



Antrim County Road Commission

JEROME DOBRZELEWSKI, Elmira
FRED HUNT, Jr., Bellaire
GLENN PARADIS, Kewadin
BURT R. THOMPSON, P.E., Engineer-Manager
DALE E. FARRIER, Office Manager

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NOTICE TO TRUCK EQUIPMENT BIDDERS

Sealed bids will be received for providing and installing various truck mounted equipment until 1:00 PM, Monday, February 11, 2013, at which time they will be publicly opened and read. Bids will be received at the office of the Antrim County Road Commission, P.O. Box 308, 319 E. Lincoln St., Mancelona, Michigan 49659-0308. Bids will be tabulated and a recommendation will be made to the Board of County Road Commissioners at their next regular meeting.

General Description

The Road Commission will be purchasing up to two (2) tandem axle trucks and will outfit each with a thirteen (13) foot multi-purpose material spreader with an on-board pre-wet system. The trucks will also be equipped with a twelve (12) foot underbody scraper, a front mounted plow hitch and a nine (9) foot side mounted snow wing. A dump body hinge line will be installed for future use. This bid will also cover supplying and installing a behind the cab fuel/hydraulic tank. This bid will be for a "work ready" truck, in that it will include installation and testing of all equipment, ground speed spreader controls, lighting and any other work necessary to make the truck "work ready".

This bid will be a complete package price. These specifications are minimums. Bidders may offer options, stating specifications and pricing. All installations must be done according to the various manufacturers' procedures. The completed vehicle must meet all applicable federal and state motor vehicle standards

Prior to the start of work, the successful bidder will arrange a meeting with the Road Commission to outline all work details.

The following are some general specifications for the new truck. The exact specifications shall be determined at the time of award.

New Truck General Specifications

GVWR	64,000 pounds
Wheelbase WB	205 inches
Cab to Trunion CA	132 inches
End of Frame EOF	65 inches
Front axle FA	20,000 pounds
Rear axle RA	46,000 pounds
Diesel engine	400HP, 1550 lb/ft torque, 1350 crankshaft adapter flange
Transmission	Eaton Ultrashift Plus
Rear suspension	Hendrickson Haulmax
Electrical	Four (4) bodybuilder switches in cab, wired for front plow lights

Bid Price Extension

The pricing in this bid shall be extendable to allow for the purchase and installation of equipment for an identical second vehicle

The Road Commission will pick up the truck after completion and acceptance

Bids shall be placed in a sealed envelope and marked “**TRUCK EQUIPMENT BID**”.

Complete specifications and informational brochures shall accompany the bid

A completed copy of the specification package must accompany the submitted bid.

The truck must be completed and accepted by the Road Commission with 75 days of delivery to the successful bidder.

Bidders are to provide a least four (4) contacts for reference for similar work.

Antrim County Road Commission contact: Ron Chapman, Shop Foreman. Telephone 231-587-8173 (6am-3:30pm) or Email (preferred) rchapman@antrimcrc.org.

The Antrim County Road Commission reserves the right to accept or reject any or all bids, to waive any irregularity or defect in a bid, or to accept the bid which in the opinion of the Road Commission is in its best interest.

Burt R. Thompson, P.E.
Engineer/Manager

Encl (1)

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2013 PLOW TRUCK EQUIPMENT SPECIFICATIONS

1. FUEL/ HYDRAULIC TANK

Manufacturer _____

1.1	YES	NO	DEVIATION
<p>Provide and install a combination fuel/hydraulic oil tank behind the cab. The tank shall be UL certified and meet FHWA requirements. Testing data shall be provided. The tank capacities shall be approximately 150 gallons diesel fuel and 30 gallons of hydraulic oil. The tank shall be sized so that it sits on the frame and does not interfere with any emission control apparatus that may be present. The tank shall be mounted in a manner that allows for vibration absorption. The fuel tank shall have a fuel level sensor and the hydraulic tank shall provide for in-tank filtration and a sight tube visible from ground level drivers side. The hydraulic tank shall have a low level sensor wired to a warning light in the cab. Both tanks shall be accessible from the driver's side of the truck. There shall be a fabricated step/platform at the lower edge of the tank on the driver's side to provide for driver's access. The tank shall be painted to match the cab and be labeled as to the contents. The hydraulic tank shall be filled to the appropriate level with AW46 standard hydraulic fluid.</p>			

