SPECIFICATION FOR TWO BRUSH TRUCKS

INTENT OF SPECIFICATIONS
It is the purpose of this specification to describe (2) two brush trucks. Each offeror will submit a proposal for a four door cab with seating for five (5) firefighters. It will be a front line apparatus and subjected to extensive daily use. It must have the capability and capacity to carry a full complement of equipment & personnel. It shall be designed to carry supplies, material, equipment & personnel in a safe secure manner. It shall be the intent of these specifications to cover the furnishing and delivery of a complete fire apparatus. These detailed specifications cover the requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful offeror shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor. The manufacturer shall provide loose equipment only when specified by the customer. Otherwise, in accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.

In order to ensure fair, ethical, and legal competition, neither original equipment manufacturer (O.E.M.) nor parent company of the O.E.M. shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market. (No Exception).

Further, offeror shall maintain dedicated service facilities for the repair and service of products. Evidence of such a facility shall be included in offeror’s proposal.

Each offeror should furnish satisfactory evidence of their ability to construct the apparatus specified and should state the location of the factory where the apparatus is to be built. The offeror should also show that the company is in position to render prompt service and to furnish replacement parts.

Each proposal shall be accompanied by a detailed set of Contractor’s Specifications consisting of a detailed description of the apparatus and equipment proposed, and to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.
NOTICE TO OFFERORS

All offerors including those submitting a proposal “as specified” should submit with their proposal and this may be required prior to award, the following: detailed data/specifications detailing; materials used, all dimensions, thickness and gauges of metal, construction features, and any other pertinent information necessary to make a good comparative evaluation.

It is not the intent of this specification to cover all details of design and construction. Nothing stated, implied or omitted from these specifications shall relieve the supplier from providing a finished product of high engineering design and workmanship, fully equipped and capable of performing its intended function.

It shall be the responsibility of the successful offeror to deliver the completed and tested unit in accordance with the requirement of this specification. The apparatus shall be delivered “ready for service”.

All vendor installed wiring, accessories, equipment and options subject to the Charleston Fire Department approval with regard to equipment selection, placement/location and final installation. The Charleston Fire Department reserves the right to determine which accessories and installations may require a relay to carry the electrical load. All switches and controls shall be properly and permanently labeled to show their function.

Power steering, fuel, generator and aerial hydraulic hoses/tubes; all hose and/or tube assemblies shall be part number tagged or number stamped for ease of identification.

If a component, option, system or feature is specified in this specification and is not available from the manufacturer, appropriate written documentation shall be provided by the manufacturer to the Charleston Fire Department stating that the specified component or system is not available through that manufacturer. The Charleston Fire Department reserves the right to approve any proposed substitutes to those components or systems.

It is the intent of the Charleston Fire Department to accept an apparatus with commercially rated components (e.g. tires, axles, suspensions). If a specified component cannot meet the weight requirement as commercially rated, a fire service rating may be acceptable. Proper documentations for fire service shall be provided from both the component manufacturer and the prime vendor. The Department shall have final direction and approval on those components.

On any items specified with direct part number and/or brand name, the offeror may request to provide an “or equal”. This request must be provided with documentation showing the replacement item meets or exceeds the specifications of the original item. The Charleston Fire Department will then compare the product and have final approval.

QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units which require periodic maintenance; ease of operation and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under Performance Tests and Requirements. Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of any component part for service or repair. All welding shall meet the industry standard for this type of apparatus.

DELIVERY

Apparatus, to insure proper break in of all components while still under warranty, shall be delivered under its own power - rail or truck freight shall not be acceptable. A qualified delivery engineer representing the
contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered.

**INFORMATION REQUIRED**
The manufacturer shall supply at time of delivery, complete operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, lubrication, and drive axle.

**PERFORMANCE TESTS AND REQUIREMENTS**
A road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. Vehicle shall adhere to the following parameters:

- A) The apparatus, when fully equipped and loaded, shall have not less than 25 percent nor more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.
- B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.
- C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- D) The apparatus, fully loaded, shall be capable of obtaining a speed of 50 mph on a level concrete highway with the engine not exceeding its governed rpm (full load).

**FAILURE TO MEET TEST**
In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the offeror within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the offeror of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above-specified period with the permission of the offeror shall not constitute acceptance.

**LIABILITY**
The successful offeror shall defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

**SPECIFICATION PROPOSAL REQUIREMENTS**
Offerors shall also indicate "yes/no" if their proposal complies on each item specified. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page.

Proposals taking total exception to specifications shall not be acceptable. Also, offerors shall submit a detailed proposal. A letter only, even though written on a company letterhead, shall not be sufficient.

**EXCEPTIONS**
All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the offeror.
GENERAL CONSTRUCTION
The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association.

CORROSION REDUCTION POLICY
The manufacturer will have in place a formal corrosion reduction program and assembly procedures designed for reducing and eliminating the possibility of corrosion. It is understood that fire apparatus will operate in harsh environments. At the time of the proposal the apparatus manufacturer will show proof of a corrosion policy. Failure to submit this information could be grounds for rejection. If a formal policy is not in place explain in your proposal how your firm will take the necessary steps for corrosion reduction. There will be No Exception to this requirement.

SINGLE SOURCE MANUFACTURER
Proposals shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach. The body shall be assembled on the offeror's premises. The offeror shall provide evidence that they comply with this requirement.

NFPA COMPLIENCY
Apparatus proposed by the offeror shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications shall be indicated in the proposal as "non-NFPA".

TOTAL VEHICLE ASSESSMENT CERTIFICATION
The apparatus shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) to the current edition of NFPA 1901 standards. The certification includes: all design, production, operational, and performance testing of the apparatus. (No Exception)

PROPOSAL BOND
A 100% Performance Bond will be required from the awarded vendor. This performance bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The performance bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of proposal. The performance bond shall include language, which assures that the Vendor/Principal shall give a bond or bonds as may be specified in the RFP or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

PROPOSAL DRAWING
There shall be a proposal drawing submitted to the Charleston Fire Department. The drawing should be a visual interpretation of the apparatus proposed.

APPROVAL DRAWING
A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.
ELECTRICAL WIRING DIAGRAMS
Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided. There shall also be an electronic version of electrical wiring diagram.

CONSTRUCTION PROGRESS PHOTOS
The successful offeror shall provide weekly photographs of the apparatus or the major components as they are being constructed. The photos shall commence at the beginning of the manufacturing process and shall continue until just prior to the final inspection. There shall be approximately six (6) weekly reports illustrating the progress of the apparatus through the course of each week. Special attention shall be given to show the unique features and aspects of the apparatus as construction progresses. If there are productions delays the manufacturer may be asked to provide additional photos and updates at no additional expense.

SOUTH CAROLINA DEALER LICENSE
Each offeror must provide with proposal a valid and current copy of their South Carolina Dealer License as issued by the South Carolina Department of Motor Vehicles.

This license requirement is to assure the offeror is legally authorized to engage in the sale of motor vehicles within the State of South Carolina.

LOCAL SERVICE FACILITY
Each offeror must provide with proposal, proof of dealer owned and operated Service Facility located within 100 miles of Charleston, SC along with factory trained service personnel. Service personnel shall be factory trained to handle parts and warranty repair for their respective manufacturer. Each offeror shall provide a background of their technician’s staff along with their certifications. In addition, local Service Facility must have the capability to dispatch factory trained service technicians with dealer operated mobile service units to Department location for field service repairs. The company will maintain parts for a minimum period of twenty (20) years on the apparatus they submitted a proposal on.

