

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**GENERAL**

1. The following minimum specifications are for furnishing and installing equipment for a tandem axle truck (conventional cab and chassis with engine and transmission).  
The Manistee County Road Commission purchased a 2023 model year Western Star 4900SF tandem axle conventional cab and chassis with a Cummins X-15 engine from Grand Traverse Diesel Service, Inc. on November 11, 2021.
2. The equipment shall be the manufacturer's current model under standard production and shall be supplied with all necessary operating accessories customarily furnished whether specified herein or not.
3. Bidder shall note any exceptions to the specifications.
4. Bids shall remain firm for 60 calendar days.

**V-BOX SPREADER SECTION**

Heavy duty V-box spreader, self-unloading material body

The spreader body shall be Monroe model Duz-mor DM144-86-48-201SS (made of non-corrosive stainless steel), or equivalent.

**HEAVY DUTY V-BOX SPREADER**

Monroe model Duz-mor DM144-86-48-201SS (made of non-corrosive stainless steel), or equivalent.

1. Heavy duty V-box spreader, self-unloading material body, 12' long x 48" high, 7.8 cubic yard water level.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

2. Front, sides and tailgate built of 3/16 SS, floor is 1/4" SS removable, bolted in with stainless steel bolts, longills are 1/4" thick SS, complete body is 100% continuously welded, 3/16" thick SS bolt on chain shields with SS bolts

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. 34" wide conveyor with 1/2" x 1 1/2" cross bars on 4 1/2" centers

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**HEAVY DUTY V-BOX SPREADER (CONTINUED)**

4. 28,000 lb. tensile strength, four (4) bolt heavy duty flange bearing, 2" drive and idler shafts, longsills slotted for ease of chain repair or replacement

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

5. Two (2) dual 6:1 gear boxes with two variable speed direct coupled motors (one with speed sensor)

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

6. 3/16" thick x 30" wide smooth SS catwalks full length both sides coated with non-skid coating

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

7. 3/16" thick SS 1/2 cab shield with 1/4" thick SS gussets, top center beam support for top screens

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

8. 1/2" thick anti-sail heavy duty mud flaps

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

9. Heavy duty full opening tailgate with grease-able trip linkage and pins, air operated tailgate, cylinder with over cam system

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

10. Hinge down two piece ladder made of SS with SS grip strut steps sent loose

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

11. Air operated two speed system series parallel valve installed left front corner, includes front jumper hoses, stainless steel plumbing run to the rear for conveyor motor and spinner assembly. Lines are mounted 16" above the catwalks and are attached with poly clamps, SS brackets and SS bolts, extra heavy duty top screens 1/2" rods with 4" x 4" mesh opening.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
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FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**LIGHTS, WIRING, AND SWITCHES SECTION**

**LIGHTS, WIRING AND SWITCHES**

1. Front strobe shall be Sound Off 12 volt Mini Light Bar green unit mounted center wedge on cab shield with stainless steel mounting bracket with two(2) Sound Off 4” green strobe mounted on cab shield above the driver and passenger seats.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

2. Wire terminated on side mounted wing plow with Weather Pak plug for spring loaded sing light stick.

3. Rear lights – install four (4) 6” oval green LED strobe lights, two (2) 6” oval stop/turn lights, and one (1) Maxxima M20323R stainless steel ID bar on the rear of the spreader body at locations as specified by the MCRC.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

**Note:** The MCRC will furnish the light brackets for the rear lights of the V-Box Spreader body

4. All wiring to have heat shrink connectors, heat shrink tubing and routed through PVC pipe for maximum protection.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

5. Wiring to be terminated in a Haldex eighteen (18) wire junction box with waterproof choke seals.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

6. County to specify at time of installation, location and heights on all lights, junction box, and routing of wiring and switch arrangements.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

7. Work lights – 4” LED Maxxima model MWL-27, total of 3 at the following locations:
  - a. One (1) on driver’s side to shine on drag blade.
  - b. One (1) to shine on spinner discharge.
  - c. One (1) to shine on side snow wing.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

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FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**ACCESSORIES**

1. Electronic back-up alarm.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

2. Custom built shovel holder, ladder style steps driver's side constructed of 304SS 1-1/4 SS tube up rights SS grip strut steps and includes SS inside step.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. Mud flaps shall be hung from spreader body meeting federal regulations, 1/2" thick, heavy duty rubber, anti-sail type. Brackets and hardware shall be made of SS. Install ahead and behind the drive axles.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

4. Conspicuity tape placed on left, right, and rear of spreader body to comply with federal regulations FMUSS 108.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