2. IN-CAB FEATURES

2.1	YES	NO	DEVIATION
<p><u>Ground speed spreader controls</u> Controller to be a Rexroth CS550, three channels, closed loop system. All transmission and spreader connections shall be made.</p>			
<u>2.2</u>	YES	NO	DEVIATION
<p><u>Hydraulic controls</u> Hydraulic control will be accomplished using a Rexroth CS150 joystick controller. The controller shall operate the scraper, plow, patrol wing and dump box hoist. It shall also work with the ground speed controller to operate the "blast" and "pause" functions. Each function shall be assigned a push button with further control accomplished with an X-Y feature. Coordinate with the Road Commission for button functions.</p>			

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2.3	YES	NO	DEVIATION
<u>Outside camera monitor</u> The monitor shall be a Voyager 7" LCD split screen, model AOM7694HD. All cables shall be provided and the cameras shall be connected. (Camera specifications are in the material spreader section)			
2.4	YES	NO	DEVIATION
<u>Electrical</u> Connect bodybuilder's switches for flashing warning lights and fog lights. Provide and connect switches for tarp control and tailgate operation. Tarp and tail gate switches are <u>not</u> to be dash mounted. Install low hydraulic oil warning light. Install switch for camera wash system. (Camera wash specifications are in the material spreader section)			
2.5	YES	NO	DEVIATION
<u>County two-way radio</u> Coordinate with the Road Commission to allow for placement of the county two-way radio.			
2.6	YES	NO	DEVIATION
<u>Mounting</u> The ground speed, hydraulic joystick and camera monitor shall be mounted on a fabricated pedestal with adjustable swing arm. The pedestal shall be mounted next to the driver's seat.			
2.7	YES	NO	DEVIATION
<u>Approval</u> The exact placement of all in cab features shall be approved by the Road Commission before installation.			

3. OUTSIDE CAB FEATURES

3.1	YES	NO	DEVIATION
<u>Electrical disconnect switch</u> The switch shall be a Flaming River brand and shall disconnect, after an approximate 2 minute delay, the ground circuit at the battery. A red LED indicator light, Trucklight 33050R3 or equivalent, shall be mounted next to the switch to indicate the switch is in the "on" position. The switch and light shall be located on a fabricated bracket on the driver's side below the fuel tank. The exact location is to be determined by the Road Commission.			

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3.2	YES	NO	DEVIATION
<u>Fog lamps</u> Provide and install Nordic N200 55W amber fog lights. Located inside the front mounted plow hanger and wired to a bodybuilders switch inside of cab. LED would be preferred, if available.			
3.3	YES	NO	DEVIATION
<u>Plow lights</u> Provide and install front mounted plow light/turn signal combination on the upper front corners of the hood. The lamps shall be mounted with a fabricated aluminum bracket and be reinforced on the inside of the hood. The lamps are to be wired to the truck manufacturers provided plow lamp circuit/switch.			
3.4	YES	NO	DEVIATION
<u>Electrical and Hydraulic Accessibility</u> The Road Commission interchanges between the dump box and the material spreader with the seasonal needs. Therefore all electrical and hydraulic circuits that are common to both or that would need to be disconnected are to be terminated at a fabricated manifold device typically located under the fuel tank and between the frame rails. These circuits include but are not limited to the tarp, all lighting, dump box tailgate, dump box raise/lower, material spreader auger/spinner and material rate sensor. The electrical circuits shall be linked using approved weatherproof trailer plug connectors and the hydraulic circuits shall be linked using SS flat face drip-proof quick connectors.			

4. DUMP BOX HINGE LINE

4.1	YES	NO	DEVIATION
The truck half of a 13 foot Crysteel dump body hinge line will be installed according to manufacturer's specifications.			

