

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

REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

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

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

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

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

Comments - Commentaires

Title - Sujet Design / Build - Breakwater Floats	
Solicitation No. - N° de l'invitation F1571-145021/A	Date 2014-10-21
Client Reference No. - N° de référence du client F1571-145021	
GETS Reference No. - N° de référence de SEAG PW-\$XLV-211-6572	
File No. - N° de dossier XLV-4-37123 (211)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-11-10	Time Zone Fuseau horaire Pacific Standard Time PST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Buchan, Torrey	Buyer Id - Id de l'acheteur xlv211
Telephone No. - N° de téléphone (250) 363-3249 ()	FAX No. - N° de FAX (250) 363-3960
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: FISHERIES AND OCEANS CANADA SEE HEREIN	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

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

Issuing Office - Bureau de distribution

Public Works and Government Services Canada - Pacific
Region
401 - 1230 Government Street
Victoria, B. C.
V8W 2Z4

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

Solicitation No. - N° de l'invitation

F1571-145021/A

Amd. No. - N° de la modif.

File No. - N° du dossier

XLV-4-37123

Buyer ID - Id de l'acheteur

xlv211

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

F1571-145021

CCC No./N° CCC - FMS No/ N° VME

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DESIGN / BUILD – BREAKWATER FLOATS

PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, the Basis of Payment, the Insurance Requirements, the Financial Bid Presentation Sheet, and the Basis of Selection & Evaluation Criteria.

2. Summary

The Department of Fisheries & Oceans - Small Craft Harbours Branch has a requirement for the design, fabrication, supply and delivery of breakwater floats to replace existing float installations.

The preliminary schedule calls for the design to be completed by December 12, 2014, with fabrication and delivery by March 13, 2015. The mandatory deadline for delivery of the breakwater floats is March 31, 2015.

Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003.

Bidders in receipt of a pension or a lump sum payment must provide the required information as detailed in article 3 of Part 2 of the bid solicitation.

The requirement is subject to the provisions of the Agreement on Internal Trade (AIT). The requirement is subject to a preference for Canadian goods and/or services.

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 (2014-09-25) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2. Submission of Bids

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

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) business 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.

4. Applicable Laws

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

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory 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 hard copies
- Section II: Financial Bid - One hard copy
- Section III: Certifications - One hard copy

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

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

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

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

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

1.1 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.

1.2 Section II - Financial Bid

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

1.2.1 Exchange Rate Fluctuation

SACC Manual clause C3011T (2013-11-06), Exchange Rate Fluctuation

1.3 Section III - Certifications

Bidders must submit the certifications required under Part 5.

2. Bid Deliverables

2.1 Mandatory Bid Deliverables

Regardless of requirements specified elsewhere in this bid solicitation and its associated Statement of Work, the following are the only mandatory documents that must be submitted with the response at the time of bid closing. The Bidder must be compliant on each item to be considered responsive.

Item	Description	Completed and Attached
Section I Technical Bid		
1	Solicitation document part 1 page 1, completed and signed	
Section II Financial Bid		
2	Annex D, Financial Bid Presentation Sheet, completed	
3	Appendix 1 to Annex D, Pricing Datasheet, completed	

2.2 Supporting Deliverables

If the following documents which support the bid are not submitted with the bid they may be requested by the Contracting Authority and they must be provided within **five (5) business days** of the written request:

Item	Description	Completed and Attached
Section I Technical Bid		
1	Technical Literature, certificates, brochures and/or written narrative, which substantiates the bidder's compliance with the mandatory evaluation criteria at Annex E.	
2	Changes to Applicable Laws (if any) as per article 5 of Part 2	
3	Contractor's Representative(s) as per article 5.4 of Part 7.	
Section III Certifications		
4	Integrity Provisions - as stated in Section 01 Integrity Provisions - Bid of Standard Instructions 2003, Provide a complete list of names of all individuals who are currently directors of the Bidder	
5	Canadian Content Certification, a per article 1.4 of Part 5.	
6	Company Welding Certification, as per article 1.5 of Part 5.	
7	Insurance Letter – as per article 2 of Part 6.	
8	Preliminary Project Schedule, as per article 3 of Part 6.	

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two (2) or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

1.1 Technical Evaluation

Mandatory and point rated technical evaluation criteria are included in Annex E.

1.2 Financial Evaluation

Financial bids will be evaluated in accordance with Annex E.

1.2.1 Evaluation of Price

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price

2. Basis of Selection

See Annex E.

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and associated 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 in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

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

1. Certifications Required Precedent to Contract Award

1.1 Integrity Provisions - Associated Information

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

1.2 Federal Contractors Program for Employment Equity - Bid Certification

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

Limited Eligibility to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Employment and Social Development Canada \(ESDC\) - Labour's](#) website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

1.3 Education and Experience

SACC Manual clause A3010T (2010-08-16), Education and Experience

1.4 Canadian Content Certification

This procurement is conditionally limited to Canadian goods and Canadian services.

Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the goods and services offered are Canadian goods and Canadian services, as defined in clause A3050T, may be considered.

Failure to provide this certification completed with the bid will result in the goods and services offered being treated as non-Canadian goods and non-Canadian services.

The Bidder certifies that:

() a minimum of 80 percent of the total bid price consist of Canadian goods and Canadian services as defined in paragraph 5 of clause A3050T.

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the [Supply Manual](#).

1.4.1 Canadian Content Definition

SACC Manual clause A3050T (2010-01-11), Canadian Content Definition

1.5 Welding Certification

1. Welding must be performed by a welder certified by the Canadian Welding Bureau and in accordance with the requirements of the following Canadian Standards Association (CSA) standard:
 - a. CSA W47.1-03, Certification of Companies for Fusion Welding of Steel, (Minimum Division Level 2.1)

Before contract award and within *five* (5) business days of the written request by the Contracting Authority, the successful Bidder must submit evidence demonstrating its certification to the welding standards.

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

1. Insurance Requirements

The Bidder must provide a letter from an insurance broker or an insurance company licensed to operate in Canada stating that the Bidder, if awarded a contract as a result of the bid solicitation, can be insured in accordance with the Insurance Requirements specified in Annex C.