PRE-CONSTRUCTION CONFERENCE
Prior to any construction of apparatus, a pre-construction conference shall be held at the manufacturer’s facility for three (3) Department personnel to review approval drawing package. Hotel, meals and travel shall be the responsibility of the successful offeror. The sales representative shall be present and assist in the conference.

FINAL INSPECTION
A final inspection shall be provided at the manufacturer’s facility for inspection of the completed unit. Hotel, meals and travel expenses for three (3) Department personnel shall be the responsibility of the successful offeror. The sales representative shall be present and assist in the conference.

CHASSIS SPECIFICATIONS
- One (1) FORD F-550, two axle drive 4x4, dual rear wheels (DRW), four (4) door, XL, Crew Cab chassis Wheelbase: 180"
- Color: Ford Race Red
- Grille: black
- Tow Hooks: front loops
- Driving Front Axle and Suspension: 7,500# HD front package, 7,500# suspension package, stabilizer bar, front shocks, manual hubs
- Tires: two (2) front tires shall be 225/70R19.50, radial all weather/off road tread
- Front Wheels: two (2) 19.50" x 6.00" steel disc, ten (10)-hole pattern steel disc wheels
- Rear Axle and Suspension: 14,706# wide track rear axle, 14,706# suspension package, stabilizer bar, Differential Gears: 4.88 Gears, Limited slip Rear Differential
- Tires: four (4) 225/70R19.50 radial all weather/off road tread
• Rear Wheels: four (4) 19.50" x 6.00" steel disc, ten (10)-hole pattern steel disc wheels
• Braking System: four (4) wheel disc brake system with an Anti-Lock (ABS)
• Electronic Shift on the Fly: The chassis shall be equipped with an electronic shift transfer case. The front axle hubs shall be auto locking, with a manual backup feature.
• Engine:
  o Model: Power Stroke 6.7 turbo-charged diesel
  o Number of Cylinders: Eight (8) "V" configuration
  o Displacement: 6.7 liters
  o Rated Brake Horsepower: 330 at 2800 rpm
  o Rated Torque: 770 ft. lbs.
  o Turbocharge High Idle Control
  o Cooling System: a coolant mixture protected to -30 degrees Fahrenheit
• Exhaust System: horizontally mounted, discharge on passenger's side aft of wheels
• Fuel Tank: 40-gallon rear mounted, driver's side filler extension
• DEF Tank: TBD
• Transmission: Ten speed automatic
• Chassis PTO Output: The chassis transmission shall be equipped with the factory PTO output provision.
• Steering: power steering system
• Batteries: two (2) 78 amp-hr 750CCA 12-volt batteries Alternator: single 220 amp 12 volt
• Cab Construction: XL Series four (4) door aluminum construction, sun visors, tinted glass, roof clearance lights, grab handles interior
• Mirrors: black manually telescope fold-away in/out for view adjustment.
• Air bags front and air curtains side
• Climate Controls: controls for heat, defroster, and air conditioning Window and Door Controls: electric
• Air Bags: driver's and passenger's front, seat side, and side curtain
• Cab Instruments: standard type, six (6) rocker switches
• Drivers and Passenger Seat: 40/20/40 vinyl bucket type seats with three (3) point safety harness. center flip down seat back. Split fold down rear seats
• Printed Manuals: one (1) printed chassis operation manual
• Cab Accessories: AM/FM radio, two radio speakers and antenna Operator Controlled Manual Regen System
• Jack and Lug Wrench Set

60" CAB TO AXLE
The chassis Cab to Axle measurement shall be 60".

POWER PACKAGE
The chassis shall be equipped with power locks, windows, and heated power mirrors.

CHASSIS LIFT KIT
A 6" heavy duty, 4 link, off road suspension lift kit with heavy-duty off road shocks shall be installed on the Ford chassis. The system is designed to significantly increase wheel travel, in addition to giving the chassis increased ground clearance.

NOTE: THE END USER MUST BE AWARE THAT LIFTING THE CHASSIS AND ADDING LARGER TIRES WILL ALTER THE VEHICLE CENTER OF GRAVITY. THIS WILL AFFECT THE VEHICLES HANDLING CHARACTERISTICS.

IN ADDITION, THE LARGER TIRES WILL AFFECT STOPPING DISTANCE. THE SYSTEM IS
NOT RECOMMENDED FOR VEHICLES THAT OPERATE PRIMARILY IN AN ON ROAD ENVIRONMENT. THE SYSTEM IS HIGHLY RECOMMENDED FOR VEHICLES THAT OPERATE IN OFF ROAD OR ROUGH TERRAIN ENVIRONMENTS.

DUE TO THE LARGER TIRES A VEHICLE SPEED SENSOR CALIBRATOR WILL BE INSTALLED TO RE-CALIBRATE THE SPEEDOMETER TO ACCOMMODATE THE LARGER TIRES.

TURNING RADIUS MAY BE REDUCED (if needed) 1-3 DEGREES TO PREVENT TIRE RUB. FRONT AND REAR SUPER SINGLE TIRES AND WHEELS

ACTIVATE CHASSIS HIGH IDLE CONTROL
The high idle control function of the chassis shall be activated, and shall be energized by upfitter switch #6.

SPARE SUPER SINGLE TIRE AND WHEEL
There shall be one (1) super single spare tire. It shall be 335/80R20 22PR, severe service radial all terrain tread. The tire weight rating shall be load range "M" (22 ply, 6780 lbs.), and the speed rating shall be "K" (68 mph).

There shall be a 20" x 11.00" disc, ten (10)-hole pattern special order wheel for Military/Government on/off road application with a rating to match or exceed the tire rating.

SPARE TIRE MOUNTING PROVISIONS
The spare tire shall be mounted atop the water tank.

FRONT BUMPER
The factory bumper shall be removed and replaced with a custom fabricated, heavy duty aluminum bumper and grille guard protection assembly.

REAR MUD FLAPS
The chassis shall be supplied with mud flaps with the manufacturer's logo. The mud flaps shall be installed behind the rear wheels.

FRONT BUMPER SKID PLATE 1/4"
A 1/4" (0.25") aluminum skid plate will be installed from the bumper area extending below the bumper and chassis radiator area.

TRANSFER CASE SKID PLATE, LONG
A removable heavy .250" aluminum skid plate assembly shall be installed to protect the oil pan and transfer case. Holes drilled in skid plates shall be located correctly.

CAB STEPS
The cab shall be equipped with steel step assemblies, on each side of the cab. There shall four (4) stirrup steps mounted two (2) each side on the cab steps. They shall be installed in the best location to allow easy access to the cab.

CUSTOM FABRICATED CONSOLE AND SWITCH PANEL
A custom fabricated poly (plastic) electrical console and enclosure shall be located between the driver's and passenger's seats. It shall house the siren, switches, cup holder, and auxiliary equipment. The consoles will contain two cup holders and 4 USB charging ports.
FRONT RECEIVER
The front of the chassis shall be equipped with one (1) square steel tube receiver assembly for high or low angle rescue or winch applications. It shall be the same size as a Class III trailer hitch and shall be attached to the chassis frame and bumper extension assembly. The receiver shall be rated at approximately 10,000#.

WINCH POWER SUPPLY
Two (2) Anderson type 12 volt quick disconnect electrical receptacles with covers shall be installed for the portable winch. Power cables shall be color coded "red" positive and "black" neutral; rated at 125% of winch power requirement including line drop; protected with conduit for mechanical abrasion and equipped with circuit breaker protection at the battery area.

