



**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS A :**

Bid Receiving/Réception des soumissions  
Royal Canadian Mounted Police  
Procurement & Materiel Management  
80 Garland Avenue Mailstop 66  
Dartmouth NS B3B 0J8

**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 :

<b>Title – Sujet</b> Robotic Total Station		<b>Date</b> November 17, 2021
<b>Solicitation No. – N° de l'invitation</b> 202203343		<b>Amendment No. – N° de la modification</b> 001
<b>Client Reference No. - No. De Référence du Client</b>		
<b>Solicitation Closes – L'invitation prend fin</b>		
<b>At / à :</b>	2 :00 PM	ADT(Eastern Daylight Time) HAE (heure avancée de l'Est)
<b>On / le :</b>	November 25, 2021	
<b>Delivery - Livraison</b> See herein — Voir aux présentes	<b>Taxes - Taxes</b> See herein — Voir aux présentes	<b>Duty – Droits</b> See herein — Voir aux présentes
<b>Destination of Goods and Services – Destinations des biens et services</b> See herein — Voir aux présentes		
<b>Instructions</b> See herein — Voir aux présentes		
<b>Address Inquiries to – Adresser toute demande de renseignements à</b> <a href="mailto:rosalee.parsons@rcmp-grc.gc.ca">rosalee.parsons@rcmp-grc.gc.ca</a>		
<b>Telephone No. – No. de téléphone</b> (902) 720-5112		<b>Facsimile No. – No. de télécopieur</b> (902) 426-7136

<b>Delivery Required – Livraison exigée</b> See herein — Voir aux présentes	<b>Delivery Offered – Livraison proposée</b>
<b>Vendor/Firm Name, Address and Representative – Raison sociale, adresse et représentant du fournisseur/de l'entrepreneur:</b>	
<b>Telephone No. – No. de téléphone</b>	<b>Facsimile No. – No. de télécopieur</b>
<b>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)</b>	
<b>Signature</b>	<b>Date</b>



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**Amendment 001 is raised to answer the following questions:**

**Question 1**

Section 1. Robotic Total Station, requirement 1.13 states “Must have a minimum reflectorless measurement distance of 30 cm or less”

This is a very short requirement without much practical use. Will it be acceptable to have this changed to a minimum of 1m or less?

**Answer 1**

See the revision for section 1.13 below.

**Question 2**

Section 9. GNSS RTK Base / Rover, requirement 9.6 states “Must have a minimum horizontal RTK positioning accuracy of 5mm and a minimum vertical RTK positioning accuracy of 10 mm” Some of the more highly regarded and capable instrument manufacturers tend to specify these accuracies in a more conservative manner as they are difficult to test and are reliant on many factors. For example, testing with a full BeiDou and Galileo constellation will influence measurement performance and accuracy. Given this, would an RTK Accuracy of 8mm + 1ppm Horizontal and 15mm +1ppm vertical be acceptable for this application?

**Answer 2**

See the revision for section 9.6 below.

**Question 3**

Although not explicitly stated as mandatory, is it a requirement that the integrated TS and GNSS system and controller be manufactured and supported by one manufacturer? This has been stipulated in previous solicitations to ensure there is ongoing compatibility as individual system components are updated with current firmware.

**Answer 3**

It is not mandatory that the system (TS, GNSS and data collector) be manufactured by one manufacturer but it is mandatory that the system be supported by one manufacturer.

**Question 4**

Is it acceptable to submit more than one bid?

**Answer 4**

Only 1 bid must be submitted by a vendor. If a vendor submits more than one bid. The bid submitted by the vendor with the latest date and time before the solicitation closing date and time will be the bid received for the vendor.

**DELETE Annexes A and C in their entirety.**

**INSERT:**



### ANNEX A REQUIREMENT

The RCMP has a requirement for the supply and delivery of one (1) Robotic Total Station.

