MINIMUM SPECIFICATIONS FOR ONE (1) 2017 SINGLE AXLE DUMP CHASSIS AND BODY INCLUDING SALT SPREADER AND SNOW PLOW. ALL BIDS MUST BE EQUAL TO OR EXCEED THE FOLLOWING CONDITIONS:

PRICE QUOTED SHALL INCLUDE TRANSPORTATION CHARGES FULLY PAID TO THE LOCATION DESIGNATED AS THE DELIVERY ADDRESS.

BIDDER SHALL PROVIDE PREPAID TITLE APPLICATIONS (WHERE APPLICABLE) ON ALL UNITS BID.

THESE SPECIFICATIONS ARE DESCRIBING & STATING THE MINIMUM CAPACITIES, MATERIAL THICKNESS AND QUALITIES NEEDED AND REQUIRED TO PERFORM A CERTAIN JOB. ANY BIDS SUBMITTED NOT MEETING ALL OF THESE MINIMUM SPECIFICATIONS WILL BE REJECTED.

ALL BIDS MUST BE SIGNED AND DATED. ALL BIDS MUST INCLUDE DELIVERY DATE AND PUTTING THE EQUIPMENT INTO SERVICE. ALL EQUIPMENT MUST BE 2017 MODEL YEAR

Truck Chassis Specifications:

	YES	**NO**
Engine Cummins ISL 9 – 330HP, 860 torque, with SCR after treatment system	____	____
Engine must meet all 2010 EPA requirements with out using credits	____	____
Turbo Exhaust brake	____	____
Allison 3500 RDS 5 speed with PTO provision and dash shifter	____	____
Rear axle Ratio equal to 70 MPH	____	____
14,000 lb. Front Axle with power steering	____	____
14,600 lb. Front Suspension with shock absorbers	____	____
16.5 X 5 Front Air Brakes with auto slack adjuster's	____	____
23,000 lb. Rear Axle with Differential Lock	____	____
16.5 X 7 Rear Air Brakes with auto slack adjuster's	____	____
Bendix ABS system 4S/4M	____	____
23,000 lb. Rear Spring Suspension	____	____
Maximum 163" Wheelbase with 85" Cab to Axle	____	____

Comply with body spec's	____	____
Rear Suspension with heavy duty rear crossmember	____	____
Single Frame with minimum RBM 2,132,000 lb-in per rail	____	____
All Steel Wheels - front & rear	____	____
11R22.5 14 ply Tires Front steer and Rear traction	____	____
Cab Construction to be of air craft grade aluminum	____	____
Stationary Grill with tilting full Hood for Snow Plow	____	____
Cab Color White, Frame Black	____	____
Electric Door locks LH/RH	____	____
RH under cab SCR with single side of cab vertical exhaust	____	____
Engine block heater, 1000 watt 120 volt	____	____
Steel bumper with 2 removable tow hooks	____	____
Minimum 56 gallon aluminum fuel tank	____	____
Minimum 11 gallon DEF tank	____	____
Tilt & telescoping steering wheel	____	____
AM/FM/WB Radio	____	____
Factory Heat, Defrost & Air Conditioning	____	____
Under dash console with 2 cup holders, 1 ashtray, 1 lighter & 1 12V outlet	____	____
Single roof mounted air horn	____	____
West coast mirrors with 7 ½" convex spot mirrors	____	____
Single RH 8 ½" convex spot mirror mounted over passenger door	____	____
Five sets of key	____	____
Manual LH & Electric Powered RH door window	_____	____
Headlamps Halogen Projector beam	_____	____
Air Dryer Bendix AD-IS heated	____	____
Inside Cab Mounted Fire Extinguisher & Triangle kit	____	____
Two spare dash switches wired to power	____	____
Passenger side door "peeper" window	____	____

Fan Hub Horton 2 speed ____ ____

Heated Fuel/ Water Separator ____ ____

Alternator no less than 160 amps ____ _____

Rear Transmission support spring for installed PTO application _____ ____

Driver seat to be air ride with vinyl covering _____ _____

Passenger seat to have tool box and vinyl covering _____ _____

LH/RH grab handle inside door frame above dash _____ _____

MANUALS: PROVIDE ONE COMPLETE SET OF PARTS & SERVICE MANUALS

_____

CHASSIS BASIC WARRANTY SHALL BE A MINIMUM OF 1 YEAR.

_____

WARRANTY:

*PLEASE PROVIDE A COMPLETE LIST OF EXTENDED WARRANTIES THAT ARE AVAILABLE.

BED / HOIST SPECIFICATIONS

DUMP BODY

The following specifications and dimensions shall apply to the six and one half (6.5) cubic yard capacity truck-mounted dump body and hoist. The complete dump body shall be capable of accommodating a 10-foot, slip-in material spreader with attached liquid storage tanks.

Bids will not be considered on any body and hoist that deviate from these specifications.

1. GENERAL

The dump body provided shall be a continuously horizontal braced style (Western Style). No underbody cross-members for support will be allowed. The floor, sides, and main long sills are to be full length with no cross-splices. All boxed areas of the dump body shall be sealed. All welds shall be continuous. All hinge pins shall be removable.

A. Dump body capacity shall be approximately six and one half cubic yards water level
B. Length - 120 inches inside length
C. 96-inch minimum outside width – (front and sides)

D. 96-100-inch wide outside width of the rear corner posts
(Note: Lighting enclosure/assembly shall be mounted within the dimensions of the corner posts facing the rear in a manner which does not interfere with the operation of the dump body tailgate. No portion of light assembly/enclosure shall extend beyond the outside surface of the corner post on the side.)

E. 86-inch minimum inside width

F. 32-inch side and end height

2. MATERIAL

The entire load space of the dump body including the floor, tailgate, sides, and front sheet is to be constructed using 3/16-inch Certified AR-450 (Hardox type) steel plate. (Hardox type) AR-450 is to have minimum yield strength of 175,000 P.S.I., and a minimum tensile strength of 205,000 P.S.I. Boxed top rails and boxed top tailgate horizontal brace are to be constructed from 3/16-inch Certified (Domex type) 100XT steel plate or 3/16"Corten(7 ga. material is not acceptable). The material must provide minimum rated yield strength of 50,000 lbs. and a minimum tensile strength of 70,000 lbs. Bottom rub rails, tailgate box bracing (except the top rail), and rear corner posts are to be constructed using 3/16" Corten, 3/16" non magnetic 201 alloy stainless steel.

NOTE : ALL THICKNESSES LISTED ARE MINIMUMS.