Location shall be: one (1) front of the apparatus and one (1) rear of the apparatus winch power supply. A 500 amp 12-volt industrial series solenoid shall be installed to supply power to the winch. The solenoid shall be activated by the upfitter switch.

PORTABLE WINCH
A Warn Winch Company Model 9.5cti PN85760 9,500# capacity 12-volt electric portable winch shall be provided incorporating a portable mounting system with two carrying handles. The unit shall include the following:

- extreme duty seals for weather resistance
- thermo-metric indicator for motor monitoring
- A cable guide and 125 feet of 5/16" diameter galvanized cable and fairlead & safety hook assembly shall be supplied.
- Winch speed shall be constant with forward and reverse modes controlled with a push button device at the end of the twelve-foot control cable that connects through a weatherproof receptacle.
- Carrying handles

The winch shall be attached to the body at the specified locations with a steel tube insert secured with steel pins. Powershall be supplied through a 12-volt pigtail with an Anderson type plug.

REAR RECEIVER
The rear of the chassis shall be equipped with one (1) square steel tube receiver assembly for high or low angle rescue, trailer use, and winch applications. It shall be the same size as a Class III trailer hitch and shall be attached to the chassis frame assembly. The receiver shall be rated at approximately 10,000#. The rear receiver assembly shall be equipped with two (2) heavy duty rear tow loops, one (1) each side.

WINCH MOUNT IN COMPARTMENT
There shall be a winch mount position in the D/S rear vertical compartment, lower section. The mount shall be 2" square tubing, welded into the interior wall, at a 45-degree upward angle. Interior wall to be reinforced to hold the weight of the winch.

CUSTOM SKID UNIT
A Darley Custom skid unit shall be installed in the rear of the body. The skid unit shall consist of the following:

Darley model number 1-1/2AGE 18V gasoline powered, skid mounted centrifugal portable pump shall be provided. The high pressure, medium volume pump, gear driven, engine mounted shall meet the following performance requirements:
120 GPM @ 130 PSI
100 GPM @ 170 PSI
50 GPM @ 250 PSI

**Pump Design**
Pump casing shall be of anodized aluminum and vertically split, with a minimum tensile strength of 33,900 PSI - bronze- fitted. Pump ratio to be selected by the manufacturer's Engineering Department. Seal rings shall be renewable, double labyrinth, wrap around bronze type. Bearings are to be heavy duty, deep groove, radial-type ball bearings, oversized for long life. Bearings to be protected at all openings from road dirt and water splash with oil seals and water slingers.

**Mechanical Seal**
The pump shall be furnished with a Darley maintenance free mechanical seal. The mechanical seal shall be a non- contacting, non-wearing seal design. Seal shall be a Silicon Carbide Mechanical seals with welded springs. The stationary face of mechanical seals shall be made from Silicon Carbide, and be extremely hard and of a heat dissipative material, which resists wear and dry running damage much better than conventional Ni-resist and Tungsten Carbide materials.

**Pump Shaft**
Pump drive shaft shall be precision ground, heat treated alloy steel, with a 1-3/8 spline. Gears shall be helical design, and shall be precision ground for quiet operation and extended life. The pump shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine, as well as ease of maintenance and repair. Pump shaft to be precision-ground 416 stainless steel.

**Impeller**
The impeller shall be a high strength bronze alloy, splined to the pump shaft for precision fit, durability, and ease of maintenance.

Impeller shaft oil seals shall be constructed to be free from steel components except for the internal lip spring. The impeller shaft oil seals shall carry a lifetime warranty against damage from corrosion from water and other fire-fighting fluids.

**Pump Transmission**
The transmission case shall be cast iron aluminum with adequate oil reserve capacity to maintain low operating temperature. Pump ratio to be selected by the manufacturer's engineering department. Gears shall be helical in design and precision ground for quiet operation and extended life. Gears to be cut from high strength alloy steel and heat treated. Gear face to be minimum of 1-1/2”. Chain drive and/or design requiring extra lubricating pump is not acceptable.

The pump unit shall be supplied with a control panel for remote mounting, panel light, hour meter / tachometer, pressure gauge, on/off ignition switch, and a low oil pressure light, engine choke, engine throttle

**Exhaust-Type Primer**
The mufflers are coated with High Temp Powder Coat. The primer bodies are bronze with stainless steel components. The outlet of the primer is equipped with a 1.5” male NPT. Is easily operated via push-pull control wire connected to an internal butterfly valve. The venturi components are sized for the most efficient priming time and height possible utilizing the exhaust pressure available from the engine. Significantly lighter than a 12V electric
primer. Requires much less physical effort by the operator than a mechanical hand primer.

**Water Tank**
The water tank shall have a capacity of 300 gallons. There shall be fork-lift style lifting provisions built into the base of the custom skid unit. SKID SHALL ALSO HAVE PROVISIONS FOR REMOVAL BY OVERHEAD CRANE.

**Illuminated Pressure Gauge**
2" Welded Stainless Steel Auxiliary Suction with 2.5" female adapter
2" Tank to Pump
All Welded Stainless Steel Manifold painted blue
1" Tank Fill
1" Pump to Booster Reel
1.5" NST Discharge with Chrome Caps
Electric Booster Reel with 4 sections of 50' of 1" Reel-Lite Booster Hose
Roller and Spool Assembly / Hose Guide

**HOSE REEL PLATFORM MOUNTED ABOVE PLUMBING**
The hose reel shall be mounted atop a platform above the plumbing.

**FUEL TANK**
A stainless steel custom built remote fuel tank shall be installed for the auxiliary fire pump assembly at the rear of the apparatus. The fuel tank shall be bolted both the bed and aft bulkhead of the upper body compartment. The fuel tank shall have capacity of approximately TEN (10) gallons. There shall be a fuel hose with plug in connections furnished between the fuel tank and carburetor assembly for the auxiliary pump.

**ELECTRIC START WIRING TO CHASSIS**
The 12 volt positive and negative cables shall be provided from the chassis battery to the fire pump area, wired through the master disconnect solenoid system. The cables shall have a circuit breaker installed at the chassis battery.

**CUSTOM RESCUE/STEP SIDE ALUMINUM BODY**
The body will be a custom fabricated severe service rescue-side type, constructed of all aluminum. The body shall be 114"long by 96" wide, designed for a 60" cab to axle dimension. The body shall be specifically designed and engineered for off-road wildland firefighting.

**MAIN FRAME**
The body shall have 6" x 1.75" structural aluminum channel main frame rails. The body frame rails shall be isolated from the truck frame by .500" industrial isolators.

**SUB-FRAME**
Cross-members shall be 3" x 2.5/16" structural aluminum I beam with cross-members on 12" centers.

**MOUNTING**
The body shall be bolted to the chassis frame rails at the rear end of the frame. There shall be brackets installed at the middle of the body frame to prevent side to side movement. The body shall be spring mounted at the front of the body frame. The flexible mounting system shall allow for body/chassis flexing during extreme off road conditions.

**SQUARE CORNERS**
The front corners of the flat-bed body shall be square.
**HEADACHE RACK**
The front of the body shall have a 2” formed aluminum tube headache rack. The rack shall extend the full width of the body and be attached to the front body corners. The assembly shall extend above the chassis cab and have mounting platform for installation of the light bar and two work lights. Wiring for the lights will be placed inside the tubing for protection. The headache rack shall have four (4) vertical 2” tubes for extra strength.

