



National Defence

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Ottawa (Ontario)
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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

RETURN BIDS TO: RETOURNER LES SOUMISSIONS À :

By e-mail to: - Par courriel au :
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Attention: - Attention :
Brian James DLP 5-3-4-1

Title - Sujet Multi-Tasking Equipment (MTE) with Runway Snow Plow and Towed Cradle Broom Sweeper or Towed Sweeper - Équipement multi tâches (EMT) avec chasse-neige de piste et balayeuse tractée à brosse supportée		Amendment No. - N° modif. 003
Solicitation No. N° de l'invitation W8476-226552/A	Date of Amendment Date de modification April 20, 2022 - 20 avril 2022	
Address enquiries to: - Adresser toute demande de renseignements à : Brian James Telephone No. - N° de telephone N/A E-Mail Address - Courriel brian.james3@forces.gc.ca		
Destination See herein - Voir aux présentes		

Instructions: Municipal taxes are not applicable. Unless otherwise specified herein all prices quoted must include all applicable Canadian customs duties, GST/HST, excise taxes and are to be delivered Delivery Duty Paid including all delivery charges to destination(s) as indicated. The amount of the Goods and Services Tax/Harmonized Sales Tax is to be shown as a separate item.

Instructions : Les taxes municipales ne s'appliquent pas. Sauf indication contraire, les prix indiqués doivent comprendre les droits de douane canadiens, la TPS/TVH et la taxe d'accise. Les biens doivent être livrés « rendu droits acquittés », tous frais de livraison compris, à la ou aux destinations indiquées. Le montant de la taxe sur les produits et services/taxe de vente harmonisée doit être indiqué séparément.

Delivery required Livraison exigée See herein - Voir aux présentes	Delivery offered Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Person authorized to sign on behalf of Vendor/Firm (type or print): La personne autorisée à signer au nom du fournisseur/de l'entrepreneur (taper ou écrire en caractères d'imprimerie) :	
Name - Nom	Title - Titre
Signature	Date

Solicitation Closes - L'invitation prend fin At - à : 2:00 PM - 14:00 On - le : May 3, 2022 - 3 mai 2022 Time Zone - Fuseau Horaire : Eastern Daylight Time (EDT) Heure avancée de l'Est (HAE)
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THIS SOLICITATION AMENDMENT IS RAISED TO:

1. Extend the solicitation closing date by 1 week from 26 April 2022 to 3 May 2022;
2. Provide clarification and answers to questions from potential suppliers;
3. Amend the solicitation (Annex A, Requirement – Purchase Description) to clarify and reflect the questions received; and
4. Amend the Contracting Authority from Wo il Lee to Brian James.

QUESTIONS AND ANSWERS:

Question 3	In reference to the New Purchase Description published today, specifically Section 3.7.1 (b): Is a broom diameter of 91.4 cm or 36 inches acceptable, just as it was in procurement W8476-226512A?
Answer 3	A broom diameter of 0.914 m (36 inch) or 1.16 m (46 inches) is acceptable. Refer to Purchase Description dated April 19, 2022.
Question 4	In reference to the New Purchase Description published today, specifically Section 3.7.1 (j): Is a manual pattern adjustment acceptable, just as it was in procurement W8476-226512A?
Answer 4	Yes, a manual or automatic adjustment pattern is acceptable. Refer to purchase Description dated April 19, 2022

THIS SOLICITATION IS HEREBY AMENDED AS FOLLOWS:

- 1 DELETE from Page 1, Solicitation Closes - L'invitation prend fin, "April 26, 2022 - 26 avril 2022" and REPLACE with "May 3, 2022 - 3 mai 2022".
- 2 DELETE: "ANNEX A PURCHASE DESCRIPTION FOR Multi-Tasking Equipment (MTE) with Runway Snow Plow and Towed Cradle Broom Sweeper or Towed Sweeper dated 2021-04-04" in its entirety.
INSERT: "ANNEX A PURCHASE DESCRIPTION FOR Multi-Tasking Equipment (MTE) with Runway Snow Plow and Towed Cradle Broom Sweeper or Towed Sweeper 2022-04-19" See attached.
- 3 DELETE:
Contracting Authority
Wo il Lee
343-572-4779
Woil.lee@forces.gc.ca
INSERT:
Contracting Authority
Brian James
brian.james3@forces.gc.ca

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.



PURCHASE DESCRIPTION

FOR

Multi-Tasking Equipment (MTE) with Runway Snow Plow and Towed Cradle Broom Sweeper or Towed Sweeper



NOTICE

This documentation has been reviewed by the Technical Authority and does not contain controlled goods.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

OPI DSVPM 5 – DAVPS 5

Issued on Authority of the Chief of the Defence Staff

Publiée avec l'autorisation du chef d'état-major de la Défense

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1. SCOPE

1.1 Scope

- a) This Purchase Description describes the requirements for a modular Multi-Tasking Equipment (MTE) cab forward mid-engine power unit for airfield snow removal equipped with a 5.79 m (19 ft) runway plow and 4.87 m (16 ft) towed cradle broom sweeper or towed sweeper intended to clear runways and aprons at 12 Wing Shearwater, Nova-Scotia.

1.2 Instructions

- a) Requirements, which are identified by the word “**must**”, are mandatory. Deviations will not be permitted.
- b) Requirements identified with a “will” define actions to be performed by Canada and require no action/obligation on the Contractor’s part.
- c) Where “**must**” or “will” are not used, the information supplied is for guidance only.
- d) In this document “provided” **must** mean “provided and installed”.
- e) Where a technical certification is referred to in this specification, a copy of the certification or an acceptable Proof of Compliance **must** be supplied for the MTE when requested by the Technical Authority.
- f) Metric measurements are used to define the requirement. Other measurements are for reference only and may not be exact conversions.
- g) Nominal dimensions reflect a method by which materials or products are generally identified, but which differ from the actual measured dimensions.