If the information is not provided in the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

2. Project Schedule

Before contract award and within five (5) business days of written notification by the Contracting Authority the Bidder must submit to Canada one (1) copy of its preliminary production work schedule. This schedule is to show the commencement and completion dates for the Work in the available work period, including realistic target dates for significant events. This schedule will be reviewed with the Bidder at the Pre-Refit Meeting.

PART 7 - RESULTING CONTRACT CLAUSES

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

1. Statement of Work

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

2. Standard Clauses and Conditions

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

2.1 General Conditions

2030 (2014-09-25), General Conditions - Higher Complexity – Goods,, apply to and form part of the Contract.

2.2 Supplemental General Conditions

4006 (2010-08-16), Contractor to Own Intellectual Property Rights in Foreground Information, apply to and form part of the Contract.

3. Security Requirement

There are no security requirements related to this requirement.

4. Term of Contract

4.1 Period of the Contract

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

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Torrey Buchan
Title: Supply Specialist

Public Works and Government Services Canada
Acquisitions Branch
Acquisitions, Marine
Address: 1230 Government Street, Suite 401
Victoria, BC V8W 3X4 Canada

Telephone: 250-363-3249
Cellular : 250-216-2092
Facsimile: 250-363-3960
E-mail address: torrey.buchan2@pwgsc-tpsgc.gc.ca

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

5.2 Technical Authority

The Technical Authority for the Contract is provided upon Contract award.

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.

5.3 Inspection Authority

The Inspection Authority for the Contract is the Technical Authority.

The Inspection Authority is the representative of the department or agency for whom the Work is being performed under the Contract and is responsible for inspection of the Work and acceptance of the finished work. The Inspection Authority may be represented on-site by a designated inspector and any other Government of Canada inspector who may from time to time be assigned in support of the designated Inspector.

5.4 Contractor's Representative

Bidder is to complete the table below and submit it with their bid.

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

6. Payment

6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit prices, as specified in Annex B and detailed in Appendix 1 to Annex B for a cost of \$ _____. Customs duties are included and Applicable Taxes are extra.

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

6.2 Milestone Payments

1. Canada will make milestone payments in accordance with the Schedule of Milestones detailed in article 6.2.1 and the payment provisions of the Contract, up to 90% percent of the amount claimed and approved by Canada if:
 - a. an accurate and complete claim for payment using form [PWGSC-TPSGC 1111](#), Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - b. the total amount for all milestone payments paid by Canada does not exceed 90% percent of the total amount to be paid under the Contract;
 - c. all the certificates appearing on form [PWGSC-TPSGC 1111](#) have been signed by the respective authorized representatives;
 - d. all work associated with the milestone and as applicable any deliverable required have been completed and accepted by Canada.
2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all Work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.

6.2.1 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

Milestone #	Milestone Description	Firm Amount (GST is extra)	Projected Date
1	Float design completed with final review, performance calculation, and shop drawings.	\$ _____	12-Dec-14
2	Form work and base steel work of all floats completed and inspected.	\$ _____	16-Jan-15
3	Upper steel work, flotation installation of all floats completed and inspected.	\$ _____	6-Feb-15
4	Concrete pour of all floats completed and inspected.	\$ _____	20-Feb-15
5	Hardware installation of all floats completed and inspected.	\$ _____	6-Mar-15
6	Delivery completed and acceptance on site.	\$ _____	13-Mar-15

6.3 Warranty Holdback

A warranty holdback of 3% of the Total Revised Estimated Cost of the Contract will be applied to the final claim for payment. This holdback will be payable by Canada upon the expiry of the 90 day warranty period(s) applicable to the Work. Applicable Taxes are to be calculated and paid on the total amount of

the claim before the 3% holdback is applied. At the time that the holdback is released, there will be no Applicable Taxes payable, as they were included in the previous payments.

6.4 Time Verification

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.

7. Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
 - The original and one (1) copy must be forwarded to the following address for certification and payment.

ATTN: Helena Lee
Small Craft Harbours
301 Bishop Drive
Fredericton, New Brunswick
Canada E3C 2M6

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

8. Certifications

8.1 Compliance

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

8.2 Welding Certification

1. The Contractor must ensure that welding is performed by a welder certified by the Canadian Welding Bureau (CWB) in accordance with the requirements of the following Canadian Standards Association (CSA) standards:
 - a. CSA W47.1-03, Certification for Companies for Fusion Welding of Steel (*minimum division level 2.1*).
2. In addition, welding must be done in accordance with the requirements of the applicable drawings and specifications.
3. Before the commencement of any fabrication work, and upon request from the Inspection Authority, the Contractor must provide approved welding procedures and/or a list of welding personnel he intends to use in the performance of the Work. The list must identify the CWB welding procedure qualifications attained by each of the personnel listed and must be accompanied by a copy of each person's current CWB welding certification.

9. Applicable Laws

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

10. Priority of Documents

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

- (a) the Articles of Agreement;
- (b) Supplemental General Conditions 4006 (2010-08-16), Contractor to Own Intellectual Property Rights in Foreground Information;
- (c) the 2030 (2014-09-25), General Conditions - Higher Complexity – Goods;
- (d) Annex A, Statement of Work;
- (e) Annex B, Basis of Payment;
- (f) Annex C, Insurance Requirements;
- (g) the Contractor's bid dated _____.

11. Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex C. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. For Canadian-based Contractors, coverage must be placed with an Insurer licensed to carry out business in Canada, however, for Foreign-based Contractors, coverage must be placed with an Insurer with an A.M. Best Rating no less than "A-". The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

12. Project Schedule

Project Schedule

The Contractor must provide a preliminary project schedule to the Contracting and Technical Authorities no later than three (3) Working Days after contract award.

The Contractor must provide a detailed work schedule to the Contracting and Technical Authorities no later than five (5) working days before the commencement of the Work showing the commencement and completion dates for the Work in the available work period, including realistic target dates for significant events. During the Work Period the schedule is to be reviewed on an ongoing basis by the Inspection Authority and the Contractor, updated when necessary, and available in the Contractor's office for review by Canada's authorities to determine the progress of the Work.

The schedules must be revised on a pre-defined basis. (The revised schedules must show the effect of progressed work and approved work arisings. Any changes to the dates of the Work Period of the contract due to unscheduled work will not be accepted except as negotiated in accordance with article 13, Procedures for Design Change or Additional Work.