**FUEL FILLER**
The fuel filler tube and cap shall be installed at the driver's side, rear of the body.

**FENDER PANELS**
The lower portion of the flat-bed body shall have fender panels over and aft of the rear wheel panel area. The panels shall be constructed of polished aluminum tread plate. The wheel well openings will be cut out to conform to the wheels.

**REAR BODY PANEL**
A vertical body panel shall be installed at the rear of the body constructed of .125” smooth aluminum. The panel shall house the running lights, taillights, back-up lights, and emergency lights. The body panel shall be angled to allow for approximately 27 degrees angle of departure.

**PROTECTIVE RAILS**
The upper body area shall be protected with radius corner 1” diameter aluminum tube railing assembly installed around the top of the body. The corners of the body shall have vertical risers space in critical areas. The railings shall act as protection for the upper body structures when off road in heavy brush conditions. The rear upper body corner rails shall house the upper emergency lights and work lights.

**SIDE BODY COMPARTMENT, FRONT BODY -- PASSENGER'S SIDE**
One (1) body equipment storage compartment shall be installed at the front of the body just behind the headache rack, passenger's side of the apparatus. The dimensions shall be approximately: 30” wide, 44” high, and 24” deep. The compartment shall be constructed of .125” aluminum on all exterior surfaces. The compartment shall be equipped with a vertically hinged door with a single latch installed. The door shall be equipped with a gas operated door opening assistant cylinder.

The vertical compartment shall have one (1) fixed shelf. Shelf shall be made entirely of .375 aluminum. The compartment floor shall be lined with turtle tile.

**DECK**
The deck of the body shall have a NFPA compliant walkway surface.

**SIDE STEP CUBICLE**
An approximate 24” wide x 20” high x 24” deep cubicle shall be constructed of polished NFPA compliant aluminum tread plate on the driver's side in the front of the body.

**HINGED SAFETY GATE ASSEMBLY**
The step-side cubicle on the driver's side in the front of the body shall be equipped with a swing in safety lock gate constructed out of 1” aluminum tubing. The gate shall be locked in the closed position by a locking pin and stop bracket and shall have a hydraulic cylinder to hold the gate either in the fully open or the fully closed position.
BODY ACCESS HANDLES
There shall be three (3) handles mounted near the step-side area of the body to aid in entering the vehicle during high water rescue operations. These handles shall be constructed of polished stanchion brackets with a knurled finish grab handle.

BODY AND COMPARTMENTS/TRAYS FINISH
The exterior surface of all body skins, compartments, and trays shall all be smooth DA aluminum finish. The surface shall be prepped, cleaned, and sanded in a small swirl finish. There shall be no aluminum diamond finish.

DRIVERS SIDE UPPER BODY COMPARTMENT
A body equipment storage compartment shall be installed on the flatbed surface, driver's side of the apparatus. The exterior dimensions shall be approximately 48" wide, 24" high, and 18" deep. The compartment shall be constructed of .125” aluminum on all exterior surfaces.

The compartment shall be equipped with:
- a lift up door with latch installed
- key type door locks.
- dual gas operated door opening assistant cylinders.
- a white LED strip light that is automatically controlled by a door activated switch.
- a louvered vent
- Turtle Plastics Tile Compartment Matting shall be installed in the compartment. Turtle Tile shall be black in color and lock together design.

The actual door opening shall be approximately 3” smaller in dimension.

PASSENGERS SIDE UPPER BODY COMPARTMENT
A body equipment storage compartment shall be installed on the flatbed surface, passenger's side of the apparatus. The exterior dimensions shall be approximately 48" wide, 24” high, and 18” deep. The compartment shall be constructed of .125” aluminum on all exterior surfaces.

The compartment shall be equipped with:
- a lift up door with latch installed
- key type door locks.
- dual gas operated door opening assistant cylinders.
- a white LED strip light that is automatically controlled by a door activated switch.
- a louvered vent
- Turtle Plastics Tile Compartment Matting shall be installed in the compartment. Turtle Tile shall be black in color and lock together design.

The actual door opening shall be approximately 3” smaller in dimension.

SIDE BODY COMPARTMENTS, REAR BODY -- DRIVER'S AND PASSENGER'S SIDES
Two (2) body equipment storage compartments shall be installed at the rear of the body, one each side of the apparatus. The exterior dimensions shall be approximately: 32” wide, 44” high, and 18” deep. The compartments shall be constructed of .125” aluminum on all exterior surfaces. Each compartment shall be equipped with a vertically hinged door with a single latch installed. The doors shall be equipped with gas operated door opening assistant cylinders.

Each vertical compartment shall have one (1) fixed shelf. The compartment shall be equipped with:
- a lift up door with latch installed
The actual door opening shall be approximately 3" smaller in dimension.

**HIGH WATER RESCUE VEHICLE SEATING**
One (1) fold down bench seat shall be installed on the back wall of the driver's side upper body compartment and the passenger's side rescue and upper body compartment. The interior of each compartment shall be reinforced to carry the weight of a fully occupied bench seat with 250 pounds per seated position. The fold down bench seats shall fold up when the unit is configured as a Type 5 Engine and allow the installation of the Darley Fast Attack 2 Option 1 skid unit. When the skid unit is removed, the bench seats may fold down to allow the configuration as a High Water Rescue Vehicle (HWRV). There shall be a Pac-Trac t-handle style latching mechanism installed that prohibits the seats from folding down unless the removed for HWR usage.

The HWR seating shall measure as follows: the seats shall have a width of 16" and a height from the bed to the top of the seat measuring approximately 20". The seats shall be constructed of durable poly material. The length of the seats shall be approximately 78" allowing for four (4) seated positions on each side of the HWR area, totaling 8 seated positions.

**UNDER BODY COMPARTMENT -- REAR CENTER**
An under body equipment storage compartment shall be installed under the flatbed surface located in the center rear of the apparatus. The compartment shall be between the vertical body beams, upper floor surface, and an aluminum lower floor area. The compartment shall be equipped with a hinged drop down door with dual latches installed.

The exterior dimensions shall be approximately:
108" for a 114"L bed 120" for a 138"L bed

**DIVIDERS FOR HARD SUCTION, REAR CENTER UNDER BODY COMPARTMENT**
Two (2) dividers shall be installed in the rear, center, under body compartment, for storage of 8' lengths of hard suction. The dividers shall be approximately 6" apart, 5" tall, and run the depth of the compartment.

**REAR SLIDE-OUT TRAY**
The rear center compartment shall be equipped with an .190" aluminum slide out tray on UHMW plastic slide pads and polyrollers. The tray shall be full width and full length of the compartment interior.

**INTERIOR COMPARTMENT VENTILATION LOUVERS**
The interiors of the upper body compartments shall have louvered ventilation units.

**PEG BOARD**
The D/S and P/S upper body compartments shall have 1" peg board mounted to the inboard wall.

**COMPARTMENT DOOR KEY LOCKS**
The hinged compartment doors shall be equipped with key type door locks.

**COMPARTMENT LIGHTING, STRIP LIGHTS**
Each upper body compartment shall be equipped with a white LED strip light.
AUTOMATIC COMPARTMENT DOOR LIGHT SWITCHES
Each exterior compartment light shall be automatically controlled by a door activated switch.

DOOR AJAR LIGHT
A "door ajar" warning light shall be installed on the center console. The light shall be flashing red LED light with a clear lens.