A. Main long sills: 3/16" (Domex type) 100XT, 10" high trapezoidal. (NOTE: Tubular, I beam or structural channel longsills are not acceptable).
B. The longsills are to be formed 10" high, seven inches wide at the floor tapered to 3" wide at the bottom of the sill. Trapezoidal design with an inner full length reinforcement plate is to be welded onto the longsill and the structure is to be self draining.
B. Floor, Tailgate: minimum 3/16- inch AR-450 (Hardox type)
C. Sides, Front, Doghouse: minimum 3/16-inch AR-450 (Hardox type)
D. Formed Top Rail: 3/16 -inch (Domex type) 100XT, 3/16" structural tubing top rails are not acceptable.
E. Tailgate top boxed brace must be formed using 3/16" (Domex type) 100XT material. Structural tube top rail is not acceptable.
F. Cab shield: 3/16" (Domex type) 100 XT, 3/16"Corten, 3/16" non magnetic 201 alloy stainless steel.
G. Balance of the body bracing and various components are to be constructed using 3/16" Corten, or 3/16" 201 stainless steel.

3. SIDES

A. Sides shall be 32-inches high from floor to top of formed, debris-shedding, boxed top rail.

B. The body sides are to be fabricated using a single sheet of 3/16" AR 450 (Hardox type). NO SPLICES

C. Sides shall have no provisions for extension boards and are to be flush with the tailgate.

D. Sides are to be welded to full height rear corner posts, which extend to the lower edge of a full width rear apron, and continuously welded to the body head sheet.

E. The sides are to be capped with a 3/16" 100 XT Domex formed boxed top rail. The top rail shall be of dirt shedding, triple bend design, with minimum outer dimensions of 4" to 6.25" in depth, and 12.25" high.

F. The lower rub rails are to be 3/16" non-magnetic 201 alloy stainless steel or 3/16 Corten steel. The rail is to be self- draining and sloped to shed debris

G. Two strap tensioning winches per side are to be welded to the side sheet below the side top rail. The winches must accommodate up to a 4 inch wide strap and must line up with the hold down pockets on the V box insert salt spreader.

4. REAR FRAME

A. Rear corner posts are to be fabricated using 3/16" non -magnetic 201 alloy stainless steel, 3/16" and extend below the sides to the bottom of the body long sills. The width of the posts from front to rear must be a minimum of 12".

B. The bottom of the corner posts are to include removable 3/16" non-magnetic 201 alloy stainless steel, or 3/16" Corten steel covers to keep the rear tires from throwing debris up into the inside of the posts. The covers are to allow for drainage, and must be designed to be easily removed for servicing components inside the body corner posts.

C. The apron is to be continuously welded to the body long sills, floor sheet, rear corner posts, and shall form a solid, unitized rear frame assembly. This apron is to be constructed from 3/16" SSAB (Domex type) 100XT plate . The outside dimension of the rear body frame is to be 96- 100".

5. ASPHALT LIP

An asphalt lip shall be mounted on the rear of the dump body.

A. Asphalt lip is to be fabricated using 3/16" SSAB (Domex type) 100XT steel. The lip must have a downward angle of between 24-28 degrees. Two (2) 3/16" thick intermediate braces are to be welded to the underside of the lip for rigidity.

B. Asphalt lip shall be mounted to the body using ½" hardware. Holes in the lip and dump body shall be dimensional to allow any lip to be installed on any dump body. Welded paver lips are not acceptable. Length of the asphalt lip shall be such as to provide approximately 20-25- inches of overhang, measured from the center line of pivot pin.

6. TAILGATE

A. The tailgate shall be 32” high to match the side height, double-acting, and vertically straight with off-set hinges for positive closure. The Gate is to be constructed using 3/16” AR-450 (Hardox type) plate.

B. The tailgate sheet shall be reinforced using a formed dirt shedding 3/16” (Domex type) 100XT. The outer, lower, and two (2) horizontal intermediate box braces are to be formed from 3/16” thick, non-magnetic 201 alloy Stainless Steel. Bracing is to be a minimum of 3” deep, and no less than 5” wide. These braces are to be continuously welded to provide a fully boxed tail gate assembly.

C. A hinged “D” ring shall be mounted top and center of the tailgate to provide a lifting hook for removing the tailgate.

D. Two 3/8-inch grade 70 spreader/holder chains shall be provided and stowed in boxes that are externally welded on tailgate when not in use. Boxes shall be constructed of 201 stainless steel or 3/16” Corten and must have drain holes.

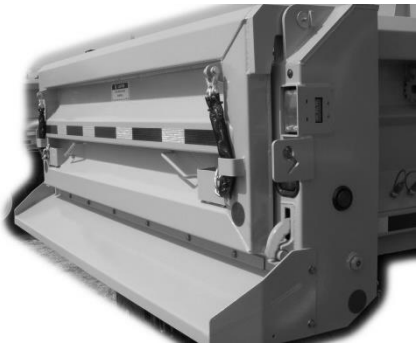
E. Anchor points for the tailgate chains shall be made from 3/8-inch thick 201 stainless steel or 3/8-inch Grade A-36 plate. These anchor points shall be lapped on the outside of the dump body with a minimum of 1-inch overlap. Keyhole slot in anchor points shall be configured so that when installed, the link of the tailgate chain nested in the anchor is no more than 1-inch away from the rear face of the dump body at the farthest point.

F. The top hinge pin shall be minimum 1 ¼ - inch diameter and pivot through (2) two ½-inch thick plates welded to the top of the rear body corner posts. The upper hinge plates must be flush with the top of the rear corner posts, body sides, and tailgate. These pins shall have one end tapered approximately 30 degrees for ease of alignment. 30 degree taper shall be ¼ - to 3/8-inch in length. Both upper pins to be fabricated from 1 ¼ - inch cold rolled steel, and have a 3/8-inch thick outer flange stop. The 2-inch flange is to have one side machined to rest against a 3/8-inch x 2-inch flat bar welded to the outer hinge plate in order to capture the pin in place and prevent rotation, and pre-mature pin and hinge wear. Each pin is to be drilled and tapped for grease fittings to be installed into outer pin flange. Grease channel are to be included in order to lubricate both inboard and outboard hinge plates.

Note: All upper tailgate hardware is to be FLUSH with the sides, and the tailgate.

G. The tailgate lower pins shall be a minimum 1 ¼-inch diameter cold rolled. Tailgate shall, without assistance from the locking device, seal against the floor/side sheets of the dump body, with no more than a 1/16-inch gap at any point. With the tailgate closed and the locking device open, tailgate lower pins shall have a 1/8-inch minimum, ¼-inch maximum gap between the forward edge of the pin and the edge of the cradle.

