



## RETURN BIDS TO:

## RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government  
Services Canada/Réception des  
soumissions/Travaux publics et Services  
gouvernementaux Canada  
See herein for bid submission  
instructions/  
Voir la présente pour les  
instructions sur la présentation  
d'une soumission  
NA  
Ontario

## 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

Address all inquiries to  
Tammy.weaver@pwgsc-tpsgc.gc.ca

### Vendor/Firm Name and Address

Raison sociale et adresse du  
fournisseur/de l'entrepreneur

### Issuing Office - Bureau de distribution

Public Works and Government Services / Travaux publics et  
services gouvernementaux  
Kingston Procurement  
Des Acquisitions Kingston  
86 Clarence Street, 2nd floor  
Kingston  
Ontario  
K7L 1X3

<b>Title - Sujet</b> 'Drifting' and 'On ice' Buoys	
<b>Solicitation No. - N° de l'invitation</b> K3D33-220101/A	<b>Date</b> 2021-07-08
<b>Client Reference No. - N° de référence du client</b> K3D33-22-0101	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$KIN-508-8425	
<b>File No. - N° de dossier</b> KIN-1-56025 (508)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> Eastern Daylight Saving Time EDT <b>on - le 2021-08-18</b> Heure Avancée de l'Est HAE	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Weaver, Tammy	<b>Buyer Id - Id de l'acheteur</b> kin508
<b>Telephone No. - N° de téléphone</b> (613) 484-1809 ( )	<b>FAX No. - N° de FAX</b> (613) 545-8067
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> Environment & Climate Change Canada 4905 Dufferin St. Toronto, ON M3H 5T4 Attn: Puneet Jaswal puneet.jaswal@canada.ca	

Instructions: See Herein

Instructions: Voir aux présentes

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



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM		Delivery Req. Livraison Req.	Del. Offered Liv. offerte
						Destination	Plant/Usine		
1	'Drifting' and 'On ice' Buoys	K3D33	K3D33	1	Each	\$	XXXXXXXXXX	See Herein – Voir ci-inclus	

Solicitation No. - N° de l'invitation  
K3D33-220101/A  
Client Ref. No. - N° de réf. du client  
K3D33-22-0101

Amd. No. - N° de la modif.  
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Buyer ID - Id de l'acheteur  
KIN508  
CCC No./N° CCC - FMS No/ N° VME

## TABLE OF CONTENTS

<b>PART 1 - GENERAL INFORMATION .....</b>	<b>2</b>
1.1 REQUIREMENT .....	2
1.2 DEBRIEFINGS .....	2
1.3 EPOST CONNECT SERVICE.....	2
<b>PART 2 - BIDDER INSTRUCTIONS.....</b>	<b>2</b>
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS .....	2
2.2 SUBMISSION OF BIDS.....	2
2.3 ENQUIRIES - BID SOLICITATION .....	3
2.4 APPLICABLE LAWS .....	3
2.5 BID CHALLENGE AND RECOURSE MECHANISMS.....	3
<b>PART 3 - BID PREPARATION INSTRUCTIONS .....</b>	<b>4</b>
3.1 BID PREPARATION INSTRUCTIONS.....	4
<b>PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION .....</b>	<b>4</b>
4.1 EVALUATION PROCEDURES.....	4
5.1 CERTIFICATIONS REQUIRED WITH THE BID .....	5
5.2 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION.....	6
<b>PART 6 - RESULTING CONTRACT CLAUSES .....</b>	<b>6</b>
6.1 SECURITY REQUIREMENTS.....	6
6.2 REQUIREMENT .....	6
6.3 STANDARD CLAUSES AND CONDITIONS .....	6
6.4 TERM OF CONTRACT.....	7
6.5 AUTHORITIES.....	7
6.6 PAYMENT.....	8
6.7 INVOICING INSTRUCTIONS.....	8
6.8 CERTIFICATIONS AND ADDITIONAL INFORMATION .....	9
6.9 APPLICABLE LAWS .....	9
6.10 PRIORITY OF DOCUMENTS.....	9
6.11 DISPUTE RESOLUTION.....	9
6.12 INSURANCE - NO SPECIFIC REQUIREMENT .....	9
<b>ANNEX "A" .....</b>	<b>10</b>
REQUIREMENT .....	10
<b>ANNEX "B" .....</b>	<b>18</b>
<b>ANNEX "C" TO PART 3 OF THE BID SOLICITATION.....</b>	<b>25</b>
ELECTRONIC PAYMENT INSTRUMENTS .....	25
ANNEX "D".....	26
MANDATORY GRID .....	26
ANNEX "E".....	35
ADDITIONAL CERTIFICATIONS.....	35

Solicitation No. - N° de l'invitation

K3D33-220101/A

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

K3D33-22-0101

Amd. No. - N° de la modif.

File No. - N° du dossier

Buyer ID - Id de l'acheteur

KIN508

CCC No./N° CCC - FMS No/ N° VME

## **PART 1 - GENERAL INFORMATION**

### **1.1 Requirement**

The requirement is detailed under Article 6.2 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.

### **1.3 epost Connect service**

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

## **PART 2 - BIDDER INSTRUCTIONS**

### **2.1 Standard Instructions, Clauses and Conditions**

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

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

The [2003](#) ([2020-05-28](#)) 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

#### **2.1.1. SACC Manal Clauses**

B3000T (2006-06-16) Equivalent Products

### **2.2 Submission of Bids**

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

#### **PWGSC Ontario Region Bid Receiving Unit**

Only bids submitted using epost Connect service will be accepted. The Bidder must send an email requesting to open an epost Connect conversation to the following address:

[TPSGC.oreceptiondessaoumissions-orbidreceiving.PWGSC@tpsgc-pwgsc.gc.ca](mailto:TPSGC.oreceptiondessaoumissions-orbidreceiving.PWGSC@tpsgc-pwgsc.gc.ca)

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions [2003](#), or to

send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

It is the Bidder's responsibility to ensure the request for opening an epost Connect conversation is sent to the email address above at least six days before the solicitation closing date.

Bids transmitted by facsimile or hardcopy to PWGSC will not be accepted.

### 2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 10 calendar days before the bid closing date. Enquiries received after that time may not be answered.

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

### 2.4 Applicable Laws

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

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

### 2.5 Bid Challenge and Recourse Mechanisms

- (a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.
- (b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's [Buy and Sell](#) website, under the heading "[Bid Challenge and Recourse Mechanisms](#)" contains information on potential complaint bodies such as:
  - Office of the Procurement Ombudsman (OPO)
  - Canadian International Trade Tribunal (CITT)
- (c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1 Bid Preparation Instructions

The Bidder must submit its bid electronically in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

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

Section I: Technical Bid

Section II: Financial Bid

Section III: Certifications

Bids transmitted by facsimile or hardcopy will not be accepted.

#### Section I: Technical Bid

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

#### Section II: Financial Bid

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

#### 3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex "C" Electronic Payment Instruments, to identify which ones are accepted.

If Annex "C" Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

#### 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

#### 4.1.1 Technical Evaluation

##### 4.1.1.1 Mandatory Technical Criteria

	Technical Criteria	Page # of Supporting Documentation
<b>M1</b>	Bidder must meet all the technical specifications outlined in Annex A – Requirement. In order to validate compliance, Bidder must complete Annex D, Mandatory Specification Table and return it with their bid.	
<b>M2</b>	Bidder must submit with their bid supporting technical documentation such as: literature, brochures and/or specifications for their proposed product, which clearly demonstrates that their proposed product meets each of the items in the Mandatory Specification Table, Annex D.	

