payment, the Contractor must repay any overpayment, at Canada's request.

6.10 Certifications

6.10.1 Compliance

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

6.11 Applicable Laws

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

6.12 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 2010A (2015-07-03) General Conditions - Goods (Medium Complexity);
- (c) the 1031-2 (2012-07-16) Contract Cost Principles;
- (d) Annex A Statement of Work;
- (e) Annex B Basis of Payment;
- (f) Annex C Procedures for Processing Additional/Unscheduled Work;
- (g) Annex D Delivery Schedule; and
- (h) the Contractor's bid dated _____ (The contracting authority will insert the date of submission).

6.13 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.

6.14 SACC Manual *Clauses*

D2025C (2013-11-06) Wood Packaging Materials

6.15 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

- a. Free on Board (Destination) common carrier CCGS Sir William Alexander, Dartmouth, Nova Scotia for shipments from the United States government; or
- b. Delivered Duty Paid (DDP) CCGS Sir William Alexander, Dartmouth, Nova Scotia Incoterms 2000 for shipments from a commercial contractor.

The new Bow Thruster System must be delivered to the CCGS Sir William Alexander in Dartmouth, Nova Scotia. The Contractor must liaise with CCGS to coordinate the reception, final inspection and unloading of the Bow Thruster System at time of delivery.

Before the shop acceptance of the System, Canada may elect to have it delivered at a different address. Should it be the case, the Contractor will be informed in due course and the contract will be amended accordingly.

Delivery Address:

CCGS Sir William Alexander,

CCG O5C Warehouse – Door #1
13 Akerley Blvd.
Dartmouth, Nova Scotia
B3B 1J6

6.16 Delivery Schedule

The Contractor must develop and keep updated a Delivery Schedule to be submitted to Canada for review and concurrence every month. The Delivery Schedule must track to a minimum the point listed in the Delivery Schedule Annex "D"

6.17 Post Contract Award Meeting

A Post Contract Award Meeting will be convened and chaired by the Contracting Authority at the Contractor's facility at a time to be determined. At the meeting the Contractor will introduce the project management personnel supported by an organization chart, and Canada will introduce the Authorities of the Contract. A review of the term and conditions of the Contract will be conducted by the Contracting Authority.

The Contractor's costs of holding a Post Contract Award Meeting must be included in the price of the bid. Travel and living expenses for Government Personnel will be arranged and paid for by the Canada.

6.18 Progress Report

1. The Contractor must submit monthly reports on the progress of the Work in an electronic format to the Technical Authority and to the Contracting Authority.
2. The progress report must contain two (2) Parts:
 - (a) PART 1: The Contractor must answer the following three questions:
 - (i) is the project schedule being impacted and if impacted why?
 - (ii) is the project delivery date being impacted and if impacted why?
 - (iii) is the project within budget?
 - (iv) is the project free of any areas of concern in which the assistance or guidance of Canada may be required?
 - (b) PART 2: A narrative report, brief, yet sufficiently detailed to enable the Technical Authority to evaluate the progress of the Work, containing as a minimum:
 - (i) a description of the progress of each task and of the Work as a whole during the period of the report. Sufficient sketches, diagrams, photographs, etc., must be included, if necessary, to describe the progress accomplished.

6.19 Service Supportability from the OEM

Upon CCG request, the Contractor agrees to support the Replacement Bow Thruster System with a Factory Service Representatives (FSR), onboard the vessel, in any Canadian port, within a maximum delay of 48 hours following the request.

6.20 System Supportability from OEM

The Contractors agrees to support the Replacement Bow Thruster System for a minimum period of 15 years from acceptance of the Goods by Canada.

6.21 Component Supportability from OEM

The Contractors agrees to support the Replacement Bow Thruster System with OEM parts and components for a minimum period of 15 years from acceptance of the Goods by Canada.

6.22 Outstanding Work and Acceptance

1. The Project Authority, in conjunction with the Contractor, will prepare a list of outstanding work at the end of the work period. This list will form the annex to the Work Acceptance form PWGSC-TPSGC1205. A Work Acceptance Meeting will be convened by the Contracting Authority on the work completion date to review and sign off the Acceptance form.

A holdback of twice the estimated value of outstanding work will be held until its completion. The estimated value and the completion date of each outstanding work item will be determined by Canada, at its sole discretion. The Goods and Services Tax or Harmonized Sales Tax, as applicable, will be calculated on this outstanding work holdback amount and paid at the time that the outstanding work holdback is released.

However, at any time after acceptance of the Work, Canada may in its sole discretion decide that one or more of the outstanding work items will not be completed by the Contractor. The Contracting Authority will provide written notice to the Contractor of such a decision. In the event that Canada decides that any outstanding work items will not be completed by the Contractor, the holdback of twice the estimated value of the outstanding work not completed by the Contractor will not be paid to the Contractor and the contract value will be amended accordingly.

2. The Contractor must complete the above form and annex in three (3) copies, which will be distributed by the Inspection Authority as follows:
 - (a) original to the Contracting Authority;
 - (b) one copy to the Technical Authority; and
 - (c) one copy to the Contractor.

6.23 Dispute Resolution

The parties agree to follow the procedures below for the settlement of any disputes which may arise throughout the life of this Contract prior to seeking redress through court procedures:

- (a) Disputes arising from this Contract will in the first instance be resolved by the Contracting Authority and the Contractor's Contract Administrator within (15) working days or such additional time as may be agreed to by both parties.

- (b) Failing resolution under (a) above, the Manager of the Machinery and Logistic Support Division of the Marine Systems Directorate at PWGSC and the Contractor's Representative Supervisor will attempt to resolve the dispute within an additional fifteen (15) working days.
- (c) Failing resolution under (a) or (b) above, the Senior Director of the Marine Systems Directorate at PWGSC, and the Contractor's Senior Management will attempt to resolve the dispute within an additional thirty (30) working days.
- (d) Notwithstanding the above procedure, either party may seek a decision through the courts at any time during the dispute.

6.24 Failure to Deliver

Time is of the essence of the Contract. Changes in the Completion date not caused by Canada are Contractor defaults, will prejudice Canada and are at the Contractor's expense. The Completion date will not be extended without consideration being provided by the Contractor acceptable to Canada in the form of adjustment to the price, warranty or services to be provided.

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ANNEX "A"
STATEMENT OF WORK
SEE ATTACHED

ANNEX "B"

BASIS OF PAYMENT

Annex "B" will form the Basis of Payment for the resulting Contract and must not be filled in at the bid submission stage.

The Contractor will be paid firm prices as follows, for work performed in accordance with the Contract. Customs duties are included and Goods and Services Tax or Harmonized Sales Tax (GST/HST) is extra, if applicable.