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5. DUAL AUGER MATERIAL SPREADER

Manufacturer _____ Model _____

5.1	YES	NO	DEVIATION
<p><u>Box</u> The spreader shall be thirteen (13) feet in length and have a capacity of approximately ten (10) cubic yards. It shall be of 3/16" 201 stainless steel (SS) and be continuously welded throughout. The box shall have a 1/4" 201 SS auger trough. The box shall have SS lighting enclosures at both rear corners. The enclosures shall have three (3) oval cutouts to accommodate 60 series lighting fixtures. There shall be catwalks on each side of 3/16" 201 SS and shall have anti-slip coating applied.</p>			
<p>5.2</p>	YES	NO	DEVIATION
<p><u>Cab Shield</u> To be of 3/16" 201 SS and will be half cab style. The shield shall be continuously welded inside and out to eliminate rust pockets at a height to be determined at the time of installation.</p>			
<p>5.3</p>	YES	NO	DEVIATION
<p><u>Tailgate (if necessary)</u> The tailgate shall be of 3/16" 201 SS. It shall lock with dogs operated from the driver's side front of the box. The hinge pins shall be greaseable.</p>			
<p>5.4</p>	YES	NO	DEVIATION
<p><u>Tarp System</u> The tarp system shall be Roll-Rite system with aluminum arms angled to avoid loader bucket and aluminum wind guard. The tarp is to be standard mesh. The tarp system is to be electrically operated from cab.</p>			
<p>5.5</p>	YES	NO	DEVIATION
<p><u>Dual auger discharge</u> Material shall be discharged to the rear of the spreader and be accomplished using a dual auger system. The augers shall be 7" diameter and constructed of surface hardened material. The flighting shall be progressive. The augers shall be hydraulically driven by a motor/planetary gearbox combination attached to each auger. One drive motor shall be equipped with an integral speed sensor for ground speed control purposes.</p>			

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5.6	YES	NO	DEVIATION
<p><u>Hydraulics</u> The dual augers will be powered by a separate hydraulic circuit and will be controlled by the ground speed controller in the cab. Hydraulic plumbing shall be SS tubing, with poly clamps , wherever possible. A series/parallel valve shall be installed to allow for higher speed operations, such as unloading.</p>			
5.7	YES	NO	DEVIATION
<p><u>Additional Items</u> Included shall be top screens and a fold down SS ladder. The ladder is to be mounted on the left (driver's) side at the rear of the spreader box.</p>			
5.8	YES	NO	DEVIATION
<p><u>Safety Features</u> The top screens shall be equipped with a safety interlock system. The interlock system will render the hydraulic circuit that operates the dual augers inoperable when the top screens are in the open position. <u>There will be NO exceptions to this specification.</u></p>			
5.9	YES	NO	DEVIATION
<p><u>Lighting</u> Provide and install two (2) amber flashing lights, preferably LED, visible for 360°. The lights must meet SAE J845 Class 1 specifications. The lights shall be mounted on the uppermost front corners of the cab protector and shall be guarded against tree limb damage. Rear lighting is to be installed as follows; top and bottom cutouts shall be a Soundoff EOVREBZA amber flashing warning light, the center cutout shall be a Maxima M85615R, stop/tail/turn/backup LED combo. All six (6) amber warning lights shall be wired together and driver controlled. All required marker lights, preferably LED, and license plate illumination shall be installed. Two (2) work lights, Nordic Lights N25, shall be installed. One (1) at the driver's side rear corner, to illuminate the spinner and the other on the passenger side located to illuminate the snow wing. Both work lights shall be wired together and shall be wired to an in-cab bodybuilder's switch.</p>			

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5.10	YES	NO	DEVIATION
<u>Camera System</u> Cameras will be utilized to monitor the rear view and material level. The cameras shall be Voyager VCCS150B. The rear view camera will be mounted on the rear of the material spreader to allow for viewing up to approximately six (6) feet behind the vehicle. The material level camera will be mounted inside the spreader box, right front corner, just below the top screens. Both cameras shall be mounted in a fabricated SS protective enclosure. The material level camera shall be further protected by a top plate. A camera wash system (Model MSF8470038000, obtained from M.S. Foster & Associates, Inc.) shall be installed on each camera providing a pressurized stream of washer solvent and a compressed air stream. The wash system shall be controlled from inside the cab at the driver's discretion. The location of the washer solvent reservoir shall be determined. All wiring and tubing shall be provided and shall be mounted in a manner to provide protection from damage.			

