Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government Services Canada/Réception des soumissions Travaux publics et Services gouvernementaux Canada
Cabot Place, Phase II, 2nd Floor
Box 4600
St. John's, NL
A1C 5T2
Bid Fax: (709) 772-4603

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
Tow Tank Wave Generator

Solicitation No. - N° de l'invitation	**Date**
31184-161177/A	2016-07-15

Client Reference No. - N° de référence du client
31184-161177

GETS Reference No. - N° de référence de SEAG
PW-$XAQ-031-6650

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
XAQ-6-39047 (031)	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2016-09-15

Time Zone
Fuseau horaire
Newfoundland Daylight Saving Time NDT

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☑ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Baird, Janice	xaq031

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(709) 772-2999 ( )	(709) 772-4603

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
National Research Council Canada
Kerwin Place and Arctic Avenue
P.O. Box 12093, Station A
St. John's, NL A1B 3T5

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
See Herein	

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**

Issuing Office - Bureau de distribution
PWGSC / TPGSC - Nfld. Region
Cabot Place, Phase II, 2nd Floor
Box 4600
St. John's, NL
A1C 5T2

Canada

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PART 1 - GENERAL INFORMATION

1.1 Statement of Work - Bid

NRC Tow Tank Wave Generator

OBJECTIVE

The National Research Council of Canada, Ocean, Coastal and River Engineering Portfolio (NRC-OCRE) is currently undertaking a project to replace the current wave generation capability of its Tow Tank facility located in St. Johns Newfoundland, Canada with a new state of the art wave generation system. NRC-OCRE has prepared the statement of work as a guide to assist suppliers in preparing and submitting technical proposals for the design, supply, installation, testing, commissioning and training of the new Tow Tank wave generator, including the corresponding control system and software for synthesis of command signals.

The Work to be performed is detailed under Article 6.1 of the resulting contract clauses.

1.2 Debriefings

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

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

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

The 2003 (2016-04-04) 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: 60 days
Insert: 90 days

2.2 Submission of Bids

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

2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, 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 FPSs 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.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 7 calendar days before the bid closing date. Enquiries received after that time may not be answered.

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

2.5 Applicable Laws

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

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

3.1 Bid Preparation Instructions

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

Section I: Technical Bid (2 hard copies)

Section II: Financial Bid (2 hard copies)

Section III: Certifications (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.

Section II: Financial Bid
Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

3.1.2 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

Section III: Certifications
Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

(b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

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

4.1.2 Financial Evaluation

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

4.1.2.1 Maximum Funding

The maximum funding available for the Contract resulting from the bid solicitation is $2,750,000.00 (Applicable Taxes extra). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

4.2 Basis of Selection

4.2.1 Basis of Selection – Highest Rated Within Budget

1. To be declared responsive, a bid must:
   a. comply with all the requirements of the bid solicitation;
   b. meet all mandatory technical evaluation criteria; and
   c. obtain the required minimum points for the technical evaluation criteria which are subject to point rating.

2. Bids not meeting (a) or (b) or (c) will be declared non responsive.. The responsive bid with the highest number of points will be recommended for award of a contract, provided that the total evaluated price does not exceed the budget available for this requirement.

Please refer to Annex E – Basis of Selection

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

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

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

5.1 Certifications Required with the Bid

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

5.1.1 Integrity Provisions - Declaration of Convicted Offences

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

5.2 Certifications Precedent to Contract Award and Additional Information

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

5.2.1 Integrity Provisions – Required Documentation

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

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969).

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.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Status and Availability of Resources

SACC Manual clause A3005T (2010-08-16) Status and Availability of Resources

5.2.3.2 Education and Experience

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

5.2.3.3 Workers Compensation

Workers Compensation Certification- Letter of Good Standing

The Bidder must have an account in good standing with the applicable provincial or territorial Workers' Compensation Board.

The Bidder must provide, within 2 days following a request from the Contracting Authority, a certificate or letter from the applicable Workers' Compensation Board confirming the Bidder's good standing account. Failure to comply with the request may result in the bid being declared non-responsive.

5.2.3.4 Insurance Requirements

Insurance - Proof of Availability Prior to Contract Award

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.

PART 6 - RESULTING CONTRACT CLAUSES

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

6.1 Statement of Work – Contract

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

6.2 Standard Clauses and Conditions

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

6.2.1 General Conditions

2010A (2016-04-04), General Conditions – Goods Medium Complexity3 apply to and form part of the Contract.

6.2.2 Supplemental General Conditions

4003 (2010-08-16) Licensed Software, apply to and form part of the Contract.

4004 (2013-04-25) Maintenance and Support Services for Licensed Software, apply to and form part of the Contract.

6.3 Security Requirements

6.3.1 There is no security requirement applicable to the Contract.

6.4 Term of Contract

6.4.1 Best Delivery Date - Bid

While delivery is requested in 38 weeks after contract award, the best delivery that could be offered is:

_____.

Shipping Instructions
The supplier will be responsible for all delivery charges and risk of transport to NRC location in St. John's Newfoundland.
NRC will be responsible for custom clearance and payment of custom duties. Delivered Duty Unpaid (DDU).

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Janice Baird, Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
John Cabot Building, 7th Floor
10 Barter's Hill
St. John's, NL A1C 5T2

Telephone: 709-772-2999
Facsimile: 709-772-4603
E-mail address: janice.baird@pwgsc.gc.ca

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

6.5.2 Project Authority

The Project Authority for the Contract is:

Name: _____
Title: _____
National Research Council Canada
Address: _____

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

(Insert or delete as applicable)

In its absence, the Project Authority is:

Name: _____
Title: _____
Organization: _____
Address: _____

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

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

6.5.3 Contractor's Representative

Name: _____
Title: _____

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

6.6 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.

6.7 Basis of Payment – Ceiling Price

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

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

6.7.1 Limitation of Price

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

6.7.2 Method of Payment

Milestone Payments - Subject to Holdback

1. Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract 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

***SACC Manual* clauses**

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

Schedule of Milestones / Payment Schedule

Payment will be made in accordance with the following schedule:

Milestone	Deliverables	Firm Amount	Payment Due
1	Design review completed.	20% of the overall contract amount.	Upon receipt and acceptance of the design drawings by the NRC Technical Authority.
2	Delivery of Wave Generator to NRC St. John's Newfoundland.	60% of the overall contract amount.	Upon receipt and inspection of the equipment at the NRC Facility, St. John's Newfoundland.
3	Completion of installation and commissioning.	20% of the overall contract amount.	Upon final inspection and acceptance of the system by the Technical Authority at NRC, St. John's Newfoundland.