13. Procedures for Design Change or Additional Work

These procedures must be followed for any design change or additional work.

1. When Canada requests design change or additional work:

- a. The Technical Authority will provide the Contracting Authority with a description of the design change or additional work in sufficient detail to allow the Contractor to provide the following information:
 - i. any impact of the design change or additional work on the requirement of the Contract;
 - ii. a price breakdown of the cost (increase or decrease) associated with the implementation of the design change or the performance of the additional work using either the form [PWGSC-TPSGC 1686](#), Quotation for Design Change or Additional Work, or the form [PWGSC-TPSGC 1379](#) (PDF 56KB) - ([Help on File Formats](#)) Work Arising or New Work.
 - iii. a schedule to implement the design change or to perform the additional work and the impact on the contract delivery schedule.
- b. The Contracting Authority will then forward this information to the Contractor.
- c. The Contractor will return the completed form to the Contracting Authority for evaluation and negotiation. Once agreement has been reached, the form must be signed by all parties in the appropriate signature blocks. This constitutes the written authorization for the Contractor to proceed with the work, and the Contract will be amended accordingly.

2. When the Contractor requests design change or additional work:

- a. The Contractor must provide the Contracting Authority with a request for design change or additional work in sufficient detail for review by Canada.
- b. The Contracting Authority will forward the request to the Technical Authority for review.
- c. If Canada agrees that a design change or additional work is required, then the procedures detailed in paragraph 1 are to be followed.
- d. The Contracting Authority will inform the Contractor in writing if Canada determines that the design change or additional work is not required.

3. Approval

The Contractor must not proceed with any design change or additional work without the written authorization of the Contracting Authority. Any work performed without the Contracting Authority's written authorization will be considered outside the scope of the Contract and no payment will be made for such work.

ANNEX A STATEMENT OF WORK

1 Introduction

The Department of Fisheries and Oceans, Small Craft Harbours Branch is seeking tenders from Design-Build teams to design, supply, fabricate and deliver a concrete breakwater floats to the designated storage area for installation at a Small Craft Harbour Facility in the spring of 2015 (installation will be by others and is not included in the scope of this specification).

1.1 Scope of Design Work

Design shall be carried out by Professional Engineers registered in the province of British Columbia and sealed, with specialized experience in the design of floating marine structures. The following design specialties shall be used as a minimum:

- 1.1.1 Marine Structures Engineer with knowledge and experience of reinforced pre- cast concrete design, including calculation of lifting and handling stresses as well as stresses imposed by wind, waves, berthing vessels, river current, ice flows, and live loads.
- 1.1.2 Hydro-technical Engineer with knowledge and experience in determining design waves and sizing floating breakwaters to meet both static and dynamic design wave conditions.
- 1.1.3 Marine Structures design shall include as a minimum:
 - Design and drafting of pre-cast reinforced concrete
 - Buoyancy design to meet freeboard requirements
 - Design and detailing of the connection system for the floats under all loading including hogging and sagging waves (see Appendix for sample connections)
 - Design and detailing of anchor attachment points to suit the current chain and anchor mooring system
- 1.1.5 Design shall include drafting and checking of design drawings as well as shop detail drawings (may be combined into shop drawings only, if prepared by the same firm).
- 1.1.6 Design shall include anchor chain attachment points and drawings shall indicate performance capabilities of the attachment points (i.e. maximum chain size and loading).
- 1.1.7 Design shall be in accordance with the criteria given in section 2 and the attached NMS specification 034100 "Precast Structural Concrete"

1.2 Scope of Supply, Fabrication and Delivery Work

- 1.2.1 Supply and fabricate all pre-cast reinforced concrete components and foam flotation billets
- 1.2.2 Supply and fabricate all risers and mooring rails, bull-rails and other fendering components, mooring cleats, chain anchor attachments, connecting bolts and other hardware, removal and patching of shop handling and shipping devices other than those required for final field installation.
- 1.2.3 Include handling and delivery to the Small Craft Harbours facility at Steveston Harbour, Richmond BC.

2 Design Criteria

2.1 Marina Characteristics

2.1.1 Class B Marina

2.1.2 Design Freeboard for floats (dead load only including utilities) = 457 mm

2.1.3 Tidal (significant river currents also present)

2.1.4 Main vessel mooring configuration – timber bull-rails on 102mm risers on top of floats, 100x300 timber rub-rails mounted flush with top of float

2.2 Floating Breakwater Geometry

2.2.1 The new float shall be 3.66 m Wide x 1.22 m Deep x 122 m Long. (+/- 2% variance at each dimension) and may be provided as a combination of several connected pontoon units (as per existing), with a maximum of 5 units total at a minimum of 24.39 m long per unit, or may be provided as longer segments if feasible.

2.2.2 Float shall be designed with anchor points to attach to the existing chain mooring system (twenty-four (24) connection points – twenty (20) lateral mooring lines and four (4) longitudinal mooring lines). Design for minimum 25 mm diameter anchor chain, with access to anchor points from float deck for periodic adjustments. (See Appendix B for existing layout). Design anchor point loading to exceed 25 mm diameter anchor chain.

2.2.3 Float shall be closed (concrete) bottom, pre-cast concrete floats filled with foam flotation blocks.

2.2.4 Float shall be designed with covered utility trench for electrical, pump-out and water services.

2.3 Codes, Standards and Specifications

2.3.1 The current editions of the following codes shall be used as a minimum:

- CSA A23.3
- CSA A23.4
- CSA S6 shall be used to supplement A23.3 and A23.4 for durability requirements for structures in Marine Environments
- Design Manual Pre-cast and Pre-stressed Concrete 4th Edition
- ACI 357.2R-10 and ACI 408.2-12

2.4 Reference Materials

2.4.2 Department of Fisheries and Oceans Canada Drawings

2.4.3 ASCE "Planning and Design Guidelines for Small Craft Harbours"

2.4.4 American Society for Testing and Materials (ASTM):

- ASTM A123/A123M-02, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- ASTM A252-98 (2002), Specification for Welded and Seamless Steel Pipe Piles.
- ASTM A307-04, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

2.4.5 Canadian Coast Guard (CCG):

- MA 2080, General Specifications for Moorings for Aids to Navigation, Issue C (September 1999).
- 2.4.6 Canadian Institute of Treated Wood/Western Wood Preservers Institute (CITW/WWPI):
 - Best Management Practices for the Use of Treated Wood in Aquatic Environments (BMP), July 1996.
 - BMP Amendment #1, 17 April 2002.
- 2.4.7 Canadian Standards Association (CSA):
 - CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.
 - CSA G40.21-04, Structural Quality Steels.
 - CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - CAN3-O56-M79 (R2001), Round Wood Piles.
 - CSA-O80 Series- 08, Wood Preservation.
 - CSA O121-M1978 (R2003), Douglas Fir Plywood.
 - CAN/CSA-S16-01, Limit States Design of Steel Structures.
 - CSA W47.1-03, Certification of Companies for Fusion Welding of Steel.
 - CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- 2.4.8 National Lumber Grades Authority (NLGA):
 - Standard Grading Rules for Canadian Lumber, 2003 edition.