#### 4.1.2 Financial Evaluation

1. The Bidder must complete and submit with its bid, Annex B - Basis of Payment, Price Evaluation, in Canadian funds. Pricing must be provided for Firm Requirements and Optional Requirements (4 years total) for each item the Bidder is bidding.
2. The evaluation of price will be on an item by item basis. The evaluated price for each item will be the Total Evaluated Price, which will be the sum of the Extended Price from Section A. Firm Requirement and the Extended Prices (for Options 1, 2, 3, and 4) from Section B. See Annex B, Price Evaluation.
3. SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price-Bid

#### 4.2 Basis of Selection - Multiple Items

- 4.2.1** A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price on an item by item basis will be recommended for award of a contract.

### PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

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

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

#### 5.1 Certifications Required with the Bid

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

##### 5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](#) website

Solicitation No. - N° de l'invitation

K3D33-220101/A

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

K3D33-22-0101

Amd. No. - N° de la modif.

File No. - N° du dossier

Buyer ID - Id de l'acheteur

KIN508

CCC No./N° CCC - FMS No/ N° VME

(<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

## **5.2 Certifications Precedent to Contract Award and Additional Information**

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

### **5.2.1 Integrity Provisions – Required Documentation**

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

### **5.2.2 Federal Contractors Program for Employment Equity - Bid Certification**

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

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

## **PART 6 - RESULTING CONTRACT CLAUSES**

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

### **6.1 Security Requirements**

**6.1.1** There is no security requirement applicable to the Contract.

### **6.2 Requirement**

The Contractor must provide the items detailed under the "Requirement" at Annex "A".

### **6.3 Standard Clauses and Conditions**

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



Solicitation No. - N° de l'invitation

K3D33-220101/A

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

K3D33-22-0101

Amd. No. - N° de la modif.

File No. - N° du dossier

Buyer ID - Id de l'acheteur

KIN508

CCC No./N° CCC - FMS No/ N° VME

### 6.3.1 General Conditions

2010A (2020-05-28), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

### 6.3.2 Supplemental General Conditions

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

## 6.4 Term of Contract

### 6.4.1 Period of the Contract

The period of the Contract is from date of Contract to 31 March 2026 inclusive

### 6.4.2 Delivery Date

Items listed Annex "A", section A must be delivery by \_\_\_\_\_ (to be completed by bidder)

### 6.4.3 Delivery Points

Delivery of the requirement will be made to delivery point(s) specified at Annex "A" of the Contract.

## 6.5 Authorities

### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:  
Tammy Weaver  
Supply Specialist  
Public Works and Government Services Canada  
Acquisitions Branch  
Kingston, Ontario  
K7L 1X3

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: (to be provided upon award of contract)

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

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

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

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

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

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

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

Solicitation No. - N° de l'invitation

K3D33-220101/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

KIN508

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

K3D33-22-0101

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

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: \_\_\_\_\_

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

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

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

## 6.6 Payment

### 6.6.1 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, Basis of Payment 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.

### 6.6.2 Multiple Payments

H1001C (2008-05-12) Multiple Payments

### 6.6.3 Electronic Payment of Invoices – Contract

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

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

## 6.7 Invoicing Instructions

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

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

## 6.8 Certifications and Additional Information

### 6.8.1 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 Applicable Laws

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

### 6.10 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) the supplemental general conditions 4006 ([2010-08-16](#)), Contractor to Own Intellectual Property Rights in Foreground Information);
- (c) the general conditions [2010A](#) ([2020-05-28](#)), General Conditions - Goods (Medium Complexity),
- (d) Annex A, Requirement;
- (e) Annex B, Pricing Basis;
- (f) the Contractor's bid dated \_\_\_\_\_.

### 6.11 Dispute Resolution

- (a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.
- (b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.
- (c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.
- (d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "[Dispute Resolution](#)".

### 6.12 Insurance - No Specific Requirement

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.

**ANNEX "A"****REQUIREMENT****DRIFTING BUOY AND ON-ICE BUOYS****Background:**

The Environment and Climate Change Canada (ECCC) METAREAS Arctic Program has a requirement for the supply and when as needed, refurbishment of drifter buoys. ECCC has an established network using non-moored buoys known as on-ice or drifter buoys deployed in Canada's Arctic region with the goal of gathering meteorological data in regions where environmental conditions prevent the use of surface stations or moored buoys. These buoys provide live measurements of air temperature, barometric pressure, and sea surface temperature. By maintaining this network, Canada fulfills its commitment as a member of the International Maritime Organization's requirement to have a consistent and significant monitoring presence in both METAREAS zone XVII and zone XVIII. Furthermore, these buoys are part of the Canada's contribution to the Joint Commission on Marine Meteorology (JCOMM) Data Buoy Cooperation Panel's (DBCP) goal of maintaining an array of 1250 surface drifting buoy operating in the world's oceans.

**Objective:**

ECCC METAREAS Arctic Program has a requirement for a multi-year contract for a vendor to supply marine grade drifting and on-ice buoys that are capable of interfacing with MetOcean's LiNC or equivalent back office monitoring platform, and other WMO data platforms such as JCOMMOPS.

ECCC is seeking a supplier of the following products:

1. SVP/B/Iridium - Surface Velocity Program Langrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue for deployment in an ocean environment.
2. Non Air Deployable Polar surface velocity drifters with barometers & lithium batteries for deployment in the Arctic
3. Polar surface velocity drifters with barometers with air deployment package for deployment in the Arctic.
4. Compact Air Launch Ice Beacon- Cylindrical buoy with air launch capability, used to track movement of ice edge, or large ice islands.
5. Asset tracking and monitoring solution that enables remote operation, tracking, and monitoring of the buoys in real-time using MetOcean's LiNC or equivalent monitoring platform.

**Item 1 - SURFACE VELOCITY SVP/B SPECIFICATIONS**

All Iridium SVP/B Surface Velocity Drifting Buoys must be equipped with Barometers (SVP/B). Drifting buoys will be deployed by Environment and Climate Change Canada (ECCC) by ships crews or ECCC personnel. All buoys must be individually packaged for free-fall deployment from a moving vessel from a minimum of 10 M height above the surface of the ocean.

1. All SVP/B drifting buoys must be built to meet or exceed recommendations in the ["Global Drifter Programme Barometer Drifter Design Reference" DBCP Report No. 4, Revision 2.2, August 2009](#), published by the Data Buoy Cooperation Panel. Lithium batteries used must be UN-Certified for transportation on public carriers.