Delivery Point:

**RCMP J Div**

**1445 Regent St.**

**Fredericton, NB E3B 4Z8**

**ATTN: Cpl. Laurent Lambert FCAT**

**Telephone: (506) 476-3624**

Item #	Specifications
<b>1.</b>	<b>Robotic Total Station</b>
1.1	Must have a minimum environmental operating air temperature range of -20°C to +50°C
1.2	Must have an angular accuracy of 5" or better
1.3	Must be able to rotate 360° and measure / record the angles and distances for each measurement point
1.4	Must have a minimum revolving rotation speed of 40° per second or better
1.5	Must have a functional reflector prism measuring capability (360° and standard)
1.6	Must have a functional reflector prism measuring accuracy of 1 to 3 mm
1.7	Must have a functional reflector prism minimum working distance of 500 m
1.8	Must have a minimum prism measurement distance of 2m or less
1.9	Must have a prism distance measurement speed of 1 to 3 seconds or better
1.10	Must have a functional reflectorless measuring capability
1.11	Must have a functional reflectorless measuring accuracy of 1 to 3 mm
1.12	Must have a functional reflectorless minimum working distance of 400 m
1.13	Must have a minimum reflectorless measurement distance of 1.5 meters or less
1.14	Must have a reflectorless distance measurement speed of 1 to 3 seconds or better
1.15	Must be functional as a robotic and as a standard operator aimed (mechanical) instrument
1.16	Must have a telescope magnification of 30x or better
1.17	Must auto track on the prism when the robotic function is activated and target the centre of the prism
1.18	Must have a "find prism" feature if auto tracking is interrupted
1.19	Must be able to obtain measurements from a 360° prism or a standard prism
1.20	Must have a built in laser pointer that can be activated and shut off by the user
1.21	Must be able to functionally operate in all weather conditions (i.e.: rain, snow, bright sun, sleet, heat, dust, fog, wind gust up to 40 km/h) and be configured to measure under these conditions
1.22	Must have a minimum battery working range of 4 to 6 hours per battery
1.23	Batteries must be rechargeable
1.24	Must include one (1) spare battery (2 batteries total)
1.25	Must include an external battery charging system
1.26	Total station must not exceed 7 kg (battery included)
1.27	Must have a protective case
1.28	Must be able to internally store measurement data if there is no external data collector in use
1.29	Must have an external SD card or USB connector for data transfer
1.30	Must include an SD card or a USB Storage drive (minimum capacity of 1 GB)



1.31	Must be able to communicate with an external data collector wirelessly via a built in radio
1.32	Must have a minimum wireless total station / data collector communication range of 500 m (linear)
1.33	Must be able minimally to measure and record X, Y and Z data (i.e.: easting, northing and elevation)
1.34	Must have a functional and accurate leveling capability (i.e.: leveling bubble combined with digital leveling)
1.35	Must provide a mean to adjust manually the levelling of the instrument
1.36	Must have a built-in laser plummet
1.37	Must be a one person system operation
1.38	Must include any cables designed for the data transfer or software upgrades
1.39	Must have a view screen that is visible in bright sun light and in full darkness conditions
1.40	Fixed points and measurement data must be immediately written and stored in the internal memory when not using an external data collector and / or have a minimum of battery power to record the said data if a sudden power loss was to occur
1.41	Must be fastened to the tripod by way of a threaded bell to a serviceable metal tribrach
1.42	Must have a low-battery warning
1.43	Must have a "out-of-level" warning
1.44	Must come with an operator / manufacturer's manual (digital or hard copy)
1.45	Must be able to be fully operated either directly from the total station keyboard or the hand held pole mountable data controller
1.46	Must track prism without any further communication devices
1.47	Must be a fully integrated hybrid GNSS robotic total station system
1.48	Must include all cables, brackets, ancillary equipment and on board softwares needed for the total station to be operated (communicate, measure, record the measurements & data transfer) as a Hybrid GNSS robotic total station
1.49	Must have a complete physical alpha-numeric keyboard
<b>2.</b>	<b>Tripod</b>
2.1	Must be constructed of aluminium or carbon fiber or wood
2.2	Must have a threaded bell to fasten the tribrach / total station
2.3	Must have height-adjustable and locking legs for uneven terrain
2.4	Must be stable on asphalt, concrete, gravel, soil and icy surfaces
2.5	Must not weigh more than 8 kg (excluding total station)
2.6	Must be able to fold and be transportable by vehicle
2.7	Must have a carry strap and be transportable by a person
2.8	Must be between a minimum of 1.5 m long to a maximum of 2 m long (extended in folded configuration)
2.9	Must include all brackets required to hold the required ancillary equipment to operate the Hybrid GNSS Robotic Total Station
<b>3.</b>	<b>Data Collector</b>
3.1	Must have a minimum operating temperature range of -20°C to +50°C
3.2	Must have a minimum battery working range of 8 hours
3.3	Must have an internal backup power to avoid the loss of measurement data in the case of a sudden loss of power
3.4	The data collector must be able to attach to the prism pole and must include all mounts / brackets needed to do so while in operational use
3.5	Must be able to connect to a Windows 10 Operating system to export the measurement data and any other data