No travel and living expenses in the performance of the Work shall be reimbursed to the Contractor.

1. Known Work

Known Work – Original Order, prices good for one (1) year for any additional quantities	Unit Price
Design of the Bow Thruster System – Applicable on the first unit only	\$
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex "A"	\$
Delivery of Bow Thruster System to CCGS Sir William Alexander, Dartmouth, NS	\$
Training as per SOW, Annex "A"	\$
Acceptance of the Documentation as per SOW, Annex "A"	\$
Classification Society Certification (Design)	\$
Classification Society Approval / Review (Engineered Drawings for Installation)	
Total Known Work – Original Contract	\$

Option for Additional Quantities during Option Years

Known Work – Option Year 1	Unit Price
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex "A"	\$
Delivery of Bow Thruster System	\$
Training as per SOW, Annex "A"	\$
Acceptance of the Documentation as per SOW, Annex "A"	\$
Classification Society Approval / Review (Engineered Drawings for Installation)	\$
Total Known Work - Option Year 1	\$

Known Work – Option Year 2	Unit Price
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex “A”	\$
Delivery of Bow Thruster System	\$
Training as per SOW, Annex “A”	\$
Acceptance of the Documentation as per SOW, Annex “A”	\$
Classification Society Approval / Review (Engineered Drawings for Installation)	\$
Total Known Work - Option Year 2	\$

Known Work – Option Year 3	Unit Price
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex “A”	\$
Delivery of Bow Thruster System	\$
Training as per SOW, Annex “A”	\$
Acceptance of the Documentation as per SOW, Annex “A”	\$
Classification Society Approval / Review (Engineered Drawings for Installation)	\$
Total Known Work - Option Year 3	\$

Total for Known Work	\$
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2. Unscheduled Work

2.1 The Contractor will be paid for Unscheduled Work arising, as authorized by the Contracting Authority. The authorized Unscheduled Work will be calculated as follows:

"Number of hours (to be negotiated) X the Contractor's firm hourly charge-out labor rate which includes overhead, consumable, and profit, plus net laid-down cost of materials and subcontractors to which will be added a markup of 10 %, plus Goods and Services Tax or Harmonized Sales Tax, if applicable, of the total cost of material and labor. The firm hourly charge-out labor rate and the material markup will remain firm for the duration of the Contract and any subsequent amendments."

Notwithstanding definitions or usage elsewhere in this document, or in the Bidder's Cost Management System, when negotiating hours for Unscheduled Work, PWGSC will consider only those hours of labor directly involved in the production of the subject Unscheduled Work work package.

The following elements of Labor Costs will not be negotiated, and must be included in the Overhead for the purposes of determining the Unscheduled Work Charge-out Labor Rate and that, notwithstanding if they are labor costs attributable to the bidder's employees or to personnel subcontracted by the bidder. It is therefore incumbent upon the bidder to have appropriately evaluated the overhead portion of its Unscheduled Work Charge-out Labor Rate which will result in fair compensation, regardless of its own Cost Management System;

- All personnel already included into the bidder's overhead as per its own Cost Management System;
- All management personnel;
- All full time supervision (working supervision, as lead hand, will be considered as labor directly involved in the production);
- All personnel involved in, purchasing, storing and material handling;
- All personnel involved in estimation and preparation Unscheduled Work submissions;
- All personnel involved into the Quality Assurance and reporting; and
- All accounting and clerical personnel.

The 10% markup rate of the net laid-down cost of materials and subcontractor includes any allowance for material and subcontract management not allowed for in the Charge out Labor Rate. The Contractor will not be entitled to a separate labor component for the purchase and handling of materials or subcontract administration.

2.2 Unscheduled Work Overtime Premiums.

The Contractor will be paid Unscheduled Work overtime premiums that will be calculated as follow;

For Unscheduled Work authorized to be worked in overtime only, the Contractor will be paid the authorized overtime hours at the Unscheduled Work rate plus the applicable Unscheduled Work Overtime Premiums.

The Unscheduled Work Overtime Premium will be calculated by taking the average hourly direct labor cost overtime premium (overhead excluded), plus the applicable certified fringe benefits, plus profit. These premiums will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

The Contractor must not perform any overtime under the Contract unless being authorized in advance and in writing by the Contracting Authority in accordance with the Unscheduled Work procedure. There will be no overtime payment for Known Work. Payment of overtime premiums will be made providing that it is accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization.

Unscheduled Work – Original Order – Prices good for one (1) year	Firm Rates
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$
Total Unscheduled Work – Original Contract	\$

Unscheduled Work – Option Year 1	Firm Rates
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$
Total Unscheduled Work – Option Year 1	\$

Unscheduled Work – Option Year 2	Firm Rates
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$
Total Unscheduled Work – Option Year 2	\$

Unscheduled Work – Option Year 3	Firm Rates
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$
Total Unscheduled Work – Option Year 3	\$

2.3 Prorated Prices for Unscheduled Work

Hours and prices for Unscheduled Work shall be based on comparable historical data applicable to similar work at the same facility, or shall be determined by prorating the related Known Work costs in the Contract.

ANNEX "C"

PROCEDURE FOR PROCESSING ADDITIONAL / UNSCHEDULED WORK

1. Purpose

The Unscheduled Work Procedure has been instituted for the following purposes:

- (a) To establish a uniform method of dealing with requests for Unscheduled Work;
- (b) To obtain the necessary Technical Authority approval and Contracting Authority authorization before Unscheduled Work commences; and
- (c) To provide a means of maintaining a record of Unscheduled Work requirements including Serial Numbers, dates, and accumulated cost. The Contractor shall have a cost accounting system that is capable of assigning job numbers for each Unscheduled Work requirement so that each requirement can be audited individually.

2. Definitions

- (a) An Unscheduled Work Procedure is a contractual procedure whereby changes to the scope of Work under the Contract may be defined, priced and contractually agreed to. Such changes may arise from;
 - (i) "Work Arising" from opening up of machinery and/or surveys of equipment and material;
or
 - (ii) "New Work" not initially specified but required on the Vessel.
- (b) The procedure does not allow for the correction of deficiencies in the Contractor's Bid;
- (c) No unscheduled work may be undertaken by the Contractor without written authorization of the Contracting Authority except under emergency circumstances described in Sub. Paragraph 3(b). Unscheduled Work;
- (d) Work undertaken without written Contracting Authority authorization will be considered the Contractor's responsibility and cost; and
- (e) The appropriate PWGSC form is the final summary of the definition of the Unscheduled Work requirement, and the costs negotiated and agreed to.

