

**Attachment 1 to part 3: Technical Offer
EN578-181312**

Offerors are invited to ensure that all information provided clearly and completely demonstrates full compliance to each requirement for every stream (including General requirements) in their bid.

1-GENERAL REQUIREMENT APPLICABLE TO ALL STREAMS

General Mandatory Technical Requirement (GMT)	Description (Statement)	Capability	Acceptable means of demonstrating compliance
GMT-1	General Requirement for Suppliers		
GMT-1.1	Operator must be Transport Canada Certified for advanced work for at least 2 years.	Able to lawfully operate within Canada in the designate region	Provide copy of all applicable Transport Canada Certifications
GMT-1.2	Operator must be registered as a business in the Canadian supplier registry	Operator must have Procurement Business Number (PBN) issued to the same business entity as GMT-1	Provide copy of PBN demonstrating it is the same entity as the FOC
GMT-1.3	Compliance to Canadian Language Laws Note: requirement may be adjusted if bidder offers a regional service only.	Able to provide publications in both official languages as per par 3.1.3	Demonstrate that all communication (web site, correspondence etc) can be found on both official languages (English and French)
GMT-1.4	Supplier experience	Supplier must have cumulative field experience of a minimum of 6 months full time in the past 2 years.	Supplier past contracts describing comparable work with reference contact for validation.

GMT-1.5	Supplier must have the ability to deploy to remote location using commercial transportation.	Supplier must have deployable kits that travels with the crew.	Must provide description (i.e. photographs) of method(s) used when required to travel by various means (i.e. air, train, bus) and certify that methods uses do not create travel delays or complications based on past travel activities using such methods.
GMT-2	General requirement for Remotely Piloted Aircraft (RPA)		
GMT-2.2	Able to operate in a wide range of temperature conditions	Entire system must be able to operate at a minimum in temperature ranges from 0 degrees Celsius to +25 degrees Celsius at sea level.	Supplier must provide OEM specifications of proposed equipment that demonstrate ability to operate
GMT-2.3	Able to operate in austere environmental conditions	Entire system including controller must be able to operate in rain, snow, dust, and salt air conditions. System must be Ingress Protection rated at a minimum level of IP43: http://www.dsmt.com/resources/ip-rating-chart/	OEM certification of all components demonstration compliance to references standard.
GMT-2.4	Able to fly away from control station and maintain connectivity (controller and sensors) by using handheld GCS built in antenna	Within visual line of sight (VLOS) and can reach a distance of at least 1.5km.	Provide OEM certification copy of publicly available documentation or a video demonstration.
GMT-2.5	Operator must utilize most current software available by respective OEM supplier		Provide service agreement from OEM demonstrating currency of software is maintained.
GMT-3	General requirement for Crew		

GMT-3.1	Advanced pilot Certification Requirement	All pilot operators must have a valid advanced permit as per CARs 901 rules.	Provide copy of TC issued document
GMT-3.2	Proposed pilot experience	Pilot proposed must have obtained a Transport Canada issued certificate that no less than 2 year before offer submission + 50 hours of drone operations.	Pilot log book must demonstrate experience and provide reference contacts for validation (previous TC standards will be recognized)
GMT-4	General requirement for Data Processing		
GMT-4.1	Any data stored on contractor's hardware must remain within Canadian borders.		Provide physical location of servers and IM equipment to be used.
GMT-4.2	All copies of data provided to Canada as a result of a call-up must be completely deleted from all contractor storage after delivery to Canada.	Have approved purging procedure included in company standard operating procedure.	Provide copy of SOP demonstrating data is purged from all contractor systems.
GMT-4.3	All transmission between RPAS air vehicle and ground station must be encrypted	Encryption to a minimum of DES56 for all transmissions.	Provide copy of SOP demonstrating incorporation of encryption methods used.