6. REAR MOUNTED TAILGATE SPREADER

Manufacturer _____ Model _____

6.1	YES	NO	DEVIATION
<u>General</u> The tailgate spreader will be used to place ice control materials on the centerline of the roadway. Reverse operation, to the right side of the spreader, is not needed. Typically only salt/sand will be conveyed through the auger system.			
6.2	YES	NO	DEVIATION
<u>Construction</u> The tailgate spreader shall be of 3/16" SS with 7 gauge SS trough and lid and 1/4" SS ends. Trough cutouts for driver's side discharge. All welding shall be continuous. The trough shall be able to swing away for cleaning and shall have safety latches and a center mounted handle.			
6.3	YES	NO	DEVIATION
<u>Auger</u> The auger shall be 9" x 96" with 4" pitch. The auger pitch on the final 30" of the left (driver's) side will be modified to 2". The auger shall be hydraulically driven by a direct SS coupling and shall be supported by heavy duty 4 bolt flange mounted bearings.			

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6.4	YES	NO	DEVIATION
<u>Spinner Assembly</u> The spinner assembly shall have a swing away self-leveling design and shall be constructed of 201 SS where possible. The spinner disc is to be hydraulically driven and will be poly. The spinner will be mounted for centerline discharge			
6.5	YES	NO	DEVIATION
<u>Mounting</u> The tailgate spreader shall be mounted using 201 SS mounting brackets and will be mounted three (3) inches left of centerline.			
6.6	YES	NO	DEVIATION
<u>Hydraulics</u> The auger will be powered by a 28 cubic inch displacement motor, with return oil from the main dual auger circuit. The spinner will be on its own circuit controlled by the ground speed controller in the cab. The entire tailgate spreader shall be plumbed in a manner that will allow it to be removed from the material spreader. A three way valve shall be installed in the tailgate auger circuit to direct oil either to the tailgate auger or to return. Both circuits will include SS drip proof quick connections to allow for removal.			

7. ON BOARD PRE-WET SYSTEM

Manufacturer _____ Model _____

7.1	YES	NO	DEVIATION
<u>Tanks</u> The tanks shall be constructed of 3/8 inch UV stabilized white/clear polypropylene and have a capacity of 120 US gallons each. It shall have molded 1¼ inch NFPT ports and molded top fill ports, on either end. Plugs shall be included for top fill ports and they shall have “keeper” chains attached to prevent loss. There shall be a molded tank gauge indicating tank level in US gallons.			

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7.2	YES	NO	DEVIATION
<p><u>Mounting</u> The tanks shall be mounted on both catwalks of the material spreader. They will be mounted in such a manner as to not interfere with the operation of the tarp system and provide a clean vertical line on the side of the spreader. They shall be secured using mounting saddles constructed of 304 SS and heavy duty polyester retaining straps. There shall be two (2) mounting straps on each tank.</p>			
7.3	YES	NO	DEVIATION
<p><u>Hydraulics</u> The pre-wet system shall be ground speed controlled from the cab. This will be accomplished using a 7 GPM product pump direct coupled to a hydraulic drive motor. The pump shall be of brass/stainless steel construction. The liquid shall pass through a flow meter that provides input pulses to the ground speed controller. All of the above will be enclosed in a weather tight NEMA enclosure. Placement of the enclosure will be determined at installation.</p>			
7.4	YES	NO	DEVIATION
<p><u>Plumbing</u> The tanks shall have a cross over hose to provide equalization. There shall be bulk fill and flush capabilities provided. A 100 mesh suction strainer shall be installed on the suction line before the product pump. Wherever possible, all hoses shall be EPDM and all valves shall be of poly construction.</p>			
7.5	YES	NO	DEVIATION
<p><u>Nozzles and nozzle placement</u> There shall be three (3) nozzles. The tips and caps shall be of brass construction and be rated at 2 GPM. They shall be mounted and protected using a SS bracket and shall be joined by EDPM hose with SS clamps. A 5 psi inline check will also be installed. The nozzles shall be evenly spaced and located so the spray stream is directed into the auger system of the tailgate spreader. If necessary there shall be a connection provided to allow the nozzles to swing away from the spreader for cleaning and unloading.</p>			

