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Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

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

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

Comments - Commentaires

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

Issuing Office - Bureau de distribution
Vehicles & Industrial Products Division
11 Laurier St./11, rue Laurier
7A2, Place du Portage, Phase III
Gatineau, Québec K1A 0S5

Title - Sujet TRUCK, F/F, WATER SUPPLY	
Solicitation No. - N° de l'invitation W8476-155160/A	Amendment No. - N° modif. 002
Client Reference No. - N° de référence du client W8476-155160	Date 2015-03-16
GETS Reference No. - N° de référence de SEAG PW-\$\$HP-923-66706	
File No. - N° de dossier hp923.W8476-155160	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-03-25	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Martin, Erik	Buyer Id - Id de l'acheteur hp923
Telephone No. - N° de téléphone (819) 956-3842 ()	FAX No. - N° de FAX (819) 953-2953
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
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)	
Signature	Date

Solicitation No. - N° de l'invitation

W8476-155160/A

Amd. No. - N° de la modif.

002

Buyer ID - Id de l'acheteur

hp923

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

W8476-155160

File No. - N° du dossier

hp923W8476-155160

CCC No./N° CCC - FMS No/ N° VME

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Solicitation No. - N° de l'invitation

Buyer ID - Id de l'acheteur

W8476-155160/A

HP923

THIS AMENDMENT **002** TO THE SOLICITATION IS ISSUED TO POST QUESTIONS AND ANSWERS 1 TO 17 AND MODIFICATIONS MADE TO THE SPECIFICATIONS 3.9 (b) (c), 3.19 (l), 4.3.3, 4.5 AND 4.9 (f) OF THE ANNEX “B” – PURCHASE DESCRIPTION FOR TRUCK, FIREFIGHTING, MOBILE WATER SUPPLY FIRE APPARATUS (UPDATED MARCH 9, 2015).

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

W8476-155160/A – Questions and Answers

Q #	Question	Answer	Modifies PD
1	Is training required for the truck and body IAW Paragraph 5.10.1?	Yes, the required training includes the truck and the mobile water supply fire apparatus. The truck portion can be brief, since operators attending the training will all have experience driving trucks of a similar size. Most of the training will be focused on operating features of the mobile water supply fire apparatus (body).	No
2	We do not have an operational video with our chassis and the specific “apparatus”. Can this be removed?	No, the requirement for an operation video cannot be removed. The video is specific to the vehicle(s) being supplied.	No
3	5.10.4 – is the video only required for the apparatus (i.e. the tank), or the truck (chassis) also?	The video is required to be an overview of the complete vehicle including the apparatus body and unique features of the Cab/Chassis which are related to the operation of the apparatus.	No
4	3.5 Ratings and Dimension. C) center of Gravity Calculation - on previous bids we have been required to provide a center of Gravity Calculation/drawing signed by our engineering staff so as to provide conformation that we have to ability to do so. Is this required with the bid?	The final centre of gravity is required to meet paragraph 3.5 (c), however the bidder is not required to identify it during the bid period.	No
5	3.9 Wheels and Tires – Does DND require the following rim and tires for this RFP? WHEELS, REAR SINGLE DISC; 20" Aluminum, 10-Stud (335mm BC) Hub Piloted, Flanged Nut, Metric Mount, 10.00 5-Degree Rim Military 2 Piece, Include Run Flat Inserts & TIRE, 395/85R20 XZL (MICHELIN) 446 rev/mile, load range J, 18 ply Or will a standard dual rear tires be acceptable? (two tires and two rims)	The wheels and tires must meet the requirements of paragraph 3.9. Paragraph 3.9 (b) and (c) are updated, and read as follows: 3.9 (b) The tires <i>shall</i> be mounted on two piece steel or aluminum hub pilot disc wheels that are balanced to preclude wheel shimmy at all vehicle speeds. 3.9 (c) All tires <i>shall(E)</i> be Michelin, 395/85R20, with a “J” loading rating, XZL tread pattern, and bead locks. Run flat inserts are not required and dual rear tires are not acceptable.	Yes
6	3.19 Cab (l) Air horn(s). Roof mounted horns do not meet NFPA or ULC! Will you accept roof mounted horns?	Roof mounted air horns will not be accepted. Paragraph 3.19 (l) is updated, and reads as follows: (l) Air horn(s);	Yes

7	<p>4.2 Pump – Does this pump require heaters or heat pans? Is there a requirement for it to operate in winter?</p>	<p>Paragraph 3.2 specifies the operating conditions to include “all seasonal conditions found in Canada, in a temperature range of -40oC to 37oC (-40oF to 98oF).” The apparatus is required to come with features which allow operation within the defined operating conditions.</p>	No
8	<p>4.5 Body – The body <i>shall(E)</i> be fabricated with nominal 3/16 inch 5052 or 5083 marine grade aluminum, for corrosion prevention, durability, strength, and integrity of the body construction.</p> <ul style="list-style-type: none"> - There is no mention of sub frame, Can we provide a steel sub frame and mount the aluminum body to this sub frame with bolts? - Can we provide no sub frame and mount compartment directly to the chassis frame with bolts? - Shall we provide an all welded Aluminum sub frame to prevent galvanic corrosion with the aluminum body? - What warranty is required on the body? 2 year? Five year? 10 Year warranty? - Is there to be paint on the body? - Do the interior of the compartments need compartment paint? - Does the underside of the body require 	<p>Paragraphs 4.3.3 and 4.5 have been updated to reflect the requirement for a steel sub frame assembly.</p> <p>The manufacturers standard warranty period is required, with a minimum of 12 months, as per the RFP paragraph 5.2.</p> <p>Yes there is to be paint on the body. The apparatus (cab/chassis and body) requires painting as per paragraph 3.22.1.</p> <p>Interior compartment paint is not mandatory, but is acceptable.</p> <p>The underside of the body requires paint/undercoating and the application of a rust proofing product as per paragraph 3.22.3.</p> <p>Yes, the tank requires paint application as per paragraph 3.22.1, unless it is completely enclosed by the body.</p> <p>The rear dump chute requires paint as per paragraph 3.22.1.</p> <p>DND will accept paint equivalent to or better than the specified Akzo-Nobel products, where the bidder provides information to substantiate the performance claims of the offered paint.</p>	Yes