2-MULTIMEDIA STREAM

Multimedia Mandatory Technical Requirement (MMT)	Description (Statement)	Capability	Acceptable means of demonstrating compliance
MMT-1	Media requirement for Supplier		
MMT-1.1	Supplier must have completed a minimum of 5 project within the last 2 years	To conduct Multimedia type work and produce images and video	5 examples of contracts that the supplier has completed described in sufficient detail. Including contact information of client to validate information provided.
MMT-2	Media requirement for RPAS		
MMT-2.1	Onboard sensor systems include RGB sensors	Capable of capturing RGB video and images	Provide technical information confirming sensor suite includes RGB sensors able to produce data equal or better then specification stated in MMT-4.3
MMT-3	Media requirement for Crew		
MMT-3.1	Demonstrate experience working autonomously	Able to accept call-up that will not have government official presence in order to conduct work	Provide 3 examples of conducting work without direct observation from client in the past 5 years. Please provide a clear and complete description that confirms the example falls within the Multi-Media scope of work. Please provide contact information of client for validation purposes.
MMT-4	Media requirement for Data Processing		
MMT-4.1	Must deliver captured data no later than 3 business days after capture.		Suppliers must provide evidence on previous projects which were delivered within 3 business days or better

MMT-4.2	Must deliver produced media to client in an acceptable method	<p>Able to deliver media in the following methods:</p> <p>1-physical medium (USB/DVD.)</p> <p>2- publically available messaging methods (E-mail, cloud storage service, operator owned website...)</p>	Specific delivery method available with clear description and a copy of SOP.
MMT-4.3	Produce and deliver information to a minimum specified standard	<p>Able to produce meaningful and usable information to client</p> <p>deliver images, video, information at the following minimum specifications:</p> <p>minimum acceptable <u>Image</u> format:</p> <p>-RAW</p> <p>-JPEG</p> <p>-DNG</p> <p>resolution:</p> <p>-20 MP camera</p> <p>Minimum acceptable <u>Video</u> Format:</p> <p>-MP4</p> <p>-MOV</p> <p>-MPEG</p> <p>resolution:</p> <p>-1920X1080 FHD</p> <p>-60 FPS</p>	Provide format and resolution offered to Canada

3- AGRICULTURE STREAM

Agricultural Mandatory Technical Requirement (AGR-MT)	Description (Statement)	Capability	Acceptable means of demonstrating compliance
AGR-MT-1	Agricultural requirement for Supplier		
ARG-MT-1.1	Supplier must have a minimum of 3 projects in the agriculture industry.		Provide a minimum of 3 examples of contracts that the supplier has completed described in sufficient detail. Including contact information of client to validate information provided
ARG-MT-1.2	Must have access to an all-terrain vehicle appropriate for the conditions of the period applicable to any call-up (4 wheeler vs snow mobile)	Able to mobilize without government support if needed.	Provide evidence that operator have access to vehicles available at time of call-up.
ARG-MT-2	Agricultural requirement for RPAS		
ARG-MT-2.1	On-board sensor include RGB and IR sensors		Provide technical information confirming sensor suite includes RGB and IR sensors able to produce data equal or better then specification stated in ARG-MT-4.2
ARG-MT-3	Agricultural requirement for Crew		
ARG-MT-3.1	Must be able to integrate with ongoing agricultural operations	Be familiar with standard procedures, emergency standards, terms and practices related to commercial/agricultural environments	Minimum one (1) crew member proposed must have a minimum of 1 year full time experience working for an agricultural (livestock or organization in the past 10 years.

ARG-MT-4	Agricultural requirement for Data Processing		
ARG-MT-4.1	Must deliver captured data no later than 3 business days after capture		Suppliers must provide evidence on previous projects which were delivered within 3 business days or better
ARG-MT-4.2	Produce and deliver information to a minimum specified standard	<p>Able to produce meaningful and usable information to client.</p> <p>Capture images, video, information at the following minimum specifications:</p> <p>minimum acceptable <u>Image</u> format: Format : -RAW -JPEG -DNG Minimum resolution: -20 MP camera Minimum acceptable <u>Video</u> Format: -MP4 -MOV -MPEG Minimum resolution: -1920X1080 FHD -60 FPS</p> <p>FLIR Minimum acceptable Format: -JPEG, RAW,DNG -MOV,MP4, Minimum resolution: - 640X512</p> <p>Minimum acceptable 2d map file (may be printed) format and resolution: -JPEG, RAW,DNG -MOV,MP4, Minimum resolution: - 640X512</p>	Provide current format and resolution offered