5. 12" x 12" x 16" tread plate aluminum tool box placed on top of the fender on the left hand (drivers) side of the spreader body as specified by the MCRC.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**TARP SYSTEM**

RollRite, model 64171, shall be fully automatic, 4 spring system, stainless steel wind deflector (box), tarp spool, aluminum tarp arm and tension bows by cab shield, in-cab switch, indicator light and circuit breaker, 20 ft. heavy duty mesh tarp, complete and installed.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**Note:** The MCRC will furnish the stainless steel wind deflector box

**PLOW LIGHTS**

Auxiliary plow lights and turn signals. Nordic model N520 hood mounted, custom built 1/4" thick X 4" wide aluminum brackets with fiberglass in hood support plates, height to be determined at time of installation. Chassis manufacture to supply in-cab switch and harness.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**UNDERBODY TRUCK SCRAPER SECTION**

**UNDERBODY TRUCK SCRAPER**

Monroe model HD 4500 or equal

Manufacturer \_\_\_\_\_

Model \_\_\_\_\_

1. Hangerboard shall be 1/2" formed plate reinforced with 1/2" x 7-1/2" flat plate to make full 1" thick with 3/4" reinforced full length of the hinge. Designed and engineered for optimum strength.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

2. Hinge shaft shall be 2-1/2" OD x 96" long with (4) grease points and (3) hinge points. The two (2) outer hinges shall be 3-1/4" OD x 6" long with .344 wall thickness. Each outer hinge shall have (1) 1/2" wrap-around gusset, center hinge shall be 3-1/4" OD x 10-3/4" long with 0.344 wall and have (2) 1/2" thick wrap-around gussets, center to have thrust bearing wear plates to prevent side to side shifting of moldboard

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. Moldboard shall be 1" thick x 20" high x 12' long, heat treated 1045 steel, 185 Brinell hardness, 89 ksi tensile. Integral pressed in lower offset. Rolled formed or fabricated moldboards will not be considered where the cutting edge bolts to the moldboard. 1/2" x 6" double beveled cutting edge with standard highway punched.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

4. Shocks & Housings shall be cushioned by two (2) extra heavy duty spring housings, allow 600 PSI down pressure. Two (2) 1/2" thick flange retaining plates held by (4) 5/8" bolts with prevailing lock nuts. Housings to be slotted to relieve contaminants. Greaseable trunnion mount bushings are 2-3/4" OD with a .344" wall mechanical tube trunnion mount pins are 2" solid rod, bolt in removable and replaceable design.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**UNDERBODY TRUCK SCRAPER (CONTINUED)**

5. Actuating Cylinders shall be 3-1/2" bore x 10" stroke with 2" socrati 1000 piston rods, with poly pac seals and cast steel heads, 1/2" hoses and piping (supported with poly clamps) to be externally mounted for easy access. Prince in-line relief valve shall be supplied.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

6. Circle shall be 1" solid one piece with infinite plowing positions (no notches), minimum cut out for power reverse cylinder travel and full front circle ears as to have clamps in full contact of circle at 45 degree angle for maximum circle bearing surface. 5" ID x 6.5" OD x 1" hardened center pin bushing.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

7. Center pin shall be heavy duty 5" diameter, hardened center pin, zinc coated. Grease-able with 3 port grease journal and 5/16" wide x 3/16" deep grease groove around pin. Center pin is piloted into the hangerboard.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

8. Clamps shall be 20.5" long x 7" deep x 1" thick, shaped to follow the contour of the circle with 3/8" thick UHMW wear pads. Entire clamps must remain fully on the circle throughout the entire rotation of the scraper.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

9. Reverse Cylinders and Hardware; two (2) 4" double - acting cylinders containing 1/2" #8 SAE ports, 2" socrati 1000 rods, poly pac seals, and cast steel heads. 3" OD - 2" ID anchor pivots, 2" hardened zinc coated with spiraled grease groove removable pivot pins (grease-able at each end). Prince Cross over relief valve, set at 2200 PSI to protect reversing cylinders from shock impacts

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**UNDERBODY TRUCK SCRAPER (CONTINUED)**

10. Mounting legs shall have H-Bar style construction with 1" x 4" bar stock legs attached to the truck using  $\frac{3}{4}$ " grade 8 bolts and nuts that are electronically plated for corrosion resistance

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

11. Drag Blade Paint shall be shot-blasted, washed and powder coat paint TGIC polyester black with the minimum required curing time according to the paint manufacturer at cure temperature of no less than 400 degrees. All parts are powder coated prior to assembly of the scraper. The Manistee County Road Commission will paint the outer 12" of the moldboard ends to match the truck color (or other) in addition to the standard paint.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**SIDE MOUNTED WING PLOW SECTION**

The side mounted wing plow shall be Monroe Model 9D FWMB Patrol behind Scraper Mount, 9 Foot (Para-Glide Design), or equivalent.