**2. All SVP/B drifting buoys must meet or exceed the following specifications:**

**2.1 Typical Buoy Dimensions (nominal)**

Surface Unit Diameter	32 - 40 cm
Mass (in air)	10 – 20 kg

**2.2 Drogue Dimensions**

DAR (Drag Area Ratio)	Greater than or equal to 35
Dimensions:	
Length	Maximum of 5.5 m
Diameter	60-62 cm
Style	Holey sock
Tether length	15m – to centre of drogue

**2.3 Buoy Construction**

Surface unit	32 – 40 cm High Impact ABS Plastic UV resistant
Tether strength member	Plastic impregnated wire rope
Drogue	Non-fray synthetic cloth or equivalent

**2.4 Environmental**

	<b>Operational limits</b>	<b>Survival limits</b>
Winds	0 to 25 m/s (0 to 50 knots)	0 to 50 m/s (0 to 100 knots)
Temperature (Air)	-20°C to +40°C	-20°C to +55°C
Sea Surface Temperature	-2°C to +35°C	-5°C to +70°C
Relative Humidity	0 to 100%, marine	0 to 100%, marine
Sea State	SS5	SS6
Free Fall Drop (into water)		10 m
Buoy Storage Temperature	-20C to +40°C	N/A
Buoy Storage Life	24 month minimum	N/A
Buoy Operating Life	18 month minimum	N/A

**2.5 Sensors**

**2.5.1 Barometer Pressure:**

Type: Vaisala PTB110 or equivalent  
Typical reporting range: 850 to 1054.6 mb  
System Accuracy +/- 1 mb or better

**2.5.2 Sea Surface Temperature:**

Type: YSI Model 44018 encased thermister or equivalent  
Typical reporting range: - 5°C to 35°C  
System Accuracy +/- 1°C or better

**2.5.3 Submergence Drogue On/Off Indicator/Sensor:**

Type: Strain Gauge Drogue Presence System

**2.5.4 Battery Voltage:**

Type: Precision resistive divider or equivalent  
Typical reporting range: 5.0V to 17.5V  
Sensor Accuracy +/- 0.1 Volts

**2.6 Buoy Operational Lifetime:**

Bidder must provide proof with their bid submission from the manufacturer to demonstrate operational lifetimes of similar units in service as follows:

Iridium SVP/B minimum 18 months or better

**2.7 Data Format:**

Must conform to DBCP Iridium Transmission

**2.8 Electronics:**

Iridium SBD Modem

GPS tracking module

System for strain gauge drogue presence

**2.9 Data Communications:**

Bidirectional communication ability via Iridium Short Burst Data (SBD) service

Ability to set up predetermined schedule intervals and/or poll the unit for immediate results

Data latency is less than 60 seconds from start of transmission

**2.10 Testing:**

ISO Quality Certified as per ISO 9001:2000 standards or an equivalent quality plan. Proof of current and valid certification must be provided with the bid submission

**2.11 Proof of Performance:**

The bidder must demonstrate that their Iridium SVP/B drifting buoys have successfully been deployed and used operationally in an arctic marine environment (i.e. open Ocean) for a minimum of two (2) years. Proof must be included in the bid submission

The bidder must provide a list of 2 or more organization who are currently utilizing their Iridium SVP/B drifting buoys with their bid submission

**Item 2 - POLAR IRIDIUM SVP/B SPECIFICATION (NON-AIR DEPLOYABLE)**

The Polar Iridium SVP/B drifting buoys will be deployed by ECCC using ship crews, Department of National Defence Staff, Canadian Coast Guard staff, or ECCC personnel. Buoys must be individually packaged for free-fall deployment from a moving vessel from a minimum of 10 meter height above the surface of the ocean.

All Polar Iridium SVP/B drifting buoys must be built to meet or exceed recommendations in the [“Global Drifter Programme Barometer Drifter Design Reference” DBCP Report No. 4, Revision 2.2, August 2009](#), published by the Data Buoy Cooperation Panel. Lithium batteries used must be UN-Certified for transportation on public carriers.

All Polar Iridium SVP/B drifting buoys must meet or exceed the following specifications:

**2.1 Typical Buoy Dimensions (nominal)**

Surface Unit Diameter 32 - 40 cm

Mass (in air) 10 – 20 kg

**2.2 Buoy Construction**

Surface unit 32 – 40 cm High Impact ABS Plastic

UV resistant

## 2.3 Environmental:

	Operational limits	Survival limits
Winds	0 to 25 m/s (0 to 50 knots)	0 to 50 m/s (0 to 100 knots)
Temperature (Air)	-40°C to +60°C	-60°C to +60°C
Relative Humidity	0 to 100%, marine	0 to 100%, marine
Sea State	N/A	N/A
Buoy Storage Temperature	-40°C to +40°C	N/A
Buoy Storage Life	24 months minimum	N/A
Buoy Operating Life	12-24 months minimum with Lithium batteries	

## 2.4 Sensors

### 2.4.1 Barometer Pressure:

Type: Vaisala PTB100 or equivalent  
 Typical reporting range: 850 to 1054.6 mb  
 System Accuracy +/- 1 mb or better

### 2.4.2 Sea Surface or Air Temperature:

Type: YSI Model 44018 encased thermister or equivalent  
 Typical reporting range: -40°C to +35°C  
 System Accuracy +/- 1°C or better

### 2.4.3 Battery Voltage:

Type: Precision resistive divider or equivalent  
 Typical reporting range: 5.0V to 17.5V  
 Sensor Accuracy +/- 0.1 Volts

## 2.5 Buoy Operational Lifetime:

Bidder must provide proof with their bid submission from the manufacturer to demonstrate operational lifetimes of similar units in service as follows:  
 Polar Iridium SVP/B minimum 12-24 months or better with Lithium batteries

## 2.6 Data Format:

Must conform to DBCP Iridium Transmission

## 2.7 Electronics:

Iridium SBD (Short Burst Data) transceiver  
 GPS Tracking Module

## 2.8 Testing:

Electronics – Cold Chamber Tested  
 ISO Quality Certified as per ISO 9001:2000 standards or an equivalent quality plan. Proof of current and valid certification must be provided with the bid submission

## 2.9 Data Communications:

Bidirectional communication ability via Iridium Short Burst Data (SBD) service  
 Ability to set up predetermined schedule intervals and/or poll the unit for immediate results  
 Data latency is less than 60 seconds from start of transmission

**2.10 Demonstration of Performance:**

The bidder must demonstrate that their Iridium Polar SVP/B (Non Air Deployable) drifting buoys have been successfully deployed and used operationally in the Arctic environment for a minimum of 2 years. Proof must be provided with the bid submission.

The bidder must provide a list of two (2) or more organization who are currently utilizing their iridium Polar SVP/B drifting buoys with their bid submission.

**Item 3 - POLAR IRIDIUM SVP/B SPECIFICATION (AIR DEPLOYABLE)**

The Polar Iridium SVP/B (Air Deployable Polar Buoy) will be prepared and deployed via air by Department of National Defence staff along side ECCC personnel. Other International Cooperative Engagement Program for Polar Research (ICE-PPR) member countries may assist on deployment missions.

All Polar Iridium SVP/B drifting buoys must be built to meet or exceed recommendations in the [“Global Drifter Programme Barometer Drifter Design Reference” DBCP Report No. 4, Revision 2.2, August 2009](#), published by the Data Buoy Cooperation Panel. Lithium batteries used must be UN-Certified for transportation on public carriers.