4-FORESTRY, FIREFIGHTING AND WILDLIFE STREAM

Forestry / Fire / Wildlife Mandatory Technical Requirement (FORWL-MT)	Description (Statement)	Capability	Acceptable means of demonstrating compliance
FORWL-MT-1	Forestry/Fire requirement for Operator		
FORWL-MT-1.1	Supplier must provide 3 projects in the forestry and fire industry	Proven expertise in operating in the Forestry/fire management industry	Provide a minimum of 3 examples of contracts that the supplier has completed described in sufficient detail.
FORWL-MT-1.2	Must have all-terrain vehicle appropriate for the conditions during the call-up period. (4 wheeler, 4X4, snowmobile...)		Provide details of vehicle operator currently uses. (model number with specifications)
FORWL-MT-1.3	Supplier must have all required PPE and survival equipment in accordance with local regulations		Provide a list of standard issued equipment to all field employees in accordance with local (provincial) regulations
FORWL-MT-1.4	Supplier must demonstrate ability to work autonomously for a minimum of 3 consecutive days in austere conditions	May include food and water supply, generator, sleeping/resting equipment, etc.	Provide description of equipment provided to field unit which will ensure uninterrupted operations for a minimum of 3 consecutive days
FORWL-MT-2	Forestry/Fire requirement for RPAS		
FORWL-MT-2.1	On-board sensor include RGB and IR sensors		Provide technical information confirming sensor suite includes RGB and IR sensors able to produce data equal or better than specification stated in FORWL-MT-4.3
FORWL-MT-3	Forestry/Fire requirement for Crew		
FORWL-MT-3.1	Must have demonstrable	Provide any training completed such as	Provide clear description of proposed individual's

	experience in conducting operations in austere/remote conditions.	survival training, first-aid, use of PPE and emergency equipment, immunization regime.	experience/qualifications that demonstrates successful and safe operation in a forestry or remote location.
FORWL-MT-3.2	Must be able to integrate with ongoing forestry operations	Be familiar with standard procedures, emergency standards, terms and practices related to forestry and wildlife type of environment	Minimum one (1) crew member proposed must have a minimum of 1 year full time experience working for a forestry/wildlife organization in the past 10 years.
FORWL-MT-4	Forestry/Fire requirement for Data Processing		
FORWL-MT-4.1	Must deliver captured data no later than 2 business days after capture		Suppliers must provide evidence on previous projects which were delivered within 2 business days or better
FORWL-MT-4.2	<p>If data collection is during the night, data is to be delivered no later than 6 am the following morning.</p> <p>All other flight data no later than 3 days.</p>	Able to support ongoing firefighting operations with maps of hotspots the morning after capture	Provide extract of SOP that demonstrates data delivery in specified deadlines.
FORWL-MT-4.3	Produce and deliver information to a minimum specified standard	<p>Able to produce meaningful and usable information to client</p> <p>Capture images, video, information at the following minimum specifications:</p> <p>minimum acceptable <u>Image</u> format: Format : -RAW -JPEG -DNG Minimum resolution: -20 MP camera Minimum acceptable <u>Video</u> Format: -MP4 -MOV</p>	Provide current format and resolution.