3. Procedures

- (a) The procedure involves the electronic form PWGSC 1379 for refit and repair and will be the only form for authorizing all Unscheduled Work;
- (b) Emergency measures required to prevent loss or damage to the Vessel which would occur if this procedure were followed, shall be taken by the Contractor on its own

authority. The responsibility for the cost of such measures shall be determined in accordance with the terms and conditions of the Contract;

- (c) The Technical Authority will initiate a work estimate request by defining the Unscheduled Work requirement. It will attach drawings, sketches, additional specifications, other clarifying details as appropriate, and allocate their Serial Number for the request;
- (d) Notwithstanding the foregoing, the Contractor may propose to the Technical Authority in writing, either by letter or some type of Defect Advice Form (this is the Contractor's own form) that certain Unscheduled Work should be carried out;
- (e) The Technical Authority will either reject or accept such Proposal, and advise the Contractor and Contracting Authority. Acceptance of the Proposal is not to be construed as authorization for the work to proceed. If required, the Technical Authority will then define the Unscheduled Work requirement in accordance with Sub. Paragraph 3(c);
- (f) The Contractor will electronically submit its Proposal to the Contracting Authority together with all price support, any qualifications, remarks or other information requested.

The price support shall demonstrate the relationship between the scope of work, the Contractor's estimated costs and its selling price. It is a breakdown of the Contractor's unit rates, estimates of person hours by trade, estimate of material cost per item for both the contractor and all of its subcontractors including quotations, estimates of any related schedule impact and an evaluation of the contractor's time required to perform the Unscheduled Work;

- (g) The Contractor shall provide copies of purchase orders and paid invoices for Subcontracts and/or materials, including stocked items, in either case. The Contractor shall provide a minimum of two quotations for Subcontracts or materials. If other than the lowest, or sole source is being recommended for quality and/or delivery considerations, this shall be noted. On request to the Contractor, the Contracting Authority shall be permitted, to meet with any proposed Subcontractor or material supplier for discussion of the price and always with the Contractor's representative present.
- (h) After discussion between the Contracting Authority and the Contractor and if no negotiation is required, the Contracting Authority will seek Technical Authority confirmation to proceed by signing the form. The Contracting Authority will then sign and authorize the Unscheduled Work to proceed;
- (i) In the event the Technical Authority does not wish to proceed with the work, it will cancel the proposed Unscheduled Work through the Contracting Authority in writing;
- (j) In the event the negotiation involves a Credit, the appropriate PWGSC form will be noted as "credit" accordingly; and
- (k) In the event that the Technical Authority requires Unscheduled Work of an urgent nature or an impasse has occurred in negotiations, the commencement of the Unscheduled Work should not be unduly delayed and should be processed as follows, in either case. The Contractor will complete the appropriate PWGSC 1379 form indicating the offered cost and pass it to the Contracting Authority. If the Technical Authority wishes to proceed, the Technical Authority and the Contracting Authority will sign the completed PWGSC form with the notation, "CEILING PRICE SUBJECT TO DOWNWARD ADJUSTMENT", and allocate a Serial Number having the suffix "A". The work will proceed with the understanding that following an audit of the Contractor's actual costs for completing the described work, the cost will be finalized at the ceiling price or lower, if justified by the

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audit. A new PWGSC form will then be completed with the finalized costs, signed and issued with the same Serial Number without the suffix "A", and bearing a notation that this form is replacing and canceling the form having the same Serial Number with the suffix "A".

NOTE: PWGSC forms bearing Serial Numbers with a suffix "A" shall not to be included in any contract amendments, and therefore no payment shall be made until final resolution of the price and incorporation into the contract.

4. Amendment to Contract or Formal Agreement

The Contract will be amended from time to time in accordance with the Contract terms to incorporate the costs authorized on the appropriate PWGSC forms.

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ANNEX "D"

DELIVERY SCHEDULE

#	Description	Weeks after Contract Award (CA)
1	Development of the Approval Design Package (ADP detailed as per the SOW 4.4.3	
2	Submission of ADP including Shipyard	
3	Period of approval by Classification Society, and TCMS,	
4	Period of manufacturing and procurement of components	
5	Period of Factory assembly of components	
6	Period of Factory Acceptance Tests	
7	Delivery of the Replacement Bow Thruster System for the CCGS SWA to the CCG,	

ANNEX "E"

MANDATORY TECHNICAL CRITERIA

Item #	Criteria	Compliant		Reference to applicable page and paragraph of Proposal
		Yes	No	
1	<p>a) Bidder shall demonstrate how he will design, manufacture, test and trials and deliver to a modern Replacement Fixed Pitch Bow Thruster System that is approved by a Classification Society for use on the CCGS Sir William Alexander (SWA) and meet or exceed all the requirements of the SOW Annex "A". The bidder must provide with its proposal a statement of compliance stating that he will comply with the SOW, this through a <u>matrix format</u>;</p> <p>b) Bidder shall demonstrate how he will develop the detailed shipyard installation instructions for the system during the CCGS SWA dry docking period;</p> <p>c) Bidder shall demonstrate how he will develop the detailed commissioning, testing and trials plan of the Replacement Bow Thruster System; and</p> <p>d) Bidder shall demonstrate that the Bow Thruster is of new, modern, electronic based technology in current production with indication to which international environmental standards the electrical equipment is constructed.</p>			
2	<p>Bow Thruster System Components</p> <p>Bidder must demonstrate that the following Replacement Bow Thruster System components will fit in the existing spaces:</p> <p>a) The new 600 KW electric motor will fit where the existing motor is;</p> <p>b) The new thruster unit will be able to be adapted to the existing tunnel and hull structure; and</p> <p>c) The new thruster variable frequency drive</p>			

	(VFD) enclosure can be located in the forecastle, including the isolation transformer if necessary.			
3	Cooling Requirements Bidder must demonstrate that the following components will be sufficiently cooled by air in their installed locations: a) Tunnel Thruster 600 kW Electric Motor; and b) Variable Frequency Drive Unit.			
4	Bow Thruster Unit Minimum Thrust Bidder must demonstrate that with a maximum of 600 kW shaft input that a minimum of 90 kN of thrust at maximum RPM in both directions will be developed in accordance with the SOW.			
5	Classification Society Bidder must demonstrate that the Replacement Bow Thruster System will be assessed and approved by a Classification Society listed in the Marine Machinery Regulations Section 2 (1) of the Canada Shipping Act 2001, and recognized by Transport Canada Marine Safety (TCMS) under the Delegated Statutory Inspection Program (DSIP). The name of the intended Classification Society shall be provided.			
6	Past Experience Bidder must demonstrate that it has successfully completed at least three (3) similar Bow Thruster Systems Replacement projects in the last five (5) years with thruster units of the same complexity.			
7	Alarm and Monitoring System Interface Bidder must provide a detailed list of the proposed interfaces between the new Bow Thruster alarm and monitoring system and the vessel's alarm and monitoring system. This will consist of a description of the type of signals provided and/or required from both alarm and monitoring systems, in accordance with the SOW.			