6.8 Invoicing Instructions - Progress Payment Claim - Supporting Documentation require

The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.

Each claim must show:

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

b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;

c. the description and value of the milestone claimed as detailed in the Contract.

Each claim must be supported by:

a. a copy of the monthly progress report.

2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the *Technical* Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.
The T*echnical* Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed.

6.9 Certifications and Additional Information

6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information

are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

6.10 Applicable Laws

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

6.11 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 supplemental general conditions 4003 (2010-08-16) Licensed Software and the supplemental general conditions 4004 (2013-04-25) Maintenance and Support Services for Licensed Software;
(c) the general conditions 2010A (2016-04-04), General Conditions – Goods Medium Complexity;
(d) Annex A, Statement of Work;
(e) Annex B, Basis of Payment;
(f) Annex C, Insurance Requirements;
(g) Annex D, Federal Contractors Program for Employment Equity - Certification;
(h) 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)).*

6.12 Insurance Requirements

Insurance – Specific Requirements

The Contractor must comply with the insurance requirements specified in Annex D. 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.

ANNEX A

STATEMENT OF WORK

A-1 Scope of Work

Suppliers' bid responses must include written technical and commercial proposals which make provision for all the services/tasks/equipment described below. Incomplete or partial proposals will not be given consideration:

1- Detailed mechanical and electric design of the wave generator and control system (the system) satisfying the requirements specified herein;
2- Detailed design and delivery of a software system for wave synthesis and generation, satisfying the requirements specified herein;
3- Transportation of the system to the National Research Council, Ocean, Coastal and River Engineering Laboratory in St. Johns Newfoundland, Canada. The National Research Council will be responsible for import duties and custom charges, if applicable;
4- Installation of the wave generator and control system in the Tow Tank facility. Delivery and installation/commissioning must be coordinated with NRC-OCRE;
5- Commissioning and performance/acceptance testing of the system. A sample commissioning testing matrix of different wave conditions is outlined Appendix C. The National Research Council will provide equipment to measure waves generated by the system. The measured wave data may be analysed using either NRC's GEDAP data analysis software or an alternative data analysis package provided by the supplier. Final testing matrix will be determined at the final design review;
6- Technical support and warranty, minimum 1 year from final system acceptance;
7- Two printed copies and a digital copy of all design specification as built and system documentation.

A-2 Proposal Requirements

The technical proposal shall include:

a) a clear description of how each task will be accomplished;
b) a clear and complete description of the technologies that are proposed;
c) a clear description of how each mandatory and point-rated requirement will be satisfied;
d) a comprehensive description of the functionality and performance of the system that is proposed; and
e) a detailed schedule describing the timing and duration of the various phases of the work, including but not limited to the design, fabrication, delivery, and commissioning phases.

The technical proposal shall clearly state whether or not all of the specifications and performance requirements set forth herein will be met. Any specifications or performance requirements that cannot be met shall be clearly noted. Any alternative methods and/or additional functionality or capabilities of the system being proposed shall also be highlighted in the proposal. Bidders should demonstrate in their proposal, their qualifications and experience in project management, design, fabrication, system integration, installation and commissioning of similar systems.

Bidders are encouraged to provide a project portfolio, including a description of recently installed systems currently in operation. Bidders shall provide a list of references, including name, affiliation, position, address, e-mail address and phone number of projects of similar size, application and complexity.

The commercial proposal shall include a comprehensive all-inclusive quotation (budget) for delivery of the services/equipment. Any optional items shall be clearly identified. The proposal should not exceed the maximum budget of $2,750,000 CAD. Bids will be evaluated with a weighing of 20% on cost and 80% technical merit.

A-3 Project Management requirements

After award of the contract, potential suppliers will assign a Project Manager as a single point of contact for all matters related to the project. The supplier Project Manager will be responsible to communicate any project information to the NRC Project Manager, including but not limited to: Status Reports, Meeting agendas and minutes, Change Orders, design drawings, design reviews, etc.

Potential suppliers are expected to provide the following project documentation:

Document	Type/format	Due date	Purpose	Notes
Bid drawings	PDF	Bid	Review conceptual design at Kick off meeting	
List of references	PDF	Bid	Review supplier experience	
Certificate of warranty	PDF	30 days after KOM	Control	
Certificate of compliance	PDF	At KOM	Control	Supplier shall identify all compliant and non-compliant items (if any) in the certificate.
Project schedule	PDF	KOM	Review	Critical Path Method shall be used
Risk Register	XLS/PDF	15 days after KOM	Control and review	Template to be issued by NRC
Milestone list	PDF	15 days after KOM	Control and review	
Progress report template	PDF	15 days after KOM	Review	Submit a Progress report template for approval
Progress report	PDF	As per progress report session	Control and review	
Issues log template	PDF	15 days after KOM	Review	Submit a Issues log template for approval
Issues log	PDF	With Progress Reports	Control and review	Update issues log when submitting progress reports
Design drawings	DWG/PDF	65 days After KOM	Approval	Mechanical drawings Electrical drawings P&ID drawings (if applicable) Control drawings (if applicable) Installation drawings
Maintenance parts list / Spare parts list	PDF	30 days after design drawing approval	Documentation	List to contain descriptions, supplier code, and cost of items
Special tools list	PDF	30 days after design drawing approval	Documentation	List all special tools needed to perform system maintenance
Site acceptance	PDF	30 prior to SCG	Review and control	Specify all steps required to complete the test.

testing template				
Site acceptance testing Report	PDF	15 days after SCG	Control and documentation	The document used during test shall be signed and send to NRC for record purposes.
As built final drawings	DWG/PDF	15 days After SCG	Control and documentation	(same as design drawings)
O&M manuals	PDF/printed	15 days after SCG	Documentation	Two printed copies and one electronic copy
KOM – Kick off meeting SCG – Site commissioning				

A-4 Design Drawings Review

The review of shop drawings is for sole purpose of ascertaining conformance with the general concept. This review shall not mean that detail designs will be approved, this responsibility shall remain with the supplier submitting the drawings and such review shall not relieve the contractor of responsibility for errors or omissions in shop drawings or responsibility for meeting all requirements for performance. The supplier is responsible to confirm site dimensions and to design the system accordingly. Coordination with site contractor is required to ensure final design fits existing facility.
Shop drawings will be returned with a stamp indicating one of the following:

1. No comment (drawings are approved as submitted)
2. As noted (drawings are approved as noted)
3. Amend and resubmitted (drawings are to be corrected as noted)
4. Reject (drawings do not meet specified requirements)

Any payments related to design completion will only be issued if drawings have been stamped: "No comment" or "As noted".
Drawings stamped "As noted" must be revised for inclusion in the Operation and Maintenance Manuals. Design drawings preferred sizes are 11"x17" (or A3) and Letter (or A4). In case larger drawings are needed to facilitate discussion and site installation review, the NRC Project Manager will request them as needed.