All Polar Iridium SVP/B drifting buoys must meet or exceed the following specifications:

**2.1 Typical Buoy Dimensions (nominal)**

Surface Unit Diameter	32 - 40 cm
Mass (in air)	10 – 20 kg

**2.2 Buoy Construction**

Surface unit	32 – 40 cm High Impact ABS Plastic UV resistant
Parachute	
Deployment Parameters	With 28 ft. parachute - velocity not exceeding 4.5 m/s at minimum altitude of 300m and an IAS of 80-150 knots

**2.3 Environmental:**

	<b>Operational limits</b>	<b>Survival limits</b>
Winds	0 to 25 m/s (0 to 50 knots)	0 to 50 m/s (0 to 100 knots)
Temperature (Air)	-40°C to +60°C	-60°C to +60°C
Relative Humidity	0 to 100%, marine	0 to 100%, marine
Buoy Storage Temperature	-40C to +40C	N/A
Buoy Storage Life	24 months minimum	N/A
Buoy Operating Life	12-24 months minimum with Lithium batteries	

**2.4 Sensors****2.4.1 Barometer Pressure:**

Type: Vaisala PTB100 or equivalent  
Typical reporting range: 850 to 1054.6 mb  
System Accuracy +/- 1 mb or better

**2.4.2 Sea Surface or Air Temperature:**

Type: YSI Model 44018 encased thermister or equivalent  
Typical reporting range: -40°C to +35°C  
System Accuracy +/- 1°C or better



**2.4.3 Battery Voltage:**

Type: Precision resistive divider or equivalent

Typical reporting range: 5V to 17.5V

Sensor Accuracy +/- 0.1 Volts

**2.5 Buoy Operational Lifetime:**

Bidder must provide proof with their bid submission from the manufacturer to demonstrate operational lifetimes of similar units in service as follows:

Ice Air Buoy minimum 12-24 months or better with Lithium batteries

**2.6 Data Format:**

Must conform to DBCP Iridium Transmission

**2.7 Electronics:**

Iridium SBD Modem

GPS Tracking Module

**2.8 Testing:**

Electronics – Cold Chamber Tested

ISO Quality Certified as per ISO 9001:2000 standards or an equivalent quality plan. Proof of current and valid certification must be provided with the bid submission

**2.9 Data Communications:**

Bidirectional communication ability via Iridium Short Burst Data (SBD) service

Ability to set up predetermined schedule intervals and/or poll the unit for immediate results

Data latency is less than 60 seconds from start of transmission

**2.10 Demonstration of Performance:**

The bidder must demonstrate that their Iridium Polar SVP/B (Air Deployable) drifting buoys have been successfully deployed and used operationally in the Arctic environment for a minimum of 2 years. Proof must be provided with the bid submission.

The supplier must provide a list of 2 or more organization who are currently utilizing their Iridium Polar SVP/B drifting buoys with their bid submission.

**Item 4 - COMPACT AIR-LAUNCH ICE BEACON (CALIB)**

The Compact Air-Launch Ice Beacon (CALIB) will be air-deployed via Transport Canada or Department of National Defence. Buoys may also be launched via CCG ship/helicopter or Arctic bush pilot(s). Any lithium batteries used must be UN-Certified for transportation on public carriers. Proof of certification (in the form of a report) must be provided with the bid submission (for each buoy).

All Compact Air-Launch Ice Beacon's (CALIB) must meet or exceed the following specifications:

**2.1 Buoy Dimensions**

Hull Diameter:	120 mm (5.0 inches)
Total Height:	917 mm (36.1 inches)
Weight (in air)	8.2 kg (18 pounds)

**2.2 Buoy Construction**

Hull:	Phenolic tube
Colour:	White

Solicitation No. - N° de l'invitation  
K3D33-220101/A  
Client Ref. No. - N° de réf. du client  
K3D33-22-0101

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

Buyer ID - Id de l'acheteur  
KIN508  
CCC No./N° CCC - FMS No/ N° VME

**2.3 Launch Speed:** 0 to 200 knots Indicated Air Speed (IAS) MAXIMUM

**2.4 Launch Altitude:** 152.40 m to 2 438.40 m (500 ft to 8,000 ft)

**2.5 Environmental:**

	<b>Operational limits</b>	<b>Survival limits</b>
Temperature (Air)	-50°C to +55°C	-60°C to +55°C
Sunlight	Direct exposure	N/A
Buoy Operating Life	Alkaline batteries: 3 months (at temperatures > -20°C) Lithium batteries: 12 months (at temperatures > -40°C)	
Battery Pack Size:	20 C-cells UN-Certified Lithium battery pack	
Buoy Storage Life	5-year maximum with lithium battery	

**2.6 Sensors**

**2.6.1 Barometer Pressure:**

Buoys must be capable of operating with or without measurement of atmospheric pressure. ECCC requires the option to procure CALIB buoys equipped with, or without barometers. Pricing for both options must be provided (with barometer, and without) in the bid submission.

Type: Vaisala PTB-110  
Typical reporting range: 850 to 1054.6 mb  
System Accuracy +/- 1 mb or better

**2.6.2 Sea Surface or Air Temperature:**

Type: YSI Model 44032 encased thermister or equivalent  
Typical reporting range: - 40°C to +35°C  
System Accuracy +/- 1°C or better

**2.7 Battery Voltage:**

Type: Precision resistive divider or equivalent  
Typical reporting range: 5.0V to 17.5V  
Sensor Accuracy +/- 0.1 Volts

**2.8 Buoy Operational Lifetime:**

Bidder must provide proof with their bid submission from the manufacturer to demonstrate operational lifetimes of similar units in service as follows:

Compact Air-Launch Ice Beacon (CALIB) minimum 3 months with Alkaline batteries and a minimum of 12 months with Lithium batteries

**2.9 Data Format:**

Must conform to DBCP M2 or DBCP Iridium Transmission

**2.10 Electronics:**

Iridium SBD Modem  
GPS Tracking Module

**2.11 Testing:**

Electronics – Cold Chamber Tested

Solicitation No. - N° de l'invitation

K3D33-220101/A

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

KIN508

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

K3D33-22-0101

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

ISO Quality Certified as per ISO 9001:2000 standards or equivalent quality plan. Proof of current and valid certification must be provided with the bid submission

**2.12 Data Communications:**

Bidirectional communication ability via Iridium Short Burst Data (SBD) service

Ability to set up predetermined schedule intervals and/or poll the unit for immediate results

Data latency is less than 60 seconds from start of transmission

**2.13 Demonstration of Performance:**

The bidder must demonstrate in their bid submission that their CALIBs have been successfully deployed and used operationally in the Arctic environment for a minimum of 3 years.

The bidder must also provide with their bid submission a list of 2 or more organization who are currently utilizing their CALIBs.

**Delivery Locations:**

Buoy delivery may be require delivery to coastal, central, or high arctic locations in Canada or the USA. Specific delivery locations and quantities will be provided at the time of delivery.

Solicitation No. - N° de l'invitation

K3D33-220101/A

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

K3D33-22-0101

Amd. No. - N° de la modif.

File No. - N° du dossier

Buyer ID - Id de l'acheteur

KIN508

CCC No./N° CCC - FMS No/ N° VME

**ANNEX "B"****Basis of Payment****A. Deliverables Firm Requirement**

**Delivery Date:** All the firm requirements must be received within 12 weeks of contract start date F.O.B Destination.

Prices herein are firm in Canadian funds, FOB Destination, transportation costs extra (prepaid and shown as a separate item on the invoice, supported by a certified copy of the prepaid transportation bill of lading). Custom duties are included and HST extra.

