

**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
Bid Receiving Public Works and Government  
Services Canada/Réception des soumissions  
Travaux publics et Services gouvernementaux  
Canada  
1713 Bedford Row  
Halifax, N.S./Halifax, (N.É.)  
B3J 1T3  
Bid Fax: (902) 496-5016

**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**

<b>Title - Sujet</b> MARINE FENDERS	
<b>Solicitation No. - N° de l'invitation</b> W010C-13C757/A	<b>Date</b> 2014-02-03
<b>Client Reference No. - N° de référence du client</b> W010C-13-C757	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$HAL-217-9206	
<b>File No. - N° de dossier</b> HAL-3-71212 (217)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2014-02-19</b>	
<b>Time Zone</b> Fuseau horaire Atlantic Standard Time AST	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Mosher, Gina	<b>Buyer Id - Id de l'acheteur</b> hal217
<b>Telephone No. - N° de téléphone</b> (902) 496-5324 ( )	<b>FAX No. - N° de FAX</b> (902) 496-5016
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF NATIONAL DEFENCE WILLOW PARK BUILDING 7 STN FORCES, P.O. BOX 99000 HALIFAX NOVA SCOTIA B3K 5X5 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

**Issuing Office - Bureau de distribution**  
Acquisitions  
1713 Bedford Row  
Halifax, N.S./Halifax, (N.É.)  
B3J 3C9

<b>Delivery Required - Livraison exigée</b> 2014-03-14	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Destination	Unit Price/Prix unitaire FOB/FAM	Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	Services To Be Performed: For the furnishings of all labour, material, equipment, tools and supervision required to supply four (4) Cylindrical Suspended Marine Fenders as specified and deliver the fenders FOB Destination to HMCS Dockyard, Halifax, Nova Scotia, Canada	W010C	W010C	4	Each	\$	XXXXXXXXXXXX	XXXXXXXXXXXX	2014-03-14	
2	Repair Kit Repair Kit to be delivered FOB Destination to HMCS Dockyard, Halifax, Nova Scotia, Canada	W010C	W010C	1	Each	\$	XXXXXXXXXXXX	XXXXXXXXXXXX	2014-03-14	

**Marine Fenders  
Department of National Defence**

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Annex "A" Requirement

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## **PART 1 - GENERAL INFORMATION**

### **1. Security Requirement**

There is no security requirement associated with this bid solicitation.

### **2. Requirement**

The requirement is for to provide Four (4) Cylindrical Suspended Fenders and one (1) repair kit in accordance with the Requirement at Annex "A".

### **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 of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

## **PART 2 - BIDDER INSTRUCTIONS**

### **1. Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual

(<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

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

The 2003 (2013-06-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

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

Delete: sixty (60) days

Insert: one-hundred and twenty (120) days

### **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.

**Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.**

### 3. Former Public Servant

#### Former Public Servant - Competitive Requirements

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

#### Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

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

#### Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? Yes ( ) No ( )

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

- a.name of former public servant;
- b.date of termination of employment or retirement from the Public Service.

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

## Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? Yes ( ) No ( )

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

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

### 4. Enquiries - Bid Solicitation

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

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

### 5. Applicable Laws

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

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

## PART 3 - BID PREPARATION INSTRUCTIONS

### 1. Bid Preparation Instructions

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

**Section I:** Technical Bid (two(2) hard copies)

**Section II:** Financial Bid (one (1) hard copy)

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**Section III: Certifications (one (1) hard copy)**

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

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

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement

(<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

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

**Section I: Technical Bid**

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work in accordance with Annex "A" Requirement.

**Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment at line items on page 2 of this document. The total amount of Applicable Taxes must be shown separately.

**Section III: Certifications**

Bidders must submit the certifications required under Part 5.

**PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION****1. Evaluation Procedures**

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

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## 1.1 Technical Evaluation

### 1.1.1 Mandatory Technical Criteria

Mandatory Technical Criteria at Annex A Requirement in addition to the following Mandatory Requirements:

#### 1.1.2 The following Mandatory technical requirement is to be provided with bid:

Vendor shall supply a copy of fender design specifications complete with calculations to show conformance with requirements for review by technical authority with proposal. The calculations shall have been reviewed and stamped by a Professional Engineer accredited by a Provincial Licensing Body.

#### 1.1.3 Mandatory documentation required prior to award of contract:

- Proof of an Independent Safety Audit.
- Confirmation of Workers Compensation Coverage.
- Confirmation from Vendor that these will be maintained for the life of the Contract.
- Copies to be provided to user with award documents.