A-5 Progress reports

Potential suppliers shall submit progress reports for the following milestones: 25%, 50%, and 75% work completion and ready for shipment. Progress reports shall include but not be limited to: Project number and name, date, supplier contact information, detailed percentage complete, milestone list updates, update issues log, photos of construction progress.

A-6 Project Meetings

Potential suppliers should participate in meetings as required during project duration. The following meeting are expected during the project:

- Project kick off meeting: After contract award a kick off meeting will be schedule by the Supplier no longer than two weeks after the contract is awarded. The main purpose of the meeting is to review the project contract and make sure the scope is fully understood by the parties. The project reporting and management processes are also to be discussed. Ideally the supplier should attend this initial meeting at the NRC-OCRE facilities in St. John's, however a conference meeting (either on site or via WebEx or similar) will also be accepted
- Design review meeting: During the detailed design phase, between 50% to 75% design completion, the supplier shall request a design review meeting to review drawings and allow any

interface issues to be corrected. Supplier presence is suggested, but the meeting can be done via WebEx or similar.

- Status meetings: Supplier is to participate in project status meetings as required. The Supplier can participate via web or phone conference.
- Milestones meetings: This project will have one milestone meeting related to the completion of the site preparations to receive the wavemaker equipment. The Tow Tank equipment supplier technical team participation is mandatory. On site participation is suggested, however the meeting can be done via WebEx or similar (live broadcast). The main purposes of this meeting is to complete a walk around on the new facility upgrade and verify if there is any potential risk to the equipment installation.
- Installation kickoff meeting: Before the Tow Tank Wavemaker technical team starts working on site, a meeting is to be held to review the site details. Workflow, layout, access to facilities, health and safety procedures, etc. are to be detailed and discussed in this meeting. This meeting will be scheduled by OCRE and the supplier technical team should be present on site.
- Commissioning kickoff meeting: When all the equipment is installed and ready for testing a meeting is to be schedule to discuss the details of the commissioning procedure. The testing team, previously identified, is to attend this meeting. Testing procedures, acceptance criteria, and training requirements are to be reviewed in this meeting.
- Project close-out meeting: After the test(s) has been completed and the acceptance form(s) has been signed, a final meeting is to take place. A project completion statement will be sign to document that the project has been accepted by NRC and the engineer consultant (if applicable). Any issues, questions, and other discussion are to be closed at this meeting. If required a lessons learned process shall be completed. This meeting is to be scheduled by NRC and shall involve the Site contractor, the Tow Tank Wavemaker supplier, the NRC installation team and the engineer consultant (if applicable).

A-7 System Training

After the completion of the commissioning, the supplier is required to provide training to a maximum of five (5) NRC-OCRE personnel in the installation, operation, maintenance, troubleshooting and safety of the system including mechanical, electrical and software components. The training must be a minimum of two (2) days and be conducted on site in St. John's Newfoundland during the normal working hours of 8:30 to 16:00 on mutually agreed dates and times.

NRC reserves the right to videotape the training session for future internal use.

A-8 Spare Parts

A final list of spare parts will be determined at final design review. As a starting point, the spare parts list must include but is not limited to, the following:

1- Quantity of two (2) motor assembly including motor drive, power supply, drive assembly, motor couplings, all mounting hardware and all motor high voltage cables.
2- Quantity of two (2) Active Wave Absorption water elevation sensors.
3- A set of wearable parts such as bearings, gaskets, seals, etc.

A-9 Software Updates

The Supplier must provide all software updates and new release to NRC for a period of one (1) year following the acceptance, at no additional cost.

A-10 System Warranty
One (1) year unlimited warranty from the final system acceptance must be included on all hardware and software.

A-11 Service
Purchase of the system must include a service response no longer than 48 hrs. Service requests shall be email to supplier which will have 48 hrs to reply and address NRC questions. If a technician visit is required it shall be available in no longer than 96 hrs after the original request, unless agreed otherwise by NRC.

A-12 System Manuals
An English copy of the system users and maintenance manuals including mechanical drawings of the system as built must be supplied in a paper and electronic formats. The mechanical drawings must be provided in AutoCAD compatible format.

A-13 NRC or Site Furnished Items
The following items are either the responsibility of NRC-OCRE and/or will be supplied by NRC-OCRE:

1- Main electrical installation required for the wave generator.
2- Electrical connection between motor control cabinets and NRC electrical high voltage power supply. This connection will be done by a local electrical contractor. NRC will supply all local high voltage disconnect connectors where needed.
3- Removal of current wave generator equipment.
4- Removal of water in the facility or the construction of a cofferdam retaining wall. This will be decided by NRC at the time of installation to reduce facility down time.
5- General site contractor for all civil aspect of the construction project items mentioned above.