**SIDE MOUNTED WING PLOW**

1. Wing shall be designed to mount behind the underbody blade, moldboard length shall be 113 inches at the top and 108 inches at the bottom, height shall measure 33" Scraper Mount, inboard and 33" outboard including cutting edge. Wing to include an "Ottawa Wing Clamp System" (or equivalent).

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

2. Moldboard shall be 3/16" A36 steel; top of moldboard formed into a 2-3/4" X 1" channel for additional strength. All seams and joints shall be 100% continuous welded.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. Bottom angle shall be 4" X 4" X 3/4", reinforced between the cutting edge holes with ten (10) 3" X 3" X 1/2" gussets. Shall include six (6) 1/2" moldboard reinforcement ribs tapered from 4" at the bottom to 2-1/2" at the top.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

4. There shall be two (2) horizontal reinforcement angles between the discharge end last two ribs, bottom 4" X 3" X 1/2" reinforcement angle shall have seven (7) evenly spaced 5/8" holes for push arm adjustment, top 4" X 4" X 1/2" reinforcement angle shall have seven (7) evenly spaced 5/8" holes for push arm adjustment.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

5. Pivot pin shall be constructed of 1-1/2" steel. Front attachment pivot plate will be 1/2" steel, completely boxed and supported with 1/2" and 3/16" plate. Pivot tube for the 1-1/2" pivot bolt shall have a minimum .625" wall and be welded 100% to the inside of the 1/2" plate and outside of the moldboard.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_



**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**SIDE MOUNTED WING PLOW (CONTINUED)**

6. A ½” safety stop eyelet and a ½” centered lip loop shall be on the front of the moldboard.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

7. Cutting edge shall be 9’ in length 5/8” thick X 8” tall AASHO punched recurved style. Moldboard shall be equipped with three (3) shoes. Shoes shall be bolted on with the cutting edge. One (1) shoe shall be installed on both the toe end and the heel end and one center mounted, and shall be heavy-duty cast iron construction. Cast iron shoes shall weigh approximately 75 lbs each. Bottom of shoe shall be cut at approximately 10 degrees to match attack angle of moldboard.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

8. Shall have ½” X 4” X 6” cross tube passes behind the underbody blade circle and passing thru two (2) mounting plates, 36” tall X 12” wide X 1/2” for mounting the wing to the frame of the truck.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

9. Para-Glide structure shall be no more than 24” high and 14” wide. Post weldment shall be manufactured with a .750” inside mounting plate and a matching .500” outer plate. A .375” Ex-Ten 50 front base plate will set the width of the post, support the .500” inner lower hinge brackets and the .750” bottom cylinder mounts. Internal reinforcement with a .500 HSLA radius plate shall be welded to both side plates and the front base plate. The post weldment will serve as anchor for three trailing link assemblies. The upper and lower link arms shall be .750” radius bar with a 1.750” machined hole on each end. The upper arm assembly will be reinforced with a 2.500” schedule 80 pipe at the front. The lower arm assembly will be reinforced with a 2.500” schedule pipe at the front anchor and .500 HSLA x 5.000 plate to the rear. The lift/float link will be .500” bar with a radius at the anchor end, reinforced with a 2.500” schedule pipe. The rear of the lift link will be 1.000” plate reinforced with .625” bar and will include two .625” upper cylinder mounts. The rear lift weldment shall have an outer 1.000” and inner .500” bar with radius ends and machined 1.750” holes. Bars shall be spaced and supported with two 2.500” schedule pipes and two .500” x 4.000” triangular gussets. The hinge shall consist of three 1.000” thick radius ears that have 1.438” machined holes, spaced evenly and reinforced with two .250” x 2.000” x 2.000” angles.

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**SIDE MOUNTED WING PLOW (CONTINUED)**

All 1.750" machined holes will have Rc 50 hardened bushings. Hinge pins shall be 1.500" OD, case hardened to Rc 55-60. Hinge pins shall be retained with machine bushings and .250" roll pins.