	Description	Quantity (Qty)	Firm Unit Price	Extended Price
<b>A1</b>	SVP/B Iridium equipped satellite	2 ea.		
	Telemetry Surface Velocity Program Lagrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue - to report air pressure, sea surface temperature, GPS, and surface float submergence (drogue-loss sensor). The Drifter Buoys must be built in accordance with the specifications in Annex B – Required Technical Specifications (Item 1).			
<b>A2</b>	Polar Iridium ISVP Buoys (Non Air Deployable)	4 ea.		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, Lithium battery Packs in accordance with the specification in Annex B – Required Technical Specifications (Item 2).			
<b>A3</b>	Polar Iridium ISVP Buoys (Air Deployable)	2 ea.		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, air deployable, Lithium battery Packs in accordance with the specifications in Annex B – Required Technical Specifications (Item 3).			
<b>A4</b>	Compact Air-Launch Ice Beacon (CALIB)	2 ea.		

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

K3D33-220101/A

KIN508

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

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

K3D33-22-0101

	Instrument must fit in a 4.75 inches diameter tube (for gravity launch tube). Instrument must have a magnetic on/off switch attached to a wind flap. Instrument must have a self-extracting parachute attached to the wind flap. Instrument must be equipped with a Lithium Chloride Battery Pack. Instrument must be equipped with a Barometric Pressure Sensor in accordance with the specifications in Annex B – Required Technical Specifications (Item 4).			
	<b>Total</b>			

## B. Deliverables: Optional Requirements

1. Canada reserves the irrevocable option to purchase additional quantities, on an as requested and/or when requested basis, up to the estimated quantities specified during the option periods specified herein. The estimated quantities specified herein are not a guarantee of business. It is an estimate only.
2. Prices herein are firm in Canadian funds, FOB Destination, transportation costs extra (prepaid and shown as a separate item on the invoice, supported by a certified copy of the prepaid transportation bill of lading). Custom duties are included and HST extra.
3. Canada reserves the right to verify the prices at the time of exercising the option. The pricing for the optional years shall be the less of either, whichever is more beneficial to Canada.
  - i) The prices detailed herein below; or
  - ii) The Contractor's published price list is in effect at the time the option is exercised less a discount of 5%.
4. The number of units delivered to each specific location may vary.
5. Delivery: The Contractor must make the delivery within \_\_\_\_\_ calendar days from the date of exercising the option.

### B.1 Option - From date of contract award to 31 March 2022

	Description	Quantities (up to)	Firm Unit Price	Extended Price
<b>B.1.1</b>	SVP/B Iridium equipped satellite	20		
	Telemetry Surface Velocity Program Lagrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue - to report air pressure, sea surface temperature, GPS, and surface float submergence (drogue-loss sensor). The Drifter Buoys must be built in accordance with the specifications in Annex B –			

	Required Technical Specifications (Item 1).			
<b>B.1.2</b>	Polar Iridium ISVP Buoys (Non Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, Lithium battery Packs in accordance with the specification in Annex B – Required Technical Specifications (Item 2).			
<b>B.1.3</b>	Polar Iridium ISVP Buoys (Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, air deployable, Lithium battery Packs in accordance with the specifications in Annex B – Required Technical Specifications (Item 3).			
<b>B.1.4</b>	Compact Air-Launch Ice Beacon (CALIB)	20		
	Instrument must fit in a 4.75 inches diameter tube (for gravity launch tube). Instrument must have a magnetic on/off switch attached to a wind flap. Instrument must have a self-extracting parachute attached to the wind flap. Instrument must be equipped with a Lithium Chloride Battery Pack. Instrument must be equipped with a Barometric Pressure Sensor in accordance with the specifications in Annex B – Required Technical Specifications (Item 4)			

**B.2 Option - From date of 1<sup>st</sup> April 2022 to 31st March 2023**

	Description	Quantities (up to)	Firm Unit Price	Extended Price
<b>B.2.1</b>	SVP/B Iridium equipped satellite	20		
	Telemetry Surface Velocity Program Lagrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue - to report air pressure, sea surface temperature, GPS, and surface float submergence (drogue-loss sensor). The Drifter Buoys must be built in accordance with the specifications in Annex B – Required Technical Specifications (Item 1).			
<b>B.2.2</b>	Polar Iridium ISVP Buoys (Non Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, Lithium battery Packs in accordance with the specification in Annex B – Required			

	Technical Specifications (Item 2).			
<b>B.2.3</b>	Polar Iridium ISVP Buoys (Air Deployable)			
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, air deployable, Lithium battery Packs in accordance with the specifications in Annex B – Required Technical Specifications (Item 3).	20		
<b>B.2.4</b>	Compact Air-Launch Ice Beacon (CALIB)			
	Instrument must fit in a 4.75 inches diameter tube (for gravity launch tube). Instrument must have a magnetic on/off switch attached to a wind flap. Instrument must have a self-extracting parachute attached to the wind flap. Instrument must be equipped with a Lithium Chloride Battery Pack. Instrument must be equipped with a Barometric Pressure Sensor in accordance with the specifications in Annex B – Required Technical Specifications (Item 4)	20		

**B.3 Option - From date of 1<sup>st</sup> April 2023 to 31st March 2024**

	Description	Quantities (up to)	Firm Price	Extended Price
<b>B.3.1</b>	SVP/B Iridium equipped satellite			
	Telemetry Surface Velocity Program Lagrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue - to report air pressure, sea surface temperature, GPS, and surface float submergence (drogue-loss sensor). The Drifter Buoys must be built in accordance with the specifications in Annex B – Required Technical Specifications (Item 1).	20		
<b>B.3.2</b>	Polar Iridium ISVP Buoys (Non Air Deployable)			
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, Lithium battery Packs in accordance with the specification in Annex B – Required Technical Specifications (Item 2).	20		
<b>B.3.3</b>	Polar Iridium ISVP Buoys (Air Deployable)			
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, air deployable, Lithium battery Packs in accordance with the specifications in Annex B – Required Technical Specifications (Item 3).	20		

Solicitation No. - N° de l'invitation

K3D33-220101/A

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

K3D33-22-0101

Amd. No. - N° de la modif.

File No. - N° du dossier

Buyer ID - Id de l'acheteur

KIN508

CCC No./N° CCC - FMS No/ N° VME

<b>B.3.4</b>	<b>Compact Air-Launch Ice Beacon (CALIB)</b>	20		
	Instrument must fit in a 4.75 inches diameter tube (for gravity launch tube). Instrument must have a magnetic on/off switch attached to a wind flap. Instrument must have a self-extracting parachute attached to the wind flap. Instrument must be equipped with a Lithium Chloride Battery Pack. Instrument must be equipped with a Barometric Pressure Sensor in accordance with the specifications in Annex B – Required Technical Specifications (Item 4)			