		<p>-MPEG Minimum resolution: -1920X1080 FHD -60 FPS</p> <p>FLIR Minimum acceptable Format: -JPEG, RAW,DNG -MOV,MP4, Minimum resolution: - 640X512</p> <p>Minimum acceptable 2d map file (may be printed) format and resolution: TIFF, georeferenced</p>	
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5-INFRASTRUCTURE AND REAL PROPERTY STREAM

Infrastructure / Real Property Mandatory Technical Requirement (I/RP-MT)	Description (Statement)	Capability	Acceptable means of demonstrating compliance
I/RP-MT-1	Infrastructure/RP requirement for Operator		
I/RP-MT-1.1	Supplier must provide 3 projects in the infrastructure/real property industry	Proven expertise in operating in the Real Property/infrastructure industry	Provide a minimum of 3 examples of contracts that the supplier has completed described in sufficient detail.
I/RP-MT-1.2	Have all required clearances to accomplish requested task (reliability for all staff)	Is able to obtain all applicable security clearance that will allow the operator to perform the requested work.	-Provide name of individual that is the identified contractor security officer (CDO) within the industrial security program. Proposed field and management individuals must have the appropriate clearances at time of Standing Offer award.
I/RP-MT-1.3	Supplier must have all required PPE and survival equipment in accordance with local (provincial) regulations	Able to operate safely and in accordance with all the applicable Health and Safety regulations.	Provide a list of standard issued equipment to all field employees in accordance with local (provincial) regulations.
I/RP-MT-2	Infrastructure/RP requirement for RPAS		
I/RP-MT-2	On-board sensor include RGB and IR sensors		Provide technical information confirming sensor suite includes RGB and FLIR sensors able to produce data equal or better then specification stated in I/RP-MT-4.2
I/RP-MT-2.1	Advanced sensor suite is required to produce precision volumetric data and 3D mapping	LIDAR equipment is used.	Provide technical information confirming sensor suite includes LIDAR sensors able to

			produce data equal or better then specification stated in I/RP-MT-4.2
I/RP-MT-3	Infrastructure/RP requirement for Crew		
I/RP-MT-3.1	Experience in operating RPAS systems in industrial/construction environment	Crew is able to seamlessly integrate within an ongoing activities (industrial plant/construction site/active mining activities...)	Provide 3 distinct examples of contracts that took place on an active site with corresponding extracts of company SOP that addressed any safety and operational requirement.
I/RP-MT-4	Infrastructure/RP requirement for Data Processing		
I/RP-MT-4.1	Operator must be able to capture, store, process and deliver all data captured in accordance with Call-up and in a timely manner as specified in call-up.	Operator is able to promptly manage all data/information securely.	Provide 3 distinct examples that clearly show the operator was successful in capturing, storing, processing all data and deliver to respective client at a minimum of 5 business days after capture Provide client contact information to validate services provided.
I/RP-MT-4.2	Produce and deliver information to a minimum specified standard.	Able to produce meaningful and usable information to client Capture images, video, information at the following minimum specifications: minimum acceptable <u>Image</u> format: Format : -RAW -JPEG -DNG Minimum resolution: -20 MP camera Minimum acceptable <u>Video</u> Format: -MP4 -MOV -MPEG	Provide minimum current format and resolution.

		<p>Minimum resolution: -1920X1080 FHD -60 FPS</p> <p>FLIR Minimum acceptable Format: -JPEG, RAW,DNG -MOV,MP4, Minimum resolution: - 640X512</p> <p>LIDAR minimum acceptable specification:</p> <p>600K shots per second; wavelength 905 nm, precision 10cm, accuracy 5cm</p> <p>Deliver information at the following minimum specifications:</p> <p>Minimum acceptable 3D map file format and resolution:</p> <p>LAS, LAZ, XYZ precision 10cm, accuracy 5cm</p> <p>Minimum acceptable 2d map file (may be printed) format and resolution: TIFF, georeferenced</p>	
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6-SECURITY AND EMERGENCY RESPONSE STREAM