A-14 Wave Generator Performance Curves

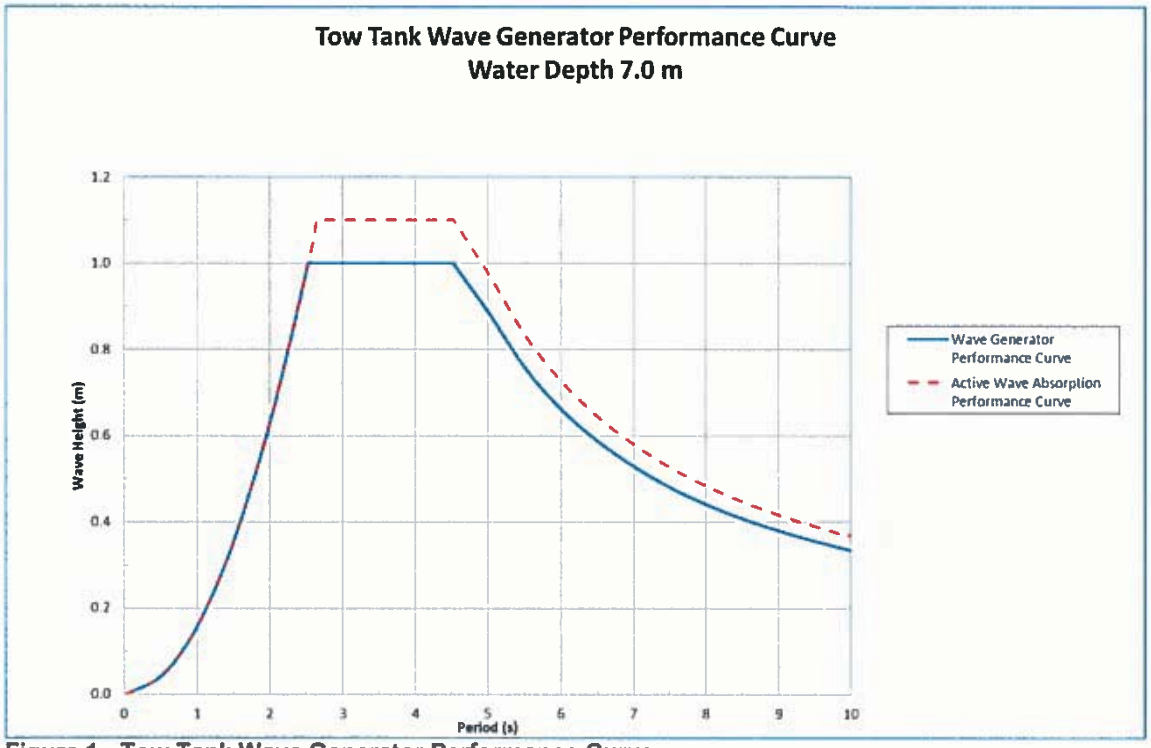

Figure 1 - Tow Tank Wave Generator Performance Curve

A-15 Tow Tank Characteristics

The Tow Tank facility is 200m long, 12m wide and 8m deep with a content water depth of 7.0m. The currently installed wave generator is a dual flap wave generator with the lower hinge depth located at 4m below water surface and the upper hinge depth at 1.2m below water surface when lower flap is vertical. A parabolic wave absorption beach is installed on the opposite end of the wave generator.

Link: http://www.nrc-cnrc.gc.ca/eng/solutions/facilities/marine_performance/towing_tank.html

A-16 Wave Generator Acceptance Testing

The equipment must comply with all specifications described in the "Technical Specifications" in order to be accepted by NRC. All tests described in the following Tables shall be performed by the supplier to demonstrate that the equipment is fully operational and fully functional as described in the performance specifications.

A-17 Regular Wave Test Conditions:

Each regular wave condition shall be generated and measured over duration of at least 600s. The measurements must confirm that the target wave conditions are generated successfully.

Test #	*Wave Height (m)*	Wave Period(s)	Water Depth (m)	Wave Direction (°)	Active Wave Absorption	2nd Order Generation
T1-1	0.17	1.00	7.0	0.0	Off	Off
T1-2	0.35	1.50	7.0	0.0	Off	Off
T1-3	0.35	1.50	7.0	0.0	Off	On
T1-4	0.35	1.50	7.0	0.0	On	Off
T1-5	0.60	2.00	7.0	0.0	Off	Off
T1-6	0.60	2.00	7.0	0.0	Off	On
T1-7	0.60	2.00	7.0	0.0	On	Off
T1-8	0.80	2.50	7.0	0.0	Off	Off
T1-9	0.80	2.50	7.0	0.0	Off	On
T1-10	0.80	2.50	7.0	0.0	On	Off
T1-11	1.00	3.00	7.0	0.0	Off	Off
T1-12	1.00	3.00	7.0	0.0	Off	On
T1-13	1.00	3.00	7.0	0.0	On	Off
T1-14	1.00	4.00	7.0	0.0	Off	Off
T1-15	1.00	4.00	7.0	0.0	Off	On
T1-16	1.00	4.00	7.0	0.0	On	Off

Table 1 – Regular Wave Test Conditions

A-18 Irregular Wave Test Conditions (with 2nd order theory)

These tests are intended to demonstrate the ability to generate irregular long-crested waves. Each irregular wave condition shall be generated and measured over a duration of at least 1200 s, using command signals of length 600 s. The wave conditions measured over the first and second 600s periods shall be compared with each other and with the target condition.

Spectrum Type	Gamma	Hs (m)	Tp (s)	Duration (minutes)	Water Depth (m)	Wave Direction (°)	AWA State	2nd Order Theory
Jonswap	3.3	0.20	1.5	20	7.0	0.0	ON	OFF
Jonswap	3.3	0.20	1.5	20	7.0	0.0	ON	ON
Jonswap	3.3	0.40	3.0	20	7.0	0.0	ON	OFF
Jonswap	3.3	0.40	3.0	20	7.0	0.0	ON	ON
Jonswap	3.3	0.20	1.8	20	7.0	0.0	ON	OFF
Jonswap	3.3	0.20	1.8	20	7.0	0.0	ON	ON
Jonswap	3.3	0.40	4.5	20	7.0	0.0	ON	OFF
Jonswap	3.3	0.40	4.5	20	7.0	0.0	ON	ON

A-19 2nd order Wave Generation Testing:

Bi-chromatic waves (superposition of two regular waves with different frequencies) will be used for testing 2nd order wave generation. The measured wave conditions will be analysed and compared with theoretical predictions to confirm that the first order waves and the second-order low-frequency and high-frequency wave components are correctly generated, as prescribed by second-order wave theory, and that spurious low-frequency wave components are effectively suppressed.

Wave Height (m)	Wave Period 1(s)	Wave Period 2 (s)	Water Depth (m)	Wave Direction (°)
0.15	1.45	1.55	7.0	0.0
0.15	2.90	3.10	7.0	0.0
0.15	2.90	3.10	7.0	0.0

Table 3 – 2nd order Wave Test Conditions

The supplier may also propose an alternative method to demonstrate the performance of the 2nd order wave generation capability.