**B.4 Option - From date of 1<sup>st</sup> April 2024 to 31st March 2025**

	Description	Quantities (up to)	Firm Price	Extended Price
<b>B.4.1</b>	SVP/B Iridium equipped satellite	20		
	Telemetry Surface Velocity Program Lagrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue - to report air pressure, sea surface temperature, GPS, and surface float submergence (drogue-loss sensor). The Drifter Buoys must be built in accordance with the specifications in Annex B – Required Technical Specifications (Item 1).			
<b>B.4.2</b>	Polar Iridium ISVP Buoys (Non Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, Lithium battery Packs in accordance with the specification in Annex B – Required Technical Specifications (Item 2).			
<b>B.4.3</b>	Polar Iridium ISVP Buoys (Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, air deployable, Lithium battery Packs in accordance with the specifications in Annex B – Required Technical Specifications (Item 3).			
<b>B.4.4</b>	Compact Air-Launch Ice Beacon (CALIB)	20		
	Instrument must fit in a 4.75 inches diameter tube (for gravity launch tube). Instrument must have a magnetic on/off switch attached to a wind flap. Instrument must have a self-extracting parachute attached to the wind flap. Instrument must be equipped with a Lithium Chloride Battery Pack. Instrument must be equipped with a Barometric Pressure Sensor in accordance with the specifications in Annex B – Required Technical Specifications (Item 4)			

**B.5 Option - From date of 1<sup>st</sup> April 2025 to 31st March 2026**

	Description	Quantities (up to)	Firm Price	Extended Price
<b>B.5.1</b>	SVP/B Iridium equipped satellite	20		
	Telemetry Surface Velocity Program Lagrangian Barometer Pressure Drifter Buoys c/w Tether and Holey Sock Drogue - to report air pressure, sea surface temperature, GPS, and surface float submergence (drogue-loss sensor). The			

	Drifter Buoys must be built in accordance with the specifications in Annex B – Required Technical Specifications (Item 1).			
<b>B.5.2</b>	Polar Iridium ISVP Buoys (Non Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, Lithium battery Packs in accordance with the specification in Annex B – Required Technical Specifications (Item 2).			
<b>B.5.3</b>	Polar Iridium ISVP Buoys (Air Deployable)	20		
	Equipped satellite telemetry, GPS, Air Temperature, Barometric Pressure, air deployable, Lithium battery Packs in accordance with the specifications in Annex B – Required Technical Specifications (Item 3).			
<b>B.5.4</b>	Compact Air-Launch Ice Beacon (CALIB)	20		
	Instrument must fit in a 4.75 inches diameter tube (for gravity launch tube). Instrument must have a magnetic on/off switch attached to a wind flap. Instrument must have a self-extracting parachute attached to the wind flap. Instrument must be equipped with a Lithium Chloride Battery Pack. Instrument must be equipped with a Barometric Pressure Sensor in accordance with the specifications in Annex B – Required Technical Specifications (Item 4)			

#### **C: OPTIONAL Deliverables-Refurbishment and Repairs:**

ECCC also requires the supplier to provide the following service for the repair and refurbishment of the buoys on a when and as needed basis for the length of the contract:

1. Fully assess, and complete diagnostic testing to confirm the functionality of all electronic components including the controller board & iridium transceiver, and sensor suite for buoys sent for diagnostic evaluation and repair.
2. Update electronic components for all buoys sent for repairs.
3. Assessment of the data set being transmitted from the device to ensure all sensors are reporting valid data for refurbished buoys.
4. Replacement or repair of thermistor strings and other electronic components as required.

Solicitation No. - N° de l'invitation  
K3D33-220101  
Client Ref. No. - N° de réf. du client  
K3D33-22-0101

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

Buyer ID - Id de l'acheteur  
KIN508  
CCC No./N° CCC - FMS No./N° VME

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## **ANNEX “C” to PART 3 OF THE BID SOLICITATION**

### **ELECTRONIC PAYMENT INSTRUMENTS**

The Bidder accepts any of the following Electronic Payment Instrument(s):

- ☐ ( ) VISA Acquisition Card;
- ☐ ( ) MasterCard Acquisition Card;
- ☐ ( ) Direct Deposit (Domestic and International);
- ☐ ( ) Electronic Data Interchange (EDI);
- ☐ ( ) Wire Transfer (International Only);
- ☐ ( ) Large Value Transfer System (LVTS) (Over \$25M)

## Annex "D"

### Mandatory Grid

#### tem 1 - SVP/B SPECIFICATIONS

All Iridium Surface Velocity Drifting Buoys equipped with Barometers (SVP/B) drifting buoys will be deployed by Environment Canada using either ship crews or Environment Canada personnel. All buoys must be individually packaged for free-fall deployment from a moving vessel from a 10 m height above the surface of the ocean.

1. All SVP/B drifting buoys must be built to meet or exceed recommendations in the "Global Drifter Programme Barometer Drifter Design Reference" DBCP Report No. 4, Revision 2.2, August 2009, published by the Data Buoy Cooperation Panel.
2. All SVP/B drifting buoys must meet or exceed the following specifications:
3. Bidders must complete the following table and return it with their bid. Bidder must also provide with their bid back-up documentation such as: literature, brochures and/or specifications for their proposed item, which clearly demonstrates that their proposed item meets the MANDATORY specifications. To aid in the evaluation of bids, Bidders must state where the applicable information for each item is located in their literature. If the information is not in the brochure, Bidder must provide a compliance statement. A space has been provided for this information below. Bidders not meeting all of the mandatory requirements will be given no further consideration.

**Table 1:**

Item 1			Bidder must Cross Reference
<b>2.1 Typical Buoy Dimensions (nominal)</b>			
Surface Unit Diameter	32 - 40 cm		
Weight (in air)	10 – 20 kg		
<b>2.2 Drogue Dimensions</b>			
DAR (Drag Area Ratio) Greater than or equal to 35			
Length	Maximum 5.5 m		
Diameter	60-62 cm		
Style	Holey sock		
Tether Length	15m – to centre of drogue		
<b>2.3 Buoy Construction</b>			
Surface unit	32 – 40 cm High Impact ABS Plastic UV resistant		
Tether strength member	Plastic impregnated wire rope		
Drogue	Non-fray synthetic cloth or equivalent		
<b>2.4 Environmental</b>	<b>Operational limits</b>	<b>Survival limits</b>	
Winds	0 to 25 m/s (0 to 50 knots)	0 to 50 m/s (0 to 100 knots)	

Temperature (Air)	-20°C to +40°C	-20°C to +55°C	
Sea Surface Temperature	-2°C to +35°C	-5°C to +70°C	
Relative Humidity	0 to 100%, marine	0 to 100%, marine	
Sea State	SS5	SS6	
Free Fall Drop (into water)		10 m	
Buoy Storage Temperature	-20C to +40°C	N/A	
Buoy Storage Life	24 month minimum	N/A	
Buoy Operating Life	18 month minimum	N/A	

<b>2.5 Sensors</b>			
<b>2.5.1 Barometer Pressure:</b>			
Type Vaisala PTB110 or equivalent			
Typical reporting range:	850 to 1054.6 mb		
System Accuracy	+/- 1 mb or better		
<b>2.5.2 Sea Surface Temperature:</b>			
Type: YSI Model 44018 encased thermister or equivalent			
Typical reporting range:	- 5°C to 35°C		
System Accuracy	+/- 1°C or better		
<b>2.5.3 Submergence Drogue On/Off Indicator/Sensor:</b>			
Type: Strain Gauge Drogue Presence System			
<b>2.5.4 Battery Voltage:</b>			
Type: Precision resistive divider or equivalent			
Typical reporting range:	5.0V to 17.5V		
Sensor Accuracy	+/- 0.1 Volts		
<b>2.6 Buoy Operational Lifetime:</b>			
Bidder must demonstrate operational lifetimes of similar units in service as follows:	Iridium SVP/B minimum 18 months or better		
<b>2.7 Data Format:</b>			
Must conform to DBCP Iridium Transmission			
<b>2.8 Electronics:</b>			
Iridium SBD Modem			
GPS tracking module			
System for strain gauge drogue presence			
<b>2.9 Data Communications:</b>			
Bidirectional communication ability via Iridium Short Burst Data (SBD) service			