TOOL TRAY -- DRIVERS SIDE
A hose storage tray shall be installed over the driver's side equipment compartment, on the driver's side of the apparatus. The exterior dimensions shall be approximately: 16" wide, 16" high, and 64" long. The tool tray shall be constructed entirely of .125" aluminum on all exterior surfaces. There shall be a set of gas shocks installed on the lid of the tray to aid in opening and closing the tray in a safe manner. The hose tray shall be equipped with Turtle Tile floor covering.

The actual door opening shall be approximately 3" smaller in dimension.

TOOL STORAGE TRAY/COMPARTMENT -- PASSENGERS SIDE
A tool storage compartment shall be installed over the passenger's side equipment compartment, on the passenger's side of the apparatus. The exterior dimensions shall be approximately: 16" wide, 16" high, and 96" long. The compartment shall be constructed of .125" aluminum for all exterior surfaces. The compartment shall be equipped with a hinged lift up aluminum door and a latch installed. There shall be a set of gas shocks installed on the lid of the tray to aid in opening and closing the tray in a safe manner. The compartment shall be equipped with Turtle Tile floor covering. The compartment will have a handle to assist in the opening and lockable. The box can be used for storage of shovels, rakes, brooms, etc. The actual door opening shall be approximately 3" smaller in dimension.

I-ZONE BRACKETS
Two easily removable or flip out I Zone brackets will be provided and mounted at the rear of the apparatus, one on each side. The brackets will be designed with adequate reinforcement to eliminate flexing of the body and not interfere with any of the rear facing lights when carrying hose. The brackets will be mounted beside upper grab rail on the rear and as high as practical.

BRACKETS SHALL BE MOUNTED AS FAR OUTBOARD AS POSSIBLE

REAR PULL OUT STEP
There shall be a rear "Pull-Out-Fold-Down" step located at the driver's side rear of the apparatus, step shall be stowed in a pocket under the rear of the unit. Storage pocket shall be fabricated to allow easy access to deploying for operation.

FOLDING STEP
A Signature 4 lighted 8" square folding step of die cast zinc shall be installed. The step shall comply with NFPA non-slip standards and shall be installed on the rear driver's side of the body. The step shall be equipped with lighting to NFPA standard.

SIDE BODY ACCESS STEPS
There shall be a body access step assisting in access to top of the tool/hose trays from the side of the apparatus. It shall be astirrup design, and be fabricated from 1" aluminum tubing. They shall be installed under the front of the body, one (1) each side.
HIGH WATER RESCUE SAFETY NETTING
The rear of the body shall have the ability to attach cargo netting (similar to that used for NASCAR/cargo netting) when the skid unit is removed and the apparatus is configured as a High Water Rescue Vehicle (HWRV).

The netting shall be mounted on two (2) schedule 80 1” aluminum poles. The poles will be vertically mounted into the bed. In the bed there shall be a sleeve that extends from top to bottom through the bed so that at no point can water collect in it. The poles shall have a tab mounted in such a way that they do not fall through the holes in the bed.

The netting shall extend across the entire opening between the rear rescue compartments. Vertically the netting shall be flush with the top of the hand rail. There shall be two (2) velcro footman loops at the bottom of the cargo netting that shall be secured to the body. The purpose is to prevent the netting from being pushed out from the bottom.

BLUE SEA FUSE BLOCK
A 6 position, 20-amp Blue Sea fuse block shall be provided in the center console.

ELECTRICAL ENCLOSURE
An electric wiring enclosure for the 12 volt wiring shall be installed in the forward wall of the driver's side upper body compartment with an access panel. The dimensions of the enclosure shall be approximately 20” high, 14” wide, and 4” deep.

12 VOLT ELECTRICAL SPECIFICATIONS
The following describes the low voltage 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 DOT standards, current automotive electrical system standards and the applicable requirements of the NFPA.

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, 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 minimum289 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.

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 secured with mechanical type fasteners and rubber grommets.

Wiring between cab and body shall be split using 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.

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.
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.

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.

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.
- 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. 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.
- All lights in a weather exposed area that have their sockets shall have corrosion preventative compound added to the socket terminal area.

**ELECTRICAL HARNESS AND WIRING**

All wiring shall be hidden, enclosed, or protected under the body in protective material, or within the apparatus body components. In addition, split loom conduits shall be installed and enclosed, suitably secured and protected against heat and physical damage.

**MASTER SWITCH INDICATOR LIGHT**

An additional green light shall be installed in D/S of center console. The light shall be energized when Master Switch is activated.

**BATTERY MASTER DISCONNECT**

A battery disconnect system shall be installed to control the 12-volt power supply from the battery system to the body and cab final stage manufacturer installed equipment. The solenoid shall be controlled by the standard key starter switch.

**BATTERY CHARGER AND 120 VOLT SHORE POWER RECEPTACLE**

A Kussmaul Autocharge 1000, Model 091-215-12, high output automatic battery charger shall be provided. The battery charger shall be wired to the 12-volt battery system. The unit shall be mounted in a clean, dry area accessible for service and/or maintenance. It shall be wired to the specified shore power receptacle.

It shall include Model 091-194B-IND-WT-XX Digital Status Display Center.
It shall also include a BLUE SEA SURE EJECT. The shore power plug shall be "ejected" when the chassis’ engine starter is engaged and the receptacle shall be wired to any 120 volt A/C equipment requiring shore power.

Location shall be: CHARGER SHALL BE MOUNTED IN CAB, CENTERED BELOW REAR SEAT. Color of Digital Status Display Center and Auto Eject: RED, REAR BED PANEL MOUNTED

DOT IDENTIFICATION LIGHTS
All LED identification lights shall be installed on the vehicle as required by applicable highway regulations.

LICENSE PLATE MOUNTING
An LED license plate light shall be installed on the rear vertical wall of the body.

BRAKE, TURN, TAIL LIGHTS
Two (2) Whelen M6 Series Model M6BTT 4-5/16” x 6-3/4” brake, turn, tail lights with M6FC chrome flanges shall be provided. The warning lights shall incorporate Linear Super-LED and Smart LED technology.

BACK-UP LIGHTS
Two (2) Whelen M-Series, 4” x 6” rear LED back-up lights shall be installed.

TRAILER PLUG
Wiring shall be provided at the rear of the apparatus for the towing of an auxiliary trailer. A 12-volt seven (7) pin electrical connector shall be wired to the chassis stop, running, and turn lights.

OFF-ROAD LIGHTS
There shall be two (2) FRC SoBrite 6” LED lights installed on front bumper/grille guard.

GROUND LIGHTS, CAB, 4 DOOR, LED STRIPS
Two (2) LED ground strip lights shall be installed under the cab step area in compliance with NFPA standards, one (1) each side of the apparatus, wired to the Cencom, and the chassis interior lights.

BODY WORK LIGHTS
Four (4) Grote #63871 LED body work lights with clear lens shall be installed, wired to switch on the Cencom. They shall have an aluminum housing, and be 800 lumens at 1.4 amps. Location shall be: in each corner of the protective tubing assembly to light the pump panel and the front body walkway area.

SCENE LIGHTS
Six (6) Rigid Manufacturing Dually 20211 scene lights shall be installed. The LED scene lights shall incorporate clear LED switch a clear optic polycarbonate lens for maximum illumination. Location shall be: Two (2) outward facing, each side of body, two (2) rear facing.

