	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
1.	**CERTIFICATIONS**			
1.1.	The Vehicle(s) supplied shall meet or exceed the requirements of the following standards and requirements: Ministry of Transportation of Ontario standards as set out in the "*Highway Traffic Act* and Regulations"; The latest applicable S.A.E. (Society of Automotive Engineers); and/or ISO (International Organization of Standardization); and, UL (Underwriter Laboratory) standards and regulations; O.S.H.A. (Occupational Safety and Health Administration) recommended practices; The Ontario *Occupational Health and Safety Act* (OHSA); The vehicle shall meet all requirements of U.L.C. S515 M88 for Firefighting apparatus, Canadian Motor Vehicle safety standards (latest Edition), Canadian Standards Association C.S.A. C225-176, Society of Automotive Engineers S.A.E J343C-1975, American National Standards Institute ANSI, and Occupational Safety and Health Acts including all amendments, Welding Bureau of Canada CWB W59- 1989 W59 2-M1991 W47.1 S-M1989 W47.2 M-1987 (including all amendments), Ontario Highway Traffic Act, NFPA 1901- Most Current Edition (where indicated). All other applicable regulations pertaining to the supply and intended use of the equipment stated; The specified Vehicle(s) and/or equipment must comply with all requirements of the Canada *Motor Vehicle Safety Act* and its regulations (See CMVSS section below).			
2.	**CERTIFICATIONS – CANADA MOTOR VEHICLE(S) SAFETY STANDARD (CMVSS) – See item above**			
2.1.	The specified Vehicle(s) (Apparatus) and Equipment must comply with all requirements of the Canada *Motor Vehicle(s) Safety Act* (CMVSS) and its regulations including, but not limited to: a) A compliance label on each Vehicle(s) (Apparatus) containing all required information including, but not limited to:			

		YES	NO/EXCEPTIONS	NOTES
	(i) Gross Vehicle(s) axle ratings for each axle, which shall not be less than the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces; (ii) Gross Vehicle(s) weight ratings, which shall not be less than the loaded weight of a single completed Vehicle. b) Complete Vehicle(s) apparatus documents with the required information from all stages of manufacture; and, c) All information labels from all stages of manufacture.			
2.2.	The specified vehicle (apparatus) and equipment must comply with all requirements of the National Fire protection Association (NFPA) standard – Standard for Automotive Fire Apparatus – Most current edition			
3.	**NATIONAL SAFETY MARK (NSM)**			
3.1.	If applicable, the company(ies) involved in the initial, intermediate and final stages of manufacture of the Vehicle(s) and authorized by the Minister shall apply a "National Safety Mark" and a compliance label prior to the delivery of the completed Vehicle(s). The compliance label on each Vehicle containing all required information including, but not limited to: (i) Requirement(s) related to the National Safety Mark (NSM); (ii) Gross vehicle axle ratings for each axle, which shall not be less than the load- carrying capacity.			
3.2.	If applicable, the final stage Manufacturer must be authorized by Transport Canada to apply the NSM label.			
3.3.	Proof of Authorization by the final stage Manufacturer to apply the NSM label must be included with the tender submission.			
3.4.	If at any time up until delivery and acceptance of the Vehicle(s) it is determined by the Municipality that the Vehicle(s) requires a National Safety Mark based on the specifications it shall be the Contractors sole responsibility and expense to ensure the NSM is obtained.			
3.5.	Compliance with the NSM labeling requirements set out in this section (above) is a condition of this Tender and the resulting Contract. Failure to comply with NSM			

	labeling requirements shall result in the non-acceptance of the Vehicle(s) by the municipality.			
3.6.	Nothing in this part shall be construed as relieving the bidder from delivering Vehicle(s) that conform to the *Motor Vehicle Safety Act*.			
4.	**PARTS AND SERVICE MANUALS**			
4.1.	Two (2) operators' manuals, in English, plus two (2) electronic file (USB drive) are required covering the operation and parts of the complete vehicle shall be provided with the unit on delivery.			
4.2.	Manufacturer's warranty literature should be provided with the bid submission.			
4.3.	Two (2) complete hard copy 11" X 17" plus two (2) electronic file (USB drive) as-built wiring diagrams for the complete vehicle are required at delivery. Wiring diagrams must be in accordance with NFPA regulations. Wiring diagrams should identify the color and numbering on the wiring.			
4.4.	Two (2) chassis maintenance manuals containing service information, lubrication and wiring diagrams on major chassis components. Electronic version (USB drive) to be supplied if available.			
4.5.	Two (2) complete hard copy plus two (2) electronic file (USB drive) fire pump operating, maintenance and parts manuals shall be supplied at the delivery.			
5.	**CONTACT INFORMATION FOR SERVICE FACILITY**			
5.1.	The service facility shall be a 24/7 service center where a technician can be reach at any time or day for support or service call.			
5.2.	The Service Facility or Mobile Service Provider identified below must be within 100 km radius from 636 St. Lawrence Street, Winchester, Ontario K0C 2K0. If the bidder's Service Facility or Mobile Service Provider is located more than 100 km radius from 636 St. Lawrence Street, Winchester, Ontario K0C 2K0, then the bidder will indicate a local Prime Service Provider for warranty repairs (if applicable, see Bidder's Service Provider Facility Information (Sub-contracting of Warranty Repairs) below) within a 100 km radius.			
5.3.	It is the responsibility of the Contractor to ensure that the Prime Service Provider and/or Sub-Contractor (s) adheres to the contract.			
5.4.	For the purpose of warranty repairs, the facilities, or portions thereof, as identified, shall be dedicated to the service and maintenance of the type of Vehicle(s) and/or equipment being offered.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	The municipality reserves the right, at any time prior to contract award and/or during the contract period to inspect the Contractor's, Service Provider's and/or Subcontractor's Service Facilities identified. The municipality shall provide twenty-four (24) hours prior notice for an inspection. The municipality shall verify that the Contractor's premise is deemed to have reasonable levels of trained personnel, documentation, licensing, and equipment, relevant to the work being maintained to support the requirements of the contract.			
5.5.	The service provider shall have EVT certified technician on staff.			
5.6.	The service provider shall have 310T license mechanic on staff.			
5.7.	The service provider shall have certified on Hale pump technician on staff.			
5.8.	The service provider shall have a mobile pump testing unit.			
6.	**DECALS/SIGNAGE**			
6.1.	Vehicle(s) signage shall be bilingual (English/French) or universal symbol (use of graphic symbols as defined in SAE 1362 is acceptable), where applicable.			
7.	**PREVENTATIVE MAINTENANCE PROGRAM**			
7.1.	The Contractor shall provide to the municipality a full details of the Preventative Maintenance (PM) Program specific to the unit being offered including any attachments.			
8.	**GENERAL WARRANTY**			
8.1.	The warranty shall be required to for the complete vehicle, 100% parts and labor for a minimum of two (2) years, including pickup and delivery.			
8.2.	For clarification purposes, minor warranty repairs will include, but not be limited to; bulb, belt, and hose replacements etc.			
8.3.	The warranty will be based on years and shall include all ancillary equipment included and installed on the unit upon acceptance by the municipality.			
8.4.	It is the intent of the wording of the minimum warranties referenced in the respective sections shall include all parts and labour on the complete component for the duration specified. For example: Engine shall include all ancillary attachments to the engine such as wiring harnesses,			

	alternators, injectors, injection pumps, etc. The complete engine, not just the internal components of the engine. This would not include oil filters, belts, tires, brakes pads.			
8.5.	In the event of a dispute between the Municipality and the manufacturer concerning the component in question, the component shall be forwarded to the Original Equipment Manufacturer for determination of failure. Should it be deemed to have failed as a result of negligence or abuse, the cost of the component will be borne by the municipality, otherwise the cost will be borne by the Contractor. This would apply to all auxiliary attachments to all components as referenced.			
9.	**PAINT WARRANTY**			
9.1.	The cab and chassis shall be covered by an unlimited manufacturer one (1) year paint warranty. The body shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual kilometers, whichever occurs first.			
10.	**WARRANTY AUTHORIZATION AND RESPONSIBILITY**			
10.1.	If the Vehicle(s) becomes immobile during the warranty period due to the failure of a warrantable component, the Contractor shall be responsible for the towing and/or float charges to transport the Vehicle(s) to the Contractor's facility and the Contractor shall return the Vehicle(s) to the City's facility all at the Contractor's sole expense, risk and responsibility.			
10.2.	Where applicable, if the manufacturer provides a longer warranty period or a warranty that is more extensive in its nature, then the provisions of such manufacturer's warranty shall apply.			
10.3.	The warranty period shall commence from the "in-service date" which is the date that the vehicle(s)/material is delivered to the municipality and approved by the municipality.			
10.4.	Labour for the removal or installation of warranted parts, or components and any associated shipping fees will be the sole responsibility of the contractor.			
10.5.	All Bidders MUST submit pertinent warranty claim procedures with the tender submission.			
11.	**SPECIFICATIONS OVERVIEW**			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
11.1.	The vehicle and its components shall be designed to operate in the temperature and weather conditions typically found in the Ottawa region. (-40 to +40 degrees Celsius.) As winter conditions are very corrosive from the use of salt preventive measures shall be incorporated in its design and equipment to address the problem of corrosion and galvanic reaction.			
11.2.	In the event of a conflict between the text of this document and the references cited herein, the text of the document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been indicated.			
11.3.	Any error or omission in the specifications shall be immediately reported to the purchaser for correction.			
11.4.	Where these specifications list only the major significant details of the units(s) or equipment required, it is the bidder's responsibility to provide a unit or the equipment fully equipped for its intended use, to provide dependable and efficient service and performance.			
11.5.	The Supplier shall assume complete and overall responsibility for design, implementation of design and satisfactory operation for the complete new vehicle/equipment that meet this specification and its sub-systems.			
11.6.	The municipality shall be responsible for all costs of meetings and inspections at the manufacturer's location. There will be three (3) members of the fire department present for each meeting or inspection required. A minimum of five (5) business day's notification is required prior to each inspection. 1. Factory pre-construction meeting and facilities tour 2. Chassis inspection 3. Pre-paint inspection 4. Factory final inspection Factory meetings and inspections denote the location the apparatus is built, and not at the dealer location the apparatus is delivered to prior to final delivery to the fire department. This is required to ensure that all requirements, changes, and other items deemed necessary by the fire department are carried out in the quickest fashion causing minimum delays. Where the manufacturer is over 400km from the fire department, hotel (individual hotel rooms) and meal accommodations must be included at the contractor's expense. Where the manufacturer is over 700km from the fire department travel by air and two (2) nights of accommodations (individual hotel rooms) at minimum			

	and meals must be provided, all at the contractor's expense. Values of meals shall be the following per person: Breakfast at $15.00, Lunch at $25.00, and Supper at $50.00. For the purpose of this tender, the travel distance shall be calculated by road travel with the starting point at Municipality Address. Air travel will be from Ottawa Macdonald-Cartier International Airport to the closest airport to the manufacturer. An internet based map shall be generated showing the most direct route, time and distance and shall be provided with the reply documents.			
11.7.	Concurrence by the Bidder to any specification requirement contained within this Request for Tender shall take precedence over any documentation accompanying the bid submission.			
12.	**DOCUMENTS TO BE SUPPLIED WITH BID**			
12.1.	The following should be submitted with the bid submission. If not provided with the bid submission, the Municipality may request it. If requested, the Bidder shall provide the requested information within two (2) business days. Failure to provide the requested information may result in the bid submission being rejected. The Municipality is not bound to request information from all Bidders.			
12.2.	The weight distribution calculations for the fully loaded Apparatus.			
12.3.	General layout drawings showing the front, rear, top, left and right side views of the apparatus representative of the bid submission.			
12.4.	The center of gravity calculations for the apparatus being bid.			
12.5.	Copies of the accreditation for the EVT certified technician.			
12.6.	Copies of the accreditation for the 310T license mechanic.			
12.7.	Copies of the accreditation of the certified on Hale pump technician on staff.			
12.8.	If the final stage manufacturer is an ISO 9001 registered company, a copy of the final stage manufacturer's current ISO registration.			
12.9.	If the final stage manufacturer is not an ISO 9001 registered company, a copy of the final stage manufacturer's detailed Quality Assurance program, which shall include, at a minimum: • Statistical Process Control • Measurement and Exception Handling			