2.5 **Design Loads**

- 2.5.1 Design shall account for the following parameters:

Assumptions:

- Design Vessel: 19.8m length x 6.0m beam x 2.4m draft (65ft x 20ft x 8ft)
- Wind: Maximum gust velocity: 145 km/h (40.3m/s) over Winter; 70 km/h (19.4m/s) in Freshet (June)
- Current: Maximum surface flow: 2.5 kts (1.3 m/s) over Winter; 8kts (4.1 m/s) in Freshet (June)
- Floating Ice Impact: Estimated mass 100 Tonnes travelling 1.3 m/s in Winter
- Floating Root Ball Impact: Estimated mass 4 Tonnes travelling 4.1 m/s in Freshet
- Waves from tug traffic – short duration wave with max. 2.2 sec period and 0.3m wave height
- Site subject to two critical load scenarios: Winter storm and Freshet
- Withstand hogging and sagging based on a wave 0.6 m to 1.0 m high and 15 to 20 m long crest to crest.
- Failure strength of 25mm diameter mooring chain is 258kN (58,000 lb)

Environmental Loads

Winter Scenario: loading is based on 1 design vessel moored on the inside face of every 24.4m of the entire concrete float (i.e. 5 vessels moored on 122m of float).

- Wind Load: 48kN (41.6kN Lateral/24.0kN Longitudinal)
- Current Load: 3.4kN (0 Lateral/3.4kN Longitudinal)
- Wave Load: 4.5kN (3.9kN Lateral/2.3kN Longitudinal)
- Effects of Snow and Ice - 4 inches of Ice loading (density of 57.4 lb/cu.ft) and 6 inches of snow loading (density of 10 lb/cu.ft)
- Ice Impact Load applied as impact force of 51.9kN (26.0kN Lateral/45.0kN Longitudinal) (note: wave load will not coincide with ice impact loading)

Freshet Scenario: loading is based on 1 design vessel moored on both inside and outside face of every 24.4m of the entire concrete float (i.e. 10 vessels moored on 122m of float).

- Wind Load: 18.3kN (15.9kN Lateral/9.2kN Longitudinal)
- Current Load: 67.1kN (0 Lateral/67.1kN Longitudinal)
- Wave Load: 4.5kN (3.9kN Lateral/2.3kN Longitudinal)

Operation load:

- Root Ball Impact Load: 27.6kN (13.8kN Lateral/23.9kN Longitudinal)
- Live loads – Floats shall remain stable and maintain freeboard of 152mm at 3.0 kPa (62.5 psf)

Dead Loads

- Weight of structure
- Utility – water line, power line and cabinets, sewage line (3.5 kg per liner metre)
- Gangway – Steel truss gangway (3603kg)
- The metacentric height (GM) of the structure must not be less than 1.37m in operating, transit, and design weather conditions, and not less than 0.3m while changing draught between these conditions.

Load Combinations

The float system shall withstand the following load conditions:

- Apply all applicable load combination under given environmental scenarios to each pontoon unit and the full float with the mooring chain forces
- Apply a maximum 100mm heave differential between pontoons for connections with a hinge type behavior.
- Drag tension capacity to withstand worst longitudinal load combination
- Impact loading capacity to withstand worst lateral and longitudinal load combination
- Apply a maximum chain tension to two mooring wells on opposite corners of pontoon unit, with lateral forces and hogging and sagging wave.

3 **Materials**
3.1 **General**

- 3.1.1 Use only new materials except where specified otherwise.
- 3.1.2 Use products of 1 manufacturer for material and equipment of the same type or classification unless otherwise specified.
- 3.1.3 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- 3.1.4 Notify Departmental Representative in writing of any conflict between these specifications and manufacturer's instructions. Departmental Representative will designate which document is to be followed.
- 3.1.5 Provide metal fastenings and accessories in the same texture, colour and finish as base metal in which they occur.
- 3.1.6 Prevent electrolytic action between dissimilar metals.
- 3.1.7 Use non-corrosive fasteners, anchors and spacers for securing exterior work.
- 3.1.8 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- 3.1.9 Use heavy hexagon heads, semi-finished unless otherwise specified.
- 3.1.10 Bolts may not project more than 1 diameter beyond nuts.
- 3.1.11 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.

3.1.12 Prevent damage, adulteration and soiling of products during delivery, handling and storage. Immediately remove rejected products from site.

3.1.13 Store products in accordance with suppliers' instructions

3.2 Timber

3.2.1 Timber to NLGA, No. 1 Structural Grade Coast Douglas Fir conforming to NLGA Standard Grading Rules for Canadian Lumber 2003 unless otherwise specified.

3.2.2 Frame and bore timber before treating unless specified otherwise.

3.2.3 Unless otherwise specified, fasten members as per existing.

3.3 Treatment of Timber Materials

3.3.1 Produce and install treated wood products in accordance with CSA 080-08 series and the Western Wood Preservers Institute and Canadian Institute of Treated Wood Best Management Practices for Treated Wood in Western Aquatic Environments, latest edition, (BMP).

3.3.2 Testing:

- SCH will carry out materials testing, including core sampling, at the treating plant. Data will be made available to the Contractor for information only.
- Notwithstanding SCH's testing program, Contractor will ensure that materials meet SCH's requirements in all respects. SCH reserves the right to reject materials on site.
- Before shipping material to site, provide a certificate from the treated wood producer that BMP's were utilized, including a description of the BMP's that were utilized.