	<p>paint/undercoating?</p> <ul style="list-style-type: none"> - Does the Tank require paint? - Does the rear dump chute need paint? Or Will it be stainless steel? - Will DND Accept PPG paint with a 10 year warranty? 		
9	<p>5.1 Vehicle Manuals (b) Parts Manuals – Can you provide a sample manual as these manuals seem to require some detail and engineering work to complete.</p> <p>Does the whole truck have to be broken out in “illustrations” and include the “broken out parts” in the manual as this will include a lot of extra engineering work to be done if this is the case?</p>	<p>No example will be provided.</p> <p>For the commercial cab/chassis, DND will accept the manual format that is commercially available.</p> <p>Paragraph 5.1 (b) is applicable to the custom apparatus/body. The illustrations are required to be detailed enough to accurately identify the location of replaceable parts on the Apparatus. The parts identified in the illustrations must be numbered, and cross referenced in a list of OEM part numbers and descriptions.</p> <p>Illustrations are for identification purposes and are not manufacturing level drawings.</p>	No
10	Does DND require hose bed dividers for the 38mm pre connects required for ULC and if so, how many hose bed dividers are required?	The two pre-connected fire hose lines require a hose storage location meeting the requirements of paragraph 4.8. The bidder can design the required hose storage to maximize the available space.	Yes
11	Does DND require more than one compartment on either side of the truck?	For clarity paragraph 4.9 (f), identifying the requirement for two pre-connected fire hose lines, has been added to the specification.	No
12	Does DND Require the NFPA Vehicle Data Recorder and OCCUPANT RESTRAINT INDICATOR?	The bidder can design the compartments (number, location and size) to maximize the available space, while providing storage for the minor equipment as per paragraph 4.7.	No
13	Does DND require an NFPA TIRE PRESSURE MONITORING system?	These items are not required.	No
14	Also does DND require pump testing by ULC or by a 3 rd party to meeting this standard? Does the truck have	This system is not required.	No
		The completed vehicle is required to meet ULC – S515 requirements, as per paragraph 3.3.1 (d). This includes pump testing by ULC, and mounting a test plate.	No

	to meet NFPA 1901-2009 as well?		
15	Who will test the trucks and to what standard?	The truck does not have to meet NFPA 1901-2009, except where specified. The completed vehicle is required to meet ULC-S515 requirements, as per paragraph 3.3.1 (d). This includes testing by ULC to the ULC-S515 standard.	No
16	3.25 <u>Warning and Instruction Plates</u> We do not have all warning plates and decals in French and English or Bilingual. Are English only labels acceptable?	English only labels are not acceptable. Paragraph 3.25 is a mandatory requirement.	No
17	5.1.3 <u>Electronic Format</u> (b) CD/DVD-ROM <i>shall</i> be an unlocked PDF in a searchable format and <i>not</i> require installation, password and/or Internet connection to be accessed. Our Parts and Service DVD's do require installation. We do not have an unlocked PDF version. Is this acceptable?	The electronic format requirements stated in paragraph 5.1.3 are required for the manuals created for the custom apparatus/body. For the commercial cab/chassis, DND will accept the format that is commercially available.	No



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.

PURCHASE DESCRIPTION FOR TRUCK, FIREFIGHTING, MOBILE WATER SUPPLY FIRE APPARATUS

ECC 189200

1. SCOPE

1.1 Scope - This Purchase Description describes the requirements for a Mobile Water Supply Fire Apparatus. The apparatus includes a minimum 13,638 litre (3000 Imp gallon) single compartment water tank, mounted on a 6x6 Heavy Truck.

1.2 Instructions - The following instructions apply to this Purchase Description:

- (a) Requirements, which are identified by the word "**shall**", are mandatory. Deviations will not be permitted;
- (b) Requirements identified by "**shall**^(E)" are mandatory. The Technical Authority will consider substitutes/alternatives for acceptance as an equivalent;
- (c) Requirements identified with a "will" define actions to be performed by Canada and require no action/obligation on the Contractor's part;
- (d) Where "**shall**", "**shall**^(E)", or "will" are not used, the information provided is for guidance only;
- (e) In this document "provided" **shall** mean "provided and installed";
- (f) Where technical certification is required, a copy of the certification or an acceptable proof of compliance **shall** be provided;
- (g) Metric measurements **shall** be used to define the requirement. Other measurements are for reference only and may not be exact conversions; and

- (h) Dimensions stated as nominal **shall** be treated as approximate dimensions. Nominal dimensions reflect a method by which materials or products are generally identified for sale commercially, which differ from the actual measured dimensions.

1.3 Definitions - The following definitions apply to the interpretation of this Purchase Description:

- (a) "Technical Authority" (TA) - The government official responsible for technical content of this requirement.
- (b) "Equivalent" - A standard, means, or component type, which has been accepted by the Technical Authority as meeting the specified requirements for form, fit, function and performance.
- (d) "Guidance" - Guidance is provided to indicate a solution that would suit the application. The Contractor can be technically compliant while deviating from "guidance".
- (e) "Apparatus" and "Vehicle" - The entire vehicle including all systems and sub-systems, in a complete manufactured state which will be deployed in firefighting operations as intended for the built configuration.
- (f) "Manufacturer" or "Original Equipment Manufacturer (OEM)" - The Company responsible for the apparatus and/or sub-system design, development, assembly, test and evaluation, and performance verification.

2. APPLICABLE DOCUMENTS - The following documents form part of this Purchase Description. Effective dates **shall** be those in effect upon the date of manufacture. Sources are as shown:

Canadian Motor Vehicle Safety Standards (CMVSS)

Transport Canada,
Road Vehicle and Motor Vehicle Regulation,
330 Sparks Street, Tower C,
Ottawa, Ontario K1A 0N5
<http://www.tc.gc.ca/acts-regulations/GENERAL/M/mvsa/menu.htm>

CAN/ULC-S515

Underwriters' Laboratories of Canada
Automobile Fire Fighting Apparatus
200-440 Laurier Ave West
Ottawa, Ontario K1R 7X6
<http://www.ulc.ca>

Highway Traffic Act

www.e.laws.gov.on.ca
O.Reg.413/05

NFPA 1901 - Standard for Automotive Fire Apparatus

NFPA 1906 - Standard for Wildland Fire Apparatus

National Fire Protection Association (NFPA)
1 Batterymarch Park
Quincy, Massachusetts 02169-7471
<http://www.nfpa.org>

SAE Handbook

Society of Automotive Engineers Inc.
400 Commonwealth Dr.,
Warrendale, PA, 15096
<http://www.sae.org>

Yearbook

Tire and Rim Association Inc.,
3200 West Market St.,
Akron, Ohio, 44321
<http://www.us-tra.org/traHome.htm>

3. REQUIREMENTS

3.1 Standard Design

- (a) **Latest Model** - The vehicle design **shall** be the manufacturer's latest model.
- (b) **Industry Acceptability** - The vehicle design **shall** have demonstrated industry acceptability by having been manufactured and sold commercially for at least 2 years, or be manufactured by a company that has at least 5 years of experience in design and manufacturing of a comparable type of equipment of equivalent or greater complexity.
- (c) **Engineering Certification** - The vehicle design **shall** have engineering certification available, upon request, for this vehicle/equipment from the original manufacturers of major drive train components and major equipment systems and assemblies.
- (d) **Regulations** - The vehicle **shall** conform to all applicable laws, regulations and industry standards governing manufacture, safety, noise levels and pollution in effect in Canada at time of manufacture.
- (e) **Published Ratings** - The vehicle **shall** have system and component capacities equivalent to published ratings (i.e. product or component brochures).
- (f) **Standard Components** - The vehicle **shall** include all standard components, equipment and accessories for the model offered, although they may not be specifically described in this Purchase Description.
- (g) **Couplings** - Unless otherwise specified, all inlets, discharges, and hoses **shall** be equipped with Storz couplings.