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8. UNDERBODY SCRAPER

Manufacturer _____ Model _____

8.1	YES	NO	DEVIATION
<p><u>Construction</u> 12 foot hydraulic operated scraper, hanger board shall be built of 10 inch by 30 lb. structural channel, reinforced by 2 inch by 8 inch plate and by 4 inch S&C 13.8 lb. channel the entire length of the hinge line. The hinge line shall be a 2.25 inch OD solid carbon steel shaft. The moldboard shall be 1 inch thick by 20 inches high by 12 feet long and shall be actuated by two (2) 3 inch DA cylinders. The moldboard shall be cushioned by spring shock absorbers. Cylinder and shock assemblies are to be mounted horizontally on the scraper by 3/4 inch thick reinforced steel trunnion brackets. Trunnion bearings are to be 2 inch OD by 1 3/4 inch carbon steel. The scraper shall have 4 inch S&C heavy duty hangers and 1 inch solid one piece abrasion resistant circle assembly, no notches, with flange type center bolt, with two (2) 4 inch double acting reverse cylinders including power reverse cylinder hold down wear pads and cushion valve. Circle clamps shall have poly inserts (shims). All moving parts shall be equipped with grease zerks. The scraper shall have three (3) 3/4" x 6" x 48" SBC, single carbide insert cutting edges, installed. Cutting edges must meet Road Commission specifications.</p>			

9. REAR MOUNTED PATROL WING

Manufacturer _____ Model _____

9.1	YES	NO	DEVIATION
<p><u>Design</u> The wing shall be designed to be mounted on the right hand side, between the underbody scraper and the front rear axle.</p>			

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9.2	YES	NO	DEVIATION
<p><u>Construction</u> The wing shall be approximately nine (9) feet long, with the following dimensions Top 113" Bottom 108" Height 33" Moldboard shall be of 5/16" A36 steel with the top formed to a 2-3/4" x 1" channel for strength. A 3/8" reinforcing rod shall be welded to the discharge end. The moldboard bottom shall be reinforced between cutting edge mounting holes with 4"x4"x3/4" angle. The moldboard shall have no fewer than six (6) reinforcing ribs of 2" steel, flame cut tapered from 2-1/2" top to 4" bottom. The moldboard shall have angles welded at the discharge end to allow for push arm adjustment. The front pivot attachment shall be of boxed 2" steel, pivot tube shall be 1-1/2" diameter with minimum 5/8" wall. The moldboard shall be equipped with 2" safety eyelet and 2" lift loop welded to the front</p>			
9.3	YES	NO	DEVIATION
<p><u>Front post assembly</u> Front post mount shall have a minimum 1/2"x4"x6" cross tube passing through two (2) 1/2" mounting plates. Moldboard mounting plate shall be hinged with a 1 1/2" pin. The moldboard mounting bolt shall be 1 1/2" G8 with castle nut. The bolt shall be drilled to accept a cotter pin. The front lift assembly shall be of a trailing link design and shall allow for 18" of lift and 14" of float. A slotted plate design will not be accepted.</p>			
9.4	YES	NO	DEVIATION
<p><u>Rear push arm assembly</u> Rear push arm assembly shall consist of mounting plates and cross tube, with two (2) 2 1/2", schedule 80, adjustable spring cushioned lift arms. Lift arms shall be equipped with shear pins. Rear push arm assembly shall be able to mechanically float to follow road contour.</p>			
9.5	YES	NO	DEVIATION
<p><u>Cutting edges</u> The cutting edge shall be of 7/8"x 8" flamed hardened steel with a recurve design and shall have two (2) cast steel wear shoes mounted on either end.</p>			