3.3.3 Use **Category UC 3.2**, solid sawn products, exposed to weather, not in ground contact. May be coated for aesthetics. Includes decking, guard raisers, wharf guards, float upper splice blocks, float bull-rails, float rub boards, handrails, handrail posts if no ground contact. Treat in accordance with CSA O80 for products under use category UC 3.2 and Clause 9.2 of O80.1.

Preservatives, retention, and penetration:

ACZA, 4.0 kg/m³ or

CCA, 4.0 kg/m³

Penetration of solid sawn products in accordance with O80:

10 mm and 90% of sapwood if material is less than 115 mm thick, or

13 mm and 90% of sapwood if material is greater than or equal to 115 mm

3.3.4 Use **Category UC 4.1**, contact with ground, freshwater, and/or salt water splash.

For solid sawn products, treat in accordance with CSA O80 for products under use category UC 4.1 and Clause 9.2 of O80.1

Preservatives, retention, and penetration:

ACZA, 6.4 kg/m³ or

CCA, 6.4 kg/m³

Penetration of solid sawn products in accordance with O80:

10 mm and 90% of sapwood if material is less than 115 mm thick, or

13 mm and 90% of sapwood if material is greater than or equal to 115 mm thick

3.3.5 **Use Category UC5A, Marine (salt water exposure).**

Includes round wood piles, solid sawn products, and plywood, including piles, pile braces, pile whalers, bulkhead timbers, retaining wall materials, float cross ties, float flanges, lower and middle splice blocks for float flanges and stringers.

Treat in accordance with CSA O80 for products under use category UC5A and Clause 9.8 of O80.1

Preservatives, retention, and penetration:

ACZA, 30 kg/m³ or

CCA, 24 kg/m³

Penetration of solid sawn products in accordance with O80:

10 mm and 90% of sapwood if material is less than 115 mm thick

13 mm and 90% of sapwood if material is greater than or equal to 115 mm thick

3.4 **Steel**

3.4.1 Small fastenings: to CSA B111.

3.4.2 Drift bolts, machine bolts, washers and miscellaneous iron: to CSA G40.21 and hot dip galvanized to CAN/CSA-G164.

3.4.3 Spikes and nails: hot dip galvanized to CAN/CSA-G164 unless otherwise specified.

3.4.4 All other hardware specified to be galvanized: hot dip galvanized to CAN/CSA- G164 unless specified otherwise.

3.4.5 Items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties are not acceptable.

3.4.6 Bolts: all bolts are to be machine bolts unless specified otherwise.

Machine bolts:

- Conform to ASTM A307 (Unless noted otherwise)
- Provide with steel plate washers under head and nut, unless specified otherwise.

Drift bolts: unpointed, with ragged edges beaten off.

3.4.7 Steel plate washers:

- Shape: round, unless specified to be square.
- Size: select from table below, unless specified otherwise:

WASHER DIMENSIONS			
Bolt Size	Thickness	Round Plate Diameter	Square Plate Side Size
12.7 mm	5 mm	62 mm	62 mm
15.9 mm	6 mm	69 mm	69 mm
19.1 mm	6 mm	75 mm	75 mm
22.2 mm	8 mm	81 mm	81 mm
25.4 mm	9 mm	87 mm	87 mm
31.8 mm	11 mm	100 mm	100 mm
38.1 mm	11 mm	112 mm	112 mm

3.4.8 Bolt holes:

- Machine bolts: bore holes to provide a driving fit.

- Drift bolts: bore holes 1.5 mm less than bolt diameter.

3.4.9 Welding:

- Unless specified otherwise, welding is to be in accordance with CSA W59.
- Provide evidence that welding companies are certified to CSA W47.1.

3.4.10 Steel Grades:

- Channels and Angles: 350W
- Miscellaneous Plate: 300W

3.4.11 Finish:

All fabricated steel channels, angles and plates are to be hot dipped galvanized unless otherwise noted.

3.5 Hardware

3.5.1 Bolts (drift, machine, carriage, lag, etc.), nuts and washers: hot dip galvanized to CAN/CSA-G164.

3.5.2 Spikes and nails: hot dip galvanized to CAN/CSA-G164 unless otherwise specified.

3.5.3 All other hardware specified to be galvanized: hot dip galvanized to CAN/CSA- G164 unless specified otherwise.

3.6 Chain and Shackles

3.5.4 Chain: to CCG MA 2080 C.

3.5.5 Black carbon steel, 19 mm, long-link mooring chains.

3.5.6 Shackles: Crosby load-rated shackles or alternate approved by addendum during tendering.

3.5.7 Secure pin against rotation after fastening with No. 12 gauge (2.052 mm) insulated copper wire.

3.7 Buoyancy Billets

3.7.1 Billets to have dimensions and be positioned as shown in the Plans and Specifications and to be secured to the float frame with nylon banding.

3.7.2 All billets are to be fabricated of polystyrene and coated with either polyethylene or polyurethane.

3.7.3 Polystyrene, expanded: uniform cellular structure, free of voids. If a beaded product is to be used, beads shall be fused so that, when the product is broken by hand pressure, there is an excess of broken or sheared beads

PROPERTY	POLYSTYRENE
Compressive strength at 10% deformation (minimum)	76 kPa
Flexural strength (minimum)	124kPa
Water absorption by volume (maximum)	4%
Density (minimum)	16kg/m3

3.7.4 Polyethylene coating: Thickness: 80 mil.

3.7.5 Acceptable products for polyethylene coated billets:

- “Enviro-Float”, or
- “Barr Plastics Inc. 2008 Product Catalogue ACE models {NTS - VF Models are acceptable for non-foam filled uses} or
- “Durafloat Sales” Model d-80, or
- alternate approved by addendum during tender period.

3.7.6 Polyurethane/Polyurea coating: Thickness: 80 mil.

3.7.7 Acceptable products for polyurethane/polyurea coated billets:

- “Eco-Armour” or
- Alternate approved by addendum during tender period.

3.7.8 Contractor is to provide flotation unit supplier information as well as fabrication schedule at least 1 week prior to coating of billets so that SCH may arrange inspection.