	• PDI checklist One (1) example of records kept tracking a previous problem during the manufacturing process of a fire apparatus showing how the problem was resolved and the follow up taken to monitor the effectiveness of the resolution.			
12.10.	Copy of the general warranty			
12.11.	Copy of the paint warranty			
12.12.	Copy of the chassis warranty			
12.13.	Copy of the body structure warranty			
12.14.	Copy of the water tank warranty			
12.15.	Copy of the pump warranty			
12.16.	Copy of the stainless piping warranty			
13.	**GENERAL, CONSTRUCTION AND DESIGN**			
13.1.	The Bidder confirms and guarantees the apparatus delivered will be of the highest engineering standard and as such confirms and guarantees that the apparatus will be able to maintain their readability as per the NFPA 1901 Most Current Edition regulations in all emergency conditions over their projected twenty (20) year life span.			
13.2.	The design of the equipment shall be in accordance with the best engineering practices. The equipment design and accessory installation shall permit accessibility for use, maintenance and service. All components and assemblies shall be free of hazardous protrusions, sharp edges, cracks or other elements, which might cause injury to personnel or equipment.			
13.3.	The Bidder confirms that the Vehicle Stability (of the apparatus being built) meets all NFPA 1901 Most Current Edition Regulations.			
13.4.	All oil, hydraulic, and air tubing lines and electrical wiring shall be located in protective positions properly attached to the frame or body structure and shall have protective loom or grommets at each point where they pass through structural members, except where a through-frame connector is necessary.			
13.5.	Parts and components should be located or positioned for rapid and simple inspection and recognition of excessive wear or potential failure. Whenever functional layout of operating components determines that physical or visual interference between items cannot be avoided, the item predicted to require the most maintenance shall be located for best accessibility.			
13.6.	Cover plates, which must be removed for component			

	adjustment or part removal should be equipped with quick-disconnect fastenings or hinged panels.			
13.7.	Drains, filler plugs, grease fittings, hydraulic lines, bleeders and check points for all components should be located so that they are readily accessible and do not require special tools for proper servicing. Design practices should minimize the number of tools required for maintenance.			
13.8.	Since all custom manufacturers have the ability to shear, brake and weld, as these specifications require, all basic design requirements shall be complied with.			
13.9.	Materials shall conform to the specifications listed herein. When not specifically listed, materials shall be of the best quality for purpose of commercial practice. Materials shall be free of all defects and imperfections that might affect the serviceability of finished product.			
13.10.	All nameplates and instruction plates shall have the information engraved, stamped, or etched thereon. Nameplates shall show make, model, serial numbers, and other such data necessary to positively identify the item and all fluid levels for vehicle. All nameplates shall be mounted in a conspicuous place; all warning and caution labels will be bilingual (English and French).			
13.11.	The manufacturing process, including quality control, shall be consistent with present industry standards. All equipment, material, and articles required under this specification are to be new or fabricated from new materials produced from recovered materials. The term "Recovered Materials" means materials, which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this document. The term "Heavy Duty", as used to describe an item, shall mean in excess of the standard, quantity, quality, or capacity and represents the best, most durable, strongest, etc., part, component, system, etc., that is available. The Municipality or their designate shall be the sole judge of quality, construction and stability of the apparatus and equipment being offered.			
13.12.	Parts, equipment, and assemblies, which have been repaired or modified to overcome deficiencies, shall not be furnished without the approval of the purchaser. Welded, and bolted, construction shall be utilized in accordance with the highest standards of the industry. (NO POP RIVETS). Component parts and units shall be manufactured with proper fits, clearances, and uniformity. General appearance of the vehicle shall not			

	show any evidence of poor quality of work.			
13.13.	Unless protected against electrolytic corrosion, dissimilar metals shall not be used in intimate contact with each other.			
13.14.	The engine and transmission manufacturer's approval of the proposed installation including a performance SCAAN.			
13.15.	The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit and shall be identified on submitted drawings.			
13.16.	The front and rear weight distribution of the fully loaded vehicle as defined in shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full load and all other loading conditions. The actual loaded weight on any axle shall not exceed the maximum allowable in the Province of Ontario.			
14.	**DELIVERY**			
14.1.	Acceptance of the delivered apparatus and equipment will be made upon satisfactory completion of all required tests, receipt of all specified equipment and documentation and commissioning unit into service.			
14.2.	The following items shall be furnished upon delivery of the vehicle: • Certification that the optical warning system has been supplied and installed in compliance with NFPA 1901- Most Current edition • A weight ticket from a certified scale showing the loading on the front axle, rear axle and overall vehicle with water tank full but without hose, equipment or personnel • ULC or UL certification of the fire pump. No exceptions. • Certification of the water tank capacity • E.S.A (Electrical Safety Code) Certification			
14.3.	An electrical load report on the proposed apparatus showing all electrical loads in the response and on-scene modes.			
14.4.	Apparatus shall be supplied with the E.S.A (Electrical Safety Code) certifications and inspections. Should the Apparatus be manufactured outside of the Province of Ontario, the contractor shall be responsible to coordinate the E.S.A (Electrical Safety Code) certifications and inspections prior to delivery of the Apparatus.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
14.5.	Chassis line setting ticket shall be supplied.			
15.	**TRAINING**			
15.1.	The delivery shall include sixteen (16) hours spread on four (4) different days of apparatus familiarization, at minimum. It shall include vehicle familiarization and operation items only, as requested by the fire department. Topics to be discussed shall be provided by the fire department a minimum two (2) weeks in advance in order to allow proper time to create a custom training session. The trainer shall be a body OEM supervisor familiar with all aspects of the apparatus construction. The chassis representatives will be present for a minimum of 2 hours at the delivery. Under no circumstances will firefighting operations, tactics, and procedures be discussed as these are not relevant to fire apparatus manufacturing. The familiarization sessions shall be conducted in groups of four (4) fire fighters, with a total of 28 fire fighters to be included.			
16.	**CHASSIS**			
17.	**VEHICLE PERFORMANCE**			
17.1.	The apparatus is expected to operate at elevations less than 2000 ft. (610 m) above sea level. The contractor shall ensure the apparatus will perform to all requirements at the maximum specified elevation.			
17.2.	The apparatus, when fully equipped and loaded shall be capable of the following performance on dry, level, paved roads in good condition: • From a standing start the vehicle shall attain a true speed of 56 km/hr. (35 mph) within 25 sec. • From a steady speed of 24 km/hr. (15 mph) the vehicle shall accelerate to a true speed of 56 km/hr. (35 mph) within 30 sec. This shall be accomplished without moving gear selector. • The vehicle shall attain a maximum top speed of 105 km/hr. (65 mph).			
17.3.	The apparatus fully loaded shall be able to maintain a speed of at least 32 kmph (20 mph) on a 6 percent grade.			
17.4.	The service brakes shall be capable of bringing the fully loaded apparatus to a complete stop from a speed of 32 kmph (20 mph) in a distance not exceeding 10.7 m (35 ft.).			
17.5.	The sound level within the cab shall not exceed 84 dba			

	with the vehicle travelling at a steady speed with no audible warning devices sounding as regulated by the Ontario work place health and safety act.			
17.6.	The parking brakes shall be capable of positively holding the fully loaded apparatus on a 20% grade.			
17.7.	The minimum angle of approach and departure shall not be less than 11 degrees.			
18.	**CHASSIS SPECIFICATIONS**			
18.1.	The cab and chassis shall a model 2018 or newer			
18.2.	It shall be a 108SD conventional four (4) door chassis			
18.3.	The cab and chassis shall meet or exceed all requirements of U.L. or U.L.C., NFPA and other applicable Canadian and Ontario standards.			
18.4.	It shall have a front set back axle			
18.5.	The wheelbase shall not exceed 267”			
18.6.	The maximum length of the apparatus shall not exceed 413”			
18.7.	The maximum overall height of the apparatus shall not exceed 114” inches from the ground to the highest point on the apparatus body.			
18.8.	The cab to axle dimension shall not exceed 154”			
18.9.	The total front axle G.A.W.R. shall be a minimum of 18,000 lbs.			
18.10.	The total rear axle G.A.W.R. shall be a minimum of 26,000 lbs.			
18.11.	The total chassis G.V.W.R. shall be a minimum of 44,000 lbs.			
18.12.	The G.A.W.R. and G.V.W.R. of the chassis and all related components shall exceed the weight of the fully equipped apparatus by approximately 10%, including the fully loaded water tank, the specified hose load, 682 kg (1,500 lbs.) of unequipped personnel weight, ground ladders, and portable pool.			
18.13.	A final manufacturer’s certification of the G.V.W.R., along with a certification of the G.A.W.R., shall be supplied on a nameplate affixed to the vehicle.			
18.14.	The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 5 percent.			
18.15.	The actual loaded weight of the vehicle shall not exceed 90% of the G.V.W.R of the front and rear axle ratings.			
19.	**FRAME – BUMPER**			
19.1.	Frame shall be channel type, of sufficient dimension to			

	handle the rigors of emergency service and shall have a lifetime warranty. The frames rails shall be one (1) continuous piece with no splices and for all purposes are considered a part of the frame/chassis system along with the cross members and shall not be cut, pierced, modified or weakened in any way.			
19.2.	Top of frame rails shall be clear from all bolt heads or obstructions. Outside of frame rails and rear of cab shall be clear of any obstructions (air, fuel tanks etc.)			
19.3.	Shall be equipped with a one (1) piece contour black steel wrap-around front bumper, (14") high, front bumper shall be bolted directly to frame rails.			
19.4.	The front bumper shall be extended approximately 24.00 inches ahead of the cab.			
19.5.	The front bumper extension frame shall feature an overall width of approximately 48 inches.			
19.6.	Two (2) heavy duty painted tow hooks or eyes shall be installed under front bumper. Tow hooks or eyes shall be bolted directly to chassis frame members.			
20.	**AXLES AND SUSPENSION**			
20.1.	Front suspension shall be a taper leaf.			
20.2.	Front axle shall be designed with a minimum 18,000 lbs. G.A.W.R capacity. It shall be a Detroit DA-F-18.0-5			
20.3.	Front springs shall meet or exceed the minimum 18,000 lbs. capacity of the front axle.			
20.4.	Two (2) heavy-duty double acting shock absorbers shall be provided for the front axle.			
20.5.	Shall be equipped with oil lubricated front wheel bearings with visual oil level indicators.			
20.6.	Rear axle shall be a Single axle, minimum 26,000 lbs. capacity G.A.W.R and shall include single reduction and oil lubricated rear wheel bearings. It shall be an RS-26-185 T-Series rear axle.			
20.7.	Rear axle ratio shall be 5.38, capable of reaching top speed as required by N.F.P.A. 1901- Most Current edition.			
20.8.	Rear suspension capacity shall be designed to match or exceed the rated axle loading of the vehicle complete with heavy-duty shock absorbers. It shall be equipped with HENDRICKSON FIREMAAX EX 27,000# rear air suspension for fire/emergency service. It shall have dual air rear suspension leveling valves.			
20.9.	Brake dust shields shall be installed on the front and			

	rear axles.			
20.10.	There shall be a driver controlled traction differential - single rear axles. It shall have one (1) driver controlled differential lock rear valve for single drive valve It shall include a buzzer and a blinking lamp with each mode switch. The differential will unlock with ignition off and will operate at less the 5mph.			
21.	**BRAKE SYSTEM**			
21.1.	Service brakes to be Meritor air operated drum type and comply with all applicable Ontario and Canadian CMVSS-121 standards.			
21.2.	Front brakes shall be Meritor Q Plus drum, 16-1/2 inch x 6-inch S-cam brakes with Haldex automatic slack adjusters. Brakes shall be equipped with fire and emergency severe service, non-asbestos lining material. Brake drum to be outboard mounted.			
21.3.	Rear brakes shall be Meritor drum, Plus 16-1/2 inch X 7 inch P-cam brakes with Haldex automatic slack adjusters. Brakes shall be equipped with fire and emergency severe service, non-asbestos linings with cast shoe webbing. Drum to be outboard mounted.			
21.4.	A Meritor Wabco anti-lock brake system with traction control will be provided on front and rear axles. Dash mounted anti-lock lamp will be provided to indicate malfunction.			
21.5.	The air compressor shall be 18.7 CFM minimum, capable of rapid air pressure build up, as required by N.F.P.A. 1901- Most Current edition.			
21.6.	Spring brakes shall be Haldex Goldseal longstroke maxi brake chambers to be furnished on rear axle. The spring brake shall also be used as a parking brake with the control valve dash mounted with indicator light accessible to both driver and officer.			
21.7.	Dual air gauges shall be provided and installed. Low air pressure warning lights and buzzers shall be provided and installed.			
21.8.	Air tanks shall have a minimum capacity of 3300 cu. in. A separate air pressure tank of approximately 1,200 cu. in. shall be provided for the air horn system. The tank shall be provided with a pressure protection valve to prevent the use of air horns or other accessories when the system air pressure drops below (80 p.s.i.).			
21.9.	All air reservoirs will be equipped with manual cable operated drain valves. Cables to be routed to be easily accessible by operator/driver. All drain cables must be			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	equipped with labels attached to the rub railings to identify the air tank that is being drained.			
21.10.	The air brake tubing shall be colour-coded nylon Synflex.			
21.11.	A BW AD-9 brake line air dryer with heater shall be mounted inboard on LH rail.			
22.	**AUXILIARY BRAKING SYSTEM**			
22.1.	Shall have an Auxiliary Brake system installed.			
22.2.	The Cummins compression brake shall interface with the anti-lock brake system and deactivate automatically if wheel lock- up is detected.			
22.3.	Shall have a Cummins exhaust brake integral with variable geometry turbo with on/off dash switch. A light to indicate retarder activation shall be mounted on the cab dash.			
22.4.	The brake lights shall activate upon auxiliary brake activation.			
23.	**TIRES AND WHEELS**			
23.1.	The tires shall be First line, Tier 1 Radial to be supplied to fit 22.5” rim size and load range to meet the apparatus requirements.			
23.2.	Front tires shall be MICHELIN X WORKS Z 315/80R22.5 20 PLY with sidewall protection from curbs.			
23.3.	Rear tires shall be MICHELIN X WORKS XDS 11R22.5 16 PLY with sidewall protection from curbs.			
23.4.	The rear dual wheels shall include a plastic isolator approximately 0.04” installed between the inner and outer wheel hub. There shall also be a plastic isolator between the axle hub and the wheels on both front and rear axles.			
23.5.	Front wheels shall be polished ALCOA ULTRA ONE 89U64X 22.5X9.00 10-HUB PILOT 5.99 INSET ALUMINUM -			
23.6.	Rear outer wheels shall be polished ALCOA LVL ONE 88367X 22.5X8.25 10-HUB PILOT ALUMINUM DISC			
24.	**POWERTRAIN**			
24.1.	The vehicle shall be equipped with a Cummins L9 400EV HP @ 2100 RPM, 2200 GOV RPM, and 1250 LB/FT @ 1400 RPM RV/FIRE/EM.			
24.2.	Side of hood air intake with NFPA compliant ember screen and fire retardant Donaldson air cleaner			
24.3.	The cooling system shall have sufficient capacity to meet extended periods of full load operation in local			