BACK-UP CAMERA SYSTEM
One (1) Rear View Systems camera system shall be furnished utilizing a camera which provides a wide field of view and picture quality. A sealed camera enclosure shall be utilized along with electronic connections. The color monitor shall be installed in cab.

One (1) camera shall cover the rear of the apparatus, which will activate during back-up mode and during normal operations if needed.
Location: P/S upper rear corner of the bed, attached to the hand rail, inboard corner.

**BACK-UP ALARM**
One (1) Buyers #BA107 back up alarm shall be installed.

**ELECTRONIC SIREN**
One (1) Whelen, Model #CCSRNT4G CenCom Carbide siren with auxiliary switches with noise canceling microphone shall be provided. Siren head will be mounted on the center console in easy reach of the driver.
Backlight to be set low.

**SIREN SPEAKER (Qty: 2)**
One (1) Whelen Model #SA315P Projector Series siren speaker shall be provided with bracket. The 100-watt siren speakers shall be designed in a black nylon composite housing with 123 decibel rating.
Location shall be: Behind the front grille.

**MOUNTING OF LIGHT BAR WITH PROTECTIVE GUARD**
The light bar shall be mounted on the headache rack shelf with an aluminum brush guard protective assembly.

**LIGHTBAR**
A Whelen Legacy low profile Super-LED NFPA light bar shall be installed. The 54” light bar shall be designed to meet the minimum clearing requirements for Zone A Upper. The internal components of the light bar shall be housed within a two piece extruded aluminum base/top. The outer shell shall be clear optic polycarbonate lenses designed to maximize light output and shield against environmental elements.

The light bar shall utilize snap-in brackets to hold in the light heads. The brackets shall give the end user the ability to make quick repairs. The light bar shall have all solid state components. The light bar shall have two wire harnesses exiting the unit: one (1) 17 conductor 22-gauge control cable which controls all internal light functions; and one (1) 2 conductor 10-gauge cable for main power and ground. Each cable shall be 15’ long.

The light bar shall have four (4) red Linear Super-LED corner modules to provide off angle protection for the front and rear of the vehicle. Each corner module shall consist of twelve (12) Super-LEDs mounted within a vacuum metalized parabolic reflector. The corner module shall also utilize an optic collimator for maximum light output. The twelve (12) LEDs shall be mounted in one straight line.

The solid state I/O board shall be microprocessor controlled. The I/O board shall have built-in reverse-polarity protection and output-short protection. The board shall have the ability to flash sixteen (16) LED warning lights. There shall be a data bank of 13 Scan-Lock flash patterns including steady burn. The board shall also have outputs to add takedown and alley lights.

Low power and cruise light function shall also be included. The cruise light function shall allow the user to employ the four (4) corner modules as marker courtesy lights. The light bar shall include clear "Take Down" and "Alley Lights". The light bar shall have an amber "Traffic Advisor" built into the rear portion of the light bar.
NFPA WARNING LIGHTS

ZONE A -- LOWER FRONT WARNING LIGHTS
Two (2) Whelen M-7 Series Model #M7RC 3" x 7" warning lights with chrome flanges shall be installed on bumper extension, with a 1.00" gap and a 1.00" gold stripe on the bottom. The warning lights shall be in the front forward facing area of the front bumper. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of RED 18 Super-LEDs and a clear optic polycarbonate lens. The light heads shall be surface mountable via two screws. The light heads shall be surface mountable via two screws. The light heads shall utilize an optic collimator and a chrome vacuum metalized reflector for maximum illumination.

ZONE B AND D -- INTERSECTION LIGHTS
Two (2) Whelen M-7 Series Model #M7RC 3" x 7" warning lights with chrome flanges shall be installed on bumper extension, as far forward as possible. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of RED 18 Super-LEDs and a clear optic polycarbonate lens.

ZONE B AND D -- LOWER SIDE REAR CORNER WARNING LIGHTS
Two (2) Whelen M-7 Series Model #M7RC 3" x 7" warning lights with chrome flange shall be installed in lower rear side corner body area. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of RED 18 Super-LEDs and a clear optic polycarbonate lens. Light shall have an aluminum protective guard around light to extend equal distance from body as the light head.

ZONE B AND D -- UPPER SIDE REAR WARNING LIGHTS
Two (2) Whelen M-7 Series Model #M7RC 3" x 7" warning lights with chrome flanges shall be installed in the upper rear body side panel. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The lighthead configuration shall consist of RED 18 Super-LEDs and a clear optic polycarbonate lens.

ZONE C -- UPPER REAR WARNING LIGHTS
Two (2) Whelen M-7 Series Model #M7RC 3" x 7" warning lights with chrome flanges shall be installed in the upper rear corner of the handrails. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of RED 18 Super-LEDs and a clear optic polycarbonate lens.

ZONE C -- LOWER REAR WARNING LIGHTS
Two (2) Whelen M-7 Series Model #M7RC 3" x 7" warning lights with chrome flanges shall be lower rear of body. The warning lights shall incorporate Linear Super-LED and Smart LED technology. The light head configuration shall consist of RED 18 Super-LEDs and a clear optic polycarbonate lens.

APPARATUS PAINT
The cab shall be two-tone, with the upper section painted Black #101 along with a shield design on the cab face and lower section of the cab and body painted Red #80.

STRIPE (On Paint Break)
There shall be a gold leaf stripe provided on the paint break. The stripe shall be on both sides of the cab.

REFLECTIVE STRIPES
Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" gold stripe at the top with a 1.00" gap then a 4.00" white stripe with a 1.00" gap and a 1.00" gold stripe on the bottom. The striping shall be placed up to 60" above...
ground level and shall conform to NFPA reflectivity requirements. At least 50% of the perimeter length of each side shall have reflective striping.

CHEVRON STRIPING, REAR
There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The colors shall be red and yellow diamond grade. Each stripe shall be 6.00" in width.

This shall meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface shall be covered with chevron striping.

OUTLINE, REFLECTIVE STRIPE
A black outline shall be applied on the top and the bottom of the reflective band. There shall be three (3) set of outline stripes required.

REFLECTIVE STRIPE ON FRONT BUMPER
There shall be a yellow diamond grade and a red diamond grade reflective stripe provided on the front face of the front bumper. The striping shall consist of a series of 6.00" Chevron stripes with .25" black vinyl on seams.

CHEVRON/INVERTED "V" STRIPING ON CAB AND CREW CAB DOORS
There shall be alternating chevron striping located on the inside of each cab and crew cab door. The striping shall consist of a 6.00" wide yellow diamond grade stripe with a 2.00" red diamond grade stripe applied over the diamond grade material.

LETTERING
The lettering shall be totally encapsulated between two (2) layers of clear vinyl.

LETTERING, GOLD LEAF (front door)
Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, with outline and shade shall be provided.

LETTERING, GOLD LEAF (front door)
Eight (8) genuine gold leaf lettering, 4.00” high, with outline and shade shall be provided.

LETTERING, REFLECTIVE (roof)
There shall be reflective lettering, 18.00" high, with outline and shade provided. There shall be five (5) letters provided.

LETTERING, REFLECTIVE (rear)
There shall be reflective lettering, 10.00" high, with outline and shade provided. There shall be five (5) letters provided.

LETTERING, REFLECTIVE (front bumper)
There shall be reflective lettering, 8.00" high, with outline and shade provided. There shall be five (5) letters provided.

LETTERING, REFLECTIVE (side doors)
There shall be reflective lettering, 8.00" high, with outline and shade provided. There shall be 2 sets of five (5) letters provided (total of ten (10)).