8	Sample of Installation Instructions for a Shipyard Bidder must provide a sample of shipyard installation instructions developed for a similar thruster installation project			
9	Sample of Operation and Trouble Shooting Manuals Bidder must provide a sample of an Operation and Trouble Shooting Manual developed for a similar Bow Thruster System.			
10	Document Management Plan Bidder must describe the Document Management Plan for drawings and specifications, including the details for Regulatory approvals and Client Feedback			
11	Quality Management System Bidder must provide objective evidence that he has in place a Quality Management System registered to ISO 9001:2008 or a Quality Management System modeled on ISO 9001:2008 which will include: <ul style="list-style-type: none"> a) if registered, its valid ISO 9001:2008 certification; or b) an example of its Quality Control Plan (QCP) as applied on previous projects of similar nature and complexity of this project; and c) a sample of an Inspection and Test Plan (ITP) developed in accordance with the QCP in (b) above. 			

ANNEX "F"

FINANCIAL BID PRESENTATION SHEET

The quantities are for evaluation purpose only and they do not reflect any commitment from Canada to purchase the quantities as indicated in each of the option years and any quantity over one (1) for the original year, if a contract was to be awarded.

1. Bidder shall complete the following tables and indicate their firm prices for the Known Work.

Known Work – Original Order, prices good for one (1) year for any additional quantity	Unit Price	QTY	Firm Prices
Design of the Bow Thruster System – Applicable on the first unit only	\$	1	\$
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex "A"	\$	3	\$
Delivery of Bow Thruster System to CCGS Sir William Alexander, Dartmouth, NS	\$	3	\$
Training as per SOW, Annex "A"	\$	3	\$
Acceptance of the Documentation as per SOW, Annex "A"	\$	3	\$
Classification Society Certification	\$	1	\$
Classification Society Approval / Review	\$	3	\$
Total Known Work – Original Contract			\$

Option for Additional Quantities during Option Years

Known Work – Option Year 1	Unit Price	QTY	Firm Prices
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex "A"	\$	1	\$
Delivery of Bow Thruster System	\$	1	\$
Training as per SOW, Annex "A"	\$	1	\$
Acceptance of the Documentation as per SOW, Annex "A"	\$	1	\$
Classification Society Approval / Review	\$	1	\$
Total Known Work - Option Year 1			\$

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Known Work – Option Year 2	Unit Price	QTY	Firm Prices
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex “A”	\$	1	\$
Delivery of Bow Thruster System	\$	1	\$
Training as per SOW, Annex “A”	\$	1	\$
Acceptance of the Documentation as per SOW, Annex “A”	\$	1	\$
Classification Society Approval / Review	\$	1	\$
Total Known Work - Option Year 2			\$

Known Work – Option Year 3	Unit Price	QTY	Firm Prices
Manufacture and factory test of Bow Thruster System ready for installation in accordance with the Statement of Work (SOW) Annex “A”	\$	1	\$
Delivery of Bow Thruster System	\$	1	\$
Training as per SOW, Annex “A”	\$	1	\$
Acceptance of the Documentation as per SOW, Annex “A”	\$	1	\$
Classification Society Approval / Review	\$	1	\$
Total Known Work - Option Year 3			\$

Total Known Work	\$
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2. Suppliers shall complete the following section for the various rates applicable to the Unscheduled Work

2.1 The Contractor will be paid for Unscheduled Work arising, as authorized by the Contracting Authority. The authorized Unscheduled Work will be calculated as follows:

"Number of hours (to be negotiated) X the Contractor's firm hourly charge-out labor rate which includes overhead, consumable, and profit, plus net laid-down cost of materials and subcontractors to which will be added a markup of 10 %, plus Goods and Services Tax or Harmonized Sales Tax, if applicable, of the total cost of material and labor. The firm hourly charge-out labor rate and the material markup will remain firm for the duration of the Contract and any subsequent amendments."

Notwithstanding definitions or usage elsewhere in this document, or in the Bidder's Cost Management System, when negotiating hours for Unscheduled Work, PWGSC will consider only those hours of labor directly involved in the production of the subject Unscheduled Work work package.

The following elements of Labor Costs will not be negotiated, and must be included in the Overhead for the purposes of determining the Unscheduled Work Charge-out Labor Rate and that, notwithstanding if they are labor costs attributable to the bidder's employees or to personnel subcontracted by the bidder. It is therefore incumbent upon the bidder to have appropriately evaluated the overhead portion of its Unscheduled Work Charge-out Labor Rate which will result in fair compensation, regardless of its own Cost Management System;

- All personnel already included into the bidder's overhead as per its own Cost Management System;
- All management personnel;
- All full time supervision (working supervision, as lead hand, will be considered as labor directly involved in the production);
- All personnel involved in, purchasing, storing and material handling;
- All personnel involved in estimation and preparation Unscheduled Work submissions;
- All personnel involved into the Quality Assurance and reporting; and
- All accounting and clerical personnel.

The 10% markup rate of the net laid-down cost of materials and subcontractor includes any allowance for material and subcontract management not allowed for in the Charge out Labor Rate. The Contractor will not be entitled to a separate labor component for the purchase and handling of materials or subcontract administration.

2.2 Unscheduled Work Overtime Premiums.

The Contractor will be paid Unscheduled Work overtime premiums that will be calculated as follow;

For Unscheduled Work authorized to be worked in overtime only, the Contractor will be paid the authorized overtime hours at the Unscheduled Work rate plus the applicable Unscheduled Work Overtime Premiums.

The Unscheduled Work Overtime Premium will be calculated by taking the average hourly direct labor cost overtime premium (overhead excluded), plus the applicable certified fringe benefits, plus profit. These premiums will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

The Contractor must not perform any overtime under the Contract unless being authorized in advance and in writing by the Contracting Authority in accordance with the Unscheduled Work procedure. There will be no overtime payment for Known Work. Payment of overtime premiums will

be made providing that it is accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization.