There shall be 10 grease zerks. Lift cylinder shall be a 3.000" ID x 5.000" stroke with a 1.500" industrial hard chrome rod. Hydraulic port(s) shall be .562-18 ORB. Cylinder shall be attached within the post with 1.000" stress proof pins, machine washers and roll pins. Prior to assembly, the post will be shot blasted, washed and prepped prior to power coating black.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

10. The bolt for retaining the moldboard shall be 1-1/2 – 6 X 7 G8 HHCS Zinc plated with castle nut and cotter pin. Bolt shall be drilled for the cotter pin.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

11. Lifting action for the heel end of the wing shall be a single 3" ID x 15" stroke, 2" nitrated rod, 3/4 - 16 ORB ports, polypak seals, double acting hydraulic cylinder. Heel cylinder shall be attached to the upper rear push arm slide assembly.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

12. Wing shall be operated by hydraulic lift; no cables or chains shall be accepted.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

13. Rear wing mount shall be fabricated from 5" X 7" X 3/8" mild steel tubing, and shall include two (2) 28" X 18" X 1/2" frame attachment plates with 5" X 7" openings. Rear channel push arm/cylinder mounting plate shall include two (2) 1/2" plates, flame cut with three (3) offset mounting holes to mount the rear push arms and the heel lift cylinder. The rear upper push arm shall be equipped with an external slide assembly to allow for mechanical float and attachment of the heel lift cylinder and the rear push arms and heel lift cylinder shall be attached with 1-1/4" stress proof pins for quick attach and detach.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**SIDE MOUNTED WING PLOW (CONTINUED)**

14. There shall be two (2) rear wing heavy duty, 2-1/2" schedule 80, adjustable, spring cushioned lift arms including safety shear pins, 6' long fully extended. Wing shall be capable of mounting with an overlap to the scraper discharge to prevent a window between the scraper and the wing moldboard.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

15. All fabricated components shall be shot blasted and washed prior to powder coating; mounting components shall be powder coated black, Moldboard shall be powder coated orange, with a minimum curing time of 25 minutes, at temperature of no less than 400 degrees.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

16. Mounting hardware shall include (3) schedule 80 pipe bracing, six (6) pipe balls, a flame cut 3/4" support plate, Grade 8 nuts, bolts and washers necessary for a complete installation.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

17. One (1) sequencing valve shall be supplied with the wing and shall be adjustable for both the up sequencing of the wing and the down sequencing of the wing. Lock valves shall be built into the sequencing valve to prevent both the toe and heel cylinder from drifting when in the stored position. The sequencing valve shall allow wing to hydraulically drift up when in the plowing position and shall be equipped with an adjustable metering valve to control the speed at which the blade drops when going from the stored position to the plow position.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**SIDE MOUNTED WING PLOW (CONTINUED)**

Wing plow installation shall also include the following:

1. Stainless steel quick couplers, caps and plugs.
2. 3/8” Hi Test safety chain and grab hook.
3. Stand Alone 60 Series Amber/Green LED strobe light and Amber/Green LED ICC light – both installed in a stainless steel 60 Series light box, mounted on discharge end of moldboard and to include in cab switch and Weather Pak for ease of removable with an extra Weather Pak pig tail for the wing light stick.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**FRONT PLOW AND HITCH SECTION**

**FRONT PLOW HITCH**

The front plow hitch shall be a Monroe Hustings style heavy duty 34” wide Quick Hitch (or equivalent), top of hitch shall be gusseted with 3/8” plate. Plunger pins shall have grease zerks and secondary locking tabs.

Hitch shall have standard lift arm. Plow cylinder shall be hydraulic double acting cylinder with the following specifications: 3” diameter bore, 10” stroke 2” socatri 1000 shaft – Boss O-ring ports.

Hitch shall be bolted to a heavy duty structural channel. 12” minimum 20.7 lb., straight and tapered on ends. Hitch shall include upper and lower bracing. Hitch, bumper and bracing shall be installed with grade 8 nuts and bolts; to include extended brackets for hood cables & pull back support cable.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**Note:** The Manistee County Road Commission will furnish the front bumper for installation on the tandem axle cab and chassis.

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**ONE-WAY RIGID FRONT PLOW**

The front plow shall be a Monroe One-way Rigid Plow, Model OWFA 34-73-12-NT-RH, or equivalent

1. No- trip plow, right hand discharge built with 3/16” thick moldboard and 3” off-set to discharge side, steel snow deflector installed along with an 18” wide extended rubber deflector (bolted to the moldboard at the same location as the steel snow deflector, not to the end of the steel deflector), one piece flame cut ribs lead edge, and nose guard installed and rollers mounted to bottom of plow frame to ease hitch movement.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

2. Length of moldboard 173”, moldboard intake approximately 36”, and discharge height is approximately 73”.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. 9-1/2’ cutting angle, 14” plow push height, 38 degree cutting angle, 50 degree attack angle, 1/4” thick land slide plate.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