COMMUNICATIONS EQUIPMENT
One (1) M25URS9PW1N, APX6500 7/800MHz Mobile w/ dual remote head (to be mounted on delivery, location specified during pre-construction)
One (1) Astro Digital CAI - G806
One (1) Smartzone Operations - G51
One (1) P25 9600 Band Trunking - G361
One (1) Group Services - QA09008
One (1) APX05 Control Head - G442
One (1) Control head software - G444
One (1) Remote Mount - G67
One (1) 3db Low Profile Antenna - G174
One (1) Palm Mic W22
One (1) Auxiliary 15w water resistant speaker - G831
One (1) 3-year repair service advantage - G24
One (1) Over the air provisioning - G996
One (1) Radio management software online - T7914
One (1) RMS License - UA00049AA
One (1) MultiKey W969
One (1) AES/DES/DES-XL/DES-OFB Encryption G851
One (1) GAM7160-0526-02 MDT mount, the docking station for Getac B300 with internal power supply - Duel RF (TNC) has features like an easy-to-activate side docking mechanism, and ergonomically designed with smaller footprint, MDT antenna, antenna plus cellular, PCS
One (1) AP-CG-Q-S11-BL LTE & GPS combo surface mount antenna, 3.0Bd gain 15’ cable with TNC/TNC. Omni directional, color black

**INTERCOM SYSTEM**

There will be a digital, single radio interface, intercom located in the cab. The front panel will have master volume, squelch controls with illuminated indicators, allowing for independent level sitting of radio and auxiliary audio devices.

- There will be one (1) radio listen only/transmit control with select, monitor, receive and transmit indicators.
- There will be one (1) auxiliary audio input with select, and receive indictors.
- There will be one (10 wireless base station for up to five (1-5) headset users provided. Wired headset jacks will be provided for (4) crew position, located at the three (3) forward facing seats and one (1) at the officer seat.
- The wireless base station will have a 110’ to 1100’ range, line of sight.
- The following Firecom components will be provided:
  - One (1) 5100D Intercom
  - One (1) WB505R wireless base station (1-5) wireless positions
  - Four (4) HM-10 Interior headset jacks
- All necessary power and station cabling

**RADIO / INTERCOM INTERFACE CABLE**

The body builder shall supply and install one (1) radio interface cable before delivery of the vehicle. The radio equipment to be used by the customer shall be:

- Motorola Mid Power, Model number Motorola APX-6500

**HEADSET, UNDER HELMET, INTERCOM ONLY (FOUR DOOR CAB)**

There shall be two (2) Firecom model UH-54 under helmet, intercom only headset(s) with microphone on/off button provided in the crew cab seats. Each headset shall feature:
- Coiled cord with rugged angled plug
- Noise cancelling electric microphone
- Flex boom for left or right dress
- Adjustable volume control
- ComLeather ear seals with 24Db noise reduction
WIRELESS UNDER HELMET, RADIO TRANSMIT ONLY HEADSET
There shall be two (2) Firecom model UH-505 wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided for driver’s seat and officer seat officer seat.

Each headset shall feature:
- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 Db noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push to Talk button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP – 66 when worn Radio Push to Talk button (Left or Right Side)

HEADSET HANGERS
There shall be headset hanger/s installed for the intercom system. The hanger/s shall be installed each seating position.

RADIO ANTENNA MOUNT
There will be one (1) standard 1.125”, 18 thread antenna- mounting base(s) installed over the officer’s seat on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the radio box. A weatherproof cap will be installed on the mount.

CUSTOMER RADIO WIRING
There will be two (2) 12-volt combination wiring leads of which each will include, one (1) battery switched, one (1) ignition and one (1) negative, for use with radio equipment. Each lead will be 18” long and be provided radio compartment. The leads will be clearly marked and in a coil. A breaker rated for 30 amps will be provided for circuit protection of the battery switched lead with a minimum of 10-gauge wire. The ignition lead is for sensing purposes only.

The wires will be colored coded as follows:
- red for battery switched
- yellow for ignition
- black for ground

MANUALS, CHASSIS OPERATION, OPERATION AND SERVICE MANUALS
Complete "Operation and Service" manuals will be supplied with the completed apparatus, two (2) printed copy and two (2) CD. Service manual instructions will include service, maintenance and troubleshooting for major and minor components of the truck. The apparatus manufacturer will supply part numbers for major components (i.e. Engine, Axles, Transmission, Pump, etc.). A table of contents, hydraulic, air brake and overall apparatus wiring schematics will be included.

A video demonstration DVD on the operation of the truck will be supplied with the manuals. The manufacture must offer enrollment in repair and servicing of unit for two (2) Charleston Fire Department maintenance members.

MATERIAL AND WORKMANSHIP
Apparatus shall be provided with a basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service. The vendor is required to provide their best warranty and information on such warranty. A copy of the warranty certificate shall be submitted with the bid proposal
WARRANTY
The following item(s) shall be covered under warranties: The vendor is required to provide their best warranty and information on such warranty. A copy of the warranty certificate shall be submitted with the bid proposal.

ENGINE
STEERING GEAR
CHASSIS STRUCTURAL INTEGRITY
FRONT AXLE MATERIAL AND WORKMANSHIP
REAR AXLE MATERIAL AND WORKMANSHIP
TRANSMISSION
APPARATUS BODY STRUCTURAL INTEGRITY
WATER TANK
PAINT AND CORROSION
GOLD LEAF LAMINATION MATERIAL AND WORKMANSHIP
MANUFACTURERS WARRANTIES FOR ALL MAJOR COMPONENTS

ROAD TEST
A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise.

COMPLIANCE
The fire apparatus shall be built to the purchaser’s requirements in compliance to all State, Local, and Federal highway safety requirements. The vehicle is not intended to meet any or all standards of NFPA.

FIRE PUMP OPERATIONS TEST
The fire pump shall have an operational pump test performed by a technician with a run time of one (1) hour to confirm proper operations of all pump related components.

ELECTRICAL LOAD ANALYSIS
A 12-volt electrical load analysis shall be performed in order to test response and stationary modes of electrical amp load.

LOOSE EQUIPMENT

Hand Tools
2 NUPLA Pulaski Fire Axe Fiberglass 1THA4 or 6894273 NUPLA
2 NUPLA Mcleod Fiberglass 2LTC2 or 6894242 NUPLA
2 NUPLA Fire Rake Fiberglass 2LTC4 or 6894244 NUPLA
2 Rogue Field Hoe 7" head 54" handle Fiberglass 85113 Rogue
1 NUPLA Round Point Shovel Fiberglass 3MD54 or 6894157 NUPLA
1 NUPLA Fire Flapper/Swatter Fiberglass 2LTC3 or 6894243 NUPLA
1 NUPLA Axe 36" handle 6 lb head 20Y319 or 6884808 NUPLA
1 Bolt Cutters 24" 6PFE5 or 14223 Ridgid
### Hose