3.2 Operating Conditions - The vehicle **shall** operate safely on paved roads, gravel roads, dirt roads with severe washboard, and potholes, in all seasonal conditions found in Canada, in a temperature range of -40°C to 37°C (-40°F to 98°F).

3.3 Safety

3.3.1 Vehicle Safety Regulations

- (a) The completed vehicle **shall** comply with all Canada Motor Vehicle Safety Standards (CMVSS) for trucks in effect and applicable by law in Canada at the time of body integration.

- (b) The completed vehicle **shall** have Safety Compliance Certification Label with a **National Safety Mark (NSM)**, as a seal of compliance.
- (c) The contractor **shall** submit, the variant equipment integrator NSM certification number as a proof of registration with Transport Canada as a final stage manufacturer.
- (d) The completed vehicle **shall** meet the requirements of ULC-S515, effective at the time of manufacture.

3.3.2 Noise Level - The vehicle noise level **shall** meet the requirements of legislation relative to Occupational Safety and Health, both in the cab and the vehicle exterior.

3.3.3 Human Factors Engineering - The Apparatus will be operated by the DND Fire Service, which fall within the range of dimensional characteristics as collected in Defence and Civil Institute of Environmental Medicine (DCIEM) Report 98-CR-15, for CF personnel, for CF Fire Fighters wearing the CF Fire Fighter Personal Protective Ensemble (PPE) Turnout gear (Scale D01402CFS Protective Clothing - Fire Fighters dated 5 Mar 12). Systems and components of the Apparatus **shall**:

- (a) Be designed for safety and ease to use by CAF users with anthropometric characteristic measurements ranging from 95th percentile male to 5th percentile female;
- (b) 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; and
- (c) Be equipped, with warning and instruction plates, non-slip walking surfaces and heat shields, for operator safety.

3.4 Vehicle Performance

- (a) The vehicle, equipped as specified, **shall** have a minimum top speed, of 80 km/hr (50 mph).
- (b) The vehicle, equipped as specified, **shall** have a minimum vehicle gradeability of 31.6% at 3.2 km/hr (2 mph).

3.5 Ratings and Dimensions - The vehicle **shall** be sized to exceed the loads imposed by the required equipment when fully loaded.

- (a) **Gross Vehicle Weight Rating (GVWR)** - The Gross Vehicle Weight (GVW), while laden with the maximum payload, **shall** not exceed the vehicle's Gross Vehicle Weight Rating (GVWR).
- (b) **Gross Axle Weight Rating (GAWR)** - The Gross Axle Weights (GAWs), while laden with the maximum payload, **shall** not exceed the respective Gross Axle Weight Ratings (GAWRs).
- (c) **Centre of Gravity** - The centre of gravity of the complete tank, substructure, and mounted equipment under all loading conditions (full to empty) **shall** be in front of the rear axle and **shall** be within the

chassis manufacturer's allowable conditions.

- (d) **Clearances** - In areas other than at the axles, the ground clearance **shall** be at least 380 mm (15") and should be as high as practically possible.

3.6 Chassis Engine - The engine provided **shall:**

- (a) Be **diesel** powered;
- (b) Be **turbocharged**;
- (c) Have sufficient power to meet the specified performance requirements;
- (d) Be equipped with the manufacturer's recommended safety or emergency de-rate or shut-down system, with controls in the cab;
- (e) Be equipped with an automatic or manually activated fast idle system to raise engine speed when required for operations: and
 - i. The system **shall** have interlocks to prevent engine starting or shut down, gear shifting, or travelling with fast idle engaged.
 - ii. The system **shall** not interfere with the operation of the emergency engine shut-down system.
- (f) Be equipped with an engine governor or electronic fuel control system limiting the maximum speed of the vehicle.

3.6.1 Engine Components - The engine **shall include:**

- (a) A replaceable **air filter**;
- (b) A **cooling system**, to maintain an engine temperature at or below the OEM's maximum temperature rating under all conditions for which the apparatus is designed; and
- (c) An internal **engine compression brake** system.

3.6.2 Fuel Fired Preheat System - The vehicle **shall be equipped with a Fuel Fired Preheat System, which preheats the vehicle by heating the engine coolant. The system **shall**:**

- (a) Consist of all **components** required for the preheating of engine coolant, and all fittings, hoses and controls required for the efficient operation of the system;
- (b) **Operate independently** or while the engine is operating, drawing fuel from the engine fuel tank;
- (c) Operate on all **diesel formulations** suitable for the installed engine; and
- (d) Operate without a requirement for **power** from outside of the vehicle.

3.6.3 **Cold Weather Starting Aids** - The vehicle **shall** be equipped with:

- (a) A **block heater**;
- (b) A **fuel filter/water separator** incorporating a thermostatically controlled heater; and
- (c) A self-regulating **in-line fuel heater** to warm the fuel before it enters the fuel filter(s) and to maintain the fuel temperatures above the waxing/gelling point during cold weather operation.

Note: The following fuel heater is provided as guidance - Fuel Pro.

3.6.4 **Exhaust System**

- (a) The vehicle **shall** be equipped with an exhaust system suitably located and/or shielded so that personnel will not contact a heated surface.
- (b) The exhaust system **shall** be equipped with weather guards or an effective device to prevent entry of rain into intake and exhaust stacks, if applicable.
- (c) If a diesel particulate filter is used, a manual or parked regeneration feature **shall** be provided.

3.7 **Brakes** - The braking system **shall**:

- (a) Be a full **air actuated service brake** system and **spring actuated parking brake** system that complies with Canadian Motor Vehicle Safety Standard (CMVSS);
- (b) Include at least a 4-channel **anti-lock (ABS) brake** system;
- (c) Be S-cam type air brakes with **automatic slack adjusters** on all wheels;
- (d) Include a **wet tank reservoir** that can be recharged using a quick disconnect fitting for charging air system;
- (e) Include an **automatic air dryer**;
- (f) Be equipped with heated **expello valve** on the wet tanks and manual pull type on the dry tanks. The air tank **shall**^(E) be equipped with pull type drain connected with cable and could be reached from outside of the vehicle;
- (g) Include brake housing **dust shields** and visual **brake stroke indicators** on all wheels; and
- (h) Include **emergency brake chambers** on any rear axle(s).

3.8 **Suspension**

- (a) The front axle **shall**^(E) be equipped with a **spring suspension**.
- (b) The vehicle **shall**^(E) be equipped with **rear rubber block suspension**.
- (c) The rear axle **shall**^(E) be equipped with a **stabilizer bar**.