Ability to set up predetermined schedule intervals and/or poll the unit for immediate results			
Data latency is less than 60 seconds from start of transmission			
<b>2.10 Testing:</b>			
ISO Quality Certified as per ISO 9001:2000 standards or an equivalent quality plan. Bidders must provide proof of current and valid certification with the bid			

<b>2.11 Demonstration of Performance:</b>  Bidders must demonstrate that their Iridium SVP/B drifting buoys have been successfully deployed and used operationally in an arctic marine environment (i.e. open Ocean) for a minimum of 2 years.  Bidders must provide a list of 2 or more organization who are currently utilizing their Iridium SVP/B drifting buoys.			
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**Item 2 - POLAR Iridium SVP/B SPECIFICATION (NON AIR DEPLOYABLE)**

- The Polar Iridium SVP/B drifting buoys will be deployed by ECCC using ship crews, Department of National Defence Staff, Canadian Coast Guard staff, or ECCC personnel. Buoys must be individually packaged for free-fall deployment from a moving vessel from a minimum of 10 meter height above the surface of the ocean.
- All Polar Iridium SVP/B drifting buoys must be built to meet or exceed recommendations in the ["Global Drifter Programme Barometer Drifter Design Reference" DBCP Report No. 4, Revision 2.2, August 2009](#), published by the Data Buoy Cooperation Panel. Lithium batteries used must be UN-Certified for transportation on public carriers.
- All Polar Iridium SVP drifting buoys must meet or exceed the following specifications:
- Bidders must complete the following table and return it with their bid. Bidder must also provide with their bid back-up documentation such as: literature, brochures and/or specifications for their proposed item, which clearly demonstrates that their proposed item meets the MANDATORY specifications. To aid in the evaluation of bids, Bidders must state where the applicable information for each item is located in their literature. If the information is not in the brochure, Bidder must provide a compliance statement. A space has been provided for this information below. Bidders not meeting all of the mandatory requirements will be given no further consideration.

<b>2.1 Typical Buoy Dimensions (nominal)</b>			
Surface Unit Diameter	32 - 40 cm		
Weight (in air)	10 – 20 kg		

<b>2.2 Buoy Construction</b>			
Surface unit	32 – 40 cm High Impact ABS Plastic UV resistant		
<b>2.3 Environmental:</b>	<b>Operational limits</b>	<b>Survival limits</b>	
Winds	0 to 25 m/s (0 to 50 knots)	0 to 50 m/s (0 to 100 knots)	
Temperature (Air)	-40°C to +60°C	-60°C to +60°C	
Relative Humidity	0 to 100%, marine	0 to 100%, marine	
Sea State	N/A	N/A	
Buoy Storage Temperature	-40C to +40°C	N/A	
Buoy Storage Life	24 months minimum	N/A	
Buoy Operating Life	12-24 months minimum with Lithium batteries		
<b>2.4 Sensors</b>			
<b>2.4.1 Barometer Pressure:</b>			
Type: Vaisala PTB110 or equivalent			
Typical reporting range:	850 to 1054.6 mb		
System Accuracy	+/- 1 mb or better		
<b>2.4.2 Sea Surface or Air Temperature:</b>			
Type: YSI Model 44018 encased thermister or equivalent			
Typical reporting range:	-40°C to +35°C		
System Accuracy	+/- 1°C or better		
<b>2.4.3 Battery Voltage:</b>			
Type: Precision resistive divider or equivalent			
Typical reporting range:	5.0V to 17.5V		
Sensor Accuracy	+/- 0.1 Volts		
<b>2.5 Buoy Operational Lifetime:</b>			
Bidder must be able to demonstrate operational lifetimes of similar units in service as follows:	Polar Iridium SVP minimum 12-24 months or better with Lithium batteries		
<b>2.6 Data Format:</b>			
Must conform to DBCP Iridium Transmission			
<b>2.7 Electronics:</b>			
Iridium SBD (Short Burst Data) transceiver			
GPS Tracking Module			
<b>2.8 Testing:</b>			
Electronics – Cold Chamber Tested			

ISO Quality Certified as per ISO 9001:2000 standards or an equivalent quality plan. Bidders must provide current and valid certification with the bid			
<b>2.9 Data Communications:</b>			
Bidirectional communication ability via Iridium Short Burst Data (SBD) service			
Ability to set up predetermined schedule intervals and/or poll the unit for immediate results			
Data latency is less than 60 seconds from start of transmission			
<b>2.10 Demonstration of Performance:</b> Bidders must demonstrate that their Iridium Polar SVP/B (Non Air Deployable) drifting buoys have been successfully deployed and used operationally in the Arctic environment for a minimum of 2 years.  Bidders must provide a list of 2 or more organization who are currently utilizing their Iridium Polar SVP/B drifting buoys with the bid.			

### Item 3 - POLAR IIRIDIUM SVP/B SPECIFICATION (AIR DEPLOYABLE)

The Polar Iridium SVP/B (Air Deployable Polar Buoy) will be deployed by Environment Canada by air deployment.

- The Polar Iridium SVP/B (Air Deployable Polar Buoy) will be prepared and deployed via air by Department of National Defence staff along side ECCC personnel. Other International Cooperative Engagement Program for Polar Research (ICE-PPR) member countries may assist on deployment missions.
- All Polar Iridium SVP/B drifting buoys must be built to meet or exceed recommendations in the ["Global Drifter Programme Barometer Drifter Design Reference" DBCP Report No. 4, Revision 2.2, August 2009](#), published by the Data Buoy Cooperation Panel. Lithium batteries used must be UN-Certified for transportation on public carriers.
- All Polar Iridium SVP drifting buoys must meet or exceed the following specifications:
- Bidders must complete the following table and return it with their bid. Bidder must also provide with their bid back-up documentation such as: literature, brochures and/or specifications for their proposed item, which clearly demonstrates that their proposed item meets the MANDATORY specifications. To aid in the evaluation of bids, Bidders must state where the applicable information for each item is located in their literature. If the information is not in the brochure, Bidder must



provide a compliance statement. A space has been provided for this information below. Bidders not meeting all of the mandatory requirements will be given no further consideration.