3.6	Must be able to deliver an exported data file that is compatible with the Microsurvey Map 360 diagramming software
3.7	The screen must be clearly visible in direct sunlight and in full darkness lighting conditions
3.8	Must include a stylus (if applicable), all cables required for the data transfer (or software updates), mounts, brackets and all the required softwares to operate (communicate, measure, record the measurements & data transfer) the Hybrid GNSS Robotic total station system in all its configurations simultaneously (mechanical, robotic & GNSS)
3.9	Must have a rechargeable battery (internal and / or external)
3.10	Must weight less than 3 kg (battery included)
3.11	Must have an external SD card or USB connector for data transfer
3.12	Must include an SD card or a USB Storage Drive (minimum of 1 GB)
3.13	Must include a battery charging system
3.14	Must be able to code or input descriptions for each measurements (multiple attributes preferred)
3.15	Must be a wireless data collector and have a minimum data collector / total station communication range of 500 m with a built-in long range communication system
3.16	Must have a touch screen
3.17	Must have a minimum non-volatile internal storage memory of 1 GB and measurement data must be able to be stored in it
3.18	Must be a tablet or a keyboard data collector and possess a complete physical alpha-numeric keyboard
3.19	Must be capable of viewing the measured points graphically on the data collector's screen
3.20	Must be able to select two points on the viewing screen and obtain a horizontal measurement
3.21	Must have a unique address in the wireless communication protocol in order to avoid any interference in the said communication
3.22	Must have a low-battery warning
3.23	Must have an "out-of-level" warning if the total station is out of level
3.24	All components of the data collector operating system must be able to be backed up and transferred to an SD card or a USB Storage Drive in the event that a replacement data collector is required
3.25	Must be compatible for use with a Leica TS-06 Plus total station.
3.26	Must include a protective case
<b>4.</b>	<b>Prism</b>
4.1	Must include a 360° prism
4.2	Prism must attach to the prism pole and all supplemental attachments required to fix the GNSS receiver (rover) with the prism must be provided
4.3	Must include a protective case
4.4	Prism must be recognized and tracked by the total station
<b>5.</b>	<b>Prism Pole</b>
5.1	Must be telescopic with a minimum working height of 1 m to a maximum working height of 3 m
5.2	Must have a visible height measurement adjustment scale which is graduated in metric
5.3	Must be adjustable and equipped with a locking mechanism
5.4	Must be made of aluminium or carbon fiber. Must not be primarily be constructed of plastic or fiberglass
5.5	Must be able to attach a removable 360° or standard prism / GNSS receiver combination
5.6	Must include all mounts, brackets to mount a data collector
5.7	Must have a circular levelling bubble