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9.6	YES	NO	DEVIATION
<u>Patrol wing hydraulics</u> Both the front post assembly and the rear push arm assembly shall be hydraulically controlled by double acting hydraulic cylinders of appropriate size. No lift cables or chains will be accepted. The patrol wing shall be equipped with a sequencing valve and shall be adjustable for both up and down sequencing. The valve shall be equipped with a locking feature that prevents drifting when in the stowed position and shall allow wing to hydraulically float when in the plowing position. The valve shall be equipped with a metering function to control the speed of lowering the wing. The wing shall be removed seasonally; therefore, all connections shall be of dripless quick connectors. All fasteners necessary for removal from truck shall be coated with an anti-seize compound.			
9.7	YES	NO	DEVIATION
<u>Patrol wing lighting</u> The wing shall have a rear facing amber strobe and a forward facing amber guide light mounted at the outermost upper point of the wing. The lights shall be wired to the truck strobe circuit and shall be able to be disconnected using a weatherproof connection. The model of both lights will be determined at the time of installation.			
9.8	YES	NO	DEVIATION
<u>Miscellaneous</u> The wing shall be equipped with 3/8" safety chain.			

10. FRONT MOUNTED PLOW HITCH

Manufacturer _____ Model _____

10.1	YES	NO	DEVIATION
<u>Construction</u> The plow hitch shall be a Husting style heavy duty 34" quick hitch. The top of the hitch shall be gusseted with 3/8" plate steel. Plunger style lock pins shall have grease zerks and secondary locking tabs.			

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10.2	YES	NO	DEVIATION
<u>Hydraulics</u> The plow lift cylinder shall be a double acting cylinder with 3” bore and 10” stroke.			
10.3	YES	NO	DEVIATION
<u>Mounting</u> The plow hitch shall be mounted to a fabricated bumper. The bumper shall be constructed of 10”x 20# structural channel steel. The ends shall be flared back and boxed in. The hitch shall have upper and lower bracing to the truck frame. All grade 8 fasteners shall be used. Cut outs will be made to accommodate tow hooks. Any necessary modifications to the hood support cables shall be made to insure the hood does not hit the plow hitch.			

11. TRAILER ACCOMODATIONS

11.1	YES	NO	DEVIATION
<u>Hitch</u> A pintle style hitch is to be installed. The hitch shall have a capacity of 40,000 pounds (20 ton).			
11.2	YES	NO	DEVIATION
<u>Installation</u> The rear of the truck frame shall be reinforced and the hitch shall be installed according to the hitch manufacturer’s specifications. The hitch shall be installed at a standard height and in a manner that will allow for seasonal removal, to allow for spreader installation. Provisions for safety chain hook-up shall be installed.			
11.3	YES	NO	DEVIATION
<u>Braking and Electrical</u> Air brake gladhands and a standard 7-wire female trailer connection will be installed. They will be located to provide protection during winter operation. Exact location to be determined.			

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12. HYDRAULIC SYSTEM

12.1	YES	NO	DEVIATION
<p><u>Pump</u> The pump shall be a front crankshaft driven piston pump. It shall be of sufficient size to allow for simultaneous operation of multiple functions. It shall be equipped with a low oil shutdown system with a manual over ride switch.</p>			
12.2	YES	NO	DEVIATION
<p><u>Valves and Controls</u> The valves shall be a Rexroth M-4-12, eight (8) sections. Three (3) sections are to be for main sander auger, spinner and pre-wet and will be driven by a Rexroth CS550 closed loop ground speed controlled system. The remaining five (5) sections will control scraper up/down, scraper angle, plow, box hoist and patrol wing. They will be driven electronically by the joystick control. It shall have pressure limiting abilities. The individual sections shall be sized to control their designed functions. The hydraulic valves shall be enclosed in a stainless steel enclosure of sufficient size and be located to allow for easy access. The scraper cushion valve and down pressure relief valve shall be located inside the enclosure. All filters, return and suction (if necessary) will be furnished and installed.</p>			
12.3	YES	NO	DEVIATION
<p><u>Hoses and plumbing</u> All hoses shall be minimum 3000 psi rated and where possible will terminate with a female swivel fitting to allow for easy changing. The line from the tank to the pump shall be SS hard pipe of sufficient size and have short hose assemblies on either end. All hoses and lines shall be mounted using insulated hangers to prevent wear. All hoses shall be routed to eliminate rubbing and will avoid high heat areas. In high wear area the hoses shall be wrapped in an abrasion resistance covering. The hose routing shall avoid areas necessary for maintenance. (i.e., filters and clutch linkage)</p>			

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12.4	YES	NO	DEVIATION
<u>Completion</u> The entire hydraulic system will be filled with AW46 oil and shall be pressure tested. All operating pressures will be set and tested.			