Unscheduled Work – Original Order – Price good for one (1) year	Firm Rates	Hours for evaluation	Total
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$	150	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$	40	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$	40	\$
Total Unscheduled Work – Original Contract - for evaluation purpose only			\$

Unscheduled Work – Option Year 1	Firm Rates	Hours for evaluation	Total
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$	150	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$	40	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$	40	\$
Total Unscheduled Work – Option Year 1 for evaluation purpose only			\$

Unscheduled Work – Option Year 2	Firm Rates	Hours for evaluation	Total
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$	150	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$	40	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$	40	\$
Total Unscheduled Work – Option Year 2 for evaluation purpose only			\$

Unscheduled Work – Option Year 3	Firm Rates	Hours for evaluation	Total
Unscheduled Work Charge-out Labor Rate as per 2.1 above.	\$	150	\$
Unscheduled Work Overtime Premiums Rates for Time and one half as per 2.2 above.	\$	40	\$
Unscheduled Work Overtime Premiums Rates for Double Time as per 2.2 above	\$	40	\$
Total Unscheduled Work – Option Year 3 for evaluation purpose only			\$

Solicitation No. - N° de l'invitation
F7049-150111/A
Client Ref. No. - N° de réf. du client
F7049-150111

Amd. No. - N° de la modif.
File No. - N° du dossier
035ml. F7049-150111

Buyer ID - Id de l'acheteur
035ml
CCC No./N° CCC - FMS No./N° VME

Total Unscheduled Work

\$

2.3 Prorated Prices for Unscheduled Work

Hours and prices for Unscheduled Work shall be based on comparable historical data applicable to similar work at the same facility, or shall be determined by prorating the related Known Work costs in the Contract.

3. Evaluated Price

Total – Known Work	\$
Total Unscheduled Work	\$
TOTAL EVALUATED PRICE	\$

Note: All provided prices / rates shall be before GST or HST as applicable.

Signed: _____ Date: _____

ANNEX A

**CCGS Sir William Alexander
Bow Thruster Replacement
Statement of Work**

Date: July 8, 2015

Sir William Alexander Bow Thruster Replacement

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Sir William Alexander Bow Thruster Replacement

1 Scope

1.1 Purpose

This Statement of Work (SOW) defines the technical and performance requirements for the Replacement of one (1) Bow Thruster System for the Canadian Coast Guard Ship Sir William Alexander (SWA). The SOW is provided with sufficient information such that the Contractor, with this guidance and their own expertise, can design, manufacture, factory test and deliver ready for installation a replacement Bow Thruster System that will meet or exceed the requirements as stipulated in this SOW. The implementation which consists of the removal of the existing Bow Thruster System (BTS) and the install the Replacement BTS, are not part of this requirement. However, the supplier of the new system will be required to provide Field Services during the implementation contract for the new unit. The Field Services contract will be awarded by the shipyard (VLE refit contractor).

1.2 Background

The CCGS Sir William Alexander is a Type 1100 Class vessel operated by the Canadian Coast Guard year round on the East Coast of Canada. The vessel performs Search and Rescue, Buoy Tending and Ice Breaking operations. The Bow Thruster enables the vessel to more easily manoeuvre at sea in close quarter situations and during buoy tending operations.

The SWA is fitted with a Bow Thruster system that is original equipment installed on the ship when it was built in 1987. The system uses a reversible Ulstein 900TT tunnel thruster driven by a 600 kW wound rotor motor employing resistor banks for speed control. The components for this system are no longer supported. The SWA is to undergo a Vessel Life Extension (VLE) refit in 2016 during which the existing Bow Thruster system will be replaced by the replacement Bow Thruster System as defined in this SOW.

1.3 Objectives of the this Bow Thruster System Replacement Contract

The fundamental objectives of the Bow Thruster System (BTS) replacement contract are to:

1. Maintain or improve the vessel's manoeuvring capability by procuring a thruster system that can be incorporated into the vessel's existing configuration;
2. Provide valid, accurate and reliable technical information required for the installation and the integration of the Replacement Bow Thruster System to the various ship's existing systems ; and
3. Ensure for the Replacement Bow Thruster System a service and parts supportability for a minimum of 15 years.

Sir William Alexander Bow Thruster Replacement

1.4 Implementation phase by a Shipyard

The removal of the existing Bow Thruster System (BTS) and the installation the Replacement BTS are not part of this requirement. They will be done during the SWA's Vessel Life Extension (VLE) refit planned for 2016. It is intended that during this refit period, the Contractor shall be identified as the OEM to be on hand for the installation, testing, commissioning, training and trials of the Replacement Bow Thruster System and to be contracted for these services by the VLE Refit contractor (shipyard).

2 Applicable Documents

The prescribed versions of the following documents are to form a part of this specification to the extent specified herein.

2.1 References of CCGS Sir William Alexander existing Bow Thruster system

2.1.1 Existing Drawings

Drawings #	Drawing Name
112-01	Shell Expansion & Fwd End Framing 3 of 4
112-09	Bow Thruster Compartment and No. 1 & 2 FO Tanks
977-01	General Arrg't Main Deck ER Flat Tank Top 3 of 3
977-01	General Arrg't Profile End Views 1 of 3
977-01	General Arrg't Upper Deck Boat Deck Bridge 2 of 3
977-07	Shell Expansion
977-11	Forward End Framing Sections
SC5668	Outline 600 kW Motor
D8101810	900TT Lower Unit Assembly
D8101777H	General Arrangement 900TT Bow Thruster
352-02	Electrical System One Line Diagram 1 of 2
352-03	Bow Thruster Power System Schematic 2, 3, & 4 of 52

2.1.2 Applicable Documents

The following supplementary documentation is also applicable to the general performance of these project requirements:

- Canada Shipping Act 2001 and subsequent regulations pertaining to a ship having general particulars as specified under Section 2.1.4 of this specification;
- Rules of a recognized Classification Society e.g. Lloyd's Register Part 5 (Main and Auxiliary Machinery), Lloyd's Register Part 6 (Control and Electrical); Lloyd's Register's Rules for the Manufacture, Testing and Certification of Materials;
- CSA W47.1 1983 – Canadian Welding Bureau Standards for the fusion welding of steel;

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- CSA W47.2-M1987(R1998) – Canadian Welding Bureau Standard for the fusion welding of aluminum and aluminum alloys;
- DFO 5781 (18-080-000-SG-001) Welding of Ferrous Materials;
- DFO 5782 (18-080-000-SG-002) Welding of Aluminum and Aluminum Alloys;
- Transport Canada TP 127E Ships Electrical Standards;
- IEEE 45 Recommended Practice for Electric Installations on Shipboard;
- IEC 60092-504 – Electrical Installations in Ships – Part 504: Special Features – Control and Instrumentation;
- CSA C22.1 – 98 Canadian Electrical Code Standard Part I Safety Standard for Electrical Installations;
- CSA C22.2 – No. 0-10 General Requirements – Canadian Electrical Code Part II;
- ULC –S102.4-1987(R1998) – Underwriters Laboratory of Canada Standard for Test for Fire and Smoke Characteristics of Electrical Wiring and Cable;
- DGTE-69 (70-000-000-EU-JA-001) Specification for the Installation of Shipboard Electronic Equipment;
- IEC 60533 – Electrical and Electronic Installations in Ships – Electromagnetic compatibility;
- ISO 2412:1982 - Shipbuilding – Colours of indicator lights;
- ISO 9001:2008, Quality Management Systems – Requirements; and
- SOLAS, and the Canadian Supplement to the SOLAS Convention.

