



## RETURN BIDS TO:

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Bid Receiving Public Works and Government  
Services Canada/Réception des soumissions Travaux  
publics et Services gouvernementaux Canada  
Room 100,  
167 Lombard Ave.  
Winnipeg  
Manitoba  
R3B 0T6  
Bid Fax: (204) 983-0338

## SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise  
indicated, all other terms and conditions of the Solicitation  
remain the same.

Ce document est par la présente révisé; sauf indication contraire,  
les modalités de l'invitation demeurent les mêmes.

### Comments - Commentaires

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

### Issuing Office - Bureau de distribution

Public Works and Government Services Canada -  
Western Region  
Room 100  
167 Lombard Ave.  
Winnipeg  
Manitoba  
R3B 0T6

<b>Title - Sujet</b> Marine and Terrestrial Scientific E	
<b>Solicitation No. - N° de l'invitation</b> A7100-173961/A	<b>Amendment No. - N° modif.</b> 001
<b>Client Reference No. - N° de référence du client</b> A7100-173961	<b>Date</b> 2018-03-16
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$WPG-016-10478	
<b>File No. - N° de dossier</b> WPG-7-40212 (016)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2018-04-03</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Central Daylight Saving Time CDT
<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> Hall, Marlene	<b>Buyer Id - Id de l'acheteur</b> wpg016
<b>Telephone No. - N° de téléphone</b> (204) 230-0147 ( )	<b>FAX No. - N° de FAX</b> (204) 983-7796
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> Wills Transfer Ltd. 3100 Swansea Crescent Ottawa, ON. K1G 3W4 Canada c/o Claudette Weedmark	

Instructions: See Herein

Instructions: Voir aux présentes

<b>Delivery Required - Livraison exigée</b>	<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>	

This **amendment # 001** is raised to respond to Supplier's questions and modify **Solicitation # A7100-173961/A**, dated 2018-02-19 as follows:

Supplier questions

- Q1. Do the end users wish an instrument capable of wet analysis, dry analysis or both? The 100 gram sample size range as listed in spec 1.6 would be difficult for a wet only system.  
A1. Must be capable of Wet analysis AND Dry Analysis.  
Must be able to analyze samples at least (at minimum) 10 mg to 100 g.
- Q2. Bid closed April 3<sup>rd</sup> but delivery is requested for March 29. Please clarify.  
A2. Delivery must be received on or before May 31, 2018.
- Q3. Spec 1.9: is a 4GB computer with Windows 7 acceptable?  
A3. Memory: Minimum 4 GB RAM  
Operating system: Minimum Windows 10
- Q4: Our instrument needs and includes installation by one of our service engineers. Can there be clarification on this?  
A4. Installation, if required, will be negotiated with the Contractor under a separate contract.