H. When the tailgate is lowered parallel to body floor, the inside surface of the tailgate shall provide a smooth level joint between the tailgate and the body floor.



7. TAILGATE LATCH

A. An over-center locking device on each side of the dump body shall hold the tailgate securely closed. Latching arms shall be flame cut steel or forged steel (cast latches are not acceptable).

B. The tailgate latch cross shaft assembly shall be supported on each end by bushings**.**

C. The locking device shall be operated by an air cylinder, which shall be mounted between the long sills. Air cylinder shall be controlled by the chassis air accessory power supply. Cylinder to be compatible with latches supplied.
Note: Switch must be installed in cab convenient to operator.

D. Locking devices shall be adjustable at each side of the dump body.

E. A manual over-ride shall be provided on the outside or underside of the dump body, allowing the operator to lock or unlock the tailgate using a pipe wrench or simple adjustable wrench and without removing components.

F. Lubrication points on the tailgate latch cross-shaft shall facilitate easier greasing by means of grooved bushings and/or shaft.

G. Grease zerks at each end of the tailgate cross-shaft or shaft bearings shall be visible and easily accessible from the outside of the dump body. The use of cast hardware, pins, and/or latches is not acceptable.

8. HEAD SHEET

A. Head sheet is to be constructed from 3/16” AR-450 (Hardox type) steel plate. The body must be designed to allow the trunion mounted hoist to be mounted in an internal dog house, when necessary. The dog house (constructed using 3/16” AR-450 Hardox) dimensions shall be no larger than required for proper hoist operation. The successful vendor shall be responsible for inspection of each truck to determine dog house dimensions.

The front sheet is to be braced with a top box brace fabricated using 3/16”SSAB (Domex type) 100XT steel or 3/16” Corten steel. The brace is to be dirt shedding design.

9. CAB PROTECTOR

A. The cab shield is to extend 24-inches forward of the body head sheet, 87 ½-inches wide, and shall be formed from 3/16” (Domex type) 100 XT steel. The front lip of the cab shield is to be 5-inches high. Side gussets are to include mounting surface for the installation of the tarp system described in this specification, and will be up-fitted with a wind deflector manufactured of the same metal as the cab protector to protect the tarp roller and bearings. The side gussets are to extend from 5-inches above the shield overhang down to the body top rails. The entire shield is to be continuously welded to the head sheet. The cab protector shall be mounted, welded, and gusseted to prevent flexing or vibration.

B. The outer front corners of the cab protector are to be angled at 45 degrees. This angle is to provide mounting spaces for the installation of Whelen series M4A super liner L.E.D. flashers or equal in each front corner. These lights will be visible from both the front and the side of the cab protector. The front lip of the shield will also include two ¾-inch round, rubber mounted L.E.D. amber marker lights. These lights are to be installed as wide as possible. Or, additional lights as needed to be viewed from front & sides of cab protector.

C. The half (1/2) cab protector shall not interfere with the cab-mounted vertical exhaust pipe. May be accomplished using turn-out.

10. BODY UNDERSTRUCTURE

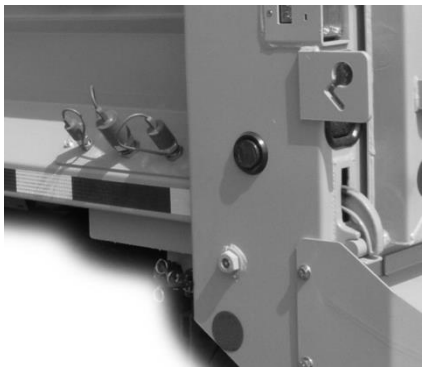
A. The floor is to be fabricated from a single sheet of 3/16” AR-450 (Hardox type) steel plate. Splices in the floor sheet are not acceptable. The floor plate is formed with a flange on each side extending 7 ½" to 8” up at a 45 to 64 degree angle, and continuously welded to each body side sheet, and the body head sheet.

B. The long sills are of a trapezoid design, fabricated from 3/16” SSAB (Domex type) 100XT plate steel. Long sills are to be 10-inches high, 3 5/16-inches wide at the bottom of the sill, and 10 ¼-inches wide at the top of the sill. Full length 3/16-inch (Domex type) 100 XT stiffeners are to be welded to the inside of the sill 4 ¾-inch up from the bottom of the sill, as internal reinforcements.

C. Each long sill is to be notched to provide channels for hose routing from the center of the body to the right and left hand body outer rub rails. The channels shall be located approximately 13 ½-inches forward from the rear of the body, and shall be approximately 13-inches wide and 3-inches deep, and are formed from 3/16 non magnetic 201 alloy Stainless Steel plate.

These channels (passageways) are to be continuously welded to the long sills to prevent moisture, and dirt from entering the long sill. Hydraulic quick disconnect fittings for salt spreader connection are to be located in each rub rail. The driver's side rub rail shall have one (1), ½-inch female quick disconnect to provide pressure for the salt spreader spinner motor, and one (1) 3/4-inch male quick disconnect for the return oil. The passenger side rub rail shall also have one (1) 1/2-inch female quick disconnect fitting to provide pressure to the Auger/Conveyor motor, and one (1) ¾-inch male quick disconnect fitting for return oil.

D. Tailgate locking linkage must run through the long sills from left to right side of the body.



11. HOIST

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A. The hoist in this specification is required to meet NTEA Class 50. The hoist in this specification shall be power down, without the need for an additional in line relief valve. The cylinder shall be a trunion mounted telescopic cylinder. It shall be installed with the largest stage at the bottom for stability. An inverted telescopic hoist will not be acceptable. All components of this cylinder, with the exception of the seal kit, shall be processed through a liquid salt bath nitriding treatment to enhance the surface hardness and corrosion resistance. Hardness achieved will be Rockwell C scale 55-60, and corrosion resistance will be roughly five (5) times that of hard chrome plating. The cylinder shall be a rod seal design, with seals and wipers installed in the gland nuts at the top of each section. Tubes will be surrounded by oil when retracted, adding to the longevity in a salt environment, such as winter highway maintenance. There will be an oscillating collar on the outer cover of the cylinder to allow the body to be offset 5 degrees to 7 degrees without transferring that side load to either the truck frame or the cylinder tubes, and therefore enhancing stability and longevity. The cylinder shall have a minimum two-year warranty.