<b>6.</b>	<b>Software</b>
6.1	Measurement data must be able to convert into a variety of formats for use in Microsurvey Map 360 diagramming software
6.2	Must include the software to allow the communication of the total station and the data collector to a Windows 10 based computer
6.3	Must include the software licenses for the total station, GNSS station, data collector and any computer based software necessary to operate the system
6.4	Must include one (1) year of support and / or software updates for all the softwares needed for the equipment and the computer based software(s)
6.5	Must include the computer based software(s) necessary to prepare the measurement data for diagramming and any other final deliverable document (i.e.: PDF document for the end user / client)
<b>7.</b>	<b>Training</b>
7.1	Must include training (in english or french) for functionality of the total station, GNSS measuring system, data collector, prism, prism pole, tripod, on board software and data transfer. This training will not pertain on how to survey or measure a scene. Training will be for up to 3 persons. For reasons of security, training may not be held on RCMP premises. The training need to be provided with an initial order only
7.2	Must include training (in english or french) for any computer based software. This training will be either be web based, and/or by a digital manual
7.3	Training must be a minimum 1 full day (8 hours) and provided in Fredericton, New Brunswick. Instructor's travel and expenses are included in the training cost. RCMP will not reimburse those costs separately
7.4	Training date to be finalized with the Project Authority
<b>8.</b>	<b>Servicing</b>
8.1	Services / warranty and regular maintenance work must be performed within the Atlantic Region (Nfld & L, NS, PEI & NB) by an authorized service dealer and / or agent.
<b>9.</b>	<b>GNSS RTK Base / Rover</b>
9.1	Must include all the equipment required for the system to be operated as a hybrid GNSS robotic total system and allowing for an RTK (Real Time Kinematic) type of survey
9.2	Must be able to operate in and / or independently from a cellular network
9.3	Must be delivered fully operational and ready to be used as such
9.4	Must comply with ISO standard 17123-8 field measuring systems and Industry Canada Standards
9.5	Must have a minimum environmental operating air temperature range of -20°C to +50°C
9.6	Must have a minimum horizontal RTK positioning accuracy of 10mm and a minimum vertical RTK positioning accuracy of 15 mm
9.7	Must be able to functionally operate in all weather conditions (i.e.: rain, snow, bright sun, sleet, heat, dust, fog, wind gust up to 40 km/h) and be configured to measure under these conditions
9.8	Must have a minimum battery working range of 4 to 6 hours per battery (if removable battery)
9.9	Batteries must be rechargeable
9.10	Must include one (1) spare battery (2 batteries total) if applicable
9.11	Must include an external battery charging system
9.12	Must have a protective case
9.13	Must be able to communicate with an external data collector wirelessly via a built in radio
9.14	Must have a minimum wireless GNSS (base) antenna / data collector communication range of 500 m (linear)
9.15	Must be able minimally to measure and record X, Y and Z data (i.e.: easting, northing and elevation)



9.16	Must have a minimum of 15° tilt compensation
9.17	Must be a one person system operation
9.18	Fixed points and measurement data must be immediately written and stored in the internal memory of the GNSS rover and/or have a minimum battery power to record the said data if a sudden power loss was to occur
9.19	Must have a low-battery warning
9.20	Must have a "out-of-level" warning if the system is tilted beyond the maximum allowable
9.21	Must come with an operator / manufacturer's manual (digital or hard copy)
9.22	Must be a fully integrated hybrid GNSS robotic total station system
9.23	Must include all cables, brackets, ancillary equipment and on board softwares needed for the GNSS measurement system to be operated (communicate, measure, record the measurements & data transfer) as a Hybrid GNSS robotic total station
9.24	Must be compatible and mounted simultaneously with a prism & prism pole set up and be able to be fully operated from the hand held pole mountable data controller
9.25	Must be able to measure / record the positions and distances for each measurement point
9.26	Must be able to internally store measurement data when in use
9.27	Must have an external SD card or USB connector for data transfer
9.28	Must include an SD card or a USB Storage drive (minimum capacity of 1 GB)
9.29	Must at least support GPS, Glonass, Galileo and BeiDou satellite signals
9.30	Must have an initialization time for the RTK of less than 10 seconds with a reliability of more than 99.9%
9.31	An image point measurement capability is preferred



### ANNEX C Mandatory and Point Rated Technical Criteria

#### Mandatory Technical Criteria

Bids submitted will be evaluated to confirm compliance with the mandatory requirements of the solicitation. Bids not meeting any one of the following mandatory criteria will be deemed non-compliant and will not be evaluated any further.