4. 5/8” X 8” X 144” cutting edge – AASHO top punched, boomerang adjustable 2” X 6” X 16” cast skid shoes (2), heavy duty push frame – welded continuously to the moldboard, Monroe 34” Hustings Quick Hitch plow section - installed, heavy duty top yoke assembly.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

5. Shall be 100% continuous welded plow assembly, completely sandblasted and powder coat orange – rear flat back.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**CENTRAL HYDRAULICS AND CONTROL SYSTEM AND FUEL SECTION**

**HYDRAULIC COMPONENTS**

1. Piston pump, crank shaft driven load sense hydraulic system to operate a double acting front plow hoist, scraper up & down, scraper reverse, patrol wing and heavy duty material spreader, main chain and spinner. All capable of simultaneous operation.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

2. System shall consist of a 1300 Series Spicer driveshaft, Oil Gear 8.9 cubic inch piston pump. Direct mount electronic low oil shutdown system with a manual override switch.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. Rexroth, model M-4-12, 6-bank, 4-bank airshift, 2-bank electronic proportional; to include pressure limiting feature – No exceptions

Note: Wing and blade controls are to be combined on one handle

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

4. The plow shall be 13 GPM, and the scraper and scraper reverse banks shall be 16 GPM, wing bank 19 GPM, 24 GPM main chain, 7 GPM spinner.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

5. Main chain and spinner controls; shall be Dickey John Control Point – No exceptions

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

6. Closed loop control system used for simultaneously controlling the spreading of granular and liquid ice control materials in conjunction with ground speed, also controls liquid channel for applying pre-wetting material.

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**HYDRAULIC COMPONENTS (CONTINUED)**

7. Dickey John Control consisting of six basic components:
- (1) Console
  - (2) Switch module
  - (3) Ground speed sensor
  - (4) Feed back devices to monitor application rates
  - (5) Activator devise to regulate applicator rates
  - (6) Harnesses to interconnect all system devices

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

8. The downloadable data collected by the Dickey John Control for records includes:
- a. Quantity of granular and liquid material dispensing during spreading operation
  - b. Total vehicle motor driving and miles spreading granular and liquid materials
  - c. Application rates selected while spreading granular and liquid materials
  - d. Time and date records indicating when granular and liquid materials were spread
  - e. Alarm history that indicates when the control system operated in an error condition

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

9. Plow/scrapper/scrapper reverse and wing shall be air proportional, self-centering type, configured for maximum clearance between handles by using 20/35/45/55 degree offsets. Also includes quad control for scrapper and wing function.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

**FUEL AND HYDRAULIC COMBINATION RESERVOIR: Riverside - No Exceptions.**

They are UL certified, meet FHWA requirements, 30 ft. drop and pressure tested.

1. Combination diesel & hydraulic two separate tanks, each constructed of 7 gage stainless steel mounted together using an angle iron carriage; tanks are to set on neoprene cushion pads, including 1/4" retainers – total of ten; strapped in place using three spring loaded straps; painted black.

Yes\_\_\_\_\_No\_\_\_\_\_Deviations\_\_\_\_\_

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**FUEL AND HYDRAULIC COMBINATION RESERVOIR (CONTINUED)**

2. Fuel Tank

- a. Stainless steel construction
- b. 115 gallon diesel fuel capacity mounted on street side
- c. Brass fuel cap
- d. ½” supply with ½” – ¼” turn ball valve for ease of changing fuel filter, ½” return port
- e. Threaded moisture drain plug
- f. Isspro RA9536-ACLP fuel sending unit

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

3. Hydraulic Tank

- a. Stainless steel construction
- b. 40 gallon hydraulic oil capacity mounted on curb side with stand
- c. AB Screened fill cap
- d. Oil site tube
- e. 3” flange and include 2” Zinga suction strainer #TS2030-03
- f. Top of tank filter flange and include Zinga return filter #FR1215-S-MP-1 with RE-409-10 Micron element
- g. 1” low oil level port with GEMS #15570 low oil monitor
- h. 2” ¼ turn full flow ball valve

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

4. Accessories

- a. Decals as to the contents “Diesel Fuel” or “Hydraulic Oil”
- b. Low oil light and alarm

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_



**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**HYDRAULIC AND FUEL COMPONENTS INSTALLATION**

Installation of the hydraulic system components shall consist of the furnishing and installation of the following:

1. Pump mounting bracket
2. All air lines, fittings to plumb air controllers
3. In cab switches, wiring – complete for low oil level, electronic shut down and Dickey John System.
4. Hydraulic and fuel reservoirs including tank mounting brackets, all necessary fuel lines and sending units, painting urethane top coat.
5. Supply line with ball valves from reservoir to pump shall be 2-1/2