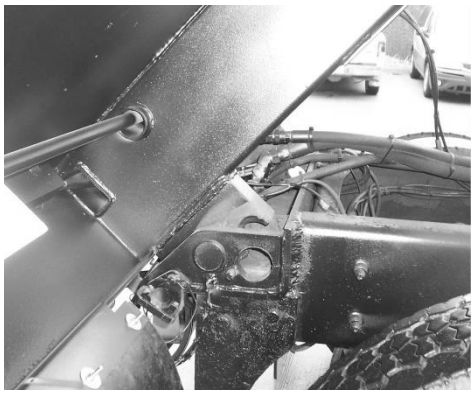
B. The hoist cylinder is to be trunion mounted to the body long sills and is to be positioned in front of the head sheet to eliminate the need for a cylinder dog house if possible.

C. A flared body bracket will be attached to either the hoist frame or body understructure to align body in position and keep from moving side to side.

D. Mailhot CS90-4.5-3DA. NO EXCEPTIONS.

12. REAR HINGE

A. The rear hinge shall consist of a base angle fabricated from ½-inch thick x 8-inch deep x 5 ¾-inch high, and 37 ½-inch overall length, A-36 material. The hinge assembly includes four (4) 1 ¼-inch thick hinge lugs having one (1) 2 ½-inch diameter hinge pin hole, and two (2) 2-inch diameter holes plasma cut into each hinge lug. Hinge blocks are pinned to the hinge lugs using 2 ½-inch diameter pin held into the lugs, and blocks with a ¼-inch fabricated collar welded to each inner hinge lug. Hinge blocks include 0.125 diameter hole drilled and tapped for grease zerk fittings or mfr's standard. Hoist pivot pins to be drilled and cross drilled to allow lubrication of the entire pin surface.



14. BODY PROPS

A. Rear most 2" diameter holes in the hinge lugs will house a 1-15/16" diameter pin held to the hinge assembly with a cable style lanyard long enough to allow the pin to be removed from the lug, and placed into the forward 2" diameter lug holes when the body is in a raised position, thus acting as dual body safety props. The hinge must be designed to allow the body safety prop pins to be placed into position without having the operator under the side of the body.

15. LADDER

A. A pull out style two-rung ladder shall be installed on passenger side of the dump body. Location of the ladder shall be on the right rear side of the dump body, such that operator does not have to climb over the tarp bow when the tarp is retracted.

B. Grab handles shall be installed on the outside of the dump body and provide for three points of contact while using the ladder.

C. A single grip strut stirrup is to be provided to allow ingress and egress to and from the body cargo area. The step is to be constructed using grip strut measuring twelve (12) inches long, and two and one half (2 ½) inches wide. The grip strut is to be capped with 3/16" AR450 or stainless steel plates and

continuously welded to the body side sheet. The step is to be centered on the body side between the grab handles described above. An EZ Step ladder is not acceptable.

16. WIRING AND HOSE ROUTING

Wiring and hoses going to the front of the dump body shall be secured to a ½-inch diameter painted steel rod which shall be attached between the inside of the long sills by means of ½-inch x 1-inch tall stand-offs. Stand-offs shall be placed no farther than 24 inches apart, and be securely welded to the long sill. Wiring inside the rear corner posts shall be secured to ¼-inch vertical painted steel rods attached inside the rear corner posts by mean of ¼-inch x 1-inch stand-offs, securely welded. Height of stand-off to be sufficient to support all of the wiring inside the corner post. Stand-offs shall be positioned to allow wires to be secured away from the tailgate latch mechanism, and within 6-inches of all lamps. A sufficient amount of wire shall be left between the last point of securement and lamp to allow for the removal of the lamp for replacement.

17. BRAKE, TURN, AND TAIL LIGHTS

Lighting shall meet all Federal and State DOT specifications, which recently includes and requires an independent running light on the rear corners.

A. All lights shall be LED.
B. All lights shall be connected to a one piece wiring harness with weather pack connectors. Power harness shall be splice free.
C. Each rear corner post shall incorporate a Whelen stainless steel light mounting box that will house red SST, Amber strobe flashers Whelen series 400 with 180 degree light disbursement, and Whelen clear back up lights. The enclosures are to be welded with stainless steel wire into the posts and shall include Whelen tempered glass covers with integral heating elements.
D. A 1 ½-inch pipe shall extend through long sills at the rear for routing of electric wiring. Pipes are to be fully welded, sealing the joint at the long sill.

18. RAISED BODY INDICATOR

A sealed proximity switch shall be mounted to control a raised body indicator light. The light shall be powered by the chassis electric accessory power supply. A dash mounted indicator light shall be provided, be plainly visible to the seated operator, be red in color, and flash when the dump body is raised.

19. MUD FLAP BRACKETS

Friction type mud flap brackets to be attached to the underside of the dump body at the rear. These brackets shall allow replacement of the mud flap by removing only one fastener. See attached drawing. Mud flaps shall be 24-inches wide x ½-inch thick, H.D. solid rubber construction, and long enough to satisfy FMVSS. Front mud flap brackets to be constructed using 2-inch x 2-inch x ¼-inch steel angles bolted to truck frame and must include anti-sail cage style brackets. Anti-sail bracket cages are to be constructed using a minimum 5/16-inch diameter round chrome plated rods, which form a "cage" to keep flaps from contacting the front of the drive axle tires. Front mud flaps shall be 24-inches wide and long enough to keep rear tires from throwing debris on the back of the cab, as well as any frame mounted after-market components such as tool boxes, valve enclosures, etc.

20. TARP SYSTEM

LOAD COVERING TARP SYSTEM: Electric covering system with a cover recommended for occasional asphalt use. Donovan Enterprises Model Bullet, Shurco Arm Matic or equal.

Electric Motor: Electric powered direct drive oil bathed gearbox, ball bearings with alloy steel and bronze gears. 58 RPM at output (no load). High density polyethylene motor cover included.

Control Arms: Dual side mount arms and crossbar constructed from premium aluminum front to rear with outside mounted adjustable springs. Extruded aluminum one piece arms with 30degree bend, ¼" sidewall thickness, ½" top and bottom thickness, 7/8" diameter galvanized crossover bar, .110 wall thickness with rubber donuts. Arms are to be actuated by a 12 volt DC, electric motor with direct drive, control wired to battery side with heavy duty wiring.

Controls: Rotary or rocker switch Forward/Reverse control shall be mounted for driver convenience.

Lubrication: Zerk grease fittings to be provide where applicable

Wind Guard: A protective steel cover to be provided over front of tarp.