	ambient temperatures and maintain the engine at a temperature not to exceed the maximum or minimum operating temperature as recommended by the engine manufacturer. The radiator shall be a pressurized type of tube and fin construction. Radiator core, tubing fittings, etc., shall be brass and copper.			
24.4.	The radiator shall be of a design and size recommended by the engine, transmission and retarder manufacturers for the intended application.			
24.5.	Coolant shall be an extended life coolant type with protection to minus -60 degrees °F.			
24.6.	Silicone heating and cooling hoses shall be installed using hose clamps which are spring loaded, constant torque type for use with silicone hose. All heater hose will be insulated.			
24.7.	Silicone heater hose shall not be used inside of cab. All heater hoses on the exterior of the apparatus including coolant hoses for the DEF system shall be silicone.			
24.8.	A coolant filter with inlet and outlet shut-off valves shall be installed.			
24.9.	Engine cooling system shall incorporate a thermostatically controlled clutch fan. The Horton fan will include a dash switch and indicator light.			
24.10.	Apparatus manufacturer must install a closed circuit auxiliary heat exchanger with control at the pump operator's panel to provide for additional cooling capacity without the loss of coolant.			
24.11.	All heater hose fittings and adaptors shall be brass. Plastic connector and "T" fittings shall not be acceptable.			
24.12.	Low coolant indicator light and buzzer alarm on dash and pump panel shall be provided.			
24.13.	The fuel system shall be compatible with the engine manufacturer's recommendations for flow and pressure.			
24.14.	The fuel system components shall be protected from exhaust heat and mechanical damage during the normal use of the apparatus.			
24.15.	The fuel tank shall be easily removable for repairs (brackets welded to tank will not be accepted) The fuel tank shall be equipped with a means of draining the fuel and servicing the sending unit without removing the tank. A single fuel tank with a minimum capacity of 227 Litre (60 US gallons) shall be installed. The tank shall be 25 inch in diameter made of aluminum			
24.16.	A D.E.F. 13 gallon tank shall be provided. The D.E.F.			

	tank shall not encroach upon any designed stowage compartment. A label on the body shall clearly identify the location of the D.E.F. tank.			
24.17.	Spin-on type primary and secondary fuel filters shall be installed as recommended by engine manufacturer.			
24.18.	A heated fuel water separator with dash-mounted sensor light shall be installed.			
24.19.	A hand primer pump shall be installed.			
24.20.	A fuel transfer pump shall be required. Pump shall be external to fuel tank, back flow checked and in line with fuel supply line.			
24.21.	The vehicle shall be equipped with an Allison model 3000EVS automatic transmission. The transmission shall be configured to maximize the pump output.			
24.22.	The transmission shall be controlled by a pushbutton selector control mounted to the right of driver and lighted for night operation.			
24.23.	A transmission temperature gauge shall be supplied on the cab dash and pump panel with a warning light and/or buzzer for high transmission temperature.			
24.24.	The driveline shall be heavy-duty series, and have glide coat spline on all slip shafts.			
24.25.	All portions of the driveline shall be balanced at maximum operating speed; driveline angle must be within Manufacture's specifications.			
24.26.	The exhaust system shall have a single muffler with horizontal discharge through or below the right hand side steps, and meet all applicable noise standards. Heat shields shall be provided to protect any part of the apparatus susceptible to heat damage. Muffler shall be aluminized and any flex tube used shall be stainless steel. Flex tube to be connected with overlapping clamp type seals.			
24.27.	An engine after treatment device, automatic over the road active regeneration and dash mounted single regeneration request/inhibit switch shall be supplied.			
24.28.	The exhaust pipe shall terminate in front of the right rear wheels 1 inch below body at 90 degrees.			
24.29.	The exhaust pipe shall be equipped with a diffuser system.			
25.	**CAB EXTERIOR**			
25.1.	Cab shall be an air ride			
25.2.	Front grill shall have a non-removable bug screen mounted behind grill.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
25.3.	Cab shall include LH and RH exterior grab handles with single rubber insert.			
25.4.	Bright finish front grill, radiator shell/hood bezel			
25.5.	Chrome hood mounted air intake grille			
25.6.	Two (2) GROVER Stuttertone 63.5 cm (25") or equivalent air horns shall be hood mounted. Shall include snow shield			
25.7.	The air horns shall be controlled by a lanyard(s) easily accessible by Officer and Driver.			
25.8.	A single electric horn shall be installed controlled by steering wheel center horn pad.			
25.9.	Where applicable, four (4) sets of keys shall be provided per vehicle for ignition, doors, cabinets and all other attachments.			
25.10.	Halogen composite headlamps with bright bezels shall be installed.			
25.11.	LED aerodynamic marker lights			
25.12.	Daytime running lights - low beam only			
25.13.	Dual west coast bright finish heated mirrors with led lights and LH and RH remote			
25.14.	LH and RH 8 inch bright finish convex mirrors mounted under primary mirrors			
25.15.	A RH down view mirror shall be installed on the right hand door.			
25.16.	Composite exterior sun visor			
25.17.	No rear window			
25.18.	Tinted door glass LH and RH with tinted operating wing windows			
25.19.	RH and LH electric powered windows, passenger switches on door(s)			
25.20.	Tinted windshield			
25.21.	8 liter windshield washer reservoir, cab mounted, with fluid level indicator			
25.22.	Mud flaps shall be installed behind the front wheels to protect the body and components from road spray.			
25.23.	A windshield washer system with the largest available OEM reservoir shall be installed.			
26.	**ALTERNATOR AND BATTERY**			
26.1.	The alternator shall be a minimum 275 amp, 12-volt 40-SI brushless pad alternator with remote battery voltage sense. The alternator output must meet the minimum continuous electrical load requirement on this apparatus.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
26.2.	Three (3) batteries shall have a minimum combined value of 2850 CCA. High cycle12 volt batteries shall be installed. All batteries will be contained within a box(s) and covered to protect them from road spray.			
26.3.	A positive and negative post for jumpstart shall be located on the frame next to the starter and easy to access.			
27.	**CAB INTERIOR**			
27.1.	The interior finish shall be opal gray vinyl			
27.2.	Cab interior shall have a removable sound absorbing, padded head liner to cover all wiring and tubing.			
27.3.	The inside door shall be moulded plastic door panel without vinyl insert with aluminum kick plate lower door.			
27.4.	It shall have a forward roof mounted console with upper storage compartments without netting			
27.5.	The dash will have a storage bin			
27.6.	Smart switch expansion module – dash mounted			
27.7.	To include heater, defroster and air conditioner			
27.8.	The air conditioner compressor shall be a Denso heavy duty			
27.9.	Premium insulation option			
27.10.	The cab floor will covered with a (rubber/vinyl) pebble grain non-slip and sound deadening insulated floor mat.			
27.11.	Includes solid-state circuit protection and fuses			
27.12.	It shall be a 12v negative ground electrical system			
27.13.	Two (2) door dome/red reading lights are located in the forward cab roof and three (3) dome/red light shall be located in the rearward cab roof.			
27.14.	LH and RH door locks to be electric			
27.15.	One (1) 12 volt power receptacles and one (1) dual 2.1 AMP USB charger shall be mounted in center dash			
27.16.	The driver's seats shall be H.O. BOSTROM SIERRA AIR-50 high back air suspension driver seat with adjustable recline, fixed lumbar and NFPA 1901-2009 compliant seat sensor			
27.17.	The passenger (officer's) seats shall be a H.O. BOSTROM TANKER 450 SCBA non suspension passenger seat w/under seat storage, SECUREALL SCBA bracket with ready cushion and NFPA 1901-2009 compliant seat sensor			
27.18.	Three (3) seats H.O. BOSTROM TANKER 450 SCBA non suspension lh, rh & center rear passenger seats w/under seat storage, SECUREALL SCBA bracket with ready cushion & NFPA 1901-2009 compliant seat			