1.3 Definitions

- a) “**Equivalent**” - Substitutes and alternatives that are equivalent in product, performance or a standard will be considered for acceptance by the Technical Authority where Proof of Compliance for equivalency for the respective requirement is provided for evaluation.
- b) “**MTE**” – The entire Multi-Tasking Equipment equipped with the snow plow integrated with the sweeper including all systems and sub-systems, in a complete manufactured state in accordance with the requirements in this Purchase Description.
- c) “**Snow Plow Vehicle**” - The entire self-contained snow plow vehicle including all related systems and sub-systems, in a complete manufactured state in accordance with the requirements in this Purchase Description.
- d) “**Sweeper**” - The entire self-contained towed cradle broom sweeper or towed sweeper including all related systems and sub-systems, in a complete manufactured state in accordance with the requirements in this Purchase Description.

- e) **“5th percentile adult female”** – As defined in the *Motor Vehicle Safety Regulations (C.R.C., c. 1038)* a person having as physical characteristics a mass of 46.3 kg, height of 1499 mm, erect sitting height of 785 mm, normal sitting height of 752 mm, hip sitting breadth of 325 mm, hip sitting circumference of 925 mm, waist sitting circumference of 599 mm, chest depth of 191 mm, bust circumference of 775 mm, chest upper circumference of 757 mm, chest lower circumference of 676 mm, knee height of 455 mm, popliteal height of 356 mm, elbow rest height of 180 mm, thigh clearance height of 104 mm, buttock-to-knee length of 518 mm, buttock-to-poples length of 432 mm, elbow-to-elbow breadth of 312 mm and seat breadth of 312 mm.
- f) **“95th percentile adult male”** – As defined in the *Motor Vehicle Safety Regulations (C.R.C., c. 1038)* a person having as physical characteristics a mass of 97.5 kg, height of 1849 mm, erect sitting height of 965 mm, normal sitting height of 930 mm, hip sitting breadth of 419 mm, hip sitting circumference of 1199 mm, waist sitting circumference of 1080 mm, chest depth of 267 mm, chest circumference of 1130 mm, knee height of 594 mm, popliteal height of 490 mm, elbow rest height of 295 mm, thigh clearance height of 175 mm, buttock-to-knee length of 640 mm, buttock-to-poples length of 549 mm, elbow-to-elbow breadth of 506 mm and seat breadth of 404 mm.
- g) **“Gross Axle Weight Rating (GAWR)”** - The value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces.
- h) **“Gross Vehicle Weight Rating (GVWR)”** - The value specified by the vehicle manufacturer as the loaded weight of a single vehicle.

2. APPLICABLE DOCUMENTS

2.1 Applicable Documents

- a) The following documents form part of this Purchase Description. Canada will not be supplying these documents. Sources are as shown:

Canadian Occupational Health and Safety Regulations (COHSR)

Hazardous Products Act, Government of Canada, Department of Justice

Yearbook - Tire and Rim Association Inc.

CAN/CGSB 3.517 - Diesel Fuel

SAE ARP5548 - Multi-Tasking Equipment (MTE) For Airfield Snow Removal

Advisory Circulars 300 Series – Aerodromes and Airports (for additional information and guidance only)

3. REQUIREMENTS

3.1 Standard Design

- a) **Latest Model** - The MTE design **must** be the manufacturer's latest model.
- b) **Industry Acceptability** - The MTE design **must** have demonstrated industry acceptability by having been manufactured and sold commercially for at least 2 year, or be manufactured by a company that has at least 5 years' experience in design and manufacturing of a comparable type of equipment of equivalent or greater complexity.
- c) **Engineering Certification** - Original manufacturers engineering certification **must** be provided upon request for major drive train components, and major equipment systems and assemblies, to demonstrate that assemblies are used within their design limitations.
- d) **Regulations** – The MTE **must** conform to all applicable laws, regulations and industrial standards governing manufacture, safety, noise levels and pollution in effect in Canada at the time of manufacture. International equivalent laws, regulations, and industrial standards will be accepted only if certified for equivalency by a professional engineer.
- e) **Published Ratings** - The MTE **must** have system and component capacities equivalent to published ratings (i.e. product or component brochures).
- f) **Standard Components** - The MTE **must** include all standard components, equipment and accessories for the model offered, although they may not be specifically described in this Purchase Description.
- g) **Spare Parts** - The manufacturer **must** select components readily available for a minimum period of 10 years from the date of manufacture.
- h) **Measurements** – Values for labels and indicators provided with equipment **must** be presented in metric units, or **must** have both imperial and metric units with metric dominant.

3.2 Operating Conditions

3.2.1 Weather

- a) The MTE **must** operate under the extremes of weather conditions found in Canada in temperatures ranging from -46 to 39° C (-50.8 to 102° F) and cold starting from -40° C with external aids.

3.2.2 Terrain

- a) The MTE **must** operate on concrete and asphalt surfaces that include year round operations on rain, snow, hard packed snow and ice with up to 2.0% (percent) slope in all weather conditions.

3.3 Safety Standards

3.3.1 Noise Level

- a) The MTE noise level **must** meet the requirements of legislation relative to Canadian Occupational Health and Safety Regulations (COHSR).