The Mandatory requirements are clearly identified and can be found below. Each bid will be evaluated against the mandatory checklist item by item.

Item #	Requirement	Location within the Proposal	Bidders Response
<b>1.</b>	<b>Robotic Total Station</b>		
1.1	Must have a minimum environmental operating air temperature range of -20°C to +50°C		
1.2	Must have an angular accuracy of 5" or better		
1.3	Must be able to rotate 360° and measure / record the angles and distances for each measurement point		
1.4	Must have a minimum revolving rotation speed of 40° per second or better		
1.5	Must have a functional reflector prism measuring capability (360° and standard)		
1.6	Must have a functional reflector prism measuring accuracy of 1 to 3 mm		
1.7	Must have a functional reflector prism minimum working distance of 500 m		
1.8	Must have a minimum prism measurement distance of 2m or less		
1.9	Must have a prism distance measurement speed of 1 to 3 seconds or better		
1.10	Must have a functional reflectorless measuring capability		
1.11	Must have a functional reflectorless measuring accuracy of 1 to 3 mm		
1.12	Must have a functional reflectorless minimum working distance of 400 m		
1.13	Must have a minimum reflectorless measurement distance of 1.5 meters or less		
1.14	Must have a reflectorless distance measurement speed of 1 to 3 seconds or better		
1.15	Must be functional as a robotic and as a standard operator aimed (mechanical) instrument		
1.16	Must have a telescope magnification of 30x or better		
1.17	Must auto track on the prism when the robotic function is activated and target the centre of the prism		





1.18	Must have a "find prism" feature if auto tracking is interrupted		
1.19	Must be able to obtain measurements from a 360° prism or a standard prism		
1.20	Must have a built in laser pointer that can be activated and shut off by the user		
1.21	Must be able to functionally operate in all weather conditions (i.e.: rain, snow, bright sun, sleet, heat, dust, fog, wind gust up to 40 km/h) and be configured to measure under these conditions		
1.22	Must have a minimum battery working range of 4 to 6 hours per battery		
1.23	Batteries must be rechargeable		
1.24	Must include one (1) spare battery (2 batteries total)		
1.25	Must include an external battery charging system		
1.26	Total station must not exceed 7 kg (battery included)		
1.27	Must have a protective case		
1.28	Must be able to internally store measurement data if there is no external data collector in use		
1.29	Must have an external SD card or USB connector for data transfer		
1.30	Must include an SD card or a USB Storage drive (minimum capacity of 1 GB)		
1.31	Must be able to communicate with an external data collector wirelessly via a built in radio		
1.32	Must have a minimum wireless total station / data collector communication range of 500 m (linear)		
1.33	Must be able minimally to measure and record X, Y and Z data (i.e.: easting, northing and elevation)		
1.34	Must have a functional and accurate leveling capability (i.e.: leveling bubble combined with digital leveling)		
1.35	Must provide a mean to adjust manually the levelling of the instrument		
1.36	Must have a built-in laser plummet		
1.37	Must be a one person system operation		
1.38	Must include any cables designed for the data transfer or software upgrades		
1.39	Must have a view screen that is visible in bright sun light and in full darkness conditions		
1.40	Fixed points and measurement data must be immediately written and stored in the internal memory when not using an external data collector and / or have a minimum of battery power to record the said data if a sudden power loss was to occur		
1.41	Must be fastened to the tripod by way of a threaded bell to a serviceable metal tribrach		
1.42	Must have a low-battery warning		
1.43	Must have a "out-of-level" warning		
1.44	Must come with an operator / manufacturer's		