	sensor.			
27.19.	The seat sensor display shall be mounted in the upper forward center console			
27.20.	Armrests shall be located in the LH and RH integral door panel			
27.21.	The driver and passenger seats shall be gray vinyl seat cover with gray cordura cloth bolster and headrest			
27.22.	The seat belts shall be NFPA 1901-2009 high visibility orange			
27.23.	All seats shall be equipped with three (3) point retractable seat belts.			
27.24.	The steering column shall be equipped with tilt and telescopic steering wheel column and contain the self-cancelling turn signal lever, horn button, and four (4) way flasher switch.			
27.25.	There shall be a driver and passenger interior sun visors			
27.26.	Two (2) speeds with intermittent, windshield wipers shall be installed.			
28.	**CAB INSTRUMENTS AND CONTROLS**			
28.1.	There shall be an engine remote interface with park brake interlock			
28.2.	Air gauge(s) with warning lights and buzzers shall be provided.			
28.3.	Two (2) air pressure gauges shall be mounted in the dash - 2” primary and secondary			
28.4.	A dash mounted air restriction indicator with graduations shall be supplied			
28.5.	An electronic back-up alarm that is activated when the vehicle is in reverse shall be installed to warn persons near or on the apparatus that the vehicle is backing up.			
28.6.	An electronic cruise control with switches shall be mounted in the LH switch panel			
28.7.	Fast idle switch in cab, (PRE-SET TO 1000 RPM) located on left hand lower side of dash area, with interlock to "Neutral" safety switch shall be provided.			
28.8.	A fast idle output shall be included and shall be activated whenever the system voltage is reduced to 12.8 VDC for at least one (1) minute. The fast idle output shall remain ON for a minimum of 10 minutes and until 13.0 VDC is achieved. The fast idle output is dependent on the Parking Brake and Load Manage Enable Inputs. Note 1: This output shall only be used as part of a fast idle control system when the proper safety interlocks			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	are present. Note 2: The fast idle output shall turn off immediately when the Load Manage Enable Input is removed from ground potential.			
28.9.	The heavy duty onboard diagnostics interface connector shall be located below LH dash			
28.10.	Cluster shall include a 2” electric fuel gauge.			
28.11.	Chassis shall include an engine remote interface for remote throttle.			
28.12.	Chassis shall include an engine remote interface connector at back of cab.			
28.13.	Cluster shall include an electrical engine coolant temperature gauge.			
28.14.	Cluster shall include a 2” transmission oil temperature gauge			
28.15.	The driver display shall have an engine and trip hour meters.			
28.16.	The Chassis and vehicle shall be equipped with an Advanced Electronic Stability Control System. A dash-mounted warning light shall turn off after approximately ten (10) seconds if the sensor is functioning. The system shall continue to function in the event of non-critical faults.			
28.17.	A radio AM/FM/WB world tuner with Bluetooth and USB and auxiliary inputs, j1939 shall be dash mounted			
28.18.	Two (2) radio speakers shall be mounted in the cab			
28.19.	The AM/FM antenna shall be mounted on forward LH roof			
28.20.	An NFPA vehicle data recorder and seatbelt display shall be supplied			
28.21.	The alternating flashing headlamp system with dash switch and no park brake interlock shall be installed			
28.22.	There shall be one (1) valve parking brake system with dash valve control auto neutral and warning indicator			
28.23.	Master battery switch left of steering column or at left side of driver’s seat shall be provided.			
28.24.	Headlight/parking light switch shall be provided.			
28.25.	Turn signal indicators and high beam indicator shall be provided.			
28.26.	Keyed switch shall be provided with chain secured to dash area.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
29.	**PUMP**			
30.	**PUMP WARRANTY**			
30.1.	Class 1 shall provide a limited manufacturer's pump warranty with total protection package to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years from the date placed into service.			
31.	**PLUMBING WARRANTY**			
31.1.	A Stainless Steel Plumbing/Piping warranty shall be offered for a period of ten (10) years from the date of delivery.			
32.	**STAINLESS STEEL PLUMBING**			
32.1.	All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance. The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.5" through 4". Sizes 3/4", 1" and 5" are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1" through 5" for maximum performance in tight bend applications. The material has a temperature rating of -40° F to +210° F. The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male 3/4" and 1" couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I. D. is utilized to assure maximum holding power when fastening couplings to hose.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
33.	**FIRE PUMP COMPARTMENT CONSTRUCTION**			
33.1.	The fire pump instrument panel shall be located on the upper side of the fire pump module. (Top Mount)			
33.2.	Pump compartment shall be fully enclosed, on all sides.			
33.3.	The pump module body shall be a self-supported structure mounted independently from the body and chassis cab. The pump module shall be constructed entirely of extrusions and aluminum plate. The framework shall be formed from beveled aluminum alloy extrusions and shall be electrically seam welded at each joint using 5356 aluminum alloy welding wire. The main framework to be 3.00 x 3.00 x 0.18, or 3.00 x 1.5 webbed 0.25, 6063-T5 aluminum extrusion. The pump module design must allow normal frame deflection through isolation mounts without imposing stress on the pump module structure or side running boards. The pump module shall consist of a welded framework, properly braced to withstand chassis frame flexing. The pump module support shall be bolted to the frame rails of the chassis.			
33.4.	The pump module shall be approximately 74" in width as measured laterally across the apparatus			
33.5.	The width of the pump compartment (front to back) shall be 44".			
33.6.	The pump module control panel shall be 1/8” aluminum with spray on black LineX.			
33.7.	The bottom of the pump house shall be fitted with a removable heat pan. The heat pan shall totally enclose all sides, front, and rear bottom of the pump house and shall be constructed from sheet aluminum and shall be installed to the underside of the pump house that shall be easily removable.			
33.8.	The top pump panel shall be hinged for ease of maintenance. The upper panel containing all gauges will be hinged on the bottom side and able to swing down to have access to all components. The panels shall have the controls displayed in an organized method of pump control with colour-coded labels to NFPA standard. All pump panel controls shall be clearly labelled to indicate function. The discharge controls shall be clearly labelled and colour coded. Discharge drains and bleeder controls installed at the pump panel shall be colour coded to match the corresponding discharge control.			
33.9.	The left side pump panel should be hinged for ease of removal allowing easy access to plumbing and valves, Two (2) piece door is acceptable (top and bottom)			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
33.10.	The right side pump panel should be hinged for ease of removal allowing easy access to plumbing and valves, Two (2) piece door is acceptable (top and bottom)			
33.11.	The front transversal portion of the pump module shall be fabricated of checker plate and to be removable for ease of service.			
33.12.	The walkway shall be located between the cab and pump house. The walkway shall be constructed of aluminum tubing to provide a framework for stepping and standing areas, and overlayed with either embossed aluminum checker plate or grip-strut. Each side of the walkway shall have an intermediate step which facilitates access to the walkway standing surface from the running board level. The surface of the walkway, intermediate steps, and running board areas of the walkway shall be constructed of an aggressive aluminum "Grip Strut" extrusion. The running board stepping surface shall be flush with the top of the supportive tubular framework. Each surface shall be 'slip-resistant' compliant with the latest NFPA recommendations for stepping and standing surfaces. The walkway area immediately forward of the pump compartment shall be approximately 33” in width (22” walking space minimum, remainder as needed for speed lays). The pump operator's area shall be illuminated with two (2) LED strip lights with protective shields in the most appropriate location.			
33.13.	The right and left side of the transverse walkway shall have adequate steps to climb safely to the operator’s position. Folding steps will not be accepted.			
33.14.	Two (2) 18" handrails shall be installed on the pump compartment, one (1) each side near the walkway steps to facilitate access up to the operator's panel area.			
33.15.	The engineering, layout, and functional "user friendly" design of the pump panel is of vital importance for this apparatus.			
33.16.	The left side, right side and pump control panels shall be provided with a full width stainless steel bar light, H20 Amdor LED lights with switches on the panel. The hooded panels shall prevent glare to operator's view.			
33.17.	Access shall be provided for servicing of the pump, all piping, valves, and controls. Wherever possible, hinged access doors and valve access panels shall be used to reduce repair costs. It is expected that the front, right side and upper panels will be of quick removal type.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
34.	**SPEEDLAYS BEHIND CHASSIS CAB**			
34.1.	The entire speed lay assembly shall be fabricated out of embossed aluminum diamond plate and structural aluminum components. The assembly shall rest on the walkway surface and mount just behind the chassis cab. The assembly shall be modular and be able to be separated from the walkway if needed.			
34.2.	The speed lay module shall have a tread plate aluminum cover. The cover, when opened, shall rest against rubber bumpers to protect the finish of the chassis cab. The cover shall also serve as a bench seat for operators or other firefighting personnel on the top control walkway area. Two (2) speed lay(s) shall be provided for up to 200 feet of 1.75" hose and nozzle. Each speed lay shall have a chicksan swivel termination provided to allow usage of hose from either side of the apparatus.			
34.3.	The forward corner of the speed lay assembly shall include an aluminum tube structure, spaced out from the corner as needed. The tube shall act as a fixed ‘roller”, allowing for smooth hose operation around and preventing paint damage to the cab.			
34.4.	A 2"Akron Brass 8800 series swing-out valve with a stainless steel ball. The discharge shall be controlled from the top operator's panel. The plumbing shall consist of 2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.			
34.5.	The discharge termination shall include the following components: Two (2) 2" NPT x 1.5" NPSH brass chicksan swivels. A Thuemling 2.5" (63mm) gauge shall be supplied for each discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering. The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial.			
34.6.	The speed lay hose bed area shall have a vinyl cover installed on the sides of the speed lay bay openings. Each cover shall be permanently attached to the top checker plate panel, and to the sides by a bungee cord sewn through the flap. The bungee cord shall attach to the frame with hooks. The speed lay hose bed covers shall be black in colour.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
35.	**FRONT BUMPER COMPARTMENT CENTER**			
35.1.	The front bumper shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose reel well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape. The compartment shall include a cover constructed of 0.19 inch thick bright embossed aluminum tread plate. The compartment shall accommodate electric rewind hose reel w/ 3 way rollers and 1" x 150' booster hose and a nozzle. The front bumper compartment cover shall include gas cylinder stays which shall hold the cover open. The cover shall be held in the closed position via a D-ring style latch. The remaining surface of the apron shall be completed in 0.19 inch thick bright embossed aluminum tread plate.			
36.	**FIRE PUMP AND RELATED EQUIPMENT**			
36.1.	The fire pump shall be tested and certified to CAN/ULC -S515-M88 by Underwriters Laboratory of Canada. A copy of the test results shall be provided to the purchaser upon delivery of the apparatus and an engraved certification plate shall be affixed to the pump operator's panel.			
36.2.	The fire pump shall be a Hale DSD single stage centrifugal pump. It shall be of a size and design to mount on the chassis rails of commercial truck chassis with a minimum rated capacity of 5000 LPM and shall meet all CAN/ULC -S515-M88 and NFPA current Edition requirements.			
36.3.	The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below. − 100% of rated capacity at 150 PSI net pump pressure − 100% of rated capacity at 165 PSI net pump pressure − 70% or rated capacity at 200 PSI net pump pressure − 50% of rated capacity at 250 PSI net pump pressure			
36.4.	The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.			
36.5.	The Pump drive unit shall be of sufficient size to			

	withstand the full torque of the engine in both road and pump operating conditions. The drive unit shall be designed with ample capacity for lubrication reserve and to maintain the proper operating temperature without supplemental cooling.			
36.6.	Driveline equipment must be of the heavy-duty type, with hollow-tube driveline, and heavy-duty universals. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.			
36.7.	The Allison transmission shall be provided with direct gear pump lock-up provision. Transmission shift control pad in cab will lock transmission in direct drive pump position, when in pump gear.			
36.8.	The discharge and intake piping, valves, drain cocks and lines and intake and outlet closures, shall be suitable to withstand a minimum hydrostatic burst pressure of 3450 KPA (500 PSI.) The only exception to this requirement shall be the tank fill and tank suction piping on the tank side of the valve.			
36.9.	Stainless steel fittings shall be utilized (no galvanized fittings will be permitted) where possible for tank fill or tank to pump.			
36.10.	The plumbing of the pump shall be built to firefighting standards, using stainless steel pipe or premium quality fire apparatus high-pressure Class 1 flexible piping. The flexible piping shall have a minimum burst pressure rating of 8400 kPa (1200 p.s.i.) and a temperature rating of -40 to 210 degrees F. Where vibration or body flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with Victaulic couplings, 90-degree elbows shall be of the sweep type. All plumbing and valves shall meet NFPA standards.			
36.11.	In-line valves used in the fire pump installation shall be all quarter-turn ball action, unless otherwise specified. To allow easy repair or replacement of valve seats, all control valves; discharge and intakes (suction) shall be AKRON heavy duty brass swing-out quarter turn full flow ball valves.			
36.12.	All VALVES, (suction) intake and discharge valves mounted on the pump shall be flush mounted type (exposed valves will not be acceptable). Either panel controlled or with remote control type handles. No valves shall be installed upside down.			
36.13.	The pump shall have a mechanical seal.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
37.	**PUMP SHIFT**			
37.1.	The drive unit shall be provided with an air pump shift system. The control valve shall be a spring loaded guard lever that locks in "Road" or "Pump" mode. To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged. A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready". In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit.			
38.	**DRAINS AND BLEEDERS**			
38.1.	The pump shall be equipped with a Class 1 Master Pump drain to allow draining of the lower pump cavities, volute and selected water carrying lines and accessories. The drain shall have an all brass body with a stainless steel return spring. The valve shall be installed lower than the main pump body to permit complete draining of the pump and water carrying lines and accessories. Secondary drains shall be provided on any low points in the piping. All drains must be controlled from the drivers pump panel or pump panel nearest to the valve. All ball valve drains will be ¾” lift handle type.			
38.2.	Valve intakes shall be equipped with minimum 19 mm (3/4") bleeder valves controlled at the valve or pump panel.			
38.3.	All 65 mm (2-1/2") or larger discharges shall be equipped with minimum 19 mm (3/4") bleeder valves controlled at the valve or pump panel.			
38.4.	Drain and bleeder discharges shall terminate below the frame and heat pan of the apparatus.			
38.5.	Discharge drains and bleeder controls mounted at the pump panel shall be colour coded to match the corresponding discharge			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
39.	**TOP-MOUNT VALVE CONTROLS**			
39.1.	The top-mounted valve controls shall be from Innovative Controls - Top mount pivot handle part#3040579 - Top mount valve control bezel part#3007533			
40.	**PRIMING SYSTEM**			
40.1.	A Trident model #31.001.21 air operated, 12-volt automatic operation, 2-location primer system shall be installed. The panel rocker switch shall have a “PRIME” position, “OFF”, and an “AUTO” position. When pushed and held in the “PRIME” position, air will be supplied to the primer causing sufficient vacuum to prime the fire pump. Once a prime is achieved, the operator can move the rocker switch to the “AUTO” position which will automatically restart the primer if the discharge pressure drops below 20-PSIG. An indicator light built into the rocker switch will be lit when the “AUTO” mode is engaged. An interlock on the wiring harness shall be wired to allow for AUTOMATIC operation only when the “OK to pump indicator” light is ON. - Left master intake shall be plumed separately. - Right master intake shall be plumed separately. - Rear master intake shall be plumed separately.			
41.	**ENGINE CONTROL**			
41.1.	Fire Research InControl series TGA401-D00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 database or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific wiring.			
41.2.	The following continuous displays shall be provided: - Pump discharge; shown with four daylight bright LED digits more than 1/2" high - Pump Intake; shown with four daylight bright LED digits more than 1/2" high - Pump discharge and intake pressure gauge shall			