3.8 **Anodes**

3.8.1 Anodes:

152 mm OD and 25 mm thick zinc anodes. Provide Departmental Representative with metallurgical ladle analysis certification of the anode material.

3.8.2 Material:

Sacrificial (galvanic) anodes shall be aluminium and conform to the following alloy composition:

Copper 0.002%
Indium 0.015% to 0.04%
Zinc 3.0% to 6.0%
Silicon 0.1% Aluminum remainder.

3.8.3 Shape: circular.

3.8.4 Mounting: single central through bolt.

3.8.5 Anti-seize compound for metallic contact surfaces. Compound shall be Loctite # 242, or alternate approved by addendum during tender.

4 Schedule

4.1 Design

The project schedule current calls for the design to be completed by December 12th, 2014.

4.2 Fabrication and Delivery

The project schedule currently calls for fabrication and delivery to be completed by March 13th, 2015

4.3 Milestones

The project milestones as defined in the table below shall form the basis for progress payments.

Milestone #	Milestone Description	Projected Date
1	Float design completed with final review, performance calculation, and shop drawings	12-Dec-14
2	Form work and base steel work of all floats completed and inspected	16-Jan-15
3	Upper steel work, flotation installation of all floats completed and inspected	6-Feb-15
4	Concrete pour of all floats completed and inspected	20-Feb-15
5	Hardware installation of all floats completed and inspected	6-Mar-15
6	Delivery completed and acceptance on site	13-Mar-15

APPENDIX 1

Pre-cast Concrete Specifications

Part 1 General

1.1 MEASUREMENT PROCEDURES

- .1 Measure precast elements in units supplied and delivered
- .2 Precast elements measured as individual units, will include cost, supply, and delivery of risers and mooring rails, bull-rails and other fendering components, mooring cleats, UHMW for pile wells, chain anchor attachments, connecting bolts and other hardware, removal and patching of shop handling and shipping devices other than those required for final field installation

1.2 REFERENCES

- .1 **American Society for Testing and Materials International (ASTM)**
 - .1 ASTM A185/A185M-05a, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
 - .2 ASTM A775/A775M-04a, Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
 - .3 ASTM C260-01, Standard Specification for Air-Entraining Admixtures for Concrete.

- .4 ASTM D412-98a (2002) e1, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
- .5 ASTM D2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
- .2 **Canadian General Standards Board (CGSB)**
 - .1 CAN/CGSB-1.40-97, Anticorrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181-99, Ready Mixed Organic Zinc-Rich Coating.
- .3 **Canadian Standards Association (CSA International)**
 - .1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA-A23.3-04, Design of Concrete Structures.
 - .3 CSA-A23.4-05, Precast Concrete - Materials and Construction.
 - .4 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .1 CSA-A3001-03, Cementitious Materials for Use in Concrete.
 - .5 CAN/CSA-G30.18-M92(R2002), Billet-Steel Bars for Concrete Reinforcement.
 - .6 CAN/CSA-G40.20/G40.21-2004, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .7 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .8 CAN/CSA-S6-2005, Canadian Highway Bridge Design Code.
 - .9 CSA-W47.1-03, Certification of Companies for Fusion Welding for Steel.
 - .10 CAN/CSA W48-01(R2006), Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
 - .11 CSA-W59-03, Welded Steel Construction (Metal Arc Welding) (Metric version).
 - .12 CSA-W186-M1990 (R2002), Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .4 **The Master Painters Institute (MPI) - Architectural Painting Specification Manual (ASM) February 2004**
 - .1 MPI # 18, Organic Zinc Rich Primer.
 - .2 MPI # 23, Oil Alkyd Primer.
- .5 **Underwriters' Laboratories of Canada (ULC)**
 - .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- 1.3 DESIGN REQUIREMENTS**
 - .1 Design precast elements to CSA-A23.3 and CSA-A23.4 to carry handling stresses.
 - .2 Design connections/attachments of precast elements to load/forces specified and as calculated
 - .3 Provide detailed calculations (if requested) and design drawings for typical precast elements and connections.
- 1.4 PERFORMANCE REQUIREMENTS**
 - .1 Tolerance of precast elements to CSA-A23.4.
 - .2 Length of precast elements not to vary from design length by more than plus or minus 30 mm (based on 24m float sections)
 - .3 Cross sectional dimensions of precast elements not to vary from design dimensions by more than plus or minus 5 mm.
 - .4 Deviations from straight lines not to exceed 12 mm in 10 m.
 - .5 Pre-cast elements not to vary by more than plus or minus 5 mm from true overall cross sectional shape as measured by difference in diagonal dimensions.

- .6 Minimum concrete cover of 50mm on exterior surfaces, and minimum cover of 30mm on interior surfaces.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit shop drawings in accordance with CSA-A23.4 and include following items:
 - .1 Design calculations for items designed by manufacturer (if requested)
 - .2 Details of pre-stressed and non-pre-stressed members, reinforcement and their connections.
 - .3 Camber.
 - .4 Finishing schedules.
 - .5 Methods of handling and erection.
 - .6 Openings, sleeves, inserts and related reinforcement.
- .2 Submit 3 full size copies of design drawings for typical precast elements and connections for review by Departmental Representative and Consultant, 3 weeks prior to manufacture.
- .3 Shop Drawings: submit drawings stamped and signed by qualified professional engineer registered or licensed in the Province of British Columbia, Canada.
- .4 Submit sample and sample number of each finish to be used on project to Departmental Representative.

1.6 QUALITY ASSURANCE

- .1 Quality Control Plan: submit written report to Departmental Representative verifying compliance that concrete provided meets performance requirements of concrete as established in PART 2 - PRODUCTS.

1.7 QUALIFICATIONS

- .1 Fabricate and erect precast concrete elements by manufacturing plant certified in appropriate categories according to CSA-A23.4
- .2 Precast concrete manufacturer to be certified in accordance with CSA's certification procedures for precast concrete plants prior to submitting tender and to specifically verify as part of tender that plant is currently certified in appropriate categories: Structural and Prestressed
- .3 Only precast elements fabricated in such certified plants to be acceptable to Departmental Representative and plant certification to be maintained for duration of fabrication, erection until warranty expires.
- .4 Welding companies certified to CSA-W47.1.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, handle and store precast/pre-stressed units according to manufacturer's instructions.
- .2 Protect unit corners from contacting earth to prevent from staining.