## 1.2 Financial Evaluation

SACC Manual Clause A0222T (2013-04-25) Evaluation of Price

### 1.2.1 Pricing

Bidders must provide individual prices for each item and/or destination.

## 2. Basis of Selection

### 2.1 Basis of Selection - Mandatory Technical Criteria

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical 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

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue whether 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 with this request will also render the bid non-responsive or will constitute a default under the Contract.



## 1. Mandatory Certifications Required Precedent to Contract Award

### 1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

### 1.2 Federal Contractors Program for Employment Equity - Bid Certification

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

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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list at the time of contract award.

## PART 6 - RESULTING CONTRACT CLAUSES

### 1. Security Requirement

There is no security requirement applicable to this Contract.

### 2. Requirement

The Contractor must provide Four (4) Cylindrical Suspended Fenders and one (1) repair kit in accordance with the Requirement at Annex "A" and the Contractor's technical bid entitled \_\_\_\_\_, dated \_\_\_\_\_.

### 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.

#### 3.1 General Conditions

2010A (2013-04-25), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

**4. Term of Contract**

**4.1 Delivery Date**

All the deliverables must be received on or before **14 March 2014.**

Your Best Delivery Date \_\_\_\_\_

**5. Authorities**

**5.1 Contracting Authority**

The Contracting Authority for the Contract is:

Gina Mosher  
Supply Specialist  
Public Works and Government Services Canada  
Atlantic  
1713 Bedford Row, P.O. Box 2247  
Halifax, N.S. B3J 3C9

Telephone: 902-496-5324  
Facsimile: 902-496-5016  
E-mail address: gina.mosher@pwgsc.gc.ca

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

**5.2 Technical Authority(To be added upon contract award)**

The Technical Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone : \_\_\_\_ \_\_\_\_ \_\_\_\_\_  
Facsimile: \_\_\_\_ \_\_\_\_ \_\_\_\_\_  
E-mail address: \_\_\_\_\_

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the

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Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### 5.3 Contractor's Representative

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone : \_\_\_\_\_

Facsimile: \_\_\_\_\_

E-mail address: \_\_\_\_\_

### 6. Proactive Disclosure of Contracts with Former Public Servants

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

### 7. Payment

#### 7.1 Basis of Payment

The Contractor will be paid in accordance with the prices at line items 1 and 2.

#### 7.2 SACC Manual Clauses

A9117C (2007-11-30) T1204 Direct Request by Customer Department

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

C2605C (2008-05-12) Canadian Customs Duties and Sales Tax – Foreign Based Contractor

### 8. Invoicing Instructions

*SACC Manual* clause H1000C (2008-05-12) Single Payment

### 9. Certifications

#### 9.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

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## 10. Applicable Laws

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

## 11. Priority of Documents

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

- (a) the Articles of Agreement;
- (b) the general conditions 2010A (2013-04-25), General Conditions - Goods (Medium Complexity);
- (c) Annex "A", Requirement;
- (d) the Contractor's bid dated \_\_\_\_\_ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: "* as clarified on \_\_\_\_\_ **or** " *as amended on \_\_\_\_\_" and insert date(s) of clarification(s) or amendment(s)*)

## 12. Defence Contract

SACC Manual clause A9006C (2012-07-16) Defence Contract

## 13. Insurance

G1005C (2008-05-12) Insurance

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**ANNEX "A"**  
**REQUIREMENT**

**SPECIFICATION FOR**  
**NETLESS , SMOOTH SIDED**  
**SUSPENDED MARINE FENDER**

**PART 1 GENERAL**

**1.1 DESCRIPTION OF WORK**

This specification covers the supply of four (4) netless, smooth sided, high energy absorbing, suspended, marine fenders engineered in accordance with the following.

**1.2 INSTALLATION**

There is no requirement on the part of the contractor for installation of the fender or provision of any installation hardware.

**1.3 INSPECTION**

1.3.1 ISO 9002 - Applicable to Fender design

1.3.2 ISO 9003 - Applicable to fenders

**1.4 STANDARDS**

1.4.1 FEDERAL , FED-STD 595 , colour

1.4.2 MILITARY , MIL-STD-129 , Marking for shipping and storage

**1.5 AMERICAN SOCIETY FOR TESTING AND MATERIALS**

1.5.1 ASTM A-123. Zinc (hot galvanized) coatings on products fabricated from rolled , pressed and forged shapes , bars , and strips.