2.1.3 General Particulars of the CCGS Sir William Alexander

Name:	CCGS Sir William Alexander
Type:	Type 1100 High Endurance Multitasked Vessel
Ice Class Notations:	DNV Ice 1A (Arctic Ice Class 2)
Year Built:	1987
Builder:	Marine Industries Ltd.

Principal Dimensions:	
Length:	83 meters
Breadth, molded:	16.2 meters
Loaded Draft:	6 meters
Tonnage:	3728 GT, 1503 RT

The Sir William Alexander is a three engine AC/AC twin screw vessel that performs multiple tasks for the Government of Canada, including Search and Rescue, Buoy Tending, Aids to Navigation support and Ice Breaking operations. These operations include the use of the present Bow Thruster for various tasks, including general cargo transfer, docking the vessel, keeping

Sir William Alexander Bow Thruster Replacement

station, and tending floating navigational aids (buoys) in varying weather conditions.

2.2 Order of Precedence

In the event of a conflict between the contents of this document and the applicable portions of the referenced documents, the contractor shall inform the Technical Authority (TA) of the differences and request a resolution.

3 CCGS Sir William Alexander Existing Bow Thruster System

Ulstein 900TT Bow Thruster System

The Ulstien Bow Thruster system is comprised of the following components:

- a) One 1200 rpm 600 kW wound rotor motor;
- b) Motor starter/control cabinet;
- c) Resistor banks for speed control;
- d) Thruster unit - propeller shaft, seals, coupling, propeller, and gear housing;
- e) Control system including 2 remote controls from bridge and local control at motor starter panel; and
- f) Thruster tunnel, 1600mm inner diameter and 1800 mm long.

The tunnel is mounted within the ice knife of the vessel and as a result has a tunnel length which is shorter than a typical installation and in close proximity to the keel.

4 Requirements for the Replacement Bow Thruster System

4.1 General

The requirements for the Replacement Bow Thruster System are supplied to the Contractor outlining the objectives, performance, standards and engineering requirements for the SWA. The requirement is to design, manufacture and factory test ready for installation by a shipyard, a modern fixed pitch tunnel thruster powered by a variable frequency drive and new induction motor that will provide equal or improved functionality to the original thruster. The Replacement Bow Thruster System shall be adapted to the existing tunnel which is NOT being removed from the vessel. The Replacement Bow Thruster System shall be specifically designed for use on a ship with the SWA's Ice Class notations, and meet as a minimum, the System requirements as set out in this SOW.

4.1.1 Contractor Responsibility

During the performance of the work, the Contractor shall retain total system responsibility for the following activities:

- a) Designing, manufacturing, testing, and delivery to CCG of the Replacement Bow Thruster System;
- b) Provide classification society type approval certificates from a Transport Canada recognized organization under the Delegated Statutory Inspection Program (DSIP) for the design, manufacturing and testing of the Replacement Bow Thruster System and components; and
- c) Provide Field Service Representatives (FSRs) for the commissioning and sea trials of the Replacement Bow Thruster System.

4.2 Environmental

The Contractor shall ensure that all environmental requirements imposed by the SOW and by the standards and classification rules referenced in this SOW are met.

4.3 Replacement Bow Thruster System Functional Requirements

4.3.1 Thruster Unit Requirements

The new thruster unit must conform to the following requirements:

Sir William Alexander Bow Thruster Replacement

- 4.3.1.1 The Thruster Unit shall be of fixed pitch type tunnel thruster, classification society approved, with structural and mechanical components strengthened to comply with the CCGS Sir William Alexander's DNV Ice 1A (Arctic Ice Class 2) or equivalent.
- 4.3.1.2 The fixed pitch tunnel thruster designed for a maximum shaft input of 600 kW.
- 4.3.1.3 The bow thruster shall be capable of producing 90 kN of thrust (theoretical) at maximum RPM. At present, the ship is capable of performing 360 degree turns in both port and starboard directions in under 6.5 minutes when tested in sheltered waters, from fully stopped, and in an operationally loaded condition.
- 4.3.1.4 The Thruster shall be designed and built to produce 100% thrust, in either direction, for a minimum period of 2 hours.
- 4.3.1.5 The Thruster unit shall be fitted with a stainless steel wear ring in the tunnel at propeller blade level.
- 4.3.1.6 All Thruster Unit components shall be adapted to the existing tunnel.
- 4.3.1.7 A cathodic protection system for the existing tunnel and thruster shall be included.
- 4.3.1.8 The Bow Thruster unit shall include the required number of supporting brackets, frames, or seating adapters to adequately secure the thruster unit to the vessel, and the electric motor in a vertical mounting arrangement.
- 4.3.1.9 The Fixed Pitch propeller hub shall be cast in one piece of Nickel Aluminum Bronze, with the propeller blades bolted to the hub mechanism. Kaplan design propeller blades shall be made of Stainless Steel or Nickel Aluminum Bronze approved in accordance with SWA's Ice Class notations by a TCMS recognized organization under DSIP. Blades shall be machined, polished, and balanced to the requirements of ISO 484/2 Class 2 (1981) or better.
- 4.3.1.10 The Thruster body and gear casing are to be completely oil filled, providing adequate lubrication for the propeller mechanisms moving parts, as well as an internal over-pressure preventing water from entering if any leakage should occur. Thruster body shall be totally submerged in water, providing sufficient cooling of the oil when operating in waters ranging from ice covered to summer temperatures of +30°C.
- 4.3.1.11 The gravity tank supplied for thruster lubrication shall be fitted with a direct reading level gauge or sight glass, low level alarm sensor, fill pipe, drain plug with valve, and filtered vent connections. The access covers shall be large enough to permit the gravity tank to be cleaned.

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- 4.3.1.12 Gear housing shall be of robust design and provided with flanges to the tunnel. Propeller shaft and pinion shaft shall be supported by roller bearings.
- 4.3.1.13 Gear housing shall be fitted with a rope guard and stainless steel net cutter.
- 4.3.1.14 The coupling device between the motor and thruster unit shall be designed and finish machined for the supplied equipment.
- 4.3.1.15 The Thruster Unit shall have a coating system to prevent corrosion during delivery to CCG and for up to 12 months extended storage until installation.