	have an accuracy of ±3 percent over the full scale. - Pressure / RPM setting; shown on a dot matrix message display - Pressure and RPM operating mode LEDs - Throttle ready LED - Engine RPM; shown with four daylight bright LED digits more than 1/2" high - Check engine and stop engine warning LEDs - Oil pressure; shown on a dual color (green/red) LED bar graph display - Engine coolant temperature; shown on a dual color (green/red) LED bar graph display - Transmission Temperature: shown on a dual color (green/red) LED bar graph display - Battery voltage; shown on a dual color (green/red) LED bar graph display.			
41.3.	The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions: - High Battery Voltage - Low Battery Voltage (Engine Off) - Low Battery Voltage (Engine Running) - High Transmission Temperature - Low Engine Oil Pressure - High Engine Coolant Temperature - Out of Water (visual alarm only) - No Engine Response (visual alarm only).			
42.	**MASTER GAUGES**			
42.1.	Class 1 4-½(11.43cm) gauges shall be provided. The master discharge gauge shall indicate pressure from 0 to 600 PSI. The master intake gauge shall indicate pressure from -30hg to 600 PSI. The gauges shall be Interlube filled pressure gauges and handle pressures from 0 to 400 PSI. The pressure gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40 degrees F. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an insolating Sub Z diaphragm located in the stem.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
43.	**TEST PORT**			
43.1.	Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump. They shall have 0.25 in. standard pipe thread connections and be manufactured of non-corrosive polished stainless steel or brass plugs.			
44.	**INTAKE RELIEF VALVE DISCHARGE**			
44.1.	There shall be one (1) suction side stainless steel 2-1/2 inch intake relief pump valve with a discharge pipe that will exit to the left (driver side) of truck, below heat pan. For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.			
45.	**PUMP COOLER**			
45.1.	There shall be a 3/8 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A quarter turn on/off valve shall be installed on the operator's panel.			
46.	**HEAT EXCHANGER**			
46.1.	A closed circuit auxiliary heat exchanger shall be installed with controls at the pump operator’s panel. The system shall provide for additional engine cooling capacity without the loss of coolant. Operator must be able to shut off water to the heat exchanger from the pump panel. The intake water feed from the hydrant shall not feed the heat exchanger without the operator having opened the cooler valves on the pump panel.			
46.2.	Piping from the fire pump to the heat exchanger shall be with high pressure flexible hose lines with threaded copper fittings. The piping shall be installed to completely drain with no low points in the hose to prevent freezing.			
47.	**SUCTION PORTS (6 INCH INTAKES)**			
47.1.	A 6” pump manifold inlet shall be provided on each side of the pump. The shorter style inlets shall protrude less than 2 inches (50mm) away from the side panels, allowing an external valve to be connected and not protrude past the apparatus body sides while maintaining a low connection height. The main pump inlets shall have National Standard Threads and include removable screens designed to			

	provide cathodic protection for reducing deterioration in the pump.			
47.2.	There shall be two (2) 6" long handled chrome plated self-venting lug caps installed on the apparatus. The caps shall be National Standard Thread.			
48.	**LEFT SUCTION PORTS (6 INCH INTAKES)**			
48.1.	One (1) Akron brand 6" Electrically operated wafer valve(s) shall be mounted directly to the pump intake manifold and be located behind the pump panels on the left side. The valve shall be mounted between the main pump body plumbing and the steamer inlet A quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve (by a 3/4" NPT port) to help evacuate air from the system and avoid cavitation of the pump. A pressure relief valve with a range of adjustment from 75 to 250 PSI shall be installed inside pump compartment piped to the suction side of the pump. The valve shall be pre-set at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere. For normal pumping operations, the relief valve shall not be capped and there shall be a placard installed indicating "DO NOT CAP". The controller shall be an Akron Brass Style 9323 Navigator™ Valve Controller. The electric controls must be of current limiting design, requiring no clutches in the motor. The unit must have booted switches with momentary open and close as well as an optional one touch full open feature to operate the actuator. Bezel and case must be brass material. The unit must be capable of connecting to an auxiliary controller for operation at another location up to 370 feet away from the master control. The controller must have individual light indicators of red, yellow and green long life LEDs with light pipes for maximum visibility and carry a five-year warranty.			
49.	**RIGHT SUCTION PORTS (6 INCH INTAKES)**			
49.1.	One (1) Akron brand 6" Electrically operated wafer valve(s) shall be mounted directly to the pump intake manifold and be located behind the pump panels on the right side. The valve shall be mounted between the main pump body plumbing and the steamer inlet A quarter turn air			

	bleeder valve shall be plumbed to the water supply side of the intake valve (by a 3/4" NPT port) to help evacuate air from the system and avoid cavitation of the pump. A pressure relief valve with a range of adjustment from 75 to 250 PSI shall be installed inside pump compartment piped to the suction side of the pump. The valve shall be pre-set at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere. For normal pumping operations, the relief valve shall not be capped and there shall be a placard installed indicating "DO NOT CAP". The controller shall be an Akron Brass Style 9323 Navigator™ Valve Controller. The electric controls must be of current limiting design, requiring no clutches in the motor. The unit must have booted switches with momentary open and close as well as an optional one touch full open feature to operate the actuator. Bezel and case must be brass material. The unit must be capable of connecting to an auxiliary controller for operation at another location up to 370 feet away from the master control. The controller must have individual light indicators of red, yellow and green long life LEDs with light pipes for maximum visibility and carry a five-year warranty.			
50.	**REAR RIGHT SUCTION**			
50.1.	There shall be an auxiliary steamer inlet located on the rear right of the apparatus. One (1) drain shall be installed on the rear suction pipe. The drains shall be located on the bottom side of the rear suction pipe. A pressure relief valve shall be provided. For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed. A 5" Akron Brass 7950 electrically actuated “Butterfly" valve with quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve (with a 3/4" NPT port) to help evacuate air from the system and avoid cavitation of the pump. STYLE 9323 VALVE CONTROLLER The control valve shall be an electric Akron Brass model#9323. The electric controls shall be of current limiting design, requiring no clutches in the motor. The unit shall have booted switches with momentary open close as well as			

	an optional one touch full open feature to operate the actuator. The unit shall be capable of connecting to an auxiliary controller for operation at a location away from the master. The unit shall provide position indication through 10 LED light indicators, providing maximum visibility. The plumbing shall consist of 5" piping. The suction termination shall include the following components: One (1) 5" NST – 6”NST Trident chrome male adapter One (1) 6" NST long handled chrome cap The suction shall be plumbed with manually operated drains in the lowest point(s) of the piping.			
51.	**LEFT SIDE AUXILLLARY SUCTION**			
51.1.	There shall be a gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus. A total quantity of one (1) shall be provided with the following specified components: A 2.5" Akron Brass 8800 series swing-out valve with stainless steel ball. The suction shall be controlled from the operator's panel. The plumbing shall consist of 2.5" piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The suction termination shall include the following components: One (1) 2.5" NST x 2.5" CSA swivel female adapter with screen One (1) 2.5" CSA male self-venting plug, secured by a chain			
52.	**RIGHT SIDE AUXILLLARY SUCTION**			
52.1.	There shall be a gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus. A total quantity of one (1) shall be provided with the following specified components: A 2.5" Akron Brass 8800 series swing-out valve with stainless steel ball. The suction shall be controlled from the operator's panel. The plumbing shall consist of 2.5" piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The suction termination shall include the following components:			

	One (1) 2.5" NST x 2.5" CSA swivel female adapter with screen One (1) 2.5" CSA male self-venting plug, secured by a chain			
53.	**TANK SUCTION**			
53.1.	One (1) 3" (7.62cm) stainless steel valve shall be installed between the water tank and the pump. The valve shall be a quarter turn ball type. The valve shall be controlled with a chrome-plated push/pull locking "T" handle mounted on the pump panel. Supply line shall have a minimum of 2273 L/min (500 imperial gpm) flow capacity and shall be flexible to allow movement between the tank and the pump module. A check valve shall be provided in the system to prevent pressurizing the water tank.			
54.	**LARGE DISCHARGE LEFT SIDE FRONT**			
54.1.	There shall be a master discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components: A 3"Akron Brass 8800 series slo-cloz swing-out valve with a stainless steel ball. The discharge shall be controlled from the operator's panel. The plumbing shall consist of 4” piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The discharge termination shall include the following components: One (1) 4" NST adapter One (1) 4" NST female swivel by 4”Storz cast aluminum 30 degree elbow One (1) 4" female Storz self-venting cap, secured by a chain A Thuemling 2.5" (63mm) gauge shall be supplied for the discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering. The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial.			
55.	**DISCHARGE LEFT SIDE REAR**			
55.1.	There shall be a gated discharge installed on the left side of the apparatus. A total quantity of one (1) shall			

	be provided with the following specified components: A 2.5" Akron Brass 8800 series swing-out valve with a stainless steel ball. The discharge shall be controlled from the operator's panel. The plumbing shall consist of 2.5” piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The discharge termination shall include the following components: One (1) 2.5" Male NST adapter One (1) 2.5" NST female by male CSA swivel w/45 degree elbow One (1) 2.5" female CSA self-venting cap, secured by a chain A Thuemling 2.5" (63mm) gauge shall be supplied for the discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering. The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial.			
56.	**LARGE DISCHARGE RIGHT SIDE FRONT**			
56.1.	There shall be a master discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components: A 3"Akron Brass 8800 series slo-cloz swing-out valve with a stainless steel ball. The discharge shall be controlled from the operator's panel. The plumbing shall consist of 4” piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The discharge termination shall include the following components: One (1) 4" NST adapter One (1) 4" NST female swivel by 4”Storz cast aluminum 30 degree elbow One (1) 4" female Storz self-venting cap, secured by a chain A Thuemling 2.5" (63mm) gauge shall be supplied for the discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial.			
57.	**DISCHARGE RIGHT SIDE REAR**			
57.1.	There shall be a gated discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components: A 2.5" Akron Brass 8800 series swing-out valve with a stainless steel ball. The discharge shall be controlled from the operator's panel. The plumbing shall consist of 2.5” piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The discharge termination shall include the following components: One (1) 2.5" Male NST adapter One (1) 2.5" NST female by male CSA swivel w/45 degree elbow One (1) 2.5" female CSA self-venting cap, secured by a chain A Thuemling 2.5" (63mm) gauge shall be supplied for the discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering. The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial.			
58.	**REAR RIGHT DISCHARGES**			
58.1.	There shall be a gated discharge installed on the rear right of the apparatus. A total quantity of one (1) shall be provided with the following specified components: A 2.5"Akron Brass 8800 series swing-out valve with a stainless steel ball. The discharge shall be controlled from the operator's panel. The plumbing shall consist of 2.5” piping, and shall incorporate a manual drain control installed below the pump area for ease of access. The discharge termination shall include the following components: One (1) 2.5" Male NST adapter.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	One (1) 2.5" NST female by male CSA swivel w/45 degree elbow. One (1) 2.5" female CSA self-venting cap, secured by a chain. A Thuemling 2.5" (63mm) gauge shall be supplied for the discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering. The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial.			
59.	**DECK GUN MONITOR WATERWAY**			
59.1.	There shall be one (1) deck gun monitor waterway(s) installed on the apparatus. A 3"Akron Brass 8800 series slo-cloz swing-out valve with a stainless steel ball. The discharge shall be controlled from the side operator's panel. The waterway shall be plumbed with 3" piping that terminates 3" above the top of the pump compartment unless otherwise specified or required by a specific deck gun selection as noted. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required. The waterway plumbing will be capped with a stainless steel cap to allow for future installation of deck gun monitor. A Thuemling 2.5" (63mm) gauge shall be supplied for the discharge pressure reading of 0-400 psi. The gauge shall be a model FA-LFP-210 with a white face and black lettering. The gauge dial shall be provided with pressure measurement indication readings in kPa {kilopascals} in addition to Psi, providing dual pressure scales on the same dial. The deluge pipe shall be located up through the pump compartment, centered from left to right			
60.	**TANK FILL LINE**			
60.1.	One (1) 2"(5.08cm) discharge with an Akron Brass 8000 series brass valve shall be plumbed to the tank. The valve shall be a quarter turn ball type and fixed pivot design to allow easy operation at all pump			