A-20 Active Wave Absorption Generation Testing:

Spectrum Type	Gamma	Hs (m)	Tp (s)	Duration (minutes)	Water Depth (m)	Wave Direction (°)	AWA State
Jonswap	3.3	0.30	2.5	12	7.0	0.0	OFF
Jonswap	3.3	0.30	2.5	12	7.0	0.0	ON
Jonswap	3.3	0.40	3.5	12	7.0	0.0	OFF
Jonswap	3.3	0.40	3.5	12	7.0	0.0	ON

Table 4 – Active Wave Absorption Wave Test Conditions

The spectrum and wave parameters measured will be compared between the AWA OFF and AWA ON state to verify the functionality of the Wave Absorption system.

The supplier may also propose an alternative method to demonstrate the performance of the active wave absorption capability.

Please note that it's not possible to generate the Active Wave Absorption curve defined in Figure 1 within the facility due to the wall height restriction. During acceptance testing, the supplier will be required to demonstrate that the remaining stroke available is sufficient to achieve the performance outline in the Active Wave Absorption dotted line curve.

A-21 Wave Generator Endurance testing:

The following wave period and wave height must be generated for duration of 3 hours without any system failures:

Wave Height (m)	Wave Period(s)	Water Depth (m)	Wave Direction (°)
0.5	3.0	7.0	0.0

Table 5 – Endurance Testing Wave Test Conditions

A-22 Wave Generator Accuracy and Repeatability testing:

Note: Both of these tests shall be performed with active wave absorption off.

- The accuracy of the wave board motions shall be measured and verified over a range of operating conditions. The test shall use a board motion target signal which includes frequencies from 0.2 to 2.0 Hz in a water depth of 7.0m. The measured stroke amplitude shall be within +/- 2% of the target value, 95% of the time. The measured stroke frequency shall be within +/- 2% of the command frequency, 95% of the time. The root mean square error between the measured and target position shall be less than 0.01m during normal operation. The phase lag of the system should not exceed 10 degrees.

- The repeatability of wave board motions shall be measured and verified over a range of operating conditions. The tests shall use board motion target signal of 0.25 Hz, 0.50 Hz, 1.0 Hz, and 2.0 Hz in a water depth of 7.0m, the amplitude of each signal shall be 50% of maximum available stroke for that frequency as defined in Figure 1. All tests shall be repeated at least 3 times, the repeatability of stoke amplitudes must be less than +/- 0.1% of the commanded value and the repeatability of frequency must be within +/- 0.1%.

A-23 Tow Tank Wave Generator Elevation Diagram

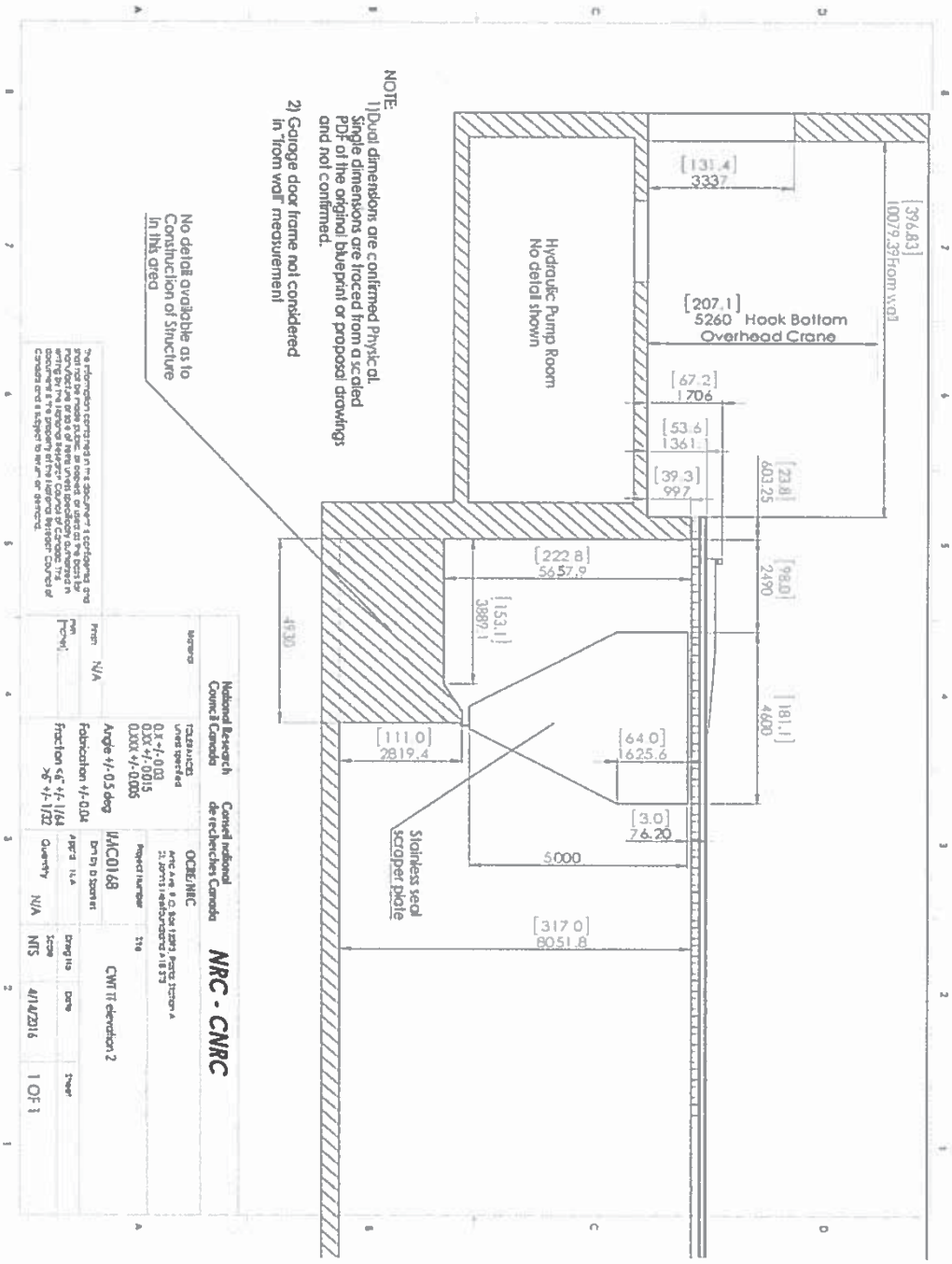

Figure 2 - Tow Tank Wave Generator Elevation Diagram

ANNEX B

BASIS OF PAYMENT

Basis of Payment
Subject as hereinafter provided, you will be paid the cost reasonably and properly incurred in performance of the work; Harmonized Sales tax extra and to be shown as a separate item on all claims for payment; in accordance with the following:

Bidders are to provide a firm all-inclusive price for each line item below:

1. Detailed mechanical and electric design of the wave generator and control system.

   Firm Price: $ _____

2. Detailed design and delivery of a software system for wave synthesis and generation.

   Firm Price: $ _____

3. Transportation of the system to the National Research Council, Ocean, Coastal and River Engineering Laboratory in St. Johns Newfoundland, Canada.