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Modifications

1. Reference **Annex "A", Requirement**, page 11 of 30, and amend as follows:

**Delete:** While delivery is requested on or before March 29, 2018, the best delivery date offered is \_\_\_\_\_.

**Insert:** All the deliverables must be received on or before **May 31, 2018**.

2. Reference **Annex "A", Requirement**, page 11 of 30, and amend as follows:

**Insert :** Installation, if required, will be negotiated with the Contractor under a separate contract.

3. Reference **Annex "A", Compliance Matrix**, page 12 of 30, and amend as follows:

**Delete :** In its entirety

**Insert :** **Replace with the following:**

**Compliance Matrix:**

	<p><b><u>Completion and submission of Mandatory Performance Specification is required to be considered responsive and for your offer to be given further consideration.</u></b></p> <p>a. Bidder must cross reference where in their technical offer, the performance specification is located.</p> <p>b. Provide the specification being offered which meets or exceeds <u>and cross-reference as to where the supporting documentation is found within your proposal</u>. If there is insufficient space in the table, assign SIR # (Supplementary Information Reference) and provide the appropriate details on a separate page in your offer. Where published supporting documentation is not available in the form of brochures, technical data sheets etc., prepare a written narrative complete with a detailed explanation of how its offer demonstrates compliance.</p>	
	<p><u>All work and materials herein specified must meet and maintain minimum Canadian and Provincial certification(s) and approval(s) as applicable by Industry Standards.</u></p>	
<b>Item</b>	<b>Specifications</b>	Bidder Response: indicate how they meet the specifications addressed below/ cross-reference where this technical specification is indicated in their bid documentation
1.	<b>Laser Diffraction Particle Size Analyzer</b>	
1.1	Purpose: <ul style="list-style-type: none"> <li>• Soil particle size analysis</li> <li>• <b>Wet analysis AND Dry analysis</b></li> </ul>	
1.2	Dimensions: <ul style="list-style-type: none"> <li>• Width: 800 mm ± 400 mm</li> <li>• Depth: 400 mm ± 300 mm</li> <li>• Height: 500 mm ± 200 mm</li> </ul>	
1.3	Measurement Method: <ul style="list-style-type: none"> <li>• Mie Scattering Theory</li> </ul>	
1.4	Measurement range: <ul style="list-style-type: none"> <li>• Minimum range: 0.01µm to 2000</li> </ul>	
1.5	Typical Measurement time: <ul style="list-style-type: none"> <li>• &lt; 120 sec, ± 60 sec</li> </ul>	
1.6	Sample requirement: <ul style="list-style-type: none"> <li>• <b>Must be able to analysis samples at least (at minimum) 10 mg to 100 g</b></li> </ul>	

1.7	<b>Power Supply:</b> <ul style="list-style-type: none"> <li>Input Frequency: 50/60 Hz</li> <li>Power Consumption: max 720 W</li> <li>Power supply: 100 to 240 V</li> </ul>	
1.8	<b>Operating temperature:</b> <ul style="list-style-type: none"> <li>At least 15 to 35 °C (59 to 95°F)</li> </ul>	
1.9	<b>Compatible computer and peripherals</b> <ul style="list-style-type: none"> <li>Desktop or laptop compatible with the equipment and software</li> <li>Operating system: Windows 10</li> <li><b>Memory: minimum 4 GB RAM</b></li> </ul>	
<b>2</b>	<b>GNSS system: Dual GNSS GPS Base/Rover receivers</b>	
2.1	<b>Code differential GNSS positioning performance:</b> <ul style="list-style-type: none"> <li>Horizontal: 0.25 + 1 ppm</li> <li>Vertical 0.50 m + ppm</li> </ul>	
2.2	<b>Static GNSS surveying positioning performance:</b> <b>High-Precision Static:</b> <ul style="list-style-type: none"> <li>Horizontal: 3 mm + 0.1 ppm</li> <li>Vertical: 3.5 mm + 0.4 ppm</li> </ul> <b>Static and Fast Static:</b> <ul style="list-style-type: none"> <li>Horizontal: 3 mm + 0.5 ppm</li> <li>Vertical: 5 mm + 0.5 ppm</li> </ul>	
2.3	<b>Real Time Kinematic surveying:</b> <b>Single Baseline &lt; 30 km</b> <ul style="list-style-type: none"> <li>Horizontal: 8 mm + 1 ppm RMS</li> <li>Vertical 15 mm + 1 ppm RMS</li> </ul> <b>Network RTK3:</b> <ul style="list-style-type: none"> <li>Horizontal: 8 mm + 0.5 to 1 ppm</li> <li>Vertical: 15 mm + 0.5 to 1 ppm</li> </ul>	
2.4	<b>Temperature:</b> <ul style="list-style-type: none"> <li>Operating: at least -40°C to +65°C</li> <li>Storage: at least -40°C to +75°C</li> </ul>	
2.5	<b>Components:</b> <ul style="list-style-type: none"> <li>Transport Case</li> <li>Base/Rover Receivers</li> <li>Rechargeable Batteries</li> <li>Dual Battery Chargers</li> <li>Tripod (for the base station)</li> <li>Antenna pole</li> <li>Field controller – Data collector (+ software)</li> </ul>	
2.6	<b>Channels:</b> <ul style="list-style-type: none"> <li>120 to 440 channels</li> </ul>	