	manual (digital or hard copy)		
1.45	Must be able to be fully operated either directly from the total station keyboard or the hand held pole mountable data controller		
1.46	Must track prism without any further communication devices		
1.47	Must be a fully integrated hybrid GNSS robotic total station system		
1.48	Must include all cables, brackets, ancillary equipment and on board softwares needed for the total station to be operated (communicate, measure, record the measurements & data transfer) as a Hybrid GNSS robotic total station		
1.49	Must have a complete physical alpha-numeric keyboard		
<b>2.</b>	<b>Tripod</b>		
2.1	Must be constructed of aluminium or carbon fiber or wood		
2.2	Must have a threaded bell to fasten the tribrach / total station		
2.3	Must have height-adjustable and locking legs for uneven terrain		
2.4	Must be stable on asphalt, concrete, gravel, soil and icy surfaces		
2.5	Must not weigh more than 8 kg (excluding total station)		
2.6	Must be able to fold and be transportable by vehicle		
2.7	Must have a carry strap and be transportable by a person		
2.8	Must be between a minimum of 1.5 m long to a maximum of 2 m long (extended in folded configuration)		
2.9	Must include all brackets required to hold the required ancillary equipment to operate the Hybrid GNSS Robotic Total Station		
<b>3.</b>	<b>Data Collector</b>		
3.1	Must have a minimum operating temperature range of -20°C to +50°C		
3.2	Must have a minimum battery working range of 8 hours		
3.3	Must have an internal backup power to avoid the loss of measurement data in the case of a sudden loss of power		
3.4	The data collector must be able to attach to the prism pole and must include all mounts / brackets needed to do so while in operational use		
3.5	Must be able to connect to a Windows 10 Operating system to export the measurement data and any other data		
3.6	Must be able to deliver an exported data file that is compatible with the Microsurvey Map 360 diagramming software		



3.7	The screen must be clearly visible in direct sunlight and in full darkness lighting conditions		
3.8	Must include a stylus (if applicable), all cables required for the data transfer (or software updates), mounts, brackets and all the required softwares to operate (communicate, measure, record the measurements & data transfer) the Hybrid GNSS Robotic total station system in all its configurations simultaneously (mechanical, robotic & GNSS)		
3.9	Must have a rechargeable battery (internal and / or external)		
3.10	Must weight less than 3 kg (battery included)		
3.11	Must have an external SD card or USB connector for data transfer		
3.12	Must include an SD card or a USB Storage Drive (minimum of 1 GB)		
3.13	Must include a battery charging system		
3.14	Must be able to code or input descriptions for each measurements (multiple attributes preferred)		
3.15	Must be a wireless data collector and have a minimum data collector / total station communication range of 500 m with a built-in long range communication system		
3.16	Must have a touch screen		
3.17	Must have a minimum non-volatile internal storage memory of 1 GB and measurement data must be able to be stored in it		
3.18	Must be a tablet or a keyboard data collector and possess a complete physical alpha-numeric keyboard		
3.19	Must be capable of viewing the measured points graphically on the data collector's screen		
3.20	Must be able to select two points on the viewing screen and obtain a horizontal measurement		
3.21	Must have a unique address in the wireless communication protocol in order to avoid any interference in the said communication		
3.22	Must have a low-battery warning		
3.23	Must have an "out-of-level" warning if the total station is out of level		
3.24	All components of the data collector operating system must be able to be backed up and transferred to an SD card or a USB Storage Drive in the event that a replacement data collector is required		
3.25	Must be compatible for use with a Leica TS-06 Plus total station		
3.26	Must include a protective case		
<b>4.</b>	<b>Prism</b>		
4.1	Must include a 360° prism		
4.2	Prism must attach to the prism pole and all supplemental attachments required to fix the GNSS		



	receiver (rover) with the prism must be provided		
4.3	Must include a protective case		
4.4	Prism must be recognized and tracked by the total station		
<b>5.</b>	<b>Prism Pole</b>		
5.1	Must be telescopic with a minimum working height of 1 m to a maximum working height of 3 m		
5.2	Must have a visible height measurement adjustment scale which is graduated in metric		
5.3	Must be adjustable and equipped with a locking mechanism		
5.4	Must be made of aluminium or carbon fiber. Must not be primarily be constructed of plastic or fiberglass		
5.5	Must be able to attach a removable 360° or standard prism / GNSS receiver combination		
5.6	Must include all mounts, brackets to mount a data collector		
5.7	Must have a circular levelling bubble		
<b>6.</b>	<b>Software</b>		
6.1	Measurement data must be able to convert into a variety of formats for use in Microsurvey Map 360 diagramming software		
6.2	Must include the software to allow the communication of the total station and the data collector to a Windows 10 based computer		
6.3	Must include the software licenses for the total station, GNSS station, data collector and any computer based software necessary to operate the system		
6.4	Must include one (1) year of support and / or software updates for all the softwares needed for the equipment and the computer based software(s)		
6.5	Must include the computer based software(s) necessary to prepare the measurement data for diagramming and any other final deliverable document (i.e.: PDF document for the end user / client)		
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7.2	Must include training (in english or french) for any computer based software. This training will be either be web based, and/or by a digital manual		