	pressures. The 2"(5.08cm) valve outlet terminates with 2"(5.08cm) grooved connection. Valve shall be controlled at the side panel with a chrome-plated push/pull locking "T" handle mounted on the pump panel.			
61.	**FOAMPRO 2001**			
61.1.	There shall be a fully automatic electronic direct injection foam proportioning system furnished and installed on the apparatus. The proportioning operation shall be based on an accurate direct measurement of water flows by a paddle wheel flow meter with no water flow restriction. The foam system shall have a 12 volt, 1/2 horsepower "TENV" electric motor, designed for high humidity environments, coupled to a positive displacement piston type foam concentrate pump. It shall have a rated capacity of .01 to 2.6 GPM with operating pressures up to 400 psi. The system shall be model FoamPro 2001, manufactured by the Hypro Corporation installed in accordance with the manufacturers recommendations. The system shall be equipped with a digital electronic control display. It shall be installed on the pump operators panel and enable the pump operator to perform the following functions: - Activate the foam system - Change foam concentrate proportioning rates from .1% to 3% in .1% increments. - Display current flow in GPM - Display total flow in GPM - Display total amounts of foam concentrates used - Provide simulated flow for manual operation - Perform setup and diagnostic functions			
61.2.	The apparatus foam system shall be tested and certified. The foam system shall supply a total quantity of three (4) discharge(s) as specified: - forward and rear crosslay – two (2) - right rear 2.5" discharge - front trash line The system shall be supplied by a single foam tank that shall be monitored by the control display. The display shall flash a "low concentrate" warning for two minutes when the foam tank runs low. In the event that no additional concentrate is added to the tank, the foam			

	concentrate pump shall be deactivated.			
61.3.	The foam tank shall be part of the water tank.			
61.4.	There shall be one (1) Fire Research TankVision LED electronic foam level gauge located on the operator's control panel. This level gauge utilizes ultra-bright LEDs for sunlight readability, and two wide-viewing lenses for 180 degrees of clear viewing.			
62.	**WATER LEVEL GAUGE**			
62.1.	A Fire Research TankVision model WLA300-A00 tank indicator kit shall be installed on the pump panel. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label. The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm. The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.			
62.2.	One (1) additional MAXVISION water level gauge model number WLA280-A00 shall be mounted on the rear of the tank.			
63.	**PUMP ENCLOSURE HEATING**			
63.1.	The pump house shall contain an engine recirculation heater that shall be plumbed to the engine cooling system and shall be controlled with a control on the operator’s panel, minimum 40,000BTU			
63.2.	The bottom of the pump house shall be fitted with a removable heat pan. The heat pan shall totally enclose all sides, front, and rear bottom of the pump house and shall be constructed from sheet aluminum and shall be installed to the underside of the pump house that shall be easily removable.			
64.	**PUMP TO CHASSIS WIRING**			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
64.1.	Electrical wiring from the pump and applicable chassis wiring shall terminate in a sealed weatherproof junction box inside pump enclosure next to pump access door. All connectors must be labeled for easy identification on the wiring diagrams. This will accommodate removal of pump, should removal be required for service.			
65.	**POLY BODY AND TANK**			
66.	**POLY BODY AND TANK**			
66.1.	The body and the tank shall be Fire truck design with flat back, flattop, low center of gravity, with a low profile, design.			
66.2.	The body and tank shall be manufactured as a unibody.			
66.3.	The body and tank shall be manufactured by Brayneck Canaplast Inc.			
66.4.	The water tank shall have a minimum capacity of 1000 IMP gallons. It shall be of a specific configuration and designed to meet the customer's requirements. The water tank shall be constructed of 1/2" thick copolymer material. Water tank shall be welded with Heavy Duty extruded joint inside and outside. The material shall be a certified, high quality, non-corrosive, stress relieved thermoplastic. The tanks will be black in colour and UV stabilized for maximum protection. The tank shell thickness may vary depending on the application and may range from ½ to 1" as required. The unit shall incorporate transverse partitions manufactured with 3/8" copolymer material which shall interlock with a series of longitudinal partitions constructed of 3/8" copolymer. All swash partitions shall be so designed to allow for maximum water and air flow between compartments and are fully welded to each other as well as to the tank's walls and floor. Tank will be baffled in accordance with NFPA 1901 requirements. The top of the tank is equipped with lifting points designed to facilitate tank removal.			
67.	**FOAM TANK**			
67.1.	An additional 25 IMP gallons foam tank shall be part of the water tank with the same construction details as the water tank			
68.	**FILL TOWER**			
68.1.	The tank shall be equipped with a combination vent/overflow and manual fill tower. The fill tower shall have a minimum OD of 14" x 14". The tower shall be located in the front center of the tank. There shall be a			

	vent / overflow installed inside and to the extreme rear of the tower approximately 2½" down from the top of the fill tower. This vent / overflow shall be of a standard schedule 40 polypropylene pipe with minimum ID of 4". The vent / overflow shall be piped internally through the tank, and designed to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction. The tower shall have a 3/8" thick removable copolymer screen and a stainless steel bolted hinged-type cover. The tank cover shall be constructed of 1/2" thick copolymer material, black in color, UV stabilized. The top of the cover shall be engraved in blue, green, yellow or black indicating what the tower should receive.			
69.	**SUMP**			
69.1.	There shall be one (1) sump standard per tank. The sump shall be constructed of a minimum of 1/2" copolymer material and be located in the left front quarter of the tank, unless specified otherwise. On all tanks that require a front suction, a 3" schedule 40 polypropylene pipe shall be installed from the front of the tank to the sump location and equipped with an anti-swirl plate located approximately 3” above the inside floor. The sump shall have a minimum 3" NPT threaded outlet on the bottom for a drain plug per NFPA. This shall be used as a combination clean-out and drain.			
70.	**TANK OUTLETS**			
70.1.	There will be two (2) standard tank outlets: one 4 inch for the tank-to-pump suction line, and, one 2” for tank fill line. All tank fill couplings shall be backed with a flow deflector especially designed to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 G.P.M.			
71.	**HOSE BED**			
71.1.	The apparatus hose bed compartment shall be provided on top of the water tank, it shall be smooth and free of sharp corners that may catch hose or couplings.			
71.2.	The hosebed shall be covered with black PVC Turtle-Tiles, to assist in air circulation and hose drying.			
71.3.	Adjustable width hose bed dividers constructed of aluminum shall be installed. There shall be one (1) forward divider to separate a hosebed dunnage area where the water tank fill tower is located from the main hosebed. The divider shall be secured to the hose bed by utilizing			

	adjustable track type channels and fasteners. The divider shall be the full length and depth of the hose bed. The following shall be supplied Three (3) adjustable full length hosebed dividers shall be provided			
71.4.	The hosebed shall be as large as possible, but hold the minimum ULC and NFPA required hose loads of the following: 1000' of 4" hose 1000' of 2.5" hose 250' of 2.5" hose			
71.5.	There shall be a double door aluminum checker plate cover for the hose bed furnished and installed. Each door shall be reinforced and be capable of supporting 400lbs. while standing on the door. Each door shall be capable of being opened independently. The rear of the hose bed shall have a folding vinyl flap that is held in place by an elastic shock cord. The doors shall be fabricated of 0.188" polished aluminum checker plate with stainless steel hinges. There shall be a gas shock to hold each cover in the open position. The rear of the hose bed doors shall include one (1) full width extruded hand rail to assist in opening and closing the doors. The hose bed cover shall be wired to the open door warning light in chassis cab so as to warn crew when the cover is open when the transmission is placed into drive or reverse movement mode. The doors shall include a manual lock to prevent the doors from inadvertently closing, and shall also serve as a physical safety barrier. This shall be located at the front and rear of the doors. The final design shall be confirmed prior to construction.			
72.	**TANK CERTIFICATION**			
72.1.	All water tanks are fully inspected and tested for any leaks and defects. All tank come with a tank certification that states the maximum fill rate, maximum fill pressure, tank weight, water and foam tank capacity, manufacturing date and the serial number.			
73.	**BODY MOUNTING**			
73.1.	The body shall be cradle mounted to the exact design suggested by the manufacturer and easily removed from the chassis. The body shall be isolated from the cradle and chassis frame with 3" X 1" rubber sills.			
74.	**BODY WARRANTY**			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
74.1.	Brayneck Canaplast Inc. warrants each water tank, water skid tank and foam tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be used for normal fire suppression applications). This warranty is transferable within the United States and Canada only with prior written approval by Brayneck Canaplast.			
75.	**BODY, SUBSTRUCTURE AND SUB-FRAME**			
75.1.	The polypropylene body shall be designed for fire and rescue service operations. Commercially designed bodies intended for use in other applications are not acceptable. NO EXCEPTIONS			
75.2.	The body module shall utilize a fully welded sub-frame in stainless steel in the form of a saddle. A center cradle should be designed to support the body over the frame rails of the chassis. Also, there should be two (2) drop down supports, the full length of the body, to support the under body of the side compartments. NO EXCEPTIONS			
75.3.	Strict attention shall be given to the elimination of hazards to personnel and equipment, such as rough edges, sharp corners, or protruding nuts and bolts. All exposed sharp corners shall be radiused and deburred.			
75.4.	Due to the engineered combination of specifically chosen materials, no dissimilar metals shall be used in the body and its supporting substructure without being separated by a sufficient corrosion and electrolysis inhibitor. All holes shall be drilled prior to painting. Any holes drilled after painting which break the paint seal shall be treated as dissimilar metal, and shall be suitably separated. This shall consist of isolation pads, ECK and other structural adhesives. NO EXCEPTIONS			
75.5.	The body shall be completely modular in design thereby allowing its transfer to a new chassis without cutting or welding in the event of an accident or the replacement of the chassis.			
75.6.	The compartment floors shall be sweep out construction design, which shall permit easy cleaning of the compartments. The outer flange of the compartment floors shall be fabricated to form a mounting area of exterior rub rails. This flange shall be a minimum of 3.5" vertical dimension, full width of the compartment floor.			
75.7.	The front entrance to the compartment shall have a 2" deep x 1" high recess break for mounting of compartment doors. Floor drains shall be provided in the two rear corners of the compartments.			
75.8.	Each compartment shall include one (1) 4” circular vent with screen.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
75.9.	Each compartment shall be finished with full height unistrut tracks (except the rear top compartments). All full depth compartments shall include two (2) tracks on the left wall and two (2) tracks on the right wall.			
75.10.	Each compartment shall include a drain hole in the left and right rear corners to allow wash-out and water drainage.			
75.11.	The front face of the body shall be finished with a 0.125” aluminum checker plate overlay. The rear of the body shall be unpainted smooth aluminum where covered by ULC and NFPA required reflective chevrons.			
75.12.	The top of the storage compartments shall be 0.125" non-slip NFPA aluminum checker plate and shall be bolted to the body with stainless steel bolts.			
75.13.	The body shall be mounted to the chassis frame with floating spring attachment mounts. These mounts shall allow the chassis to twist and bend independently from the body, and shall prolong the structural life of the body. These mounts shall be at a minimum of six (6) points along the chassis frame rails except between the suspension, as per the chassis manufacturer recommendations.			
75.14.	All mounts to the chassis frame shall have rubber block isolators to permit movement of the chassis frame under the apparatus body.			
75.15.	The body shall be grounded to the chassis frame with a min of four (4) body ground straps mounted metal to metal contact, and coated with dielectric grease.			
76.	**REAR WHEEL WELLS**			
76.1.	The outer wheel well fenders shall be integral to the compartments and constructed of 0.188” smooth aluminum, and painted with the body.			
77.	**LEFT SIDE BODY COMPARTMENTS**			
77.1.	Compartment L1 The compartment shall be 40" wide by 75.5" high by 27/15" deep. The compartment door opening shall be approximately 36" wide by 72.5" high. This compartment shall include a roll-up door.			
77.2.	Compartment L2 The compartment shall be 66" wide by 40.5" high by 27/15" deep. The compartment door opening shall be approximately 59" wide by 37.5" high. This compartment shall include a roll-up door.			
77.3.	Compartment L3			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	The compartment shall be 41.5" wide by 75.5" high by 27" deep. The compartment door opening shall be approximately 38" wide by 72.5" high. This compartment shall include a roll-up door.			
78.	**RIGHT SIDE BODY COMPARTMENTS**			
78.1.	Compartment R1 The compartment shall be 40" wide by 75.5" high by 27/15” deep. The compartment door opening shall be approximately 36.5" wide by 72.5" high. This compartment shall include a roll-up door.			
78.2.	Compartment R2 The compartment shall be 66" wide by 40.5" high by 15" deep. The compartment door opening shall be approximately 59" wide by 37.5" high. This compartment shall include a roll-up door.			
78.3.	Compartment R3 The compartment shall be 41.5" wide by 75.5" high by 27" deep. The compartment door opening shall be approximately 38" wide by 72.5" high. This compartment shall include a roll-up door.			
79.	**REAR BODY COMPARTMENTS**			
79.1.	Compartment B1 The compartment shall be 43" wide by 75.5" high by 31" deep. The compartment door opening shall be approximately 35.9" wide by 57.5" high. This compartment shall include a roll-up door.			
80.	**COMPARTMENT DOORS – ROLL-UP**			
80.1.	Compartment doors shall be equipped with Amdor brand roll-up anodized aluminum doors complete with the following features: − Amdor Lumabar LED strip lighting, integral to the door frame on both sides of the door − 1” aluminum double wall slats with continuous ball & socket hinge joint designed to prevent water ingression and weather tight recessed dual durometer seals − double wall reinforced bottom panel with stainless steel lift bar latching system − bottom panel flange with cut-outs for ease of access with gloved hands, reusable slat shoes with positive snap-lock securement − smooth interior door curtain to prevent equipment hang-ups − one-piece aluminum door track / side frame − top gutter with non-marring seal			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
	− non-marring recessed side seals with UV stabilizers to prevent warping − dual leg bottom seal, with all wear component material to be Type 6 Nylon − A door ajar switch system shall be provided by Amdor and shall include magnetic proximity based components. The switch device shall be a military grade contact switch capable of meeting MIL-S-8805 which can only be activated through positive engagement of the lift bar. The door striker will include support beneath the lift bar to prevent door curtain bounce.			
81.	**SUCTION HOSE STORAGE**			
81.1.	The rear of the apparatus body shall have horizontally mounted slide-in suction hose storage. The compartments shall include a Teflon floor for easy loading and unloading of the equipment. The compartment shall store the following: - One (1) 6”x10’ suction hose stored on the left side above the compartments - One (1) 6”x10’ suction hose stored on the right side above the compartments			
81.2.	Each compartment shall include a 0.188” smooth aluminum door with a stainless steel piano hinge and push button latch. The suction hose storage compartments shall be located above the side storage compartments, above the roll-up door roll-up drums. This shall give the body sides a flush look for graphics and light mounting.			
82.	**SHELVING**			
82.1.	There shall be adjustable shelves provided, constructed of 0.188” 5052 H32 marine grade aluminum. The shelves shall have 2" edges on all sides of the shelf, with fully welded corners.			
82.2.	The shelves shall include heavy-duty mounts, and be capable of a minimum 250 pound load capacity.			
82.3.	The shelves shall be mounted as follows: − Two (2) in the L1 compartment − One (1) in the L2 compartment − Two (2) in the L3 compartment − Two (2) in the R1 compartment − One (1) in the R2 compartment − Two (2) in the R3 compartment			