4.3.2 Thruster Electric Motor Requirements

The Thruster Electric Motor unit must conform to the following requirements:

- 4.3.2.1 The Thruster Electric Motor shall be a vertically mounted marine rated three-phase squirrel cage type, with insulation class “F”, enclosure IP 54 Class protection or higher, and shall be able to operate at 600KW continuous duty on a 600V, 60 Hz, 3 phase system. The motor shall meet or exceed Classification Society approval requirements.
- 4.3.2.2 Torsional vibration calculations for electric driven system shall be done and approved.
- 4.3.2.3 Sealed vibration-proof motor bearings shall be provided.
- 4.3.2.4 The Thruster motor shall be able to fit vertically in the existing space.
- 4.3.2.5 The Thruster motor shall be air cooled. The compartment is supplied by an axial fan capable of supplying air at a rate of 336 m³/min and a pressure of 29 mm WC. The exhaust fan is of the same capacity but operating at a maximum pressure of 15 mm WC. Existing air ducting has dimensions of 400 mm x 1000 mm.
- 4.3.2.6 The Thruster Electric Motor shall be constructed for continuous running. The motor shall have the rated output for its intended service. The motor shall be capable of continuous operation in ambient temperatures ranging between 0°C and +40°C.
- 4.3.2.7 The Thruster Electric Motor casing shall be fitted with lifting lugs to facilitate the installation of the electric motor and brackets for securing the motor in a vertically mounted configuration.

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- 4.3.2.8 The Thruster Electric Motor shall be fitted with two winding temperature sensors per phase at the hot spots of the windings. These shall have connections to the vessel's alarm and monitoring system.
- 4.3.2.9 The Thruster Electric Motor shall be fitted with automatically controlled anti-condensation heaters. The anti-condensation heaters shall be controlled by interlocks in the starter cabinet to prevent the heaters from operating while the electric motor is in operation. The anti-condensation heaters shall be sized such that the motor's insulation readings can be maintained in an environment with >90% relative humidity and an ambient temperature <5°C.

4.3.3 Bow Thruster Variable Frequency Drive (VFD) Requirements

The Bow Thruster Variable Frequency Drive must conform to the following requirements:

- 4.3.3.1 The VFD enclosure shall be mounted in a drip proof enclosure with gaskets around the door(s). The enclosure shall be fitted with one or more cooling fans with replaceable media on the supply inlets. The VFD enclosure shall be fitted with anti-condensation heaters suitable for ambient temperature of <5°C.
- 4.3.3.2 The VFD enclosure shall be mounted in the forecastle and shall not exceed the existing footprint of the wound rotor motor enclosure. All control circuitry shall exist within the forecastle. The VFD shall include an isolation transformer if deemed necessary by applicable International Association Classification Societies (IACS) rules or Transport Canada Marine Safety (TCMS).
- 4.3.3.3 The VFD shall be designed such that the total harmonic distortion created shall be less than 5%. This shall be verified during the commissioning by a power quality test.
- 4.3.3.4 The existing incoming feeder cables from the Main Switchboard to the VFD cabinet shall be reused.
- 4.3.3.5 The motor anti-condensation heaters, VFD enclosure heaters, and lube oil low level alarm etc, cannot be fed directly from the bow thruster feeder supply as it is common practice to open the supply breaker when the thruster is not in use.
- 4.3.3.6 The VFD and thruster control system shall be able to come online from a dead bus without any need for a local reset.

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- 4.3.3.7 The VFD shall be supplied with a local operator interface for conducting system testing, configuration, and fault finding.
- 4.3.3.8 The VFD enclosure shall contain all necessary electrical equipment which may include the main disconnect switch, contactors, relays, power circuit fuses, current transformer, heating elements, thermistor relays, thruster interface circuits, terminals, and internal wiring required for a complete operational unit.
- 4.3.3.9 The VFD control system shall incorporate low-voltage protection, and interlocks shall be provided to ensure that the motor cannot be started unless the speed control system is in neutral, and that the lubricating oil level/pressures are met.
- 4.3.3.10 Main power and control cable entry shall be through the sides or bottom of the VFD enclosure only.

4.3.4 Operator Control Stations Requirements

The Contractor shall provide three (3) operator control stations to be used with the bow thruster system.

- 4.3.4.1 All three operator control stations for the Replacement Bow Thruster System shall include as a minimum the following functions:
 - 1. Selection and indication of station in Control;
 - 2. Selection and indication of operational modes, settings and functions;
 - 3. Selection and indication of thruster status and thruster settings.
 - 4. System and operational alarm indication;
 - 5. Monitoring of signals; and
 - 6. Speed control, allowing accurate, convenient and reliable control of the propeller speed in both directions.
- 4.3.4.2 **Forecastle Station** - One (1) of the three (3) operator control stations shall be supplied in order to be mounted in the forecastle and must contain controls, alarms and indicators as follows:
 - 1. One safety-latched momentary lever with spring return;
 - 2. Speed and direction indicator;
 - 3. Alarm indication for thruster failure;
 - 4. Selection and indication of station in Control;
 - 5. Start and stop of thruster; and
 - 6. Emergency stop button.

The Forecastle station can be incorporated into the VFD enclosure or mounted in a separate cabinet. The operator must have adequate room to

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stand to operate the lever and a VHF or UHF radio must be able to be operated within this area.

4.3.4.3 Wheelhouse Stations - Two (2) of the three (3) control stations are to be supplied for installation in the Wheelhouse port and starboard wing consoles. The contractor shall be responsible for providing the equipment for mounting, interconnection drawings for the consoles, all associated cabling needed for the interconnection between the consoles, all associated cabling needed for the connection of the consoles to the VFD in the forecastle, and a design drawing illustrating the equipment placement and dimensions upon the console faceplate. Each control station must be identical and shall contain controls, alarms and indicators as follows:

1. One Control lever;
2. Speed and direction indicator;
3. Power available indication;
4. Alarm indication for thruster failure;
5. Selection and indication of station in Control;
6. Start and stop of thruster;
7. Emergency stop button; and
8. Dimming controls for all pilot lights and alarm interface.

4.4 Other Requirements

4.4.1 Spare Parts and Tools Requirement

The Spare Parts and Tools shall conform to the following requirements;

4.4.1.1 The Contractor shall supply one (1) set of spare parts as recommended by the manufacturer, which shall include as a minimum:

1. One spare set of propeller blades;
2. Fuses for remote control;
3. LED's, bulbs for remote control;
4. All parts required for a regular service overhaul of the Bow Thruster System; and
5. One each of every type of relay, sensor and solenoid in the system.

4.4.1.2 The Contractor shall supply one (1) complete set of maintenance and overhaul specialty tools.

4.4.2 Alarm and Monitoring System Integration

The new Bow Thruster System shall communicate to the existing Trihedral VTScada (VTS) alarm and monitoring system via an Ethernet drop (provided by Canada. A list of supported protocols can be found at

Sir William Alexander Bow Thruster Replacement

<https://www.trihedral.com/device-driver-list> . Additional vessels of this type which will also be seeking this replacement in the future operate on a similar architecture but not necessarily the same alarm and monitoring system. The contractor shall choose an accepted protocol and provide any additional modules needed to interface with the Ethernet drop.