Security & Emergency Mandatory Technical Requirement (S/EMERG-MT)	Description (Statement)	Capability	Acceptable means of demonstrating compliance
S/EMERG-MT-1	S&S/EMERG requirement for Operator		
S/EMERG-MT-1.1	Ability to promptly integrate with on-going emergency activities seamlessly and with minimal interruptions.	Demonstrated ability to integrate with an active emergency/security operation. ie, able to communicate using all normal radio/com frequencies.	Provide a minimum of 3 examples of contracts that the supplier has completed described in sufficient detail to confirm compliance.
S/EMERG-MT-1.2	Have all required clearances to accomplish requested task (reliability for all staff and Protected B for information management)		-Provide 3 examples of successfully obtaining all necessary clearances to operate and integrate within an emergency response or law enforcement agency. - Provide name of individual that is the identified contractor security officer (CDO) within the industrial security program. Proposed field and management individuals must have the appropriate clearances at time of Standing Offer award.
S/EMERG-MT-2	S&S/EMERG requirement for RPAS		
S/EMERG-MT-2.1	On-board sensor include RGB and IR sensors		Provide technical information confirming sensor suite includes RGB and IR sensors able to produce data equal or better then specification stated in S/EMERG-MT-4.2
S/EMERG-MT-2.2			

	Able to transmit live video signal to client department designated observer.	Provide appropriate signals (must be encrypted) to Canada as specified in Call-up.	Provide a clear description of current equipment used by operator (model number and specifications)
S/EMERG-MT-2.3	Able to release a small payload.	Have appropriate equipment mounted on RPA that allows for attachment of emergency equipment	Provide a clear and detailed description of equipment currently used to attach (interface document) external loads including model and specifications
S/EMERG-MT-3	S&S/EMERG requirement for Crew		
S/EMERG-MT-3.1	Able to integrate quickly and seamlessly with ongoing emergency operation	Proven expertise in responding to emergency calls or surveillance operations	Provide 2 examples of services provided to emergency response organizations or safety/security organizations (including law enforcement)
S/EMERG-MT-3.2	All crew is reliability cleared in accordance with attached SRCL	Having access to sensitive information and sites. (may require government provided escorts)	Provide clearance certification for every crew member associated with RPAS operations. Including any person responsible for data management and storage.
S/EMERG-MT-3.3	Able to conduct work with minimal interruptions	Past experience working with law enforcement or emergency response organizations.	One of the crew member proposed as part of deployment team must have full time work experience employed as a law enforcement officer or emergency response team member (minimum 1 year in the past 10 years.
S/EMERG-MT-4	S/EMERG requirement for Data Processing		
S/EMERG-MT-4.1	All data provided to Canada must be able to be encrypted	Able to protect sensitive information	Provide encryption methodology used including related SOP.

			Provide documentation demonstrating equipment and procedure are acceptable to designated security office from the industrial security program (SRCL).
S/EMERG-MT-4.2	Produce and deliver Protected B information to a minimum specified standard	<p>Able to produce meaningful and usable information to client</p> <p>Capture images, video, information at the following minimum specifications:</p> <p>minimum acceptable <u>Image</u> format: Format : -RAW -JPEG -DNG Minimum resolution: -20 MP camera</p> <p>Minimum acceptable <u>Video</u> Format: -MP4 -MOV -MPEG Minimum resolution: -1920X1080 FHD -60 FPS</p> <p>FLIR Minimum acceptable Format: -JPEG, RAW,DNG -MOV,MP4, Minimum resolution: - 640X512</p>	Provide current format and resolution.
S/EMERG-MT-4.3	Attach and transport government furnished equipment (GFE) that can be controlled by a government representative	Transport and position GFE and allow for ground control of its functions.	Provide technical information that clearly describes interface equipment available both physical description (diagrams) and electrical power/data available (with connector description)

S/EMERG-MT-4.4	Transmit encrypted live data	Able to reduce hacking risks of live transmission	<p>Provide encryption methodology/format used including related SOP.</p> <p>Provide documentation demonstrating equipment and procedure are acceptable to designated security office from the industrial security program (SRCL).</p>
S/EMERG-MT-4.5	Able to protect information gathered should the RPAS be lost.	All on board information must be encrypted to a AES256 standard.	Provide encryption methodology/format used including related SOP.