- (d) All axles **shall**^(B) be equipped with **shock absorbers**.

3.9 Wheels and Tires

- (a) The vehicle **shall** be equipped with steel-belted, tubeless radial tires.
- (b) The tires **shall** be mounted on two piece steel or aluminum hub pilot disc wheels that are balanced to preclude wheel shimmy at all vehicle speeds.
- (c) All tires **shall**^(B) be Michelin, 395/85R20, with a "J" loading rating, XZL tread pattern, and bead locks.
- (d) The vehicle **shall** be delivered with one spare tire/wheel assembly, for each size/type of tire/wheel assembly supplied on the vehicle.

3.10 Axles

- (a) The vehicle **shall** be 6-wheel drive (6x6), equipped with a front driving axle and tandem rear drive axles.
- (b) The vehicle **shall**^(B) be equipped with driver controlled differential locks on rear axles.

3.11 Frame - The vehicle frame rails **shall** be constructed of at least 120,000 psi high strength steel.

3.12 Steering - The vehicle **shall** be equipped with a power assisted steering system with a telescopic/tilt steering column.

3.13 Automatic Transmission - The vehicle **shall** be equipped with a heavy duty automatic transmission.

3.13.1 Power Take-Off (PTO)

- (a) The PTO **shall**^(B) be transmission mounted.
- (b) The PTO **shall** have a torque rating that will allow the water pump to meet the rated performance.
- (c) The gearbox **shall** be of sufficient size to withstand the engine torque for the range of pump operating conditions and be selected to give the maximum performance with the engine, transmission, and PTO.

3.14 Fuel Tank

- (a) The vehicle fuel supply system **shall** include a fuel tank mounted on heavy-duty support brackets.
- (b) The fuel tank **shall** be the manufacturer's standard capacity, compatible with this size and type of vehicle, in accordance with ULC-S515 Chapter 11.
- (c) The fuel tank **shall** not interfere with the operation of any equipment installed on the vehicle or disturb the balance of the weight configuration.

3.15 Alternator - The alternator **shall** supply sufficient current to carry

all electrical load requirements and voltage output compatible with the specific battery type, in accordance with the manufacturer's specifications.

3.16 Batteries

- (a) The vehicle **shall** be supplied with maintenance free batteries which **shall** have a rating exceeding the draw.
- (b) Batteries **shall** be mounted in an accessible, well protected location, including heat shielding, hold downs, and ventilation.

3.17 Hydraulic System - If applicable, the hydraulic system **shall** be complete with all required components for the operation of the installed hydraulic equipment and including pump, motors, actuator, cylinders, reservoir, filters and control valves. The reservoir, if applicable, **shall** be labeled with approved hydraulic fluid and reservoir capacity.

3.18 Electrical System - The vehicle **shall** be equipped with **LED** lights (except where indicated). The electrical system **shall** include:

- (a) **Halogen headlights;**
- (b) Clearance lights, stop lights, turn signals and tail lights that comply with the Highway Traffic Regulations;
- (c) All circuits protected from overload;
- (d) Insulating grommets where wiring passes through metal;
- (e) **Optical Warning Devices**, designed and controlled in accordance with ULC-S515 Chapter 12;
- (f) **Audible Warning Devices**, designed and controlled in accordance with ULC-S515 Chapter 12;
- (g) **Ground Lighting;**
 - i. The apparatus **shall** be equipped with ground lighting providing illumination, in all areas designed for personnel to climb and descend the apparatus.
 - ii. Ground lighting at entry door positions **shall** be automatically illuminated when the entry doors open.
 - iii. All other lighting **shall** be switch controlled.
- (h) **Hand Held Spotlight;**
 - i. One minimum 300,000-candle power hand held spotlight, with a momentary type control switch, coiled cord, and bracket, **shall**^(B) be provided.
 - ii. The spot light **shall**^(B) be securely stored within reach of the seated passenger in the cab, and hard wired into the 12-volt electrical system.

- (i) A **wigwag system**, with in cab controls;
- (j) **Roof Mounted Light Bar; and**
 - i. The apparatus **shall** be equipped with a roof mounted LED light bar.
 - ii. The light bar provided **shall** have a nominal dimension of 1.32 metres (52 inches) wide.
 - iii. The light bar **shall** be provided with traffic clearing lights interfaced with the park brake.
 - iv. Traffic clearing lights **shall** automatically come on when the emergency light switch is activated and the park brake is released.
- (k) A multi-position control for the emergency lighting system.
 - i. One switch position **shall** be provided for each of the following functions:
 - 1. Turn off all emergency lighting;
 - 2. Turn on all emergency lighting; and
 - 3. Turn off all lighting positioned below the roof line.
 - ii. The emergency light switch **shall** be located in a position that is accessible to the driver's seated position.

3.19 Cab - The vehicle cab **shall** be in accordance with ULC-S515 Chapter 13. The vehicle **shall** be equipped with:

- (a) A **conventional day cab**, with heavy duty suspension;
- (b) **Driver and passenger seats**. Both seats **shall**:
 - i. Be high-back;
 - ii. Be air suspended seats;
 - iii. Have cloth inserts; and
 - iv. Be equipped with a retractable 3-point seat belt assembly.
- (c) Two aerodynamic, heavy-duty, heated, motorized, **rear view mirrors**.
 - i. Each mirror **shall**^(B) include a convex section.
 - ii. Mirror glass **shall** be replaceable;

Note: The following heavy-duty west coast mirrors dimensions are provided as guidance: 15 cm by 40 cm (6 inches by 16 inches). The following convex mirrors dimensions are provided as guidance: 20 cm (8 inches) diameter.

- (d) Two rotating and pivoting interior **sun visors**;
- (e) **Dark Upholstery**;
- (f) Removable waterproof **mats** for easy cleaning;

- (g) As a minimum, molded **Armrests** on both doors and one armrest per seat;
- (h) **Premium insulation** in the cab including the floor(s);
- (i) A factory installed, **air conditioning** system;
- (j) Manufacturer's standard interior **trim**;
- (k) An AM/FM **radio** with CD player;
- (l) **Air horn(s)**;
- (m) **Tinted windshield** to reduce solar heating effects;
- (n) Mobile radio power leads and antennae cable wired into the vehicle. The power and antennae leads **shall**^(E) be provide with a service loop terminating at the overhead console for future installation of radio equipment; and
- (o) An antennae base mounted high on the cab exterior.