   Firm Price: $ _____

4. Installation of the wave generator and control system in the Tow Tank facility.

   Firm Price: $ _____

5. Commissioning and performance/acceptance testing of the system.

   Firm Price: $ _____

6. Technical support and warranty, minimum 1 year from final system acceptance.

   Firm Price: $ _____

7. Two printed copies and one digital copy of all design specification as built and system documentation.

   Firm Price: $ _____

TOTAL: $ _____
HST Extra

ANNEX C

INSURANCE REQUIREMENTS

Commercial General Liability Insurance

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.

2. The Commercial General Liability policy must include the following:
   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.
   b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
   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.
   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.
   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.
   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.
   g. Employees and, if applicable, Volunteers must be included as Additional Insured.
   h. Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
   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.
   j. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
   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.
   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.
   m. Non-Owned Automobile Liability - Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.
   n. Advertising Injury: While not limited to, the endorsement must include coverage piracy or misappropriation of ideas, or infringement of copyright, trademark, title or slogan.
   r. 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.

Errors and Omissions Liability

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 to PART 5 OF THE BID SOLICITATION

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC)-Labour's website.

Date:_____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

( ) A1. The Bidder certifies having no work force in Canada.

( ) A2. The Bidder certifies being a public sector employer.

( ) A3. The Bidder certifies being a federally regulated employer being subject to the *Employment Equity Act.*

( ) A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

( ) A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

( ) A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

( ) B1. The Bidder is not a Joint Venture.

OR

( ) B2. The Bidder is a Joint Venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)

ANNEX E

EVALUATION CRITERIA AND SELECTION METHOD

Evaluation of Mandatory Requirements

To be considered responsive, a proposal must meet all of the mandatory requirements associated with this solicitation define below in Section A & B. Proposals which fail to meet all mandatory requirements will be discarded at this stage without further consideration and the proposal will be considered to be non-responsive.

MANDATORY REQUIREMENTS

The wave generator and control system (collectively known as the system) must satisfy the following mandatory requirements:

Section A – Wave Generator Mandatory Requirements			
Number	Mandatory Requirement	Proposal Preparation Instruction	Met / Not Met
1	Wet-back flapper-type segmented wave generator	This is a yes / no requirement.	
2	Wave board width of 0.6 m (acceptable width 0.5m to 0.6m)	Board width specification must be provided.	
3	Total number of segments must be an integer multiple of the 12m Tow Tank width. Number of Segments = 12m / 0.6m = 20. (acceptable range = 20 to 24)	Total number of segments must be provided including the number of segments per section.	
4	Minimum wave board height of 5.0m. Platform depth of 4.0m below still water level leaving 1m of wave board above water.	Board height specification must be provided.	
5	Flapper board angle of ± 15 degrees.	Maximum flapper board angle measured at the top of the wave board must be specified. If specification cannot be met due to wave performance requirements, supplier must provide supporting documentation for exemption.	
6	Maximum gap between adjacent wave board segments of 5 mm	Specification of actual gap must be provided.	
7	Maximum gap between the Tow Tank wall and the first and last wave board segment must be less than 5mm.	Specification of actual gap must be provided.	
8	The allowable gap between the bottom of the wave boards and the wavemaker platform shall not exceed 15 mm	Specification of gap between the bottom of wave boards and the wavemaker platform.	
9	The solid line design curves provided in Figure1 Annex A, indicate the minimum	Documentation of the expected design curves for the propose	

	range of regular wave heights (H) that must be generated by the wave generator as a function of wave period (T) for a water depth of 7.0m without active wave absorption. The dotted line performance curve indicates the additional performance requirement of the wave generator to support Active Wave Absorption.	wave generator must be provided. The wave generator must be able to generate all regular waves on or below the performance curve defined in Figure 1, Annex A and have the additional stroke as indicated by the Active Wave Absorption dotted line to absorb incoming waves at the same time as wave generation.	
10	The system shall employ digital AC servo motor drive systems capable of operating at velocities to support the requirements for wave generation and active wave absorption as specified in the design curves provided in Figure 1.	Description of proposed solution must be provided including specification sheet of the proposed motor drive system.	
11	Each wave board must be equipped with a wave height measurement device to measure the local water surface elevation in order to provide feedback for active wave absorption. The calibration of such device must be such to minimize water level change in the tow tank; the nominal water depth is 7.0m.	Description of proposed solution must be provided, including typical calibration curve and information on sensitivity to changes in water temperature. It is not acceptable to drain or lower the water level more than 1.0 m in the Tow Tank to calibrate or replace a wave height sensor. Description must include the proposed calibration / installation method for long term maintenance.	
12	All servo motors and electrical connections located on the wave generator must have a minimum IP65 water resistance rating.	Must provide IP equipment rating.	
13	To prevent wave generator damage, the system must include physical and software emergency features that combine to automatically initiate system shut down (stroke off-limits, exceeded velocity or force, accidents, etc.)	Description of proposed solution must be provided.	
14	The system must be modular in construction for ease of installation and maintenance. Each section must weigh no more than 1800kgs	Description of proposed solution must be provided including the overall proposed weight per section.	
15	The system must include safety indicators, including but not restricted to lights and/or beacons: (1) when power is applied to the wave generator, (2) when the wave generator is in operation (green to indicate power is applied, yellow to indicate standby and red to indicate in operation), (3) include an audible klaxon that	Description on proposed safety method for all 3 safety indicators must be provided. The klaxon must be clearly heard from the opposite end of the Tow Tank 200 m away (beach end).	

	sounds prior to the start of operation (wave board movement).		
16	All electrical equipment must meet appropriate Canadian CSA or UL rating standards and shall be EMC compliant.	Rating of all proposed equipment must be provided.	
17	Passive wave absorption devices must be incorporated behind the wave generator for absorption of wave energy on the back side of the wave generator.	Proposed solution including the expected efficiency of the passive absorbers must be provided.	
18	There shall be no name or logo prominently visible on any equipment.	Provide a description of proposed solution.	
19	Bidder must demonstrate their experience in the manufacturing and installation of similar wave generation equipment of the same complexity within the last five (5) years.	Provide 2 to 3 references including as a minimum: - name of clients to whom the similar technology have been provided; - client contact name and current phone and e-mail address; - the dates of the services provided.	