3.3.2 Human Factors Engineering

- a) The MTE, all systems, and components **must** comply with the relevant sections of the COHSR.
- b) The MTE **must** be manufactured/assembled for safety and ease of use by CAF users with anthropometric characteristic measurements ranging from 95th percentile male to 5th percentile female.
- c) The MTE **must** have entry and exit points equipped with handles and steps sized and positioned to accommodate CAF users with anthropometric characteristic measurements ranging from 95th percentile male to 5th percentile female.
- d) The MTE **must** be equipped, with warning and instruction plates, non-slip walking surfaces and heat shields, for operator safety.

3.3.3 Design Standards

- a) The MTE **must** be designed in accordance with the guidelines set out in SAE ARP5548 unless otherwise specified in this Purchase Description.

3.4 MTE Performance, Ratings and Dimensions

3.4.1 Performance

- a) The snow plow vehicle and sweeper **must** operate independently and as an integrated unit forming the MTE.
- b) The MTE, at GVWR, **must** sustain a minimum transport speed of 70 km/h (43.5 MPH) on a level paved road.
- c) The MTE **must** operate at speeds of up to 40 km/h (24.8 MPH) through a minimum snow density of 400 kg/m³.
- d) The MTE **must** remove at least 80% of snow slush to a depth of 13 mm (0.5 inch).

3.4.2 Weight Ratings

- a) The GVWR of the MTE **must** not be less than the sum of the unloaded MTE mass, the cargo carrying capacity, and the product obtained by multiplying the designated seating capacity by 68kg as defined in the *Motor Vehicle Safety Regulations (C.R.C., c. 1038)*.
- b) Each GAWR **must** be equal to or less than the load rating of the weakest component in the axle system, i.e., axle housing, suspension, wheels, or tires.

- c) The total load on each axle of the MTE **must** not exceed the GAWR for that axle.
- d) Axle loads **must** comply with all the provincial weight restrictions across Canada.

3.4.3 Dimensions

- a) The overall height of the MTE **must** not exceed a maximum of 4.2 m (13.7 feet).
- b) The MTE minimum ground clearance **must** be 250 mm (10 inches).

3.5 Frame

- a) The snow plow vehicle **must** be equipped with a fifth wheel hitch rated and compatible with the sweeper king pin.
- b) A king pin connection rated and compatible with the snow plow vehicle fifth wheel hitch **must** be installed on the sweeper.
- c) Recovery towing hook(s) rated for the maximum weight of the snow plow vehicle **must** be provided at the front and rear of the snow plow vehicle chassis.

3.6 Snow Plow Vehicle

3.6.1 Snow Plow Vehicle Engine

- a) The engine **must** operate on ultra-low sulphur diesel fuel to the CAN/CGSB Standard 3.517 and conform to the latest emission standards.
- b) The engine **must** be mounted behind the snow plow vehicle cab.

3.6.1.1. Engine Components

- a) A combustion air cleaning system **must** be provided, with an air cleaner restriction indicator visible to the operator.
- b) A replaceable air filter(s) **must** be provided.
- c) A cooling system **must** be provided.
- d) A full flow replaceable oil filter(s) **must** be provided.
- e) An engine shutdown or de-rate system **must** be provided, including a visual warning indicator visible from the operator position.

3.6.1.2. Cold Weather Starting Aids

- a) Low temperature engine starting aids **must** be provided to meet the operating conditions in Paragraph 3.2.1.
- b) A thermostatically controlled water separator/fuel filter **must** be provided to preheat diesel fuel prior to starting.

- c) A 110-volt battery heater blanket or pad **must** be provided.
- d) All cold weather aids **must** be connected with a cover-protected, external electrical power plug, powered through dedicated shoreline receptacles.
- e) The cold weather aid receptacles **must** be grouped together.

3.6.1.3. **Exhaust System**

- a) The exhaust system **must** be shielded to prevent personnel contacting a heated surface.
- b) There **must** be a manual deactivation and activation controls for the automatic regeneration of the Diesel Particulate Filter (DPF).

3.6.1.4. **Fuel Tank(s)**

- a) The fuel tank(s) **must** have a fuel capacity that will provide a minimum of six (6) continuous hours of operation.
- b) If more than one fuel tank is used, separate fuel gauges **must** be provided

3.6.2 **Snow Plow Vehicle Drivetrain**

- a) The snow plow vehicle **must** be 4x4 drive.
- b) The drivetrain **must** include a “Park” or “Neutral” starting interlock.
- c) The drivetrain **must** include limited slip or driver controlled locking differential(s) on the drive axle(s).

3.6.3 **Snow Plow Vehicle Transmission**

- a) The snow plow vehicle **must** be equipped with an automatic or power shift transmission.
- b) The transmission shift control **must** clearly indicate the position of the shift column under all lighting conditions.
- c) A means to determine transmission oil level **must** be provided.
- d) An audible back-up alarm **must** be installed to alert personnel that the snow plow vehicle transmission is in reverse.

3.6.4 **Snow Plow Vehicle Braking System**

- a) The snow plow vehicle **must** be equipped with a power assisted ABS air braking system.
- b) The braking system **must** include a wet tank reservoir.
- c) The braking system **must** include an automatic air dryer.

- d) The braking system **must** include air couplers (glad hands), service and emergency, in a protected location at the rear of the snow plow vehicle.
- e) Drum brakes **must** be provided, S-cam type air brakes with automatic slack adjusters on all wheels.
- f) The braking system **must** include heated automatic moisture expelling valve(s).

3.6.4.1. **Parking Brake**

- a) The snow plow vehicle **must** be equipped with a parking brake.