2.7	GNSS Surveying <ul style="list-style-type: none"> <li>Real-Time (RTK/VRS) and Postprocessed</li> </ul>	
2.8	Satellite Signals <ul style="list-style-type: none"> <li>GPS, Glonass, Galileo, Compass (BeiDou), SBAS</li> </ul>	
2.9	Operational time: Field controller: <ul style="list-style-type: none"> <li>Minimum 30 hours</li> </ul> Base and rover (operating time on internal battery): <ul style="list-style-type: none"> <li>Minimum 3 hours</li> </ul>	
<b>3</b>	<b>Multi-channel CTD Logger</b>	
<b>3.1</b>	<b>Physical</b>	
3.1.1	Storage: Minimum 20,000,000 readings	
3.1.2	Clock accuracy: $\pm 60$ seconds per year	
3.1.3	Depth rating: up to 2000m – sensor dependent	
3.1.4	Sampling rate: up to 12Hz, for better vertical resolution	
3.1.5	Cage: Circular, specifically engineered for deployment through ice through auger holes, pointed on both ends and with minimal snag points.	
3.1.6	Endurance: >40 hours of logging at maximum (12Hz) sampling rate.	
<b>3.2</b>	<b>Conductivity sensor</b>	
3.2.1	Non-pumped C cell, able to handle frozen environments without heating	
3.2.2	Range: 0-85 mS/cm	
3.2.3	Resolution: $\sim 0.001$ mS/cm	
3.2.4	Typical stability: $\sim 0.010$ mS/cm per year	
<b>3.3</b>	<b>Temperature sensor</b>	
3.3.1	Range: $-5^{\circ}\text{C}$ to $35^{\circ}\text{C}$	
3.3.2	Resolution: minimum $0.0001^{\circ}\text{C}$	
3.3.3	Typical stability: $\sim 0.002^{\circ}\text{C}$ per year	
<b>3.4</b>	<b>Pressure (Depth) sensor</b>	
3.4.1	Resolution: $\sim 0.001\%$ FS or 0.001 dbar w.i.g.	
3.4.2	Time constant: $< 0.01\text{s}$	

3.4.3	Typical stability: ~0.05% FS per year	
<b>3.5</b>	<b>Dissolved Oxygen (DO) sensor</b>	
3.5.1	DO sensor based on phosphorescence	
3.5.2	Range: 0-200%	
3.5.3	Resolution 0.01 to 0.04%	
3.5.4	Thermistor response time: ~100 ms	
3.5.5	Fully integrated, able to provide a single data file with output in engineering units and synchronized to a single clock.	
<b>3.6</b>	<b>ChlA fluorescence sensor</b>	
3.6.1	Minimum detection limit: blue excitation 0.03 µg/L, red excitation 0.3µg/L	
3.6.2	Linear range: blue excitation 0-500 µg/L, red excitation >500µg/L	
3.6.3	Auto-ranging capability, allowing the best resolution possible in dynamic conditions	
3.6.4	Fully integrated, able to provide a single data file with output in engineering units and synchronized to a single clock	
<b>3.7</b>	<b>Photosynthetic Active Radiation (PAR) sensor</b>	
3.7.1	Sensitivity: ~4µA per 1000 µmol s <sup>-1</sup> m <sup>-2</sup> in water	
3.7.2	Response time: 10µs	
3.7.3	Operating temperature range -40°C to 65°C	
3.7.4	Temperature dependence: ±0.15% per °C maximum.	
3.7.5	Fully integrated, able to provide a single data file with output in engineering units and synchronized to a single clock	
<b>3.8</b>	<b>Turbidity sensor</b>	
3.8.1	Power-up transient period: <1 sec	
3.8.2	Sensing distance from windows: approx. <5 cm	
3.8.3	Auto-ranging capability, allowing the best resolution possible in dynamic conditions	
3.8.4	Fully integrated, able to provide a single data file with output in engineering units and synchronized to a single clock	

Solicitation No. - N° de l'invitation  
A7100-173961/A  
Client Ref. No. - N° de réf. du client  
A7100-173961

Amd. No. - N° de la modif.  
001  
File No. - N° du dossier  
WPG-7-40212

Buyer ID - Id de l'acheteur  
wpg016  
CCC No./N° CCC - FMS No./N° VME

<b>3.9</b>	<b>Other</b>	
3.9.1	Wi-Fi communication for downloading, previewing, and archiving	
3.9.2	Ability to be accessed by laptop computers (Windows, Mac), as well as smartphones and tablets (Android, iOS)	
3.9.3	Non-proprietary file format	
3.9.4	Twist activation	

**ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.**