Heavy duty tarp extend springs located on body rub rails with tension adjusters. Tarp Fabric: 14 oz. per sq. yd. Vinyl coated nylon fiber reinforced with a 90/120 field and warp weave. Tapered points to be reinforced with minimum 2 inch webbing material or 5 1/4 oz per sq. yd. 840 Denier Woven nylon fiber with one (1) neoprene coated side of 2 3/4 oz. per sq. yd. with a total weight of eight (8) ounces. Both fabrics shall be waterproof and resist punctures and abrasion and be resistant to asphalt sticking to fabric. All edges are to be doubled and double stitched along the entire perimeter of the tarp fabric. Each longitudinal side shall have #3 spur brass eyelets spaced a minimum of 24.0" on center for entire length. The cover shall be approximately three (3) feet longer than body.

21. AIR POWERED ACCESSORY INSTALLATION

A. All lines shall be routed in a manner to minimize rub points and bends. Critical rub points shall be wrapped for protection.
B. All lines shall be routed or shielded to protect them from heat sources.
C. Air lines shall be colored, identifying individual circuits, with each circuit being a different color. Color-coding shall remain consistent for the duration of the contract.
D. Body Builder installed accessory air lines going to the rear of the frame and dump body, shall be grouped together and bound with the Body Builder installed wiring going to the rear of the frame and dump body. This bound harness shall then be secured to a painted metal strap, approximately 1 ¼" X ¼" in size. This strap shall be secured to the top of the frame cross members away from the side rails.
E. All air-powered accessories shall be controlled by the chassis air accessory power supply.

22. GREASE ZERKS

D. All Grease Zerks will be threaded. Drive in zerks are not acceptable
E. All threaded holes for grease zerks shall be of sufficient depth to prevent the zerk from bottoming out when tightened.

23. EMERGENCY LIGHTING

Two (2) 4" X 6" Series 600 Linear –Super LED warning lights are to be installed on the wind deflector facing the rear of the vehicle on adjustable steel brackets. Brackets will allow for light adjustment to remain parallel to the ground with bed lowered or raised to a 20 degree angle. The warning light shall incorporate Linear-Super LED and Smart LED technology. The lighthead configuration shall be designed with eight (8) amber Super-LEDs with an amber optic polycarbonate lens. The lighthead shall utilize a hybrid TIR optic reflector and chrome vacuum metallized reflector for maximum illumination. The lighthead shall include fourteen (14) internal Scan-Lock flash patterns including steady burn and High/Low power functions. The lighthead shall have a conformal coated circuit board for moisture protection. The light shall be furnished with a 6" wire pigtail, a Santoprene gasket and screws shall be included for surface mount installation.

24. PARTS & SERVICE- DUMP BODY:

1. Body builder must provide adequate documentation to the effect that body builder currently has or will have a mfr owned or mfr's franchised authorized parts & service facility located within four (4) hours of F.O.B. delivery location to be considered for award.
2. Service facility address information must be attached to ITB and is a requirement for award.
3. This must be a full service facility, which includes; field representatives, manufacturer's required specialized tools, fully equipped service trucks, and factory trained technicians.
4. A list of three (3) satisfied customers using dump bodies of the size on this bid or larger with central hydraulic systems with controls and valves for hydraulically operating snowplow up/down, angle right/left, tailgate spreader on/off, hoist up/down including pump and hoses such as used by the same customers for snow removal which have been installed and serviced by the manufacturer is required.

25. WARRANTY:

Twelve (12) months component failure 100% parts and labor.
Twelve (12) months on defects in material and workmanship.

END OF BODY SPECIFICATIONS

PINTLE HITCH

The Hitch plate is to be fabricated using 1-inch thick steel plate. The plate is to be welded into the rear of the truck frame and properly gusseted to support the following pintle hook. Type - Forged rigid type with safety latch, Holland Model PH-400-1, Wallace Forge Co Model R45A6 or Buyers Model RD45-10 or equal. Capacity - 18,000 lbs. minimum vertical load capacity - 90,000 lbs. minimum gross trailer weight capacity. Fabrication is to be capable of carrying the load rating of the pintle hitch. Pintle hitch shall be bolted with grade 8 bolts, and top lock nuts, to a ¾-inch thick steel plate which is welded to a 4" solid steel square bar stock, which will form an extra H.D. hitch insert. The insert will be capable of being removed from the hitch plate receiver by removable of a 1 1/2" C-1018 cold rolled steel pin. The pin will include a grab handle, and quick latch removable pin.
The hitch plate receiver tube is to be constructed using 1-inch thick steel plates which are welded to form a tube with the inside dimension to be 4 1/16-inch square. (Pintle hitch welded or bolted to a mounting plate or channel mounting frame work will not be acceptable). A storage tube is to be provided on the curbside of the chassis frame to accept the receiver when the pintle hitch is not needed. Body manufacturer shall also mount electrical receptacle and glad hands for towing trailer when mounting pintle hook mount and pintle hook. Factory installed rear lights maybe deleted. NO EXCEPTIONS.

SAFETY CHAIN HITCH EYES:

Type - 3/4 inch hot roll round steel with an approximate opening of 2 ½-inches by 2 ½-inches.
Location - welded to the bottom of the hitch each side of pintle receiver tube center.

TRAILER CONNECTION SOCKET:

7-Way round pin connector; Mounted at Rear of Frame, Wired for Turn Signals Independent of Stop, Compatible With Trailers That Have Amber or Side Turn Lamp

CENTRAL HYDRAULIC SYSTEM SPECIFICATIONS

1. GENERAL REQUIREMENTS: A complete hydraulic system for operation of dump body hoist, hydraulically powered granular/salt spreader, and hydraulically operated snowplow. System design shall provide for simultaneous 100% capacity of salt spreader operation and dump body hoist operation (raising or lowering). Operating hoist shall not effect salt spreader operation at normal operating engine RPM's. Raising and lowering cycle time must be within industry standards. A flow control (divider) for dividing oil between salt spreader and hoist is not acceptable.

2. The P.T.O. and hydraulic pump provided on the chassis is to be removed and replaced with new components as described below when requested.

   It is the sole responsibility of the successful bidder to include all necessary labor and material in order to provide a complete and working system.

3. HYDRAULIC PUMP:

Variable displacement piston pump driven by a "hot shift" Power Take Off is to be provided. The hydraulic pump shall be an axial piston pressure and flow compensated load-sensing type. The pump shall be cast iron construction and shall have a minimum 6.00 cubic inches per revolution at maximum. The pump shall have a 2½" maximum – 2" minimum suction line and 1" maximum -- ¾" minimum case drain line plumbed directly back to the reservoir. The pump shall be rated for 3000 PSI maximum and 2500 PSI continuous.