3.20 Cab Controls and Instruments - The cab controls and instruments **shall** include:

- (a) Electric **windshield washer sprayer**;
- (b) Intermittent **windshield wipers**;
- (c) **Cruise control** system with a fast idle feature;
- (d) **Speedometer**;
- (e) **Tachometer**;
- (f) **Odometer**;
- (g) **Oil pressure gauge** with a low engine oil pressure indicator;
- (h) **Coolant temperature gauge** with a high coolant temperature indicator;
- (i) **Transmission temperature gauge** with a high transmission temperature indicator;
- (j) **Voltmeter**;
- (k) **Air pressure** gauge(s);
- (l) Reverse (back-up) warning alarm;
- (m) **Fuel level gauge**;
- (n) A **PTO engagement indicator**;
- (o) An engine **hour meter** with numeric display, which accurately records accumulated engine running time;
- (p) A **master battery switch**, accessible in the cab within reach of the driver; and

- (q) An **air restriction indicator**.

3.21 Miscellaneous Equipment - The vehicle **shall** be equipped with:

- (a) **License plate mounting** provisions, front and rear. The Rear licence plate **shall** be illuminated;
- (b) Front and rear **mud flaps**. Front mud flaps **shall** be sufficiently sized and positioned to prevent body damage from wheel splash and stone throw; and
- (c) **Tow hooks** mounted at the front and at the rear, of sufficient strength to permit the recovery of the vehicle.

3.22 Paint, Decal, and Corrosion Protection

3.22.1 Paint

- (a) All paint **shall** be applied to the Apparatus in accordance with the **paint manufacturer's recommendations** and the manufacturer's best production procedures, rendering a durable finish and a smooth appearance, free from runs, sags and orange peel.
- (b) The surface **shall** include a corrosion-prevention pre-treatment to all bare metal, a sealer/primer, a minimum of two coats of base colour paint, and two coats of clear finish.
- (c) All painted components of the Apparatus **shall** be painted prior to assembly to ensure full coverage of metal treatments and paint.
- (d) If aluminum is penetrated after painting, for mounting purposes, the point of penetration and all mounting hardware **shall** be treated with a corrosion inhibiting pre-treatment.
- (e) The paint process **shall**^(E) utilize Akzo-Nobel's high-solid LV products, including:
 - i. Akzo-Nobel Sealer/Primer LV - Acrylic urethane sealer/primer;
 - ii. Akzo-Nobel High Solid LV topcoat - Lead free, chromate-free, high-solid acrylic urethane topcoat; and
 - iii. Akzo-Nobel High Solid LV clear coat.
- (f) The Apparatus **shall**^(E) be painted two-tone, consisting of a FLNA 4006 White over FLNA 3225 Red Akzo-Nobel Lead free, chromate-free, high-solid acrylic urethane Paint applied to the upper section of the cab, with the paint break line determined at the preproduction meeting.
- (g) The chassis components **shall** be finish painted black.

3.22.2 Decal Package - The Apparatus **shall** be provided with a decaling package.

- (a) The two-tone paint break **shall** be covered by a ¾" Stripe (½" gold stripe, with ⅛" black outline), with a clear polyurethane coating.

- (b) The cab and body **shall**^(E) be provided with a double white Scotchlite reflective stripe, a nominal 152 mm (6 inches) and 51 mm (2 inches) wide, horizontally around the cab and body, in accordance with ASTM D 4956 and in compliance with NFPA 1901.
- (c) All lettering **shall** be applied in the ARIAL BLOCK font, in sizes ranging from 51 mm (2 inches) to 152 mm (6 inches) to accommodate the required text, in the outlined areas.
- (d) All lettering **shall** be gold with a black outline.
- (e) Decals **shall** be in both official languages on the same side of the vehicle.
- (f) Decals **shall** be applied using high quality vinyl with a clear polyurethane coating.
- (g) The following decals **shall** be provided in the following locations:
 - i. **"FIRE · FEU"**, 75mm (3 inches) in height, on the front of the vehicle, horizontally centred over the grill, and vertically centred between the chassis stripe and grill;
 - ii. **Front identification number**, 102 mm (4 inches) in height, applied on a white background to the left furthestmost location of the vehicle's front bumper;
 - iii. **Base identifier**, 51 mm (2 inches) to 152 mm (6 inches) in height sized to fit, applied to the topsides of the cab;
 - iv. **Crest or door logos**, horizontally and vertically centred on both the driver and passenger doors;
 - v. **National Defence logo**, sized and centred to fit the available space on the sides of the body, forward near the roofline;
 - vi. **Side identification number**, sized and centred to fit the available space on the sides of the body, rearward near the roofline; and
 - vii. **Rear identification number**, 102 mm (4 inches) in height, applied on a white background to the lower right furthestmost location on the vehicle's rear.

3.22.3 Corrosion Protection

- (a) **Corrosion Protection Design** - The vehicle **shall** be designed to prevent galvanic corrosion.
- (b) **Rust Proofing** - Aftermarket rust proofing **shall** be applied to the vehicle in addition to standard factory rust proofing.
- (c) **Rust Preventative** - All metal surfaces on the vehicle **shall** be treated with a rust preventative oily film product having the following properties:
 - i. Moisture displacing;
 - ii. Creeping (capillary action);

- iii. Low solvent content;
 - iv. Compatible with rubbers, plastics and, all other materials used in automotive construction;
 - v. Non-toxic; and
 - vi. Minimal dripping.
- (d) **Salt Spray Endurance Test** - Written proof of a twelve hour ASTM B117 salt spray endurance test certification by an independent test laboratory **shall** be provided, before vehicle acceptance. Krown Rust Kontrol and Rust Check products have been previously certified, proof is not required.
- (e) **Application Areas** - Corrosion protection application **shall** include, but is not limited to the underside of fenders and hood, enclosed and boxed-in sections, seams, mouldings, crevices, weld points, underbody and exposed exterior brackets.
- (f) **Warranty Documentation** - A decal and warranty papers **shall** accompany each vehicle.

3.23 Lubricants, Hydraulic Fluids and Fittings

- (a) Axles, transmission and differentials **shall** be furnished with synthetic lubricant.
- (b) The synthetic lubricant **shall** be approved by components manufacturer and furnished by the OEM.
- (c) The vehicle **shall** operate satisfactorily on Canadian Forces Supply Line lubricants including synthetic lubricants. This includes 15W40 and SAE 75W90. Vehicle hydraulic systems **shall** operate using DEXRON III.

3.24 Identification - The following information **shall** be permanently affixed in a conspicuous and protected location:

- (a) The manufacturer's name, model number, serial number and model year;
- (b) The GVWR, GCWR and GAWR ratings, in kilograms (as applicable); and
- (c) The height and length, in metres.

3.25 Warning and Instruction Plates

- (a) The vehicle **shall**^(B) be equipped with warning and equipment operation instruction plates that are in accordance SAE J115.
- (b) The plates **shall** be within easy view of the operator, be bilingual (English and French) and/or make use of graphic symbols as defined in SAE J1362.