3.6.5 **Snow Plow Vehicle Suspension System**

- a) The snow plow vehicle **must** be equipped with a suspension system.
- b) An air suspension system **must not** be provided.

3.6.6 **Snow Plow Vehicle Steering**

- a) The snow plow vehicle **must** be provided with power steering system at the front wheels.

3.6.7 **Snow Plow Vehicle Wheels, Rims and Tires**

- a) Tires and rims **must** be selected in accordance with the Tire and Rim Association Handbook.
- b) Tires **must** have a tread pattern for use in the operating conditions described in Paragraph 3.2.
- c) One full size spare tire assembly **must** be delivered with each vehicle.

3.6.8 **Snow Plow Vehicle Cab**

- a) The snow plow vehicle **must** be equipped with a weatherproof cab.
- b) The cab **must** be forward of engine and provide the operator with 360° visibility including the reversible plow attachment and the surrounding area.
- c) An adjustable operator's seat **must** be provided, centred in the cab, with independent suspension and arm rests.
- d) A trainer seat with lap belt **must** be provided.
- e) The operator and trainer seats **must** have dark upholstery.
- f) The operator's seat **must** have a retractable **(3-point)** seat belt.
- g) At a minimum, a main point of cab entry/exit and one alternate emergency escape **must** be provided.
- h) A ventilation/heater and defrosting system **must** be provided, with a multi-speed fan, applicable for the operating conditions as specified in Paragraph 3.2.1.

- i) An air conditioning system **must** be provided equipped with all components and controls required for regulation of the cab interior temperature.
- j) A powered windshield washer system **must** be provided with intermittent, multi-speed wipers, where the wiper blades **do not** travel from a vertical center windshield position to a horizontal position near the roof line.
- k) The cab floor or floor mats **must** be weatherproof.
- l) A document holder(s) for the operator manuals **must** be provided.
- m) Two rotating or retractable interior sun visors **must** be installed.
- n) Interior rear-view mirrors **must** be provided.
- o) A back-up camera system **must** be installed in the cab with a screen size of at least 17.7 cm (7 inches) that displays in colour.
- p) The back-up camera system **must** automatically turn on when the snow plow vehicle is in reverse.
- q) The back-up camera system **must** have a selectable switch to turn on and off.
- r) An AM/FM stereo radio with an auxiliary port **must** be provided.
- s) Two heavy-duty, powered and heated exterior side mirrors, with convex section, **must** be provided with in-cab controls.
- t) The cab **must** be equipped with a 4.5 kg (10 lb) ULC approved and rechargeable dry chemical fire extinguisher, type ABC 10G, equipped with a pressure gauge, service inspection tag, and accessible to the operator.

3.6.9 **Reversible Snow Plow Attachment**

- a) A 5.79 metre (19 foot) removable, reversible snow plow attachment **must** be provided.
- b) The attachment **must** be hydraulically operated.
- c) The attachment **must** have a polyethylene or steel moldboard.
- d) A polyethylene moldboard **must** be provided with a minimum thickness of 9 mm (3/8 inch).
- e) The attachment **must** be equipped with telescoping type hydraulic cylinders enabling the plow to be angled either left, right or straight ahead.
- f) The attachment maximum angle to the left or right **must** be at least 30 degrees.
- g) The attachment **must** be power reversible with straight blade.
- h) The attachment **must** have a continuous curve moldboard assembly that includes an upper horizontal support, a lower horizontal support and vertical ribs.

- i) The attachment moldboard attack angle **must** be adjustable from 65° to 85°.
- j) The attachment **must** be fitted with a replaceable one piece spray guard.
- k) The attachment cutting edge **must** be reinforced with structural steel.
- l) Steel blades, steel shoes or steel casters **must not** be used as supporting surfaces for plow frames.
- m) The attachment **must** be designed to compensate for the wear on the cutting edge of the plow.
- n) A pneumatic caster wheel assembly **must** be supplied.
- o) The castor wheel assembly **must** be adjustable.
- p) The caster wheel assembly **must** be of the 360 degree swivel type.
- q) Wheels and tires **must** be four (4) in number with two (2) on each side riding in tandem.
- r) A spare caster wheel assembly **must** be provided with each vehicle.
- s) Vertical adjustment of the snow plow **must** be accomplished through two (2) caster barrel adjustments.
- t) Each caster **must** be equipped with a spring loaded adjustable brake dampener to minimize wheel wobble.
- u) The oscillation system **must** have adjustable spring arrangements to adjust the oscillation tension.

3.6.10 **Snow Plow Vehicle Hitch**

- a) A quick hitch system **must** be provided, that will permit the removal or installation of the snow plow attachment from the cab by one (1) person in not more than five (5) minutes.
- b) The lifting cylinder arrangement **must** incorporate a system to take the weight off of the hydraulic cylinder during transport.

3.6.11 **Snow Plow Vehicle Accessories**

- a) Front licence plate holder **must** be provided.
- b) Rear licence plate holder with LED light **must** be provided.
- c) Mud flaps **must** be provided.
- d) The snow plow vehicle **must** be equipped with a counterweight(s) to allow for dedicated plow operation when the sweeper is not being towed.

3.6.12 Snow Plow Vehicle Hydraulic System

- a) The snow plow vehicle **must** be equipped with a hydraulic system.