4. OIL RESERVOIR: The hydraulic reservoir shall be of 35 gallons nominal capacity, constructed of 10-gauge steel, and be internally baffled. The mounting bracket is to be designed and supplied by the reservoir supplier. The mounting bracket shall allow for a 1" clearance from frame obstructions. To prevent any truck torsional loads from transmitting through the reservoir, the reservoir shall be mounted by three points to the tank mounting bracket. The enclosure shall use gasket-less passive technology. Rubber seals, gaskets, or weather stripping of any kind are not acceptable. The enclosure cover shall be removable within seconds by one person without the use of any tools and shall protect from both road and pressure washer spray. The hydraulic oil filter shall be mounted in the reservoir. All valve fittings, hoses, filter, filler breather, oil level/temp sensor units, electrical connections, and valve assembly must be protected by the enclosure cover. The control valve assembly must be easily accessible from all six sides without the use of any tools. Valve assemblies suspended by means of bulkhead fittings is unacceptable. The valve plate shall be mounted using one of the following methods: valve plate mounted to two hinged, swing down arms; or the mounting plate shall be removable by a maximum of six stainless steel bolts with lifting eyes and body prop underneath; or hydraulic lift; or air lift; or stainless steel slide out in channels to allow for easy service, and installation of hoses. A 2" full flow brass ball valve shall be installed at the suction port of the tank.

5. RETURN LINE HYDRAULIC OIL FILTER: Replaceable filter rated for not less than 60 GPM nominal capacity. Media Size - 16 micron absolute. Filter to include a built-in bypass valve and filter condition indicator gauge. Condition gauge to be color coded with red being the filter replacement condition indicator.

6. VALVE BANK AND CONTROLS: Number of valves - 5. Note: Sufficient valve bank sections to be furnished for each function as required. The valve assembly shall be mounted in enclosure described above that is integral to the hydraulic reservoir.

   The valve bank shall be arranged as follows:

   a) First section to operate a double acting hoist up/down. Valve to be air shifted with spring return to neutral. Work ports to be 1" O-ring thread and rated for 40 GPM. There shall be a relief valve installed in the down circuit and set at the hoist manufacturers recommended pressure.

   b) Second section mid-inlet transition section with a 0-4000 pressure gage installed and shall have an integral relief valve. It shall have a 1" O-ring thread port for the inlet, 1-1/4" O-ring thread port for the return, and ¼" O-ring thread port for the load sense.

   c) Third section to operate snowplow lift / lower. Valve to be double acting spool air shifted with spring return to neutral. Work ports to be 5/8" O-ring thread. Shall have integrated flow control. External flow controls are not acceptable.

   d) Fourth section to operate snow plow angle left / right. Valve to be double acting spool air shifted with spring return to neutral. Work ports to be 5/8" O-ring thread. Shall have integrated flow control. External flow controls are not acceptable.

   f) Fifth section to operate spreader functions. Spinner and conveyor section, consisting of two pressure compensated cartridges that are a single piece design with hardened cartridge bores and spools. These shall be operated independently via a 12 VDC pulse width modulated signal. Each valve shall have heavy duty 7/16-20 UNF screw style manual overrides that are adjustable from no flow to full flow. These valves shall be mounted in a housing that is made of aluminum with gray anodizing for corrosion resistance and durability. The auger/conveyor shall be a 15 GPM spool and the spinner shall be a 7 GPM spool. The electrical connections shall be weather packs.

Type - Load sense circuit sectional type, U.S. manufactured.

Valve Actions - numbered left to right.

1. Dump body hoist with up, hold, and down positions (spring return to center).
2. Mid-inlet, transition section.

3. Snowplow hoist with up, hold, down (spring return to center).
4. Snowplow angle left and right (spring return to center).
5. Combination spreader auger & spinner.
6. Pre-wet

Control Knobs - All control knobs shall be properly imprinted as to name and operating sequence. Hoist control shall have a center dead man interlock (OSHA approved). Operating sequences:

(1)	(2)
Hoist	Plow -
Down	Down
Hold	Left Neutral Right
Up	Up

NOTICE TO BIDDERS: All UNITS SHALL INCLUDE POWER ANGLING FEATURE.

Valve Controls -Air type APSCO VM series or Del required with sealed valve end fittings. Cab Control to be a modular designed console, floor mounted using removable, adjustable height base. Overall height adjustment between the floor and top base of the console shall be 20" to 24". The console shall be 8-5/8" wide by 9" deep. The base shall be made of 12 gauge steel, the sides and top plate shall be made of 14 gauge steel and the console shall be assembled using 5/16"-18 and ¼"-20 size screws. The console tower will include top and front bays. The hoist and plow air controls will mount into the top bay and the electronic spreader control will mount into the front bay. The hoist control shall be single axis and have an interlock in the neutral position. The plow control shall be a dual axis (quad) control. Console will include a removable rear cover to allow ease of installation and future service access. Console shall be floor mounted. All air hoses are to be color coded, 1/4" diameter and be installed through to the color coded air shifters on control valve bank. Location of console and controls are subject to City approval.

One manual valve control handle including mounting hardware shall be placed in valve bank compartment. It shall be used to operate any control valve during an air system failure. (No tools necessary)

HYDRAULIC HOSE INSTALLATION

All hydraulic hoses on the supplied chassis are to be replaced. This will include all suction, return, and high pressure hoses running from the valve body to all hydraulically powered functions. All high pressure hoses are to be equipped with J.I.C. swivels and adapters to enhance serviceability. All hoses running to the rear of the chassis frame are to be mounted on a plate located at the center of the rear hinge. The mounting plate will include bulkhead fittings and J.I.C. hose adapters. The hoses running thru body channels for all hydraulic functions will be connected to the bulkhead fittings on the top of the hose mounting plate, and continue to the outer body rub rails, and terminate with quick disconnect fittings of the proper size to operate a v-box, or under tailgate salt spreader. All black pipe or cast iron pipe fittings on the supplied hydraulic system are to be replaced with H.D.steel fittings. Wiring and hoses going to the front of the dump body shall be secured to a ½-inch diameter painted steel rod which shall be attached between the inside of the long sills by means of ½-inch x 1-inch tall stand-offs. Stand-offs shall be placed no farther than 24 inches apart, and be securely welded to the long sill.