1.9 WARRANTY

- .1 Contractor warrants that precast elements will not spall or show visible evidence of corrosion of embedded steel and cracking, proper water pond curing of seven days for C-XL and e-1 exposure classes, in accordance with General Conditions, but for 2 years.

Part 2 Products

2.1 MATERIALS

- .1 Cement to CAN/CSA-A3001, Type GU.
- .2 Supplementary cementing materials: with 10-15% Type F fly ash replacement and 8% min. Type SF Silica Fume, by mass of total cementitious materials to CAN/CSA A3001. Total supplementary cementing materials not to exceed 18% by mass of total cementitious material.

- .3 Water: to CSA-A23.1/A23.2.
- .4 Reinforcing steel: to CAN/CSA-G30.18, bare or galvanized bars with silica fume.
- .5 Pre-stressing steel tendons and bars: to CAN/CSA-S6.
- .6 Welded wire fabric: to ASTM A185/A185M, coated (no epoxy).
- .7 Hardware and miscellaneous materials: to CSA-A23.1/A23.2.
- .8 Forms: to CSA-A23.4.
- .9 Anchors and supports: to CAN/CSA-G40.21 Type 300 W, galvanized after fabrication.
- .10 Welding materials: to CSA W48.
- .11 Welding electrodes: to CSA W48, certified by Canadian Welding Bureau.
- .12 Galvanizing: hot dipped galvanizing with minimum zinc coating of [610] g/m2 to CAN/CSA-G164.

- .13 Steel primer: to CAN/CGSB-1.40.
- .14 Zinc-rich primer: to CAN/CGSB-1.181.
- .15 Post-tensioning ducts: to CSA-A23.1/A23.2.
- .16 Air entrainment admixtures: to ASTM C260.
- .17 Shims: plastic.
- .18 Weep-hole tubes: purpose made plastic.

2.2 MIXES (CONCRETE)

- .1 Alternative 1 - Performance Method for specifying concrete: to meet Departmental Representative performance criteria in accordance with CAN/CSA-A23.1/A23.2.
 - .1 Ensure concrete supplier meets performance criteria as established below
 - .2 Provide concrete mix to meet following hard state requirements:
 - .1 Durability and class of exposure: C-XL.
 - .2 Minimum compressive strength at 56 days: 50 MPa.
 - .3 Intended application: continuous water submersion and splash zone (frequent wetting and drying cycles)
 - .4 Volume stability: acceptable strain range due to shrinkage, creep and freeze thaw cycle is between 0.0002 and 0.0005.
 - .5 Surface texture: non-skid finish on top, steel trowel or steel form finish on sides and bottom of floats.
 - .6 Geometrical requirements: 1.5 % slope for drainage.
 - .3 Provide quality management plan to ensure verification of concrete quality to specified performance, include concrete supplier's certification.
 - .4 Placement of deck and walls in one pour to allow concrete to shrink wrap onto foam and keel
 - .5 Foam must be secured to keel to prevent foam movement
 - .6 Water pond cure for 7 days to prevent short and long term cracking.

2.3 MANUFACTURED UNITS

- .1 Manufacture units in accordance with CSA-A23.4.
- .2 Mark each precast unit to correspond to identification mark on shop drawings for location with date cast on part of unit not to be exposed.
- .3 Provide hardware suitable for handling elements.
- .4 Design tendons and anchorages and install post tensioning ducts in accordance with CSA-A23.3 and CAN/CSA-S6.
- .5 Galvanize anchors and steel embedments after fabrication and touch up with zinc-rich primer (Zinga) after welding.

2.4 FINISHES

- .1 Finish units to standard grade to CSA-A23.4.

2.5 SOURCE QUALITY CONTROL

-
- .1 Provide Departmental Representative with certified copies of quality control tests related to this project as specified in CSA-A23.4 and CSA-G279.
 - .2 Inspect pre-stressed concrete tendons in accordance with CSA-G279.
 - .3 Provide records from in-house quality control programme based upon plant certification requirements to Departmental Representative for inspection and review.
 - .4 Upon request, provide Consultant with certified copy of mill test report of reinforcing steel supplied, showing physical and chemical analysis.
 - .5 Precast plants should keep complete records of supply source of concrete material, steel reinforcement, pre-stressing steel and provide to Departmental Representative for review upon request.

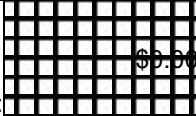
APPENDIX A2
Existing Mooring Layout

APPENDIX A3
Sample Connection Detail

Appendix A2 and A3 are available upon request of the Contracting Authority.

ANNEX B BASIS OF PAYMENT

NOTE: This section is included as a sample only. The actual prices will be inserted here by the Contracting Authority upon Award of the Contract.

1.	Known Work For work as specified in Annex A and as detailed on the Pricing Data Sheet, Applicable Taxes Extra.	
	For a FIRM PRICE of:	

2. **Unscheduled Work**

A. **Price Breakdown:**

The Contractor must, upon request, provide a price breakdown for all unscheduled work, by specific activities with trades, person-hours, material, subcontracts and services.

B. **Payment for Unscheduled Work:**

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

Number of hours (to be negotiated) X \$ **(See Rates at Appendix 1)**, being the Contractor's firm hourly charge-out labour rate which includes overhead and profit, plus net laid-down cost of materials to which will be added a mark-up of 10 percent, plus applicable Taxes, calculated on the total cost of material and labour.

The firm hourly charge-out labour rates and the material mark-up will remain firm for the term of the Contract and any subsequent amendments.

2.1 Notwithstanding definitions or usage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating *Hours* for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package. Elements of *Related Labour Costs* identified in B2.2, will not be negotiated, but will be compensated for in accordance with B2.2.

2.2 Allowance for *Related Labour Costs* such as: Management, Direct Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Inspecting and Reporting, and Estimating will be included as *Overhead* for the purposes of determining the *Charge-out Labour Rate* set out in clause B2.

2.3 The 10% mark-up rate for materials will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Chargeout Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

3. **Overtime**

3.1 The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the details of the overtime performed pursuant to the written authorization.

Payment for authorized overtime will be calculated at the rates specified in Appendix 1.