The following values shall be incorporated into the Alarm and Monitoring System:

- a) Mains Voltage (Into Drive);
- b) Bow Thruster motor run indication;
- c) Torque Demand %;
- d) Motor Speed;
- e) Motor Temperature;
- f) Motor Voltage;
- g) Motor Current;
- h) Motor KVA;
- i) Control Lever Reference;
- j) Station in Control;
- k) Drive Temperature (If available);
- l) Hydraulic tank low level alarm;
- m) Oil temperature indication of lubricating oil;
- n) System main oil pressure indication and low pressure alarm; and
- o) Motor overload alarm and auto stop.

4.4.3 Approval Design Package (ADP) Deliverables

The Contractor shall submit an approval design package (ADP) within four (4) weeks of contract award to the IA and TA for Canadian Coast Guard review and comment prior to Class and TCMS approval. The Package shall include all components of sections 4.4.3.1 to 4.4.3.3 inclusive.

4.4.3.1 Approval Design Package Details

The Contractor's ADP shall contain the following documentation and design details to allow the Canadian Coast Guard the ability to provide feedback at an early stage of design:

- a) Project schedule including design, production, testing and delivery of the Replacement Bow Thruster System;
- b) Shipyard installation instructions. The Contractor must visit and inspect the vessel's existing arrangement and configuration and consult any required exiting documentations and drawings in order to develop valid, accurate and reliable Shipyard installation instructions as defined in 4.4.3.2;
- c) Document and Drawing Management Plan;
- d) Integration Management Plan for new and retained systems and components;

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- e) Operator control station layouts;
- f) Component and system installation, operation and maintenance manuals;
- g) System bills of Materials;
- h) General arrangement drawings of system;
- i) Control system functional descriptions, including safety systems;
- j) Environmental specifications of all components and assemblies to be used;
- k) Training regime for both operators of the system and those required to perform maintenance;
- l) Specific details of the Factory Acceptance Test regime; and
- m) Commissioning, Dock trial and Sea Trial test programs.

4.4.3.2 ADP Shipyard Installation Instructions

The Contractor's ADP shall include, as a minimum, the following Shipyard Installation Instruction requirements:

- a) Provide sufficient detail of the thruster's structural requirements to allow a shipyard to design the supports for the thruster tunnel, thruster motor, starter cabinet and lubricating oil systems, such that a shipyard can provide firm price quotations for labour and materials and planning for their installations in the existing vessel's configuration;
- b) Provide sufficient detail of installation requirements of all equipment and cabling including a bill of materials for shipyard implementation such that a shipyard can provide firm price quotations for labour and materials and planning. It is anticipated that the successful shipyard will perform cable runs, wiring terminations, and perform the structural work required for the installation of the new thruster unit components, tunnel extensions, structural reinforcement, electrical control panels and motor seats; and
- c) Provide details of the new bridge control stations to allow the shipyard to integrate the new stations to the existing consoles.

4.4.3.3 Quality Assurance Inspections

The Contractor shall submit a QA Inspections, Tests, and Trials Plan for the installation phase of the project no later than four (4) weeks after contract award.

4.4.4 Commissioning Tests and Trials Agenda

The Contractor shall be able to deliver the Set to Work Test and Trials agenda and planning for integration into the VLE plan and schedule no later than four (4) weeks after contract award.

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4.4.5 Training Agenda

The Contractor shall be able to deliver the Training agenda and planning for integration into the VLE plan and schedule no later than four (4) weeks after contract award.

4.4.6 Mandatory Attendance to the Bidder's Conference for the Sir William Alexander VLE

The Contractor shall attend the VLE Bidder's conference and upon Canada's request answer questions and provide clarification on the Bow Thruster work to be done aboard the CCGS Sir William Alexander during the VLE contract.

4.5 Inspections, Test and Trials

4.5.1 Factory Acceptance Test

The Contractor shall conduct Factory Acceptance Tests of the Replacement Bow Thruster System in the presence of the attending Classification Society and TCMS surveyors. TCMS physical attendance will not be mandatory if the Contractor obtains documentation that TCMS will accept the Classification Society acceptance of the Factory Acceptance Tests.

4.5.2 Tests and Trials

The Contractor shall be able to deliver the dock trials and sea trials agenda and planning of the Replacement Bow Thruster System for integration with the VLE plan and schedule no later than four (4) weeks after the contract award. These Tests and Trials will have to demonstrate the satisfactory operation of all components and functions to the requirements of Classification Society and TCMS.

The contractor's sea trial agenda must include without being limited to, the functional tests of the equipment, the timing of the full 360 degree port and starboard circles and the endurance tests.

All defects shall be repaired to the satisfaction of the TCMS and CGTA.

4.6 Documentation

4.6.1 Documents

4.6.1.1 Document Formats

The Contractor shall provide the following documentation over the course of the contract:

- a) Three (3) paper copies and three (3) electronic copies on CD ROM or USB format of the Proposal. The electronic copy shall be in Adobe PDF format, and be accompanied by a table of contents;
- b) Three (3) paper copies and one (1) electronic copy on CD ROM or USB format of the Shipyard Installation Instructions. These shall be in Microsoft Office compatible electronic format (Word, Excel, etc.);

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- c) The Class Certification and TCMS Approval documentation for the Bow Thruster system, and certificates for all materials;
- d) All system equipment and system manuals as noted in Section 4.4.3.1;
- e) A Bill of Materials of all system components (including make and model numbers and quantity in the system);
- f) A list of all system critical spare parts (including make and model numbers and quantity in the system), and;
- g) Warranty documentation for the system and its components.

4.6.1.2 Electronic Protection

Drawings and documents shall not be electronically protected so as to be Read Only files.

4.6.1.3 Electronic Labelling

All electronic media shall be clearly labelled with the CCG project number, file names and drawing numbers. If a complete listing exceeds the label size, a “readme.txt” file in ASCII format shall be provided with each disk. A printed copy of the Readme file shall accompany each disk.

4.6.2 Drawings

4.6.2.1 Drawing Formats

4.6.2.2 The Contractor shall provide one (1) paper copies and two (2) electronic copies on CD ROM or USB format of the following drawings over the course of the contract:

- a) Each of the Approval Design Drawings; and
- b) The system line drawings, system interconnection drawings and integration drawings with all non-OEM components.

4.6.2.3 All drawings shall be standard ANSI paper size and shall be in AutoCAD 2008 DWG format, and conform to the CCG National CAD Standard [MECTS-#2860606-v1-National_Cad_Standards].