4. EQUIPMENT

4.1 Special Equipment Design Considerations

- (a) **Ground Clearance** - When selecting equipment installation locations, the Contractor **shall** maintain the highest ground clearance possible, and should not install equipment lower than the lowest point on the chassis frame rails.
- (b) **Centre of Gravity** - The height of the fully loaded vehicle's centre of gravity **shall** not exceed the Chassis manufacturer's maximum limit, in accordance with ULC-S515 Chapter 3.

4.2 Pump

- (a) The mobile water supply apparatus **shall** be equipped with a pump securely mounted to the vehicle, at or above the chassis frame rails.
- (b) The pump **shall** meet the requirements of **ULC-S515 Chapter 15**.
- (c) The water pump **shall** have a minimum **capacity** of 1,800 litres per minute (500 US Gallons per minute).
- (d) The pump **shall** be PTO (Power Take-Off) driven from the vehicle engine.
- (e) The pump body **shall** be hydrostatically tested to 3400 kPa (495 psi).
- (f) The pump **shall**^(B) be equipped with a plate identifying the pump model and serial number.

4.2.1 Priming Pump

- (a) A positive displacement, oil-less, rotary vane, electric motor driven priming pump **shall**^(B) be provided.
- (b) The priming pump **shall**^(B) be operated by a single push-pull bronze control mounted on the pump operator panel.

4.2.2 Pump Operator's Panel - The Apparatus **shall** be equipped with a Pump Operator's Panel, which is compliant with ULC-S515.

4.2.3 Drains - The system **shall** be equipped with drain valves, designed to allow the complete draining of the pump and all water carrying lines and accessories, routed to a trough which drains to the side, away from the Pump Operator's Position.

4.3 Water Tank - The mobile water supply apparatus **shall** be equipped with a water tank compliant with the requirements of **ULC-S515 Chapter 16**.

4.3.1 Capacity

- (a) The water tank **shall** have a minimum certified capacity of 13,638 litres (3000 Imp gallon).
- (b) The certified capacity **shall** be recorded on the manufacturer's record of construction and delivered with the fire apparatus.

4.3.2 Tank Construction

- (a) The water tank **shall**^(B) be constructed of Polyprene® copolymer, treated to prevent degradation from exposure to sunlight (heat and UV), and flexible enough to resist cracking and fatigue due to movement.
- (b) Material **shall** be of sufficient thickness to provide complete structural integrity of the tank for the expected life of the vehicle, for the required use.

4.3.3 Mounting - The water tank **shall** be mounted a steel sub frame. The mounting method **shall** be designed and constructed to:

- (a) Prevent tank shifting;
- (b) Retain the tank while travelling empty;
- (c) Withstand the maximum gross loading under specified operating conditions; and
- (d) Allow for the independent differences in vehicle and tank flexion (Cradled, cushioned, spring-mounted, etc.).

4.3.4 Stability - The water tank **shall** be equipped with baffles, swash partitions, or a method for dynamic water movement control, to stabilize partial loads of water.

4.3.5 Sump(s) - The water tank **shall** be equipped with at least one cleanout sump at the lowest point of the tank designed to allow water to fully drain from the tank.

- (a) The sump(s) **shall** be equipped with an easily accessible minimum 75mm (3') pipe plug, which is protected from projectile road debris.
- (b) If the sump is used for tank-to-pump line connection, the design **shall** prevent sludge or debris in the sump from entering the pump.

4.3.6 Tank-to-Pump Intake - The water tank **shall** be connected to the intake side of the pump with a valve controlled at the pump operator's panel.

4.3.7 Tank-to-Pump Flow - The water tank **shall** be equipped with a piping and valve arrangement delivering water to the pump at a minimum rate of 2000L/min (500gpm).

- (a) The flow rate **shall** be sustainable while pumping a minimum of 80 % of the certified tank capacity with the apparatus on level ground.
- (b) The tank-to-Pump line **shall** be equipped with an automatic means to prevent unintentional backfilling of the water tank through the line.
- (c) Connections or outlets from the tank to the pump **shall** be designed to prevent air from being entrained while pumping water from the tank.

4.3.8 Fill Opening - The water tank **shall** be equipped with a readily accessible, covered fill opening, allowing insertion of a minimum 65mm (2.5") hose with coupling.

- (a) The cover **shall** be marked with a label that reads "water fill".
- (b) A screen that is easily removed and cleaned **shall** be installed in the opening.
- (c) The fill opening cover or another device **shall** open as a vent to release pressure build-up in the tank.

4.3.9 Vent/Overflow Outlet

- (a) The water tank **shall** be equipped with a vent/overflow outlet that is sized to allow water to be drawn from the tank at a rate at least equal to the 2000L/min (500gpm) and pumped into the tank without pressure build-up under the required operation.
- (b) The overflow outlet **shall** be behind the rear wheels, so as not to reduce vehicle traction.

4.4 Plumbing - Plumbing **shall**⁽⁸⁾ be stainless steel, to prevent corrosion.

4.4.1 Tank Filling

- (a) The apparatus **shall** be equipped with a valved tank fill lines to allow water from external sources to be pumped into the water tank.
- (b) The tank fill line valve **shall** regulate flow, controlled from the pump operator's position.
- (c) The tank filling system **shall** include at least:
 - i. One (1) Top fill (**external fill**) directly into the tank, which permits a minimum filling rate of 4000L/min (1000 gpm);
 - ii. One (1) nominal 102 mm (4 inch) or 152 mm (6 inch) hard **suction inlet**, compatible with the pump rating, on the road side, equipped with long handle chrome vented caps and an intake screen;
 - iii. One (1) nominal 65 mm (2.5 inch) or 75 mm (3 inch) hard **suction inlet**, with camlocks or threaded hose;
 - iii. One (1) nominal 102 mm (4 inch) **tank fill inlet**, for pressure filling from hydrants, with Storz coupling; and
 - iv. One (1) nominal 65 mm (2.5 inch) **tank fill inlet**, for pressure filling from hydrants, with Storz coupling.

4.4.2 Water dispensing

- (a) Plumbing **shall** be installed to allow for the water from the tank to be dispensed through the installed pumping system.
- (b) At a minimum, water **shall** be dispensed through:
 - i. Two (2) nominal 65 mm (2.5 inch) outlets;
 - ii. One (1) nominal 254 mm (10 inch) **dump valve**, equipped with a

swing capacity for operation at the rear to the right, center, and left, with a minimum capacity of 4000L/min.

4.5 Body - The body **shall**^(B) be fabricated with nominal 3/16 inch 5052 or 5083 marine grade aluminum, for corrosion prevention, durability, strength, and integrity of the body construction and be mounted on a steel sub frame.

4.6 Equipment Storage - The apparatus body **shall** be equipped with enclosed weather resistant storage compartments, with a minimum volume of 0.6 m³ (21 ft³) for Equipment storage in accordance with **ULC-S515 Chapter 9**.