The wave generator control system and the wave synthesis/generation software must satisfy the following mandatory requirements:

Section B – Control System and Synthesis/Generation Software Mandatory Requirements			
Number	Mandatory Requirement	Proposal Preparation Instruction	Met / Not Met
1	All host wave generator control and wave generation software must operate under the Microsoft Windows 7 operating systems.	Demonstrate that all host software operates on Microsoft Windows 7 operating system.	
2	All software must be controlled using a Windows Graphical User Interface (GUI) for ease of operation.	Demonstrate that all software is controlled by GUI.	
3	The wave generation software must be controllable from a remote workstation located on the towing carriage.	Demonstrate that all software is controllable remotely from a network workstation.	
4	Wave synthesis software must include support for non-interactive (automated) operation through a scripting language and/or batch files.	Description of proposed solution must be provided, including explanation of what can be done in non-interactive mode.	
5	Wave software must provide the ability to synthesize and generate irregular wave trains from spectra using the Random Phase Method.	Demonstrate that support for Random Phase Method is supported.	
6	Wave generation software must provide the ability to generate waves from user-computed wave board motion data file.	Description of proposed solution must be provided.	
7	Wave generation software must provide the ability to accurately reproduce waves from user specified uni-directional wave time histories.	Description of proposed solution must be provided.	
8	The wave generation software must include compensation for evanescent waves.	Description of proposed solution must be provided.	
9	The wave generation software must allow end-user to save the wave generator drive signals and recall these signals at a later date.	Description of proposed solution must be provided.	
10	The wave generation software must ramp-up and ramp-down the drive signals at the beginning and end of wave generation to protect the equipment.	Description of proposed solution must be provided.	
11	The system must support 2D and 3D active wave absorption over a wide range of frequencies (0.25 Hz to 2.0 Hz) to absorb waves propagating towards the wave generator (i.e. waves reflected from a model structure	Description of proposed solution must be provided.	
12	The wave generation software must provide the ability to control the state of	Description of proposed solution must be provided.	

	Active Wave Absorption (On/Off) without disabling the wave generator.		
13	The wave generation software must provide the ability to independently control the wave absorption coefficient for each wave board (segment) and the wave generator overall wave absorption coefficient.	Description of proposed solution must be provided.	
14	The wave generator software must allow the end-user the ability to synthesize command signals and generate waves based on 2nd order wave theory for long-crested waves (regular, multi-frequency and irregular) propagating in perpendicular directions.	Description of proposed solution must be provided.	
15	The wave generation software must provide the ability to disable individual segments without disabling the wave generator.	Description of proposed solution must be provided.	
16	The supplier must provide command signal data file format information that would allow NRC to write GEDAP import/export utilities.	Description of proposed solution must be provided.	
17	Minimum design life of the system must exceed 20 years at a usage of 500 hours/year at an average performance.	Description of proposed solution must be provided.	
18	The wave generator must be designed in such a manner as to ensure corrosion resistance over its design life.	Description of proposed solution must be provided.	
19	The control system must provide a TTL (5V) trigger signal to synchronize data acquisition with the start of wave generation.	Description of proposed solution must be provided.	

POINT RATED REQUIREMENTS

Evaluation of Point-Rated Requirements

Each Technical Proposal which meets all the Mandatory Requirements specified above, will be evaluated and scored in accordance to the following:

(a) The information provided in section C & D will be evaluated using the following points criteria:
- Failure to meet requirement 0% (No further consideration)
- Met some requirement – 10 to 79% (No further consideration)
- Meets requirement – 80%
- Exceeds requirement – 81 to 100%

(b) For a proposal to be considered, the Bidder must achieve a minimum overall score of 80 percent in Section C and Section D, 152 points (190 x 80%) for Section C and 112 points (140*80%) for Sections D.

The following requirements for the wave generator and control system (the system) will be rated on a point's basis.

Section C – Wave Generator Point-Rated Requirements			
Number	Point-Rated Evaluation Criterion	Guidance	Maximum Points
1	Capability of generating specified wave conditions (wave time histories and wave spectra) with high accuracy. The peak period should not vary more than 1% of the target peak period, and the wave amplitude should not vary more than 5%.	Provide a description of the proposed solution to achieve high accuracy and describe the expected accuracy. Examples figures of the computed wave spectra and wave time series with the corresponding measured wave spectra and wave time series must be provided.	20 points
2	Capability of generating the following waves propagating perpendicular to the wave board: (1) regular waves, (2) irregular long-crested waves, (3) user-defined wave spectra, (4) user-defined wave time series.	Provide a description (with references) of the proposed technique for wave synthesis and generation. Describe the system functionality and the expected performance envelope for generation of long-crested directional waves.	15 points
3	Ability to synthesize command signals and generate waves based on 2nd order wave theory for long-crested waves (regular, multi-frequency and irregular) propagating in perpendicular directions. This should include correct reproduction of bound lower harmonics, higher harmonics and set-down under wave groups, as well as effective suppression of spurious second order wave components.	Provide a description of the proposed method/solution and its functionality. Provide documentation / references describing the theoretical basis for the 2nd order wave synthesis/generation method and its implementation.	15 points
4	The system should support 2D and 3D active wave absorption over a wide	Provide a description (with references) of the active wave absorption method	15 points