	− One (1) in the B1 compartment			
82.4.	All shelves shall be unpainted aluminum.			
83.	**ROLL-OUT TRAYS**			
83.1.	There shall roll-out trays provided, constructed of 0.188" 5052 H32 marine grade aluminum. The trays shall have 2" edges on all sides of the shelf, with fully welded corners. The trays shall include AM3 Slide-Master aluminum mechanisms, 3 rail 100% extension with a 600lb. capacity.			
83.2.	The trays shall be mounted as follows: − One (1) in the L1 compartment − One (1) in the L3 compartment − One (1) in the R1 compartment − One (1) in the R3 compartment − One (1) in the B1 compartment			
83.3.	All trays shall be unpainted aluminum.			
83.4.	All trays shall include red and line reflective tape on all sections of the tray that protrude from the side of the apparatus body			
84.	**LADDER STORAGE**			
84.1.	The rear of the apparatus body shall have a vertically mounted extension ladder storage tunnel provided. The tunnel shall include slide pads and individual slots for each component stored. The tunnel shall store the following: – One (1) 28' 2-section extension ladder – One (1) 14' roof ladder – One (1) 10' folding attic ladder – Three (3) 10' or smaller pike poles, no D-handle ends			
84.2.	The tunnel shall include a 0.188" smooth aluminum door with a stainless steel piano hinge and push button latch, and chromed suitcase handle.			
85.	**SCBA CYLINDER STORAGE**			
85.1.	There shall be SCBA cylinder storage provided. The storage shall be custom designed, with the final size requirements to be confirmed prior to construction.			
85.2.	The SCBA cylinder storage shall comprise of aluminum tubes with rubber floor matting, and a smooth aluminum door painted to match the apparatus body. There shall be accommodation for the following: - One (1) SCBA bottle in the left forward wheel well - One (1) SCBA bottle in the left rear wheel well			

	- One (1) SCBA bottle in the right forward wheel well - One (1) SCBA bottle in the right rear wheel well			
86.	**SCBA PACK STORAGE**			
86.1.	There shall be SCBA pack storage provided. The SCBA pack storage shall comprise of KD-FHLP-6-SF Zico Walkaway SCBA pack holders with spring clips. There shall be accommodation for the following: - Four (4) SCBA storage clips in the R2 compartment			
87.	**TAILBOARD**			
87.1.	A bolt on DIAMOND BACK tailboard shall be installed on the rear of the apparatus spaced out from the body to provide drainage. The step shall be bolted to the body frame and finished with safety grip or similar material to provide a durable anti-slip surface. The tailboard shall extend across the full width of the vehicle and shall extend out from the body sufficiently for standing while loading the hose			
88.	**HANDRAILS**			
88.1.	Aluminum handrails with knurled finish shall be installed on the rear of the apparatus, tank and pump panel area as required to provide for three (3) point contact when climbing or mounting the tailboard and climbing onto the hose bed. Handrail locations must be approved by Municipality			
89.	**RUB RAIL**			
89.1.	Aluminum “C” channel rub rails shall be installed along the full length of the body. The rub rails shall be bolted on the exterior edge of the compartment floors, spaced from the body. The rub rails shall extend a minimum of 2.54 cm (1") from compartment doors.			
90.	**TOW EYES**			
91.	Two (2) screw-in drop forged tow eyes or brackets shall be installed on the apparatus. Tow eyes or brackets shall be secured directly to the rear of chassis frame.			
92.	**REAR WHEEL FENDERETTES**			
93.	Polished aluminum fenderettes shall be bolted at each rear wheel opening. The fenderettes shall be positioned outside of the wheel well panel to cover any tire area that extends past the body. Painted fenderettes shall not be acceptable.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
94.	**COMPARTMENT FLOORING**			
95.	There shall be black PVC Turtle Tile protective flooring provided. The following locations shall include the flooring: − All adjustable shelves − All roll-out trays			
96.	**MUD FLAPS**			
97.	Mud flaps shall be installed behind the rear wheels to protect the body and components from road spray.			
98.	**TIRE PRESSURE MONITOR**			
99.	All wheels shall be equipped with tire pressure indicator that is attached and visible at each valve steam.			
100.	**LICENSE PLATE HOLDER**			
101.	There shall be one (1) Cast Products Inc. LP-0005-1-A polished cast aluminum license plate holder with LED light mounted at the rear of the apparatus.			
102.	**ELECTRICAL**			
103.	**ELECTRICAL SYSTEMS**			
103.1.	The following describes the 12 volt electrical system on the apparatus including all panels, electrical components, switches and relays, wiring harnesses and other electrical components. The apparatus manufacturer shall conform to the latest federal standards, current automotive electrical system standards and the applicable requirements of ULC and NFPA.			
103.2.	Wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected. Voltage drops shall not exceed 10 percent in all wiring from the power source to the using device. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. Exposed wiring shall be run in a loom with a minimum 289 degree Fahrenheit rating. Wiring looms shall be properly supported and attached to body members. Electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.			
103.3.	All wiring connections and terminations shall provide positive mechanical and electrical connections and be installed in accordance with the device manufacturer's			

	instructions. When wiring passes through metal panels, electrical connections shall be with mechanical type fasteners and rubber grommets			
103.4.	Wiring between the cab and body shall be split using Deutsche type connectors or enclosed in a terminal junction panel allowing body removal with minimal impact on the apparatus electrical system. Connections shall be crimp-type with heat shrink tubing with insulated shanks to resist moisture and foreign debris such as grease and road grime. Weather resistant connectors shall be provided throughout the system.			
103.5.	Electrical junction or terminal boxes shall be weather resistant and located away from water spray conditions. When required, automatic reset breakers and relays shall be housed in the main body junction panel.			
103.6.	There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless enclosed in an electrical junction box or covered with a removable electrical panel. Wiring shall be secured in place and protected against heat, liquid contaminants and damage and shall be uniquely identified at least every 12” by color coding or permanent marking with a circuit function code and identified on a reference chart or electrical wiring schematic per requirements of applicable NFPA 1901 standards.			
103.7.	Low voltage overcurrent protective devices shall be provided for the electrical circuits. The devices shall be accessible and located in required terminal connection locations or weather resistant enclosures. Overcurrent protection devices shall be automatic reset type suitable for electrical equipment and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. Electro-magnetic interference suppression shall be provided in the system as required in applicable SAE standards.			
103.8.	The electrical system shall include the following: Electrical terminals in weather exposed areas shall have a non-conductive grease or spray applied. All terminal plugs located outside of the cab or body shall be treated with a corrosion preventative compound. All electrical wiring shall be placed in a protective loom or be harnessed. Exposed connections shall be protected by heat shrink material and sealed connectors.			
103.9.	Large fender washers shall be used when fastening			

	equipment to the underside of the cab roof and all holes made in the roof shall be caulked with silicone. Electrical components installed in exposed areas shall be mounted in a manner that will not allow moisture to accumulate inside.			
103.10.	A coil of wire must be provided behind an electrical appliance to allow them to be pulled away from mounting area for inspection and service work.			
103.11.	All lights in a weather exposed area that have their sockets shall have corrosion preventative compound added to the socket terminal area.			
103.12.	Warning lights shall be switched in the chassis cab with labeled rocker type switches located in an accessible location. Individual rocker switches shall be provided only for warning lights provided exceeding the minimum level of warning lights in either the stationary or moving modes. All electrical equipment switches shall be appropriately identified as to their function and mounted on a switch panel mounted in the cab convenient to the operator. For easy nighttime operation, an integral indicator light shall be provided to indicate when a circuit is energized.			
103.13.	A single warning light switch shall activate all required warning lights. This switch will allow the vehicle to respond to an emergency "calling for the right of way". When the parking brake is activated, a "blocking the right of way" system shall be automatically activated per NFPA 1901 requirements. "Clear" warning lights shall be automatically shed on actuation of parking brake.			
103.14.	Upon completion of the vehicle and prior to delivery, the apparatus shall be electrically tested and the electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA 1901. The following minimum testing shall be completed by the apparatus manufacturer:			
103.15.	1. Reserve capacity test: The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.			
103.16.	2. Alternator performance test at idle: The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of			

	battery discharge current. The detection of battery discharge current shall be considered a test failure.			
103.17.	3. Alternator performance test at full load: The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in NFPA 1901 Standard, or a system voltage of less than 11.7 volts dc for a 12 volt nominal system, for more than 120 seconds, shall be considered a test failure.			
103.18.	4. Low voltage alarm test: Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts dc for a 12 volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.			
104.	**CENTER CONSOLE**			
104.1.	A center console equipment box shall be installed in cab. Centre console shall be constructed of .476 cm (3/16") aluminum.			
104.2.	Design drawings of the center console shall be provided by the Contractor to the Municipality prior to construction. Drawings must be approved by Municipality.			
105.	**DOOR AJAR**			
105.1.	Compartment door “ajar” warning light shall be installed according to most current NFPA 1901 requirements. Shall be equipped with a momentary disable switch to disable buzzer.			
106.	**CHARGER AND COMPRESSOR**			
106.1.	A Kussmaul Auto charge 1000 PLC Remote, Model #: 091-215-12-PP remote battery conditioner shall be installed inside the cabin and connected to the shoreline power receptacle.			
106.2.	The battery charge indicator shall be a Kussmaul Model # 199-001. The charge indicator shall be mounted on the outside of the cab located near the location for the auto eject shore line receptacle.			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
106.3.	The air compressor Model # 091-9-12V shall be mounted inside the cabin and located behind the seats.			
106.4.	Power for the compressor and battery conditioner shall be provided from a weatherproof, auto eject on engine start, shoreline receptacle mounted on the outside of the cab at the driver's side door.			
106.5.	Receptacle(s) shall be provided near the driver's cab step to provide 120-volt shoreline power to the air pump, and battery charger. The receptacle(s) shall be equipped with a spring loaded weatherproof cover, and shall be located in a conspicuous location visible to the driver when entering the cab. Receptacle(s) shall be labelled to indicate the connected equipment.			
107.	**MOBILE RADIO REQUIREMENTS**			
107.1.	Install a terminal block, with a minimum of three (3) terminal strips of two connections per strip and complete with a protective cover, below the centre of the dash (exact location to be approved at pre-construction meeting)			
107.2.	Install one (1) positive (red) and one (1) negative (black) twelve (12) gauge wire directly from the twelve volt terminals of the vehicle battery to the terminal block noted above. These wires are to be installed inside a wire raceway or loom protector. Power and ground for radio must be clean power and ground so there is no alternator interference. One (1) battery will be designated for the radio only on officer side or an interference filter shall be installed.			
107.3.	Install one (1) fourteen gauge red wire directly from the battery switch to the terminal block noted above. Twelve volts positive is to be supplied to the terminal block when the switch is in the "on" position.			
107.4.	The vehicle shall be adequately radio interference suppressed to permit understandable voice radio communications under all operating conditions.			
107.5.	An antenna base, for use with an NMO type antenna, shall be mounted on the left hand rear corner of the cab roof so not to interfere with light bars or other roof mounted equipment.			
107.6.	The antenna cable shall be routed from the antenna base mounted on the roof to the area inside the center of the console.			
108.	**OPTICAL WARNING SYSTEM AND LIGHTING**			
108.1.	Optical Warning System and Lighting shall comply with NFPA Standard 1901 Most Current Edition. Certification			