7.3	Training must be a minimum 1 full day (8 hours) and provided in Fredericton, New Brunswick. Instructor's travel and expenses are included in the training cost. RCMP will not reimburse those costs separately		
7.4	Training date to be finalized with the Project Authority		
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9.	<b>GNSS RTK Base / Rover</b>		
9.1	Must include all the equipment required for the system to be operated as a hybrid GNSS robotic total system and allowing for an RTK (Real Time Kinematic) type of survey		
9.2	Must be able to operate in and / or independently from a cellular network		
9.3	Must be delivered fully operational and ready to be used as such		
9.4	Must comply with ISO standard 17123-8 field measuring systems and Industry Canada Standards		
9.5	Must have a minimum environmental operating air temperature range of -20°C to +50°C		
9.6	Must have a minimum horizontal RTK positioning accuracy of 10mm and a minimum vertical RTK positioning accuracy of 15 mm		
9.7	Must be able to functionally operate in all weather conditions (i.e.: rain, snow, bright sun, sleet, heat, dust, fog, wind gust up to 40 km/h) and be configured to measure under these conditions		
9.8	Must have a minimum battery working range of 4 to 6 hours per battery (if removable battery)		
9.9	Batteries must be rechargeable		
9.10	Must include one (1) spare battery (2 batteries total) if applicable		
9.11	Must include an external battery charging system		
9.12	Must have a protective case		
9.13	Must be able to communicate with an external data collector wirelessly via a built in radio		
9.14	Must have a minimum wireless GNSS (base) antenna / data collector communication range of 500 m (linear)		
9.15	Must be able minimally to measure and record X, Y and Z data (i.e.: easting, northing and elevation)		
9.16	Must have a minimum of 15° tilt compensation		
9.17	Must be a one person system operation		
9.18	Fixed points and measurement data must be immediately written and stored in the internal memory of the GNSS rover and/or have a minimum battery power to record the said data if a sudden		



	power loss was to occur		
9.19	Must have a low-battery warning		
9.20	Must have a "out-of-level" warning if the system is tilted beyond the maximum allowable		
9.21	Must come with an operator / manufacturer's manual (digital or hard copy)		
9.22	Must be a fully integrated hybrid GNSS robotic total station system		
9.23	Must include all cables, brackets, ancillary equipment and on board softwares needed for the GNSS measurement system to be operated (communicate, measure, record the measurements & data transfer) as a Hybrid GNSS robotic total station		
9.24	Must be compatible and mounted simultaneously with a prism & prism pole set up and be able to be fully operated from the hand held pole mountable data controller		
9.25	Must be able to measure / record the positions and distances for each measurement point		
9.26	Must be able to internally store measurement data when in use		
9.27	Must have an external SD card or USB connector for data transfer		
9.28	Must include an SD card or a USB Storage drive (minimum capacity of 1 GB)		
9.29	Must at least support GPS, Glonass, Galileo and BeiDou satellite signals		
9.30	Must have an initialization time for the RTK of less than 10 seconds with a reliability of more than 99.9%		

**Point Rated Technical Criteria**

Each Technical Bid that meets all the Mandatory Requirements specified above will be evaluated and scored in accordance with the following point-rated evaluation criteria.

<b>Criteria#</b>	<b>Rated Requirement</b>	<b>Score (total possible 10 points)</b>	<b>Location within the Proposal</b>
10.1	An image point measurement capability		