- (a) The compartments **shall** be ventilated and have provisions for drainage of moisture.
- (b) All electrical junctions or wiring within the compartments **shall** be protected from mechanical damage resulting from equipment stored within the compartment.
- (c) Compartments **shall** be equipped with accessible equipment holders for all of the Minor Equipment required in this Purchase Description, designed to secure the equipment under all vehicle operating conditions.
- (d) Storage compartments **shall**^(B) be equipped with turtle track matting.

4.7 Minor Equipment

- (a) The mobile water supply apparatus **shall** be equipped with Minor Equipment in accordance with ULC-S515.
- (b) Above the applicable standard, the following Minor Equipment **shall** be provided:
 - i. Four (4) **1500 gallon portable ponds** with folding metal frame; and
 - ii. One nominal 75 mm (3 inch) **camlock to Storz adapter**.
- (c) All Minor Equipment **shall** be stored on-board in dedicated accessible storage locations, secured in brackets where applicable.

4.8 Hose Storage - The apparatus body **shall** be equipped with on-board storage provisions for all hoses required in this Purchase Description. All hose storage areas **shall**^(B):

- (a) Be reinforced at the corners;
- (b) Have a bottom made of removable sections fabricated from non-corrosive materials;
- (c) Have a bottom constructed to prevent the accumulation of water and allow ventilation to aid in drying hose;
- (d) Have an interior which is smooth and free from all projections that might cause damage to the hose (i.e. nuts, sharp angles, or brackets);
- (e) Allow laying and removal of hose from the storage area without obstruction from reels, handrails, ladders, or equipment holders; and

- (f) Be equipped with a positive means to prevent unintentional deployment of the hose from the top, sides, front, and rear of the hose storage area while the apparatus is underway in normal operations.

4.9 Hoses - All hoses, other than hard suction, **shall** be Red Chief hoses with Storz couplings. The apparatus **shall** be provided with the following, mounted in dedicated storage locations:

- (a) One (1) **pony length hose**, with a nominal length of 3 metres (10 feet) and a nominal diameter of 102 mm (4 inch);
- (b) Two (2) sections of clear lightweight **hard suction hose** with a nominal length of 3 metres (10 feet) each, with strainer, and a nominal diameter of 102 mm (4 inch) or 152 mm (6 inch), compatible with the apparatus hard suction inlet;
- (c) Four (4) sections of clear lightweight **hard suction hose** with a nominal length of 3 metres (10 feet) each, with strainer, and a nominal diameter of 65 mm (2½ inch) or 75 mm (3 inch), compatible with the apparatus hard suction inlet;
- (d) Two (2) **intake hoses** with a nominal length of 7.5 metres (25 feet) and a nominal diameter of 102 mm (4 inch);
- (e) Four (4) **supply hoses** with a nominal length of 15 metres (50 feet) and a nominal diameter of 65 mm (2½ inch); and
- (f) Two (2) **pre-connected fire hose lines** with a minimum length of 60 metres (197 feet) and a nominal diameter of 38 mm (1.5 inches).

5. INTEGRATED LOGISTIC SUPPORT (ILS)

5.1 Vehicle Manuals - All manuals required for the description, operation, maintenance and repair of the complete vehicle/apparatus, including sub-systems, **shall** be provided.

- (a) **Operator's Manuals** - Operator's Manuals **shall** be bilingual (English/French). The Operator's Manual **shall** include:
 - i. Instructions for the safe operation of the vehicle;
 - ii. Daily operator maintenance instructions/checks (including lubrication);
 - iii. Safety warnings; and
 - iv. Hand signals (as necessary).
- (b) **Parts Manuals** - The Parts Manuals **shall** be in English (bilingual is desirable). The Parts Manuals **shall** include:
 - i. Illustrations showing all components of the vehicle including equipment and accessories from other manufacturers that are supplied for the requirements of the contract, with numbers for the itemization of the parts;

- ii. A listing for all itemized parts showing the Original Equipment Manufacturers (OEM) part number, the part name, and a brief description of the item;
 - iii. Cross reference relating the OEM part number to the correct illustration and item number; and
 - iv. A representation of bilingual warning signs and identification labels delivered on the equipment.
- (c) **Maintenance (Service) Manuals** - The Maintenance Manual **shall** be in English (bilingual is desirable). The Maintenance Manuals **shall** include:
- i. A trouble shooting 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;
 - ii. A listing of the necessary tolerances, torque levels, and fluid volumes required, and a section listing special tools (including item part numbers);
 - iii. Information on the order of disassembly and assembly of the systems and components of the vehicle; and
 - iv. Plumbing and wiring diagrams.

5.1.2 **Manual Delivery**

- (a) **Sample Manuals** - The Contractor **shall** submit sample manuals to the Technical Authority (TA) for each equipment model and/or sub-system for approval as specified above. Sample manuals will not be returned. The Crown will provide approval or comments on the manuals within 30 days. Sample manuals should be submitted with enough time for review prior to vehicle delivery.
- (b) **Approved Manuals (to TA)** - One (1) complete set of manuals (Operator's, Maintenance, and Parts) in electronic format **shall** be delivered to the Technical Authority.
- (c) **Approved Manuals (At Destination)** - Two (2) complete sets of manuals (Operator's, Maintenance, and Parts), in paper and electronic format, **shall** accompany the first vehicle shipped to each location.
- (d) **Approved Operator's Manual (With Vehicle)** - One (1) Operator's manual (paper format) **shall** be provided with every vehicle.

5.1.3 **Electronic Format**

- (a) Approved copies of the electronic format manuals **shall** be delivered on CD/DVD-ROM.
- (b) CD/DVD-ROM **shall** be an unlocked PDF in a searchable format and **not** require installation, password and/or Internet connection to be accessed.

5.1.4 Provisional Manuals

- (a) In the event that approved manuals are not available at the time of delivery of the equipment, manuals marked "Provisional" **shall** be supplied with the equipment.
- (b) Upon TA approval, the Contractor **shall** deliver replacement manuals to all destinations where provisional manuals were delivered.

5.1.5 Manual Supplements

- (a) The Contractor **shall** supply manual supplements (Operator's, Maintenance and Parts) to support dealer-installed equipment not covered in approved manuals, if applicable.
- (b) These supplements **shall** require separate DND approval.
- (c) These supplements **shall** be provided to each destination in the same quantities and format as the approved manuals.

5.1.6 Translation and Reproduction Rights - The Canadian Government **shall** 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.

5.1.7 Manual Changes

- (a) Until the last vehicle is delivered with approved manuals, changes to equipment, which affect the contents of manuals, **shall** be reflected in a revision of the electronic and paper version of the manuals.
- (b) Changes to the manuals **shall** conform to the same format and presentation requirements as the original approved manuals.
- (c) The revised electronic version of the manual **shall** be sent to the Technical Authority by the Contractor.

5.2 Data Summary

- (a) The Contractor **shall** provide a bilingual Data Summary for each make/model/configuration of vehicle, by completing the Technical Authority's template with data and a vehicle picture.
- (b) The Contractor **shall** provide a Data Summary, if possible, before the shipment of the vehicle(s).