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
<th>Supplier</th>
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<tbody>
<tr>
<td>1</td>
<td>Suction Hose Clear 2.5&quot; x 10 ft (NH couplings)</td>
<td>15HS10</td>
<td>FireHose Direct</td>
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<tr>
<td>2</td>
<td>Red 1&quot; x 100 ft High Pressure Rubber Booster Hose NH</td>
<td>KRBH10-100-3-H51</td>
<td>Kochek</td>
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<td>4</td>
<td>Double Jacket 2.5&quot; Hose Blue 25 ft Section NH DJ800</td>
<td>DJ25A</td>
<td>Firequip</td>
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<tr>
<td>6</td>
<td>Forestry Hose 1.5&quot; 50 ft sections yellow (NH couplings)</td>
<td>G15F650YL</td>
<td>FireHose Direct</td>
</tr>
<tr>
<td>6</td>
<td>Forestry Hose 1&quot; 50' section yellow (NH coup)</td>
<td>10S550YL</td>
<td>FireHose Direct</td>
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<tr>
<td>6</td>
<td>Forestry Hose 5/8&quot; 50' section yellow w/ band (GHT coup)</td>
<td>58F50BYL-RB</td>
<td>FireHose Direct</td>
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<td>6</td>
<td>Forestry Hose 1.5&quot; 50 ft sections yellow (NH couplings)</td>
<td>G15F650YL</td>
<td>FireHose Direct</td>
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### Wrenches and Clamps

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<th>Part Number</th>
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<tbody>
<tr>
<td>1</td>
<td>Double Head Adjustable Hydrant Wrench</td>
<td>852-57151</td>
<td>Kochek</td>
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<tr>
<td>2</td>
<td>Universal Spanner Wrench</td>
<td>852-57051</td>
<td>Kochek</td>
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<td>4</td>
<td>Double Ended Spanner Wrench</td>
<td>859-64251</td>
<td>Waterax</td>
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<tr>
<td>1</td>
<td>Hose Clamp 1-1.5&quot;</td>
<td>858-37505</td>
<td>C&amp;S Supply</td>
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### Chainsaw

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
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<tbody>
<tr>
<td>1</td>
<td>Chainsaw</td>
<td>MS 291</td>
<td>Stihl</td>
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<tr>
<td>1</td>
<td>Spare Chainsaw Chain 26RS Oil-o-matic</td>
<td>3639 005 0081</td>
<td>Stihl</td>
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<tr>
<td>1</td>
<td>Forester Chainsaw Safety Chaps</td>
<td>B092VGPCQT</td>
<td>Forester</td>
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<td>1</td>
<td>Forester Chainsaw Safety Helmet</td>
<td>B001KU00YO</td>
<td>Forester</td>
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<td>1</td>
<td>Chainsaw Filing Kit</td>
<td>B002YQ4SG0</td>
<td>Stihl</td>
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<tr>
<td>1</td>
<td>Chainsaw Wrench</td>
<td>B072KHR5HQ</td>
<td>Stihl</td>
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<tr>
<td>1</td>
<td>2.5-gallon Metal Gas can with Flexible Spout</td>
<td>7225120</td>
<td>Justrite</td>
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<tr>
<td>1</td>
<td>1-gallon Metal Bar Oil Can</td>
<td>7110110</td>
<td>Justrite</td>
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<td>1</td>
<td>Hand Primer for pump</td>
<td>ZY-07090-10</td>
<td>Guzzler</td>
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<td>1</td>
<td>10-ton Snatch Block Pulley</td>
<td>TICONN-164</td>
<td>Ticonn</td>
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<td>1</td>
<td>3/4&quot; Shackle 28.5 Ton (2 pack)</td>
<td>RTSHACKLE34OR</td>
<td>Libberway</td>
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<td>1</td>
<td>Tow Strap 3&quot; x 30ft 15 Ton</td>
<td>HF-30001-R</td>
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### Adapters

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<td>1</td>
<td>2.5&quot; Double Female NH</td>
<td>852-50304 NH</td>
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<td>Double Female 1.5&quot; NH to 1.5&quot; NH</td>
<td>852-51171</td>
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<td>Double Male 1.5&quot; NH to 1.5&quot; NH</td>
<td>852-51111</td>
<td>Kochek</td>
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<tr>
<td>1</td>
<td>Double Male 1&quot; NH to 1&quot; NH</td>
<td>852-51121</td>
<td>Kochek</td>
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<td>1</td>
<td>Double Female 1&quot; NH to 1&quot; NH</td>
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<td>2.5&quot; NH to 1.5&quot; NH Reducer</td>
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<td>1.5&quot; NH Female to 1&quot; NH Male Reducer</td>
<td>852-51081</td>
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<td>1.5&quot; NH Female to Male 3/4&quot; GHT Reducer</td>
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<td>Kochek</td>
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<td>Kochek</td>
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<td>1&quot; NH Female to 1&quot; Male NPSH **</td>
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<td>Kochek</td>
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<td>1&quot; NH Female to Male 3/4&quot; GHT Reducer</td>
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<td>Kochek</td>
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<td>2</td>
<td>Hose Line T 1.5&quot; NH x 1&quot; NPSH with cap and chain **</td>
<td>858-30825D</td>
<td>C&amp;S Supply</td>
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<td>2</td>
<td>1&quot; Female NPSH to 1&quot; Male NH **</td>
<td>852-51011</td>
<td>Kochek</td>
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<tr>
<td>1</td>
<td>2.5” Female to 2.5” Male 45 Degree Elbow NH</td>
<td>AH5NJ-NJ</td>
<td>Task Force Tips</td>
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<td>2</td>
<td>1.5” Break Apart Nozzle NH</td>
<td>858-32005</td>
<td>C&amp;S Supply</td>
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<tr>
<td>3</td>
<td>1&quot; Break Apart Nozzle NH 10/23 GPM</td>
<td>853-32051 1NH</td>
<td>S&amp;H Products</td>
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1" Dual Range 10/23 GPM Nozzle NH 858-30405 C&S Supply
Forestry Mop Up Nozzle GHT 853-31051 Gilmour
1" Dual Gallon Cup Foam Asp Nozzle NH 10/40GPM DS1040BCP Task Force Tips

Valves
1 2.5" Gate Valve NH 853-30051 Red S&H Products
2 1" Female NH Inlet x .75" Male GHT Outlet (2) Gated Wye 145-0010 Fast Fire Parts
2 1.5" NH Inlet x (2) 1" NH Outlet Gated Wye with Long Handles AYLNF-ND Task Force Tips
2 1" NH Inlet x (2) 1" NH Outlet Wye 853-30901 1NH S&H Products
1 1.5" NH Floating Strainer with Poppet Style Foot Valve FBS15FV Kochek

MISC
1 Backpack Blower BR 450 Stihl
1 First Aid Kit- Ultralite .3 252-38531 Adventure Med
1 Roadside Safety Reflective Warning Triangle (3 pack) B08B8YDK2Y Foxfire
1 5 lb. ABC Dry Chemical Fire Extinguisher B500 Amerex
3 Survivor Rechargeable Flashlight Orange 175 Lumens 90503 Streamlight
2 3M Peltor Optime 105 Earmuffs Over the Head H10A 3M
4 Reflective High Visibility 5 Point Breakaway Vests (XL) B09BRGW4Q7 Viewbrite
1 Caution Tape 3" x 1000 ft 33000 PS Direct
1 267 Piece Home Owners Tool Set 3790297 Kobalt
1 3 Piece Groove Joint Pliers 464646 Kobalt
6 Grenade Hose Strap 843-93007 True North
1 Fire Hose Bands Red (10 pack) 849-60018 Aero Rubber

PPE
4 Full Brim Helmet with Ratchet Suspension (Yellow) 204-2040H Bullard
4 Yellow Brush Shirt (3 Large and 1 XL) 103-15522 True North
4 Sets of Leather Gloves (1 Medium, 2 Large, 1 XL) 100-79001 Protective Ind.
4 Strike Team Goggles XTO 400-650XT ESS