	range of frequencies to absorb waves propagating towards the wave generator (i.e. waves reflected from a model structure	being proposed and its functionality and performance. Include information on the variation in performance with wave frequency.	
5	The drive and guide system must have effectively zero backlash.	Demonstrate that the system being used eliminates any backlash.	10 points
6	The system should provide the ability to measure the amplitude and phase lag transfer function of each wave board across a frequency range of 0.05 Hz to 2.5 Hz. The amplitude transfer function should not deviate more than ±5% from unity and, the phase lag, should be less than 30 degrees.	Provide a description of the proposed solution for measuring and minimizing the amplitude and phase lag. Describe the expected amplitude and phase lag curves for the system. If applicable, describe how these curves are used for compensation during the wave generation process.	10 points
7	The wave generator should incorporate a passive wave absorption device behind the wave generator to absorb waves generated behind the wave boards. The passive absorbers should absorb more than 80% of the unwanted wave energy over the range from 0.33 to 2 Hz. The distance from the front of the wave generator and the back wall is 5m. See Figure 2 in Annex A.	Provide a description of proposed solution and its performance. Include supporting data to quantify the efficiency of the passive absorption device over a range of water depths and wave frequencies.	10 points
8	The wave generator should include a robust, high stiffness and durable supporting frame. There must be no flexing in the frame during wave generation and the frame must resist corrosion for the design life of the wave generator as a minimum.	Provide a description of proposed solution, including the materials that will be used to construct the frame. Additional points will be given for durability of the material selection.	15 points
9	The wave generator should be designed to resist corrosion over its design life.	Provide a description of the proposed solution.	10 points
10	The wave boards should have effectively zero flexibility from top to bottom and side to side during wave generation.	Provide a description of the proposed solution regarding stiffness of the wave board to ensure no unwanted flexure during wave generation.	10 points
11	The minimum design life of the system should exceed 20 years at a usage of 500 hours/year at an average performance.	The actual design life of the entire proposed system should be stated.	10 points
12	The system must be modular in construction for ease of installation and maintenance. Each section must weigh	Description of proposed solution must be provided including the overall proposed weight per section.	10 points

	no more than 1800kgs		
13	The system must be designed to require a minimal amount of yearly maintenance.	Describe the recommended yearly maintenance requirements and schedule.	10 points
14	Bidder must demonstrate their experience in supplying of similar wave generation equipment of the same project complexity.	Provide a project portfolio describing 1 or 2 similar assignments completed within the past five years.	15 points
15	Bidder must provide references	Provide 2 to 3 references including name, title, affiliation, address, e-mail, phone number.	15 points

The following requirements pertaining to the wave generator control system and the wave synthesis/generation software will be rated on a point's basis:

Section D – Control System and Wave Generator Software Point-Rated Requirements			
Number	Point-Rated Evaluation Criterion	Guidance	Maximum Points
1	Must support synthesis and generation of all wave types including but not limited to regular, bi-chromatic, multi-frequency, irregular, long-crested.	Provide a description of the wave types to be supported and the synthesis methods.	15 points
2	Wave generation software must support the synthesis of a range of 1D (frequency) and 2D (frequency-direction) parametric wave spectra including but not restricted to; (Jonswap, Bretschneider, Pierson-Moskowitz, TMA, Ochi, etc.) and parametric spreading functions (Gaussian, cosine-power, etc.), including user-defined 1D and 2D spectra.	Provide a description of the parametric wave spectra types to be supported and synthesis methods.	15 points
3	Wave generation software must support the synthesis and generation of directional wave trains from 2D wave spectra using both the Single Summation (one direction per frequency) and Double Summation (multiple directions per frequency) methods.	Provide a description of the proposed solution/methods for synthesizing/generating wave trains from 2D wave spectra.	10 points
4	The wave generation software must provide tools to truncate and concatenate command signals.	Provide a description of the proposed solution and its functionality.	10 points
5	The wave generation software must provide the ability to cycle a set of drive signals more than once, i.e.: generate a 10 minute long drive signal and run the drive signal for 30 minutes (3 cycles).	Provide a description of the proposed solution and its functionality.	10 points
6	The wave generation software must provide a basic analysis capability, and at minimum, allow end-user verification that the generator drive signal(s) correlate with the input parameters.	Provide a description of the proposed solution and its functionality, including a description of all analysis software to be provided.	10 points
7	Wave synthesis and generation software must provide support for 2nd order wave generation theory for long-	Provide a description of the proposed method including its implementation, functionality and performance.	15 points

	crested waves (regular, multi-chromatic and irregular) in perpendicular directions. This support capability must provide correct reproduction of all 2nd order bound lower and higher harmonics, the set-down under wave groups, and the suppression of spurious second order wave components.		
8	The wave generator control software must display the wave synthesis parameters used to create the current set of command signals.	Provide a description of the proposed solution and its functionality.	10 points
9	The wave generation control software must graphically display the commanded signal trace for any user-selected wave board (segment) including a real-time pointer displaying the current wave board position within that graphical display.	Provide a description of the proposed solution and its functionality.	15 points
10	The software must provide the ability to acquire and record data from any and all wave board segment sensors and should include the water surface elevation data measured at the wave boards for active wave absorption.	Provide a description of the proposed solution and its functionality, including the range of sampling rates supported.	10 points
11	The supplier must provide support to accept wave generation files created by NRC GEDAP wave generation software. NRC will be responsible to make any required changes to the GEDAP wave generation software to support the new wave generator.	Provide a description of the proposed solution.	10 points
12	The control system must provide a TTL (5V), low to high trigger signal when the wave generation starts, changing from high to low when wave generation stops. This trigger will be used to synchronize data acquisition with the start of wave generation.	Provide a description of the proposed solution and its functionality and performance. The expected precision and repeatability of the timing trigger should be described.	10 points

BASIS OF SELECTION

Evaluation of Proposal Total Score

If the proposals fail to meet the criteria's as defined in Section A & B and C & D above, it will be given no further consideration. The remaining responsive proposals within the stipulated maximum budget will then be ranked on the following bases:

1- The proposal scoring will be evaluated by assigning 20% of total score to the proposal cost and 80% of total score to technically rated portion of the bid.
2- The scoring equation for the Proposal's Cost Points will be as follows: Proposal Cost/Total Technical points awarded in sections C & D.
3- The bid with lowest cost/point value will received the maximum score of 20%, all other bids cost/point scoring will be in reference to that lowest bid. For example, if the lowest cost/point value is $8,421 and the second bid value is $10,136, the second bid Cost Score = 8421/10136*20%= 16.62%.
4- The scoring of the Technical Points will be done in accordance to the total technical points from Sections C and D (Point-Rated Requirements) divided by the total number of available technical points multiplied by 80%. For example, total of technical points is 285, the bid technical evaluation of C&D is 256.5, Technical Score = 256.5/285*80%= 72%
5- The total proposal score is equal to the totals of the cost score and the technical score as calculated above. Total Score = Cost Score + Technical Score = 16.62 + 72 = 88.62%

The responsive bid with the highest total score will be recommended for award of contract.