All hoses shall be routed in a manner to minimize rub points and bends. Critical rub points shall be wrapped for protection.
All hoses shall be routed or shielded to protect them from heat sources.
Teflon tape shall not be used in the hydraulic system.
Hydraulic hoses shall not be secured to any factory-installed chassis wiring, cables, hoses, or lines.
Hydraulic hoses shall not be secured in the same bundle with any electrical wiring.
Hydraulic hoses shall be bundled together and routed by themselves. w/ S.S.zip ties
Hoses shall be adequately supported and securely fastened to withstand snow and icing conditions.
All pressure and return hoses shall be rated for at least 3000 PSI working pressure.
Hydraulic hoses running to the rear of the truck shall be secured to a painted metal strap, approximately 1inch x 1/4-inch in size. This strap shall be secured to the top of the frame cross members away from the side rails.
Each hose going to the dump body shall have 90-degree bulkhead mounted JIC elbows installed at the rear of the truck frame near the dump body hinge. These elbows shall split each hose going to the dump body into two hoses, allowing for easier routing and replacement.
Hydraulic ports shall be “o-ring” type unless otherwise specified.

7. PARTS & SERVICE – CENTRAL HYDRAULICS:
Manufacturer’s franchised or authorized dealer must have parts and service facility within four (4) hours of F.O.B. delivery location to be considered for award. The supplier of the hydraulic and spreader control system is required to have a minimum of two (2) associates, who have completed certification training of the systems being provided, residing in the state of Tennessee. Training includes a minimum of 80 hours of Manufacturer training classroom/hands on simulation training on ground speed controllers, hydraulic pumps, valves, and all hydraulic components that are in this bid document. The two associates will provide statewide training, troubleshooting and warranty repairs for the hydraulic system currently being bid. Manufacturer Component certification of these associates will be required prior to award of bid. Failure to provide the associates located in Tennessee and Manufacturer Component Certification will be considered failure to meet specifications and rejection of bid. (Note: Manufacture certification as just an installer is not acceptable, troubleshooting, repairs, training capability and experience are required for; ground speed controllers, hydraulic pumps, valves, and all hydraulic components that are in this bid document). Franchised dealer address information must be attached to ITB and is a requirement for award. This must be a full service franchised dealership which includes; field representatives, manufacturer’s required specialized tools, fully equipped service trucks, and factory trained. A list of three (3) satisfied customers using dump bodies of the size bid or larger with central hydraulic systems, controls and valves for hydraulically operating snowplow up/down, angle right/left, granular spreader on/off, hoist up/down including pump and hoses such as used by the same customers for snow removal which have been installed and serviced by the manufacturer's franchised authorized service dealer listed below is required. List of customers must include franchise brand bid and model number of equipment.

8. MANUALS: Manuals (printed or electronic) shall be provided with each unit and shall consist of complete electrical and hydraulic schematic drawings, replaceable parts list including brand names and part numbers of body, sub frame, hoist , tailgate latch, hardware, snowplow hitch frame, plow cylinder, hydraulic tank, valves, controls, filters, etc.

9. WARRANTY: Central Hydraulic System
Twelve (12) months on component failure.
Twelve (12) months on defects in material and workmanship.

10. TRAINING: A minimum two (2) hour mechanic training will be provided.

V-BOX MATERIAL SPREADER SPECIFICATIONS

1. General Description:
    a. This specification shall describe a v-box material spreader capable of hauling and spreading free flowing granular materials from a width of four (4) to forty (40) feet.
    b. This unit will consist of a hopper, discharge/feed conveyor, spinner disc, power drive, and all components necessary to make a complete operating unit.
    c. All bidders shall provide a complete proposal drawing accurately showing the exact model to be provided including all options, and units, loaded and unloaded weights and centers of gravity. These drawings shall be provided as part of the bid package. Failure to attach these drawings with the completed bid form will be grounds for disqualification of the entire bid package.
    d. This unit shall be factory ready to accept or retrofit servo controls.
    e. All stainless steel used in the production of this unit shall be corrosion resistant, non-magnetic stainless steel.
    f. The manufacturing and production of this unit shall be of the best commercial practices and only materials of the finest quality are to be used.
    g. Bidders must submit with their bid complete specifications on the unit they propose to furnish.

2. Body:
    a. Construction - 12 Ga. 304 Grade stainless steel with a double crimped top edge forming a 2" section for greater rigidity.
    b. Hopper body Length – 10’ with 2’ of longitudinal overhung for supporting the spinner assembly.
    c. Outside Width – 82” maximum
    d. Side Height – 50” maximum
    e. Capacity – 6.0 cubic yards water level full
    f. Body sides – 12 ga. 304 Stainless steel with no less than 45 degree pitch to ensure free flow of material to the conveyor.
    g. Body ends – 12 ga. 304 stainless steel.
    h. Body longitudinal – Shall be manufactured of 10 ga. Non-magnetic stainless steel and be slotted for ease of gearbox/driveshaft removal.
    i. Inside weld – Spreader body shall be 100% welded on the inside.
    j. Channel cross sills – Shall be 7 ga. Non-magnetic stainless steel that tie the lower edge of the longitudinal to each side support.
    k. Cross supports – Shall be wide enough to allow the hopper box to be mounted on various width truck frames or slide into a dump box.
    l. Top – A 4” X 6” formed non-magnetic stainless steel bolt in box beam shall be elevated 3” above the top edge of the hopper, thus providing a longitudinal brace and hinge point for the top screens.
    m. Channel – There shall be a 3” formed non-magnetic stainless channel welded under the H-beam to each hopper side for additional side support.
    n. Body welding – body and Auger trough shall be electrically welded into a rugged solid unit
    o. Side supports – There shall be 12 ga formed non-magnetic stainless steel side supports that extend the full angle height spaced on 2’ centers.
    p. Lift Hook – A heavy duty non-magnetic stainless steel lift hook shall be provided at each corner.
    q. Endplate – The rear endplate shall be sloped inward 22 degrees.
    r. Mounting kit – Mounting kit is to include;
        i. 4 ea. 4” nylon load straps which will attach to the pockets welded to the spreader hopper. These straps will be secured to the truck body with 4” capacity, cargo winches (which are to be welded to the dump body).
        ii. 1 ea. 3” X 3” X 3/8” structural steel angle to run between the left and right side tailgate latch. The latch bar is to have a 1-1/4” round pin stock welded to the latch bar angle, and positioned to allow the dump body tailgate locks to latch over the pins in order to hold the spreader securely into the dump body.
        iii. All stainless steel joints shall be welded with stainless steel welding wire.
        iv. All sub-assemblies shall be secured with stainless steel hardware
        v. A mounting kit shall be provided to safely secure the hopper to the truck.