<b>2.1 Typical Buoy Dimensions (nominal)</b>			
Surface Unit Diameter	32 - 40 cm		
Weight (in air)	10 – 20 kg		
<b>2.2 Buoy Construction</b>			
Surface unit	32 – 40 cm High Impact ABS Plastic		
Parachute	UV resistant		
Deployment Parameters	Vertical speed with 28 ft. parachute: 7 m/s		
	Recommended drop altitude: 600ft		
<b>2.3 Environmental:</b>	<b>Operational limits</b>	<b>Survival limits</b>	
Winds	0 to 25 m/s (0 to 50 knots)	0 to 50 m/s (0 to 100 knots)	
Temperature (Air)	-40°C to +60°C	-60°C to +60°C	
Relative Humidity	0 to 100%, marine	0 to 100%, marine	
Buoy Storage Temperature	-40C to +40°C	N/A	
Buoy Storage Life	24 months minimum	N/A	
Buoy Operating Life	12-24 months minimum with Lithium batteries		
<b>2.4 Sensors</b>			
<b>2.4.1 Barometer Pressure:</b>			
Type: Vaisala PTB101 or equivalent			
Typical reporting range:	850 to 1054.6 mb		
System Accuracy	+/- 1 mb or better		
<b>2.4.2 Sea Surface or Air Temperature:</b>			
Type: YSI Model 44018 encased thermister or equivalent			
Typical reporting range:	-40°C to +35°C		
System Accuracy	+/- 1°C or better		
<b>2.4.3 Battery Voltage:</b>			
Type: Precision resistive divider			
or equivalent			
Typical reporting range:	5V to 17.5V		
Sensor Accuracy	+/- 0.1 Volts		
<b>2.5 Buoy Operational Lifetime:</b>			
Manufacturer must be able to demonstrate operational lifetimes of similar units in service as follows:	Ice Air Buoy minimum 12-24 months or better with Lithium batteries		
<b>2.6 Data Format:</b>			
Must conform to DBCP Iridium Transmission			
<b>2.7 Electronics:</b>			

Iridium SBD Modem			
Suitable GPS			
<b>2.8 Testing:</b>			
Electronics – Cold Chamber Tested			
ISO Quality Certified as per ISO 9001:2000 standards or equivalent quality plan. Bidders must provide proof of current and valid certification with their bid			
<b>2.9 Data Communications:</b>			
Bidirectional communication ability via Iridium Short Burst Data (SBD) service			
Ability to set up predetermined schedule intervals and/or poll the unit for immediate results			
Data latency is less than 60 seconds from start of transmission			
<b>2.10 Demonstration of Performance:</b> Bidders must demonstrate that their Iridium Polar SVP/B ( Air Deployable) drifting buoys have been successfully deployed and used operationally in the Arctic environment for a minimum of 2 years.  Bidders must provide a list of 2 or more organization who are currently utilizing their iridium Polar SVP/B drifting buoys with the bid			

#### Item 4 – COMPACT AIR-LAUNCH ICE BEACON (CALIB)

- The Compact Air-Launch Ice Beacon (CALIB) will be air-deployed via Transport Canada or Department of National Defence. Buoys may also be launched via CCG ship/helicopter or Arctic bush pilot(s). Any lithium batteries used must be UN-Certified for transportation on public carriers. Proof of certification (in the form of a report) must be provided with the bid submission (for each buoy).
- All Compact Air-Launch Ice Beacon's (CALIB) must meet or exceed the following specifications:
- Bidders must complete the following table and return it with their bid. Bidder must also provide with their bid back-up documentation such as: literature, brochures and/or specifications for their proposed item, which clearly demonstrates that their proposed item meets the MANDATORY specifications. To aid in the evaluation of bids, Bidders must state where the applicable information for each item is located in their literature. If the information is not in the brochure, Bidder must provide a compliance statement. A space has been provided for this information below. Bidders not meeting all of the mandatory requirements will be given no further consideration.

<b>2.1 Buoy Dimensions</b>			
Hull Diameter:	120 mm (5.0 inches)		
Total Height:	917 mm (36.1 inches)		
Weight (in air)	8.2 kg (18 pounds)		
<b>2.2 Buoy Construction</b>			
Hull:	Phenolic tube		
Colour:	White		
<b>2.3 Launch Speed:</b>			
	0 to 200 knots Indicated Air Speed (IAS) MAXIMUM		
<b>2.4 Launch Altitude:</b>			
	152.40 m to 2438.40 m	(500 ft to 8000 ft)	
<b>2.5 Environmental:</b>			
	<b>Operational limits</b>	<b>Survival limits</b>	
Temperature (Air)	-50°C to +55°C	-60°C to +55°C	
Sunlight	Direct exposure	N/A	
Buoy Operating Life	Alkaline batteries: 3 months (at temperatures > -20°C		
	Lithium batteries: 12 months (at temperatures > -40°C		
Battery Pack Size:	20 C-cells UN-Certified Lithium battery pack		
Buoy Storage Life	5-year maximum with lithium battery		
<b>2.6 Sensors</b>			
<b>2.6.1 Barometer Pressure:</b>			
Atmospheric Pressure measurements will be required as an option. Environment Canada requires the option to procure CALIB equipped with, or without barometers. Pricing for both options must be			
provided (with barometer, and without).			
Type: Vaisala	PTB-110		
Typical reporting range:	850 to 1054.6 mb		
System Accuracy	+/- 1 mb or better		
<b>2.6.2 Sea Surface or Air Temperature:</b>			
Type: YSI Model 44032 encased thermister or equivalent			
Typical reporting range:	-40°C to +35°C		
System Accuracy	+/- 1°C or better		
<b>2.7 Battery Voltage:</b>			

Type: Precision resistive divider or equivalent			
Typical reporting range:	5.0 V to 17.5V		
Sensor Accuracy	+/- 0.1 Volts		
<b>2.8 Buoy Operational Lifetime:</b>			
Bidderr must demonstrate operational lifetimes of similar units in service from the manufacturer as follows:	Compact Air-Launch Ice Beacon (CALIB) minimum 3 months with Alkaline batteries and a minimum of 12 months with Lithium batteries		
<b>2.9 Data Format:</b> Must conform to DBCP M2 or DBCP Iridium Transmission			
<b>2.10 Electronics:</b>			
<b>Iridium version:</b>			
Iridium SBD Modem			
Suitable GPS – GPS is required for Iridium equipped version.			
<b>2.11 Testing:</b>			
Electronics – Cold Chamber Tested			
ISO Quality Certified as per ISO 9001:2000 standards or equivalent quality plan. Bidders must provide proof of current and valid certification with the bid			
<b>2.12 Data Communications:</b>			
<b>For Iridium version:</b>			
Bidirectional communication ability via Iridium Short Burst Data (SBD) service			
Ability to set up predetermined schedule intervals and/or poll the unit for immediate results			
Data latency is less than 60 seconds from start of transmission			

Solicitation No. - N° de l'invitation  
K3D33-220101  
Client Ref. No. - N° de réf. du client  
K3D33-22-0101

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

Buyer ID - Id de l'acheteur  
KIN508  
CCC No./N° CCC - FMS No./N° VME

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## Annex "E"

### ADDITIONAL CERTIFICATIONS

#### ADDITIONAL CERTIFICATIONS

##### 1. Board of Directors

In accordance with Section 1, Integrity Provisions – Bidder, Bidders are required to provide a list of their Board of Directors before contract award. Bidders are requested to provide this information in their bid.

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

Director Name - \_\_\_\_\_

##### 2. Procurement Business Number (PBN)

In accordance with Section 2, Procurement Business Number, of the Standard Instructions, Offerors are required to have a Procurement Business Number (PBN) before Contract award.

Procurement Business Number - \_\_\_\_\_

Suppliers may register for a PBN online at [Supplier Registration Information](#). For non-Internet registration, suppliers may contact the InfoLine at 1-800-811-1148 to obtain the telephone number of the nearest Supplier Registration Agent.