	that the system has been installed within the geometric parameters shall be provided with the apparatus on delivery.			
108.2.	A Whelen siren and light control system model # CCSRNT36 shall be provided. The CCSRNT36 has the ability to control the warning lights, traffic advisor, and siren from a single keypad.			
108.3.	A Whelen Projector™ Series Speaker model # SA315P shall be installed as low and as forward as possible on the apparatus. The controls for the speaker shall be part of the siren and light control system model # CCSRNT36.			
108.4.	Activation of the parking brake shall switch all clear warning lights.			
108.5.	There shall be One (1) seventy two (72) inch Whelen Freedom IV light bar with clear lens configured with white LED in the middle and red LED on the ends, installed on the roof of the cab.			
108.6.	Two (2) Whelen M6 Series Model # M6RC LED warning lights with red/blue lenses and chrome bezel Model # M6FC shall be installed on the front grille.			
108.7.	Two (2) Whelen M6 Series Model # M6RC LED warning lights with red/blue lenses and chrome bezel Model # M6FC shall be installed forward of the front axle centerline and as close to the front corner of the apparatus as practical			
108.8.	Two (2) Whelen M6 Series Model # M6RC LED warning lights with red/blue lenses and chrome bezel Model # M6FC shall be installed on the side of the pump module.			
108.9.	Two (2) Whelen M6 Series Model # M6RC LED warning lights with red/blue lenses and chrome bezel Model # M6FC shall be installed behind the rear axle centerline and as close to the rear corner of the apparatus as practical.			
108.10.	Two (2) Whelen M6 Series Model # M6RC LED warning lights with red/blue lenses shall be installed behind in the rear facing brake like clusters provided on the rear of the body.			
109.	**COMBINATION WARNING AND SCENE LIGHT**			
109.1.	Two (2) Whelen M9 Series Model # M9V2R/M9V2B combination 180° warning/perimeter light and chrome bezel Model # M9FC shall be installed forward of the water tank as high as possible.			
109.2.	Two (2) Whelen M9 Series Model # M9V2R/M9V2B combination 180° warning/perimeter light and chrome bezel Model # M9FC shall be installed close to the rear			

	of the water tank as high as possible.			
109.3.	Two (2) Whelen M9 Series Model # M9V2R/M9V2B combination 180° warning/perimeter light and chrome bezel Model # M9FC shall be installed at the back of the tank as high as possible.			
109.4.	The rear scene lights shall come on when the truck is put in reverse.			
110.	**SCENE LIGHTS**			
110.1.	The apparatus shall include 12V scene lights with chrome plated bezels. The scene lights shall be switched from the cab for each side of the apparatus they are located. The lights shall be located as follows: - Two (2) PCP2P Whelen Pioneer telescopic combination spot/flood telescopic scene lights, on the rear wall of the cab			
111.	**WIG-WAG**			
111.1.	One (1) wig-wag system will be installed with a control switch on the console. The controls for the Wig-Wag system shall be part of the siren and light control system model # CCSRNT36.			
112.	**BRAKE LIGHT CLUSTER**			
112.1.	There shall be two (2) rear facing brake like clusters provided on the rear of the body. Each cluster shall include the following: − One (1) M6BTT red Whelen LED brake/tail light − One (1) M6T amber Whelen LED arrow turn indicator − One (1) M6BUW white Whelen LED back-up light − One (1) open location for warning light − One (1) M6FCV4 chrome plated Whelen four place bezel			
113.	**TRAFFIC ADVISOR**			
113.1.	Whelen Traffic Advisor™ model # TAL65 shall be installed at rear of the apparatus as high as possible. The controls for the TAL65 shall be part of the siren and light control system model # CCSRNT36. The directional light bar shall have a protective cover to protect it from objects coming from the hose bed.			
114.	**GROUND LIGHTS**			
114.1.	LED Ground – Amdor lumabar H20 led lights shall be installed on the apparatus. - Four (4) twelve inch H2O shall be installed under			

	chassis steps (one each side) - Four (4) twelve inch H2O shall be installed under pump module (one each side) - Four (4) twelve inch H2O shall be installed under each compartment (L1, L3, R1, R2) - Two (2) twenty inch H2O shall be installed under the rear tailboard The lights shall be mounted to prevent accidental breakage. The lights shall be activated automatically when the parking brake is applied. Individual switch(s) shall not be installed. This shall be deemed to meet the individual door switching requirements of NFPA 1901-Most Current edition.			
115.	**CHASSIS STEP LIGHT**			
115.1.	Four (4) twelve inch Amdor lumabar H20 led lights shall be installed under the chassis top step to illuminate the first step. One (1) each side.			
115.2.	Four (4) Whelen LED step light part # OACOECR shall be installed under the chassis doors to illuminate the top step. One (1) each side. The lights shall be mounted to prevent accidental breakage. The lights shall be activated automatically when the parking brake is applied. Individual switch(s) shall not be installed. This shall be deemed to meet the individual door switching requirements of NFPA 1901-Most Current edition.			
116.	**REAR STEP**			
116.1.	There shall be six (6) Innovative Controls fold down step mounted on the rear wall to give access to the hose bed. Two (2) Innovative Controls step part # IC-3004234-65-0-1-1-0-1 with double lighting shall be use: - One each side being first step off the tailboard. Four (4) Innovative Controls step part # IC-3004234-65-0-1-0-0-1 with single lighting shall be use: - Two (2) on each side over the primary Innovative Controls step part # IC-3004234-65-0-1-1-0-1. All steps shall be place in an ergonomic layout to facilitate the access to the hose bed. The lights shall be activated automatically when the parking brake is applied. Individual switch(s) shall not be installed. This shall be deemed to meet the individual door switching requirements of NFPA 1901-			

	Most Current edition.			
116.2.	All steps shall comply with NFPA requirements for size and mounting height. Final approval of the location must meet the satisfaction of the Municipality.			
116.3.	All fold down steps shall have a moulded rubber body gasket installed between the step bracket and body panel.			
117.	**COMPARTMENT LIGHTING**			
117.1.	Seven (7) compartments, each with two (2) Amdor Lumabar LED lights, integral to door construction shall be installed.			
117.2.	The door switches shall be magnetic, switches shall be protected from physical damage and activate a light and buzzer in the cab to indicate a compartment door open condition when the parking brake is released. This shall be deemed to meet the individual door switching requirements of NFPA 1901- Most Current edition.			
117.3.	The compartment lighting shall be activated by opening the roll up doors.			
118.	**HOSEBED LIGHTING**			
118.1.	There shall be lights provided to illuminate the hose bed for night time hose loading. The following lights shall be supplied: - One (1) Amdor Lumabar 12” LED H2O lights at the front of the hose bed by the fill tower. - Three (3) TecNiq LED part # E96 shall be installed in between each hose bed divider. - Four (4) AY-9500-012 Amdor Lumabar 12” LED lights under the hose bed doors The lights shall be activated automatically when the parking brake is applied. Individual switch(s) shall not be installed. This shall be deemed to meet the individual door switching requirements of NFPA 1901- Most Current edition.			
119.	**ENGINE COMPARTMENT LIGHTING**			
119.1.	One (1) twelve inch Amdor lumabar H20 LED light shall be installed under the chassis hood to illuminate the engine. The lights shall be activated automatically when the parking brake is applied. Individual switch(s) shall not be installed. This shall be deemed to meet the individual door switching requirements of NFPA 1901- Most Current edition.			
120.	**PUMP COMPARTMENT LIGHTS**			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
120.1.	One (1) twelve inch Amdor lumabar H20 LED light shall be installed in the pump compartments. The lights shall be waterproof, equipped with individual switches on the pump panel housing and mounted to prevent accidental breakage.			
121.	**MID-TURN/MARKER LIGHTS**			
121.1.	The sides of the body shall include two (2) Weldon part # 9186-8580-29 LED round turn signal /side marker lights which shall be installed just between the two rear axles.			
122.	**IDENTIFICATION LIGHTING**			
122.1.	LED identification lights and reflectors shall conform to Canadian Motor Vehicle Safety Standards as well as Ontario Ministry of Transportation standards. The red and Amber light shall be made by Teqnic, and the part number is S21-RR00-1 and S21-AA00-1. All identification lighting shall be located within the rub rails for protection.			
123.	**CAMERA SYSTEM**			
123.1.	There shall be a Fire Research inView™ TrueSight™ model BCA111-A00 kit to include: (1) one 130° camera with 18 infrared illuminators and (1) one 7” digital monitor install on the chassis. − Camera shall be located at the rear of apparatus as high as possible − The 7” colour screens and controls shall be located inside the cab on the driver side. The final details of the camera system location shall be confirmed prior to apparatus construction.			
124.	**FINISHING**			
125.	**PAINT**			
125.1.	The chassis colour and layout will be chosen at the preconstruction meeting.			
125.2.	The polypropylene body exterior shall have all mounted components removed prior to painting, to assure the full coverage of metal preparations. The apparatus shall be painted to match the cab paint lower colour. The final colour shall be confirmed prior to chassis order.			
125.3.	All roll up doors and accessories shall be installed after painting to assure the proper paint coverage			

	of the body.			
125.4.	The polypropylene surface shall be sanded to remove all burrs and imperfections in the polypropylene before preparation for painting.			
125.5.	The polypropylene surface shall be cleaned and prepped with solvent and washed with fresh water to remove surface contaminants, to give a bright, conditioned and chemically etched surface for finishing.			
125.6.	The polypropylene surface shall have a spray on, wash primer, to seal and provide a smooth surface for final coats.			
125.7.	The polypropylene body shall be painted with a high luster urethane paint to match the chassis red from the factory.			
126.	**TOUCH-UP PAINT**			
126.1.	One (1) quart of touch-up paint shall be provided.			
127.	**COMPARTMENT FINISH**			
127.1.	There will be not finished applied to the interior of the compartment.			
128.	**FIRE DEPARTMENT GRAPHICS – FULL PACKAGE**			
128.1.	All graphics shall be applied prior to apparatus delivery. A graphics layout must be provided prior to application to confirm accuracy, and signed off by the fire department. Failure to do this is grounds for rejection if the graphics package is incorrect. The following shall be supplied: − One (1) 1”x4” white reflective stripe along the perimeter of the apparatus − Up to 100 4” or smaller white/black shadow reflective letters − “STAY BACK 100 FEET” on the rear of apparatus - largest size available to fit space			
129.	**REFLECTIVE CHEVRONS**			
129.1.	The rear wall of the body shall have a red and fluo-lime retroreflective 6” chevrons installed, as per the requirements of ULC and NFPA.			
129.2.	The front bumper shall have a red and fluo-lime retroreflective 6” chevrons installed.			
130.	**UNDERCOATING**			

	REQUEST FOR TENDER SUPPLY ONE (1) FIRE APPARATUS – PUMPER-RESCUE RFT No	YES	NO/EXCEPTIONS	NOTES
130.1.	The apparatus body shall be undercoated prior to delivery to the fire department to assist with corrosion prevention. The undercoating shall be completed by Krown, after the apparatus has been delivered to the fire department. The apparatus manufacturer shall pay the Krown invoice as part of the contract price.			
131.	**LOOSE EQUIPMENT**			
131.1.	The following loose equipment shall be supplied.			
131.2.	One (1) 1220A Duo-Safety 24’ 2-section extension ladder			
131.3.	One (1) 775A Duo-Safety 12’ roof ladder			
131.4.	One (1) 585A Duo-Safety 10’ folding attic ladder			
131.5.	Two (2) 10’ UL-10 Akron 10’ pike poles			
131.6.	Two (2) 90503 Streamlight Survivor orange LED 12V flashlights, cab mounted			
131.7.	Two (2) FSH-9682-500 Northline 6”x10’ suction hose female x male NH threaded			
131.8.	One (1) FST600F Northline 6” NST barrel strainer			
131.9.	One (1) NCS-LLSJ-60FS Northline 6” NST floating strainer			
131.10.	All additional loose equipment that may be required by ULC or NFPA shall be provided by and installed by the fire department prior to apparatus entry into service. The fire department may be required to sign a waiver prior to the ULC test confirming they will be supplying the required equipment.			
132.	**END OF SPECIFICATIONS**			