1.5.2 ASTM A-153. Zinc Coating (hot dip) on iron and steel hardware.

1.5.3 ASTM D-412. Rubber Properties in tension , test properties for.

1.5.4 ASTM D-624. Rubber Property tear resistance , test for.

1.5.5 ASTM D-1052. Measuring Rubber Deterioration , Method for (Cut growth using Ross Flexing Apparatus).

1.5.6 ASTM D-3575. Flexible Cellular Materials made from Olefin Polymers.

1.5.7 ASTM D-1630. Rubber Property Abrasion Resistance , Test for (NBS Abrader).

1.5.8 ASTM D-2240. Rubber Property Durometer Hardness , Test for.

## **1.6 OPERATING ENVIRONMENT**

1.6.1 Fenders will be permanently located against poured concrete Jetty faces , in the splash zone , and may be partially submerged in seawater.

1.6.2 Components of fendering system are subject to direct oil spray.

1.6.3 Seawater may be contaminated by oil products and sewage.

## **1.7 DESIGN CRITERIA**

1.7.1 Fender shall have a smooth skinned cylindrical mid-body with no protrusions and conical shaped ends terminating in an end fitting on the cylinders centerline at each end. The diameter and length dimensions are as specified. The fittings at either end shall be connected to the fender material so as to transfer the load without damage to the fender body and shall terminate in a swivel eye and shackle fitting which allows the end fitting to rotate freely on the axis of the fender. The end fitting shall be designed to transmit the ultimate load of the connecting shackle to the fender.

1.7.2 Fenders to be resistant to temperature, sunlight, seawater, petroleum products, cleaning agents, and sewage. The above circumstances and conditions shall not decrease fender material properties.

1.7.3 Fenders to be buoyant and highly resistant to puncture and damage.

## **PART TWO - PRODUCTS**

### **2.1 FENDERS**

2.1.1 Type: high energy absorbing, netless, smooth reinforced skin marine fenders with integral ends complete with swivel eyes and shackles.

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## 2.1.2 Configuration: Cylindrical mid-body with conical shaped ends.



**2.1.3 Size:**

- 2.1.3.1 Diameter: 1800 - 1830mm  
 2.1.3.2 Length (eye to eye): 3500 - 3660mm

2.1.4 Temperature: Continuous service : -34 deg. C - +75 deg. C

2.1.5 Minimum Energy absorption capacity at 60% deflection: 407 kJ (300 ft.- kips)

2.1.6 Reaction force at 60% deflection: Minimum : 800 KN ( 180 kips )  
 Maximum: 845 KN ( 190 kips )

2.1.7 Hardware: End fittings of the fender shall be steel , galvanized (600 g/sq.m) per ASTM A-153. The end fittings and any internal connecting chain / rod shall be designed and sized to safely support the fender and to allow transfer of all loads from the Ship to the Jetty under berthing under heavy sea conditions. End fittings (shackles) provided shall be a minimum size of 32mm for 27mm chain.

2.1.8 Colour: Grey

2.1.9 Repair Kit: Vendor shall supply one (1) repair kit including a repair manual with fender.

2.1.10 Test Ranges - Applicable to Standards in Section 1.5

- |          |             |   |
|----------|-------------|---|
| 2.1.10.1 | ASTM A-123  | Galvanize to not less than 600 g/sq.m   |
| 2.1.10.2 | ASTM A-153  | Galvanize to not less than 800 g/sq.m   |
| 2.1.10.3 | ASTM D-412  | Minimum Tensile Strength of 14 MPa<br>Minimum elongation at break 300%  |
| 2.1.10.4 | ASTM A-624  | Minimum tear resistance of 40 N/m   |
| 2.1.10.5 | ASTM A-1052 | Minimum 10,000 cycles   |
| 2.1.10.6 | ASTM A-3575 | Density of 52.2 - 68.9 kg/cubic m<br>Maximum ultimate elongation 100%<br>Maximum water absorption of 1.0 kg/sq.m of cut surface |
| 2.1.10.7 | ASTM A-1630 | Minimum of 200  |
| 2.1.10.8 | ASTM A-2240 | Shore A Durometer hardness of 75-95   |

**PART THREE - SPECIFICATIONS****3.1.1 DESIGN SPECIFICATIONS**

- 3.1.1 Vendor shall supply a copy of fender design specifications complete with calculations to show conformance with requirements for review by technical authority with proposal. The calculations shall have been reviewed and stamped by a Professional Engineer accredited by a Provincial Licensing Body.
- 3.1.2 After award the vendor shall supply four (4) fenders and one (1) repair kit FOB destination HMC Dockyard, Halifax, Nova Scotia, Canada.