5.3 Warranty Letter

- (a) The Contractor **shall** provide a bilingual Warranty Letter to the Technical Authority and with each vehicle delivered in the approved DND format.
- (b) The TA will provide the Contractor with a template for the DND acceptable format of the warranty letter.
- (c) The Warranty Letter **shall** include the following details:

- i. A contact person and phone number, for each Canadian designated warranty service provider that will honour the warranty for the equipment and attachments (if applicable) procured under this contract;
- ii. Additional warranty coverage of sub-systems and a copy of the bilingual warranty letter from each sub-system's Original Equipment Manufacturer (OEM);
- iii. The warranty period as negotiated in the contract; and
- iv. Contractor contact information, name, and phone number, for warranty support.

5.4 Photographs

- (a) The Contractor **shall** provide photographs to the TA, in electronic format, within 30 days of the first vehicle delivery. The photographs should be in color, taken against a plain background, and in digital JPEG format with a minimum 10 megapixel resolution.
- (b) At a minimum, the photographs **shall** be:
 - i. One left front three-quarter view of a complete vehicle; and
 - ii. One right rear three-quarter view of a complete vehicle.

5.5 Dimensioned Drawing - One side and front view sketch showing the dimensions **shall** be provided. Brochure sketches are acceptable.

5.6 Line Setting Ticket

- (a) The Contractor **shall**^(B) provide a Line Setting Ticket describing the components provided on the cab and chassis.
- (b) One copy of the Line Setting Ticket **shall** accompany each completed vehicle to the final delivery point.
- (c) The Contractor **shall** produce a Supplement listing for all non-production line components and systems included in the Contract.
 - i. The Supplement **shall** indicate the name of the component or system and the installation company (name and address).
- (d) One copy of the Line Setting Ticket and one copy of the Supplement **shall** be forwarded to the Technical Authority as soon as they are available.

5.7 Special Tools List

- (a) The Contractor **shall** provide an itemized list of specific special tools required for the servicing and repair of the apparatus.
- (b) The list **shall** include the following information:
 - i. Item name;

- ii. Manufacturer's part number (OEM);
 - iii. Quantity recommended per delivery location;
 - iv. Contractor's part number;
 - v. Unit price; and
 - vi. Unit of issue.
- (c) The special tools **shall** also be listed in the Maintenance Manual.

5.8 Recommended Spare Parts List - The Contractor **shall** provide, to the Technical Authority, a list detailing the spare parts deemed necessary to maintain the vehicle for a period of 12 months exclusive of any warranty period, for each configuration. The Recommended Spare Part List **shall**:

- i. Include the following information:
 - 1. Item name;
 - 2. Contractor's part number;
 - 3. Original manufacturer's number;
 - 4. Original manufacturer's NATO Supply code (NCAGE) or name and address;
 - 5. NSN (NATO Stock Number) (if known);
 - 6. Quantity per equipment;
 - 7. Quantity recommended;
 - 8. Unit price;
 - 9. Unit of issue; and
 - 10. Reference to part location in the parts manual.
- ii. Be delivered to the Technical Authority. The list **shall** be supplied in an editable electronic format, preferably as a spreadsheet.

5.9 Safety Recalls and Servicing Data - Safety recalls, and manufacturer's technical service bulletins, or equivalent **shall** be provided to the Technical Authority and the final delivery locations on a continuing basis, throughout the life expectancy of the vehicle or for not less than 10 years.

5.10 Familiarization Training

5.10.1 Operator Familiarization Training

- (a) The Contractor **shall** deliver an operator familiarization training course covering, as a minimum, the apparatus servicing procedures, and how to operate the features of the apparatus safely and efficiently.

- (b) The operator training course **shall**:
 - i. Be designed for attendance of up to twelve (12) operators;
 - ii. Be one (1) day in duration;
 - iii. Be delivered **twice**, at each delivery location; and
 - iv. Be delivered in the official language of the province of delivery.
- (c) Training dates **shall** be coordinated with the TA.
- (d) The contractor **shall** provide a copy of the training package to the TA for review and approval, at least 7 days in advance of the scheduled training.
- (e) The Contractor **shall** deliver the "PROOF OF OPERATOR TRAINING" certificate for signature by a Crown Representative from the location where the training is taking place and return the signed document to the TA. The Technical Authority will supply a template of the document in electronic format to the Contractor.

5.10.2 Maintenance Familiarization Training

- (a) The Contractor **shall** deliver a maintenance training course covering, as a minimum, the safety precautions, trouble shooting, test and adjustment, special tools and test equipment, minimum operation and features of the vehicle and the safe and efficient maintenance of the vehicle.
- (b) The maintenance training course **shall**:
 - i. Be designed for attendance of up to eight (8) maintenance personnel;
 - ii. Be up to three (3) days in duration;
 - iii. Be delivered **once**, at each delivery location; and
 - iv. Be delivered in the official language of the province of delivery.
- (c) Training dates **shall** be coordinated with the TA.
- (d) The contractor **shall** provide a copy of the training package to the TA for review and approval, at least 7 days in advance of the scheduled training.
- (e) The Contractor **shall** deliver the "PROOF OF MAINTENANCE TRAINING" certificate for signature by a Crown Representative from the location where the training is taking place and return the signed document to the TA. The Technical Authority will supply a template of the document in electronic format to the Contractor.

5.10.3 Instructor Experience - All training **shall** be delivered by an instructor who is fully trained and functional on all aspects of the

Apparatus, with at least three (3) years of experience within the past five (5) years on the specific apparatus or an apparatus of similar design.

5.10.4 Operation Video - The Contractor **shall** delivery an English video demonstrating an overview of the operation of all aspects of the apparatus, to the TA, within 30 days of the first vehicle delivery.

6. QUALITY ASSURANCE PROVISIONS

6.1 Performance and Verification Testing

- (a) The first vehicle of each Configuration to be delivered **shall** be examined and performance tested by the Contractor, under real or equivalent load and operating conditions, to ensure item by item conformance to specified requirements. The QAR and/or the Technical Authority may witness this testing to assess the handling characteristics.
- (b) The Contractor **shall** have a fully equipped vehicle weighed on certified scales. The total weight and weight on each axle **shall** be furnished.
- (c) The remaining vehicles **shall** be tested by the Contractor with or without load to check general performance and operation.

6.2 Vehicle Delivery Condition

- (a) The vehicle **shall** be delivered to destination clean and in a fully operational condition (serviced and adjusted).
- (b) If the vehicle requires assembly at destination, the Contractor **shall** be responsible for all manpower and equipment to perform assembly. The consignee will provide the area required for assembly.
- (c) For shipment verification, all items which are shipped loose with each vehicle **shall** be listed on the shipping certificate or to an attached packing note.