3. Auger Discharge system:
    a. Auger torugh floor:
        i. Shall be manufactured of ¾" UHMW Polyurethane
        ii. Shall be of the flat design
        iii. Shall be replaceable
        iv. Shall have rollover edges
        v. Shall be supported on 12 gauge stainless steel cross angles spaced approximately 12" apart
    b. Auger discharge is to be accomplished by means of two 7" diameter auger shafts (chain conveyor is not acceptable).
    c. The augers are to be driven by two 14.0 Cu. Inch orbital hydraulic motors coupled to two 6.00 to1.00 gear ratio gear boxes. Thehydraulic motors are to be "sensored" to provide pulse signal to the spreader controller for ground speed operation.

4. Spinner Assembly:
    a. Distributer disc – 20" diameter, made of Stainless steel
    b. Mounting – Disc shall be mounted on a steel replaceable hub connected directly to the top mounted motor.
    c. The spinner assembly is to be designed to utilize the tubular hitch described earlier in the specifications. It must be removable utilize an adjustable chute to direct the flow of salt to the spinner. The entire assembly must be removable without the use of any hand tools.

5. Top Screens:
    a. Top screens shall be constructed of 3/8" steel rods welded to form a 2.5" square mesh, which is framed by a combination of ¼" X 1-1/2" flat steel and 2" angle iron with the edge supports reinforced by ½" X 1" flat bars.
    b. Top screens shall be removable and use drop-n-lock type hinge.
    c. The screens are to be completely hot dip galvanized.

6. Painting – All stainless steel shall be left unpainted.

7. Leg Stand:
    a. Spreader shall come equipped with a storage stand system designed to be bolted directly to the v-box.
    b. Skid type arrangement shall be constructed entirely of structural tubing.
    c. Main frame shall be constructed of 3" X 4" X ¼" tubing.
    d. There shall be sufficient lateral bracing constructed of 1-1/2" X 3" X 3/16" tubing to support the hopper.
    e. There shall be longitudinal supports constructed of 1-1/2" X 3" X 3/16" tubing with holes spaced on 24" centers for mounting to hoppers.
    f. The forward leg shall be constructed of 3-1/2" X3-1/2" X 3/16" tubing and shall be adjustable in height and designed to fold up as the vehicle backs underneath the stand.
    g. Cast iron caster wheels with greasable steel ball bearings shall be mounted at the front of the main frame to allow the unit to roll into the vehicle.
    h. Rear legs shall be of a self-storing telescopic design.
    i. Lower leg shall be constructed of 3-1/2" X 3-1/2" X 3/16" tubing and shall telescope inside the upper leg that is constructed of 4" X 4" X3/16" tubing for storage.
    j. Rear legs shall extend beyond the spinner assembly to help protect the spinner assembly from accidental damage.
    k. Lower rear legs shall be equipped with a swivel mounted foot to provide additional stability during loading and unloading operations.
    l. All metal shall have the mill scale removed by means of shot blasting.
    m. The stand is to be hot dip galvanized, powder coating or automotive paint finish is not acceptable.

8. Salt Spreader Material Deflector System

All V-Box slide in material spreaders are to be delivered, equipped with the following material deflector system installed on the spreader.

a. System shall include rubber belting bolted to the upper vertical top rail of the spreader and must be long enough to extend down over the outside of the dump body top rails, to the lower vertical edge of the rail.
b. Belting must not interfere with the ability to strap the spreader down to the body with load strap, and tensioning winches that are provided under the body top rails.
c. Belting is to be a minimum of two ply, with a tension rating of 220 LBS.
d. Weight per square foot is to be a minimum of 0.80 LBS. per square foot.
e. Belting is to be 0.125" thick including the top and bottom smooth rubber cover material.
f. Belting is to be bolted to the spreader using 5/16" Stainless steel lock nuts, bolts and flat washers.
g. Bolts are to be located on 12" centers running the entire length of the spreader hopper.
h. Spreader is to be equipped with a front deflector shield and be constructed from 10 Ga., 201 non-magnetic stainless steel.
i. Front deflector is to be welded or bolted to the front wall of the spreader body and properly braced to carry the weight of salt that may not fall into the top of the spreader while loading.
j. Front deflector shield is to extend forward approximately 8" in front on the spreader head sheet, and must also be long enough to extend over the dump body cab shield a minimum of 3".

FRONT SNOW PLOW SPECIFICATIONS
Quote plow hitch and plow lights as separate line item

a. 10' high speed snow plow 10' long x 30" tall
b. 10 Ga. Domex front sheet with extended curl
c. ¼" AR-450 Hardox ribs and frame
d. Replaceable bolt on cutting edge angle for easy replacement (welded on base angle not acceptable)
e. Cutting edge to be Kuper GK-5 (no exceptions)
f. Three compression springs
g. Rubber snow deflector
h. 3/8" rolled turntable
i. Heavy duty A-frame with 4" ship and car channel construction
j. Heavy duty plow swivel with 1" pin lugs on 30 ½" push centers.
k. Twin cylinder power-reverse.
l. 3" X 10" double acting cylinders with an incorporated cushion valve.
m. Custom bolt on hitch for truck bid. (bumper to axle hitch is not acceptable)
n. Dual Beam plow lights with turn signals. Lights to be tube clamp mounted (single bolt mounting stud is not acceptable) with stainless steel brackets mounted on tilting hood assembly. Lights to be dual burn infra-red halogen with integral amber turn signals controlled thru cab mounted plow light switch.
o. 48" tall plow markers with inner cable reinforcement.

ALL PRICES SHOULD EXCLUDE FEDERAL, STATE AND LOCAL TAXES.

STATE DELIVERY TIME, DELIVERY TIME WILL BE A FACTOR IN DETERMINING BID AWARD.

ANY EXCEPTIONS TO THESE DETAILED SPECIFICATIONS SHOULD BE NOTED ON A SEPARATE LISTING WITH SUBSTITUTE COMPONENT SPECIFICATIONS.

THE CITY OF GOODLETTSVILLE RESERVES THE RIGHT TO ACCEPT OR REJECT ANY AND ALL BIDS.

BID AMOUNT:

DUMP BED BID AMOUNT **$**_____

SALT SPREADER BID AMOUNT **$**_____

SNOW PLOW BID AMOUNT **$**_____

TRUCK CHASIS BID AMOUNT **$**_____

TOTAL BID AMOUNT **$**_____

DELIVERY TIME OR DATE:_____**.**

SIGNED:_____ DATE:_____

BY: _____

COMPANY NAME:_____

ADDRESS:_____

CITY:_____STATE:_____ ZIP:_____

PHONE:_____

FAX:_____