3.6.13 Snow Plow Vehicle Instruments

- a) Instruments **must** be metric and visible to the seated operator in all lighting conditions.
- b) An ammeter, voltmeter or charging indicator **must** be provided.
- c) An engine coolant temperature indicator **must** be provided.
- d) A hydraulic oil temperature and level indicator **must** be provided.
- e) An engine oil pressure indicator **must** be provided.
- f) An hour-meter with numeric display, which accurately records accumulated engine running time up to at least 9,999 hours **must** be provided.
- g) A fuel level indicator **must** be provided.
- h) A speedometer **must** be provided.
- i) An engine tachometer **must** be provided.
- j) Differential lock indicator **must** be provided.

3.7 Sweeper Requirements

- a) The sweeper **must** be a towed cradle broom runway sweeper or towed broom sweeper designed to meet the performance requirements in Paragraph 3.4.1.

3.7.1 Broom

- a) A hydraulically or mechanically driven runway broom with a minimum length of 4.87 m (16 ft) **must** be installed on the sweeper.
- b) The broom diameter **must** be 1.16 m (46 inches) or 0.914 m (36 inches).
- c) The broom width **must** be adjustable to a maximum of 5.1 m (16.7 feet) for transport or storage.
- d) N/A.
- e) The broom **must** have a variable angle of travel of at least 30 degrees in either direction from the straight ahead position.
- f) The broom **must** have a ground clearance of at least 100 mm (3.93 inches) with new brushes in the raised position.
- g) A remote operated broom elevation mechanism for raising the broom during transport **must** be provided.

- h) The broom **must** have a self-levelling frame, perpendicular and parallel to the direction of travel.
- i) The broom **must** have an active weight transfer system to ensure proper broom pattern.
- j) The broom **must** have manual or automatic pattern adjustment.
- k) A controlled broom steering system **must** be provided which includes drift control as well centring and disengaging the rear axle steering system.
- l) The broom **must** be equipped with a minimum of two caster wheels with easily accessible grease fittings.
- m) A spare caster wheel assembly **must** be provide with each MTE.
- n) The broom **must** be equipped with a spring-loaded, adjustable, friction brake to eliminate castor wheel shimmy at all speeds.
- o) The broom **must** be provided with a snow shedding hood to prevent snow build up.
- p) The MTE **must** be provided with a full set of flat wire brushes and spacers installed.
- q) Two (2) broom core carts **must** be provided at each delivery location.
- r) One spare broom core **must** be provided at each delivery location.
- s) Any special tools required for broom core removal **must** be provided.

3.7.2 **Air Blast**

- a) The sweeper **must** be provided with a blower with an outlet flow rate of at least 566 cu. m/min (20,000 CFM).
- b) The blower **must** have outlets that automatically adjust to the height of the broom.
- c) The blower outlets **must** retract to within the sweeper envelope during transport.
- d) The outlets **must** be adjustable to clean runway lights.
- e) The blower **must** be operable independently of the broom.

3.7.3 **Auxiliary Power Pack**

- a) The sweeper **must** be equipped with an auxiliary power pack to allow it to operate independently of the snow plow vehicle.
- b) The power pack **must** be securely mounted on the sweeper.
- c) The power pack **must** be in a weatherproof enclosure with maintenance access.

3.7.3.1. Auxiliary Engine

- a) The auxiliary power pack **must** be equipped with an engine that operates on ultra-low sulphur diesel fuel to the CAN/CGSB Standard 3.517 and conform to the latest emission standards.
- b) The engine **must** be properly sized to fully operate the sweeper and all related components.

3.7.3.2. Auxiliary Hydraulic System

- a) The auxiliary power pack **must** be equipped with a hydraulic system.

3.7.3.3. Auxiliary Instrument Panel

- a) The auxiliary power pack **must** be equipped with an illuminated instrument panel.
- b) An ammeter, voltmeter or charging indicator **must** be provided.
- c) An engine coolant temperature indicator **must** be provided.
- d) A hydraulic oil temperature and level indicator **must** be provided.
- e) An engine oil pressure indicator **must** be provided.
- f) An hour-meter with numeric display, which accurately records accumulated engine running time up to at least 9,999 hours **must** be provided.
- g) A fuel level indicator **must** be provided.
- h) An engine tachometer **must** be provided.

3.7.4 Sweeper Drive

- a) The sweeper **must** be equipped with a hydraulic drive system sized to operate the broom and air blast under all operating conditions specified in Paragraph 3.2.

3.7.5 Sweeper Braking System

- a) The sweeper **must** be equipped with air-actuated braking system on the main axle.
- b) The braking system **must** include brake housing dust shields on all wheels.

3.7.6 Sweeper Chassis and Frame

- a) A king pin to mate with the snow plow vehicle **must** be provided.
- b) Flexible air brake hoses with glad hand connectors **must** be provided.
- c) An electrical connector to connect to the snow plow vehicle **must** be provided.
- d) If required, heavy duty landing gear for stowage **must** be provided.

3.7.7 Sweeper Accessories

- a) The sweeper **must** be equipped with a 4.5 kg (10 lb) ULC approved and rechargeable dry chemical fire extinguisher, type ABC 10G, equipped with a pressure gauge, service inspection tag, and accessible to the operator from ground level.
- b) The sweeper **must** have a licence plate holder at the rear with an LED light.
- c) A spare tire assembly the sweeper chassis **must** be provided.

3.8 Hydraulic Systems

- a) The snow plow vehicle and sweeper **must** be equipped with hydraulic systems.
- b) Hydraulic filter change indicators **must** be provided.
- c) Hydraulic hoses **must** be grouped together and clearly identified.
- d) Clearly marked test ports **must** be provided.
- e) Hydraulic pressure test gauge with applicable fittings and hoses **must** be provided.