13. PRIOR TO DELIVERY

13.1	YES	NO	DEVIATION
<u>Paint</u> The fuel/hydraulic tank and wing shall be painted to match the cab. The scraper and plow hanger shall be painted a gloss black to match the frame. The outside 18” of the scraper moldboard shall be painted Omaha orange on both ends.			
13.2	YES	NO	DEVIATION
<u>Safety features</u> All applicable safety/warning stickers shall be affixed in the proper locations. The scraper shall have 10”x10” step of serrated grating welded on top of the moldboard, located so the driver can use it as a step for access. Mud flaps shall be affixed on both bodies, both in front and behind the tandem axle assemblies. DOT approved conspicuity tape will be affixed to the outward facing edges of the spreader box catwalks, also a single strip crossing the rear facing surfaces of the cross auger housing			
13.3	YES	NO	DEVIATION
<u>Testing</u> The following shall be tested; all hydraulic circuits, all lighting and all warning/shut down features.			
13.4	YES	NO	DEVIATION
<u>Inspection</u> The bodybuilder shall arrange with the Road Commission for a final inspection prior to delivery.			

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14. MISCELLANEOUS

14.1	YES	NO	DEVIATION
All manufacture's operations/parts/installation manuals shall be provided			
14.2	YES	NO	DEVIATION
Operator training shall be provided as needed			
14.3	YES	NO	DEVIATION
Provide warranty information, both manufactures and workmanship.			

15. OPTIONAL BID #1

Substitute Dual Auger spreader specification sections 5.1, 5.3, 5.5, 5.6, 5.7, 5.8 with the following specifications for a standard flight chain operated material spreader:

Manufacturer _____ Model _____

15.1	YES	NO	DEVIATION
<p>Box The spreader shall be thirteen (13) feet in length and have a capacity of approximately ten (10) cubic yards. It shall be of 3/16" 201 stainless steel (SS) and be continuously welded throughout. The box shall have a 1/4" 201 SS, bolt in floor. The box shall have SS lighting enclosures at both rear corners. The enclosures shall have three (3) oval cutouts to accommodate 60 series lighting fixtures. There shall be catwalks on each side of 3/16" 201 SS and shall have anti-slip coating applied.</p>			
15.2	YES	NO	DEVIATION
<p>Tailgate The tailgate shall be of 3/16" 201 SS. It shall have a manually operated feed gate and shall lock with dogs operated from the driver's side front of the box. The hinge pins shall be greaseable.</p>			

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15.3	YES	NO	DEVIATION
<u>Flight chain</u> The flight chain shall be 34" conveyor pintle chain, 28,000 pound tensile strength. Crossbars shall be ½" x 1 ½", welded every other link. The chain shall run on 8 tooth drop forged steel sprockets with 2" shafts and shall use heavy duty 4 bolt bearings in the rear and heavy duty slotted adjusters in the front. The bearing shall be greaseable from a central point, front and rear. The flight chain shall be shielded with 3/16" SS removable chain shields.			
15.4	YES	NO	DEVIATION
<u>Hydraulics</u> The flight chain will be powered by its own circuit and will be controlled by the ground speed controller in the cab. The chain drive shall use dual White Roller Stator motors with Rawson 6:1 gear boxes. The right side motor shall have a speed sensor. A series/parallel valve shall be installed. All lines running the length of the box shall be SS tubing with poly clamps. A switch to control the flight chain shall be mounted at the rear of the box.			
15.5	YES	NO	DEVIATION
<u>Miscellaneous</u> Included shall be top screens and a fold down SS ladder. Both shall be installed.			

Dual auger specification sections 5.2, 5.4, 5.9 and 5.10 shall remain the same. Specify add/deduct amount.

16. OPTIONAL BID #2

Manufacturer _____ Model _____

16.1	YES	NO	DEVIATION
Substitute the Rexroth CS150 joystick controller with an electric/air joystick system. The alternate joystick shall operate the scraper up/down, scraper angle, box hoist, and patrol wing. It will offer push button controls for the "blast" and "pause" features and be completely compatible with the Rexroth CS550 controller. Specify add/deduct amount.			