- 3.2** The overtime rates will be calculated by taking the average hourly direct labour rate premiums, plus certified fringe benefit, plus profit of 7.5 percent on labour premium and fringe benefits. These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

ANNEX C INSURANCE REQUIREMENTS

1. COMMERCIAL GENERAL LIABILITY INSURANCE

- 1.1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.
- 1.2. The Commercial General Liability policy must include the following:
 - 1.2.a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
 - 1.2.b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
 - 1.2.c. Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
 - 1.2.d. Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
 - 1.2.e. Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
 - 1.2.f. Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
 - 1.2.g. Employees must be included as Additional Insured.
 - 1.2.h. Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
 - 1.2.i. Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
 - 1.2.j. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
 - 1.2.k. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
 - 1.2.l. Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
(if applicable)

- 1.2.m. Litigation Rights: Pursuant to subsection 5(d) of the [Department of Justice Act](#), S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to:

Director Business Law Directorate,
Quebec Regional Office (Ottawa),
Department of Justice,
284 Wellington Street, Room SAT-6042,
Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to:

Senior General Counsel,
Civil Litigation Section,
Department of Justice
234 Wellington Street, East Tower
Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

2. ERRORS AND OMISSIONS LIABILITY INSURANCE

1. The Contractor must obtain Errors and Omissions Liability (a.k.a. Professional Liability) insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature but for not less than \$1,000,000 per loss and in the annual aggregate, inclusive of defence costs.
2. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
3. The following endorsement must be included:

Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.

**ANNEX D
FINANCIAL BID PRESENTATION SHEET**

INSTRUCTIONS TO BIDDERS

The bidders will be evaluated on the aggregate of the Totals for the Known Work and the Additional Work. These totals are calculated in the Appendix 1 to Annex D, Pricing Datasheet, which is available upon request of the Contracting Authority.

Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, applicable taxes excluded.

1.	Known Work For work as specified in Annex A and detailed in the Pricing Data Sheet - Appendix 1 for a FIRM PRICE of:	\$ _____
2.	Additional Work <i>As specified in the Pricing Datasheet – Appendix 1 to Annex D.</i> <i>Note this price is for the purposes of evaluation only.</i>	\$ _____
3.	EVALUATION PRICE Applicable Taxes Excluded, [1 + 2]: For an EVALUATION PRICE of :	\$ _____

4. Unscheduled Work

Unscheduled work arising, as authorized by the Minister, will be calculated in the following manner:

Number of hours (to be negotiated) X (See "Additional Work" table at Appendix 1) your firm hourly *Charge-out Labour Rate* which includes *Overhead* and profit, plus net laid-down cost of materials to which will be added a 10% mark-up, plus applicable taxes calculated on the total cost of material and labour.

The firm hourly *Charge-out Labour Rates* and the material mark-up will remain firm for the duration of the Contract and any subsequent amendments.

4.1 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 labour directly involved in the production of the subject work package.

Elements of *Related Labour Costs* identified in H2.2 will not be negotiated, but will be compensated for in accordance with H2.2. It is therefore incumbent upon the Bidder to enter values in the above table which will result in fair compensation, regardless of the structure of their Cost Management System.

4.2 Allowance for *Related Labour Costs* such as: Management, Direct Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Inspecting and Reporting, and Estimating will be included as *Overhead* for the purposes of determining the *Charge-out Labour Rate* entered in Table H1 line I1b. above.

-
- 4.3** The 10% mark-up rate for materials will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Chargeout Labour Rate. A separate labour component for the purchase and handling of materials or subcontract administration is not allowable.

4.4 Overtime

1. The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the details of the overtime performed pursuant to the written authorization.

Payment for authorized overtime will be calculated in accordance with the rates provided in Appendix 1 to Annex D.

2. The Overtime Rates will be calculated by taking the average hourly direct labour rate premiums, plus certified fringe benefit, plus profit of 7.5 percent on labour premium and fringe benefits. These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

Appendix 1 to Annex D
Available upon request of the Contracting Authority

ANNEX E BASIS OF SELECTION & EVALUATION CRITERIA

Tenders shall be evaluated based on the following weighted scale:

- 1) overall price: 70%
- 2) technical elements: 30%

Tenders shall therefore include concept designs suitably developed to determine the proposed method and materials used for fabrication of the floats. As a minimum, provide conceptual drawings outlining the overall geometry and design characteristics of the system being presented. The lowest priced bid will not necessarily be accepted.

Total Scores will be established in accordance with the following:

Rating	Possible Range	% of Total Score	Score (Points)
Technical Rating	0 - 100	30	0 - 30
Price Rating	0 - 100	70	0 - 70
Total Score		100	0 - 100

The proposals will be ranked in order from the highest to the lowest using the total score (technical plus price). The proponents submitting the highest ranked proposals will be recommended for issuance of a contract. In the case of a tie, the Proponent submitting the lower total price will be selected.

5.1 Price

The price proposals are rated as follows:

1. The lowest price proposal receives a Price Rating of 100
2. The subsequent proposals will have Price Ratings of 1 point reduced from 100 points for every \$2000 above the low bid.

The Price Rating is multiplied by the applicable percentage to establish the Price Score.

5.2 Mandatory and Rated Criteria

PART 1: MANDATORY CRITERIA

The following is the minimum requirements for the design, supply, and fabricate the concrete breakwater float.

The Bidder must provide proof and/or verification of the Mandatory Technical Criteria herein through supporting documentation such as technical brochures, certificate of qualifications and letters of authenticity from industry associations, as applicable.

Item	Minimum Mandatory Requirements	Pass / Fail	Bid Ref Page #	Comments
1.1	Number of units 5 or less			
1.2	APEGBC P.Eng certification			
1.3	Min. 5 years of fabrication experience			
1.4	Min 10 years designing experience			

PART 2: POINT – RATED CRITERIA

Item	Point Rated Requirements	Scoring and Evaluation Criteria	Bid Ref Page #	Raw Score (0-100)	Weight Factor (WF)	Total Points
2.1	Total number of module units.	100 pts – 1 unit			0.30	/30
		75 pts – 2 units				
		50 pts – 3 units				
		25 pts – 4 units				
		0 pts – 5 units				
2.2	Price	100 pts – lowest total price			0.70	/70
		-1 pt per \$2000 over lowest bid price				

Total number of points available: **100**