3.9 Automatic Lubrication System

- a) The snow plow vehicle and sweeper **must** be equipped with an auto-lubrication systems.
- b) The systems **must** include a grease reservoir, accessible for level checking and refilling.
- c) The grease reservoirs **must** be full on delivery.
- d) A grease level indicators **must** be provided.
- e) A grease distribution pump **must** be provided.
- f) An adjustable timers **must** be installed to control the greasing intervals.
- g) All grease point that are not serviced by the auto-lubrication system **must** be clearly identified.

3.9.1 Lubricants and Fluids

- a) All lubricants and fluids provided **must** meet the operating conditions specified in Paragraph 3.2.1.

3.10 Electrical Systems

- a) The MTE **must** be equipped with 12-volt or 24-volt electrical systems.
- b) Wiring **must** be protected by insulating grommets, where passing through metal.

- c) Heavy-duty, maintenance free batteries **must** be provided in an enclosure and secured in an accessible location.
- d) Master disconnect switches, accessible from the ground, **must** be provided.

3.11 **Lighting**

- a) The MTE **must** be equipped with LED lights, including: type signal, marker, tail, stop, clearance, licence plate, and back-up lights.
- b) Lights **must** be recessed or otherwise protected from damage with all components accessible for servicing.
- c) The snow plow vehicle and sweeper **must** each be equipped with minimum one roof mounted amber LED stroboscopic beacon light, mounted at the highest point, to allow for 360 degree visibility.
- d) In-cab instrument panel lights **must** be dimmable.
- e) At least two (2) adjustable work lights **must** be provided, mounted at the front of the snow plow vehicle.
- f) At least two (2) adjustable work light **must** be provided, mounted at the fifth wheel on the snow plow vehicle.
- g) At least two (2) adjustable work lights **must** be provided, to illuminate the front of the sweeper broom.
- h) At least two (2) adjustable work lights **must** be provided, to illuminate the rear of the sweeper broom.
- i) At least two (2) work lights **must** be provided in the sweeper auxiliary power pack compartment.
- j) Marker lights **must** be provided at each end of the broom head.

3.12 **Controls**

- a) Each control **must** be permanently marked to identify the function, in both English and French or international symbols as defined by SAE J1362.
- b) MTE controls **must** be grouped together in the cab.
- c) Snow plow vehicle controls **must** be grouped together in the cab.
- d) Sweeper controls **must** be provided on the sweeper and grouped together.
- e) Sweeper controls **must** also be provided on a remote control box securely mounted in the snow plow vehicle cab.
- f) Controls for all lights **must** be provided.

- g) Controls **must** not restrict the operator's field of view.
- h) Control panel lights **must** be provided for adequate lighting for nighttime operations.
- i) Each snow plow vehicle and sweeper **must** be wired identically to facilitate integration between them.

3.12.1 **Sweeper Remote Control**

- a) A remote control box for the sweeper **must** be provided.
- b) The control box **must** have sufficient cable to reach from the sweeper to the cab of the snow plow vehicle.
- c) The control box **must** allow the sweeper to be connected to another prime mover when required.
- d) The control box must be securely connected, including the cables, in all the snow plow vehicle-sweeper integrated units.
- e) A suitable mounting bracket or pedestal to secure the remote control **must** be provided in the snow plow vehicle cab.
- f) The control box **must** have a weatherproof enclosure.
- g) All controls, including lights, required to operate the sweeper **must** be provided.

3.13 **Paint**

- a) All metal surfaces **must** be protected.
- b) The prime coating **must** be a high durability, corrosion resistant type, such as an epoxy.
- c) The colour **must** be SAE AMS-STD-595A DOT Highway Yellow chip number 13507 or equivalent.

3.14 **Retroreflective Tape**

- a) Retroreflective tape **must** be placed on the MTE on all extremities of the MTE, the snow plow vehicle cab and body and the sweeper body.

3.15 **Corrosion Protection**

- a) The MTE **must** be designed and manufactured to prevent galvanic corrosion.
- b) The materials used in the MTE manufacturing **must** resist damage or deterioration as a result of cleaning with hot or cold water, steam, or detergents (such as automotive cleaning products).
- c) A commercial rust prevention coating **must** be applied to the MTE, such as Krown Rust Control or Rust Check or equivalent.
- d) A decal and warranty papers for the rust prevention coating **must** accompany the MTE.

3.16 Warning, Markings and Instruction Plates

- a) All identification, instructional, and warning labels **must** be bilingual or International symbols defined in SAE J1362.
- b) All identification, instructional, and warning labels **must** within view of the operator.
- c) All gauges and controls and **must** be permanently labelled.

3.16.1 MTE identification

- a) The MTE identification information **must** be permanently affixed in a conspicuous and protected location.
- b) Snow plow vehicle identification **must** be affixed on the snow plow vehicle.
- c) Sweeper identification **must** be affixed on the sweeper.
- d) Identification information **must** include the cab and chassis manufacturer's name, model number, serial number, and model year.
- e) Identification information **must** include the body manufacturer's model and serial number.
- f) Identification information **must** include the equipment manufacturer's model and serial number.
- g) Identification information **must** include the GVWR and GAWR ratings.

4. INTEGRATED LOGISTIC SUPPORT

4.1 ILS Deliverables - The following table indicates the ILS elements that the Contractor **must** deliver, including the medium (paper or digital), the expected means of delivery and the reference paragraph.

Element	Format/Medium	Delivered to TA	Supplied with each vehicle/equipment	Reference Paragraph
Set of Manuals	Digital	X	X	4.2
	Paper		X	
Warranty Letter	Digital	X	X	4.3
Data Summary	Digital	X		4.4.1
Photographs	Digital	X		4.4.2
Dimensioned Drawing	Digital	X	X	4.4.3
Special Tool List	Digital	X		4.4.4

Preventive Maintenance Replacement Parts Kit List (PMRPKL)	Digital	X		4.4.5
Recommended Spare parts List (RSPL)	Digital	X		4.4.6
Supplementary Provisioning Technical Documentation (SPTD)	Digital	X		4.4.7
Initial Parts Kit List	Digital	X		4.6
Initial Parts Kit			X	4.6

4.2 Vehicle Manuals

- a) All manuals required for the description, operation, maintenance and repair of the complete equipment, including sub-systems, **must** be provided.

4.2.1 Operator's Manuals

- a) The operator's manuals **must** be bilingual (English and French).
- b) The operator's manuals **must** include instructions for the safe operation of the MTE.
- c) The operator's manuals **must** include daily operator maintenance instructions/checks (including lubrication).
- d) The operator's manuals **must** include safety warnings.
- e) The operator's manuals **must** include hand signals (as necessary).

4.2.2 Parts Manual(s)

- a) The parts manual(s) **must** be in English.
- b) The parts manual **must** have illustrations showing all components of the vehicle including equipment and accessories from other manufacturers that are supplied to meet the requirements of the contract, with numbers for the itemization of the parts.
- c) The parts manual **must** have a listing for all itemized parts showing the Original Equipment Manufacturers (OEM) part number, the part name and a brief description of the item.
- d) The parts manual **must** cross reference the OEM part number to the correct illustration and item number.
- e) The parts manual **must** have a representation of bilingual warning signs and identification labels delivered on the equipment.

4.2.3 **Maintenance Manuals**

- a) The maintenance manual **must** be bilingual (English and French).
- b) The maintenance manual **must** include a troubleshooting guide, showing the steps and tests required to determine the exact cause of a problem and an explanation of the steps required to correct a problem.
- c) The maintenance manual **must** include a listing of the necessary tolerances, torque levels, fluid volume, and special tools (including item part numbers).
- d) The maintenance manual **must** include information on the order of disassembly and assembly of the systems and components of the MTE.
- e) The maintenance manual **must** include special tools list as per 4.3.4.

4.2.4 **Manual Delivery to Technical Authority**

- a) Sample manuals **must** be submitted to the Technical Authority (TA) prior to the delivery of the MTE for each model and or sub-system for approval. Sample manuals will not be returned. TA will provide approval or comments on the manuals within 30 days.
- b) The contractor **must** provide responses to the TA comments.
- c) One (1) complete set of approved manuals (Operator's, Maintenance, and Parts) in electronic format **must** be delivered to the Technical Authority.

4.2.5 **Manual Delivery with MTE**

- a) One (1) complete set of manuals (Operator's, Maintenance, and Parts) **must** accompany each MTE.
- b) The manuals **must** be in paper and electronic format.

4.2.6 **Electronic Format**

- a) Electronic format **must not** require installation, password and/or Internet connection to be accessed and be an unlocked PDF in a searchable format.

4.2.7 **Provisional Manuals**

- a) In the event that approved manuals are not available at the time of delivery of the equipment, manuals marked "Provisional" **must** be supplied with the equipment.
- b) The contractor **must** deliver replacement approved manuals to all destinations where Provisional manuals were delivered.

4.2.8 **Manual Supplements**

- a) The contractor **must** supply manual supplements (Operator's, Maintenance and Parts) to support dealer-installed equipment not covered in the Vehicle Manuals.

- b) Manual supplements **must** be delivered in accordance with 4.2.4 and 4.2.5.

4.2.9 **Translation and Reproduction Rights**

- a) The Canadian Government **must** reserve the right to translate and reproduce, for Government use only, all or any part of the publications supplied, including the training packages delivered against the contract agreement.

4.2.10 **Changes to Manuals**

- a) During the period of the contract, changes to equipment, which affect the contents of manuals, **must** be reflected in the revision of the electronic and paper version of the manuals.
- b) Changes to the manuals **must** conform to the same format and presentation requirements as the original manuals.
- c) The revised electronic version of the manual **must** be sent to the Technical Authority by the Contractor.

4.3 **Warranty Letter**

- a) The warranty letter **must** include a list of all Canadian designated warranty service providers that will honour the warranty for the equipment and attachments (if applicable) procured under this contract, including the contact person and phone number at each warranty service provider.
- b) The warranty letter **must** include additional warranty coverage of sub-systems and a copy of the warranty letter from each sub-system's Original Equipment Manufacturer (OEM).
- c) The warranty letter **must** include warranty period as negotiated in the contract.
- d) The warranty letter **must** include Contractor contact information, name and phone number, for warranty support.

4.3.1 **Warranty Letter Delivery**

- a) The Contractor **must** provide a bilingual warranty letter to the Technical Authority and with each MTE. If the Technical Authority requires the letter to be in DND format, then they will provide the Contractor a template for the DND acceptable format of the warranty letter.

4.4 **Other ILS Deliverables to Technical Authority**

4.4.1 **Data Summary**

- a) The Contractor **must** provide a bilingual Data Summary for each make/model/configuration of the MTE by completing Technical Authority's template with data and a vehicle picture.

4.4.2 **Photographs**

- a) The Contractor **must** provide photographs in colour, taken against a plain background, and in digital JPEG format with a minimum 10 megapixel resolution.

- b) One left front three-quarter view of a completed unit **must** be provided.
- c) One right rear three-quarter view of a completed unit **must** be provided.

4.4.3 **Dimensioned Drawing**

- a) One side and front view sketch showing the dimensions **must** be provided.

4.4.4 **Special Tools List** - The Contractor **must** provide an itemized list of specific special tools required for the servicing and repair of the vehicle and include:

- a) Item name;
- b) Contractor's part number;
- c) Manufacturer's part number (OEM);
- d) Quantity recommended per delivery location;
- e) Unit price; and
- f) Unit of issue.

4.4.5 **Preventive Maintenance Replacement Parts Kit List (PMRPKL)** - The contractor **must** provide a list detailing the parts that are required to perform preventive maintenance to the system for a period of 12 months, and include:

- a) Item name;
- b) Contractor's part number;
- c) Manufacturer's part number (OEM);
- d) Manufacturer's NATO Supply code (NCAGE) or name and address;
- e) NSN (NATO Stock Number) (if known);
- f) Quantity per equipment;
- g) Quantity recommended;
- h) Unit price; and
- i) Unit of issue.

4.4.6 **Recommended Spare Parts List (RSPL)** - The Contractor **must** provide a list detailing the spare parts deemed necessary to maintain the vehicle for a period of 12 months exclusive of any warranty period, and include:

- a) Item name;

- b) Contractor's part number;
- c) Manufacturer's part number (OEM);
- d) Manufacturer's NATO Supply code (NCAGE) or name and address;
- e) NSN (NATO Stock Number) (if known);
- f) Quantity per equipment;
- g) Quantity recommended;
- h) Unit price; and
- i) Unit of issue.

4.4.7 **Supplementary Provisioning Technical Documentation (SPTD)**

- a) The Contractor **must** provide SPTD as per Paragraph 4.1.
- b) The SPDT **must** include each item appearing on the RSPL as defined in 4.4.6.
- c) For item identification and cataloguing purposes, the technical data supplied **must** be sufficiently comprehensive to allow DND to classify and fully describe the items within the NATO codification system.

4.5 **Safety Recalls and Servicing Data**

- a) Safety recalls, and manufacturer's technical service bulletins, or equivalent **must** be provided to the Technical Authority and the final delivery locations on a continuing basis, throughout the life expectancy of the vehicle or for no less than 10 years.

4.6 **Initial Parts Kit**

- a) One initial parts kit **must** be delivered with each MTE.
- b) Each kit **must** include a complete set of filters and filter elements from the Original Equipment Manufacturer (OEM) required in the first 12 months of service.

4.7 Training

4.7.1 Training Deliverables – The following table indicates the ILS Training elements that the Contractor **must** deliver, including the expected means of delivery and the reference paragraph.

Element	Format/ Medium	Delivered to TA by E-mail for approval	Remarks	Reference Paragraph
Course Syllabus	Digital	X	-	4.7.2 d) & 4.7.4 d)
Maintenance Training	-	-	Delivery in person, at the location specified in the contract.	4.7.2
Operator Training	-	-	Delivery in person, at the location specified in the contract.	4.7.4
Proof of Training Certificate	Digital	X	TA will provide template	4.7.2 e) & 4.7.4 e)

4.7.2 Maintenance Training

- a) The Contractor **must** provide a maintenance training course.
- b) The course **must** be given at the delivery destination and be available in both official languages.
- c) The course **must** have a minimum duration of one (1) day to provide training of up to eight (8) maintenance personnel and have the final dates arranged with the Technical Authority.
- d) The course **must** have a syllabus or course outline and schedule available for review fifteen (15) days prior to the course commencement date.
- e) After completion of the course, the Contractor **must** have a “*PROOF OF MAINTENANCE TRAINING*” certificate signed by a Canada Representative for the destination. The Technical Authority will supply this document in an electronic format.

4.7.3 Maintenance Training Curriculum

- a) Operator’s training detailed in Paragraph 4.7.4 below **must** be included in the curriculum.
- b) Operation and maintenance safety precautions **must** be included in the curriculum.
- c) Preventive maintenance including servicing schedules **must** be included in the curriculum.
- d) Trouble shooting, testing, and adjustments **must** be included in the curriculum.

- e) Special tools and test equipment **must** be included in the curriculum.

4.7.4 **Operator Training**

- a) The Contractor **must** provide an operator training course.
- b) The course **must** be given at the delivery destination and be available in both official languages.
- c) The course **must** have minimum duration of one (1) day to provide training for up to eight (8) operators and have the final dates arranged with the Technical Authority.
- d) The course **must** have a syllabus or course outline and schedule available for review fifteen (15) days prior to the course commencement date.
- e) After completion of the course the Contractor **must** have a “*PROOF OF OPERATOR TRAINING*” certificate signed by a Crown Representative for the destination. The Technical Authority will supply this document in an electronic format.

4.7.5 **Operator Training Curriculum**

- a) Safety precautions to be observed while operating and servicing the vehicle **must** be included in the curriculum.
- b) Vehicle operating characteristics **must** be included in the curriculum.
- c) Vehicle operating procedures **must** be included in the curriculum.
- d) Pre-operating and pre-shutdown procedures **must** be included in the curriculum.
- e) Daily/weekly operator servicing procedures **must** be included in the curriculum.

4.7.6 **Training Materials**

- a) Training materials **must** be provided to each attendee, in French for locations in Quebec.
- b) Training materials **must** include a list of topics to be covered;
- c) Training materials **must** include an approximate timetable showing when topics are scheduled to be covered and how much time is scheduled for each topic;
- d) Training materials **must** list any reference material; and
- e) Training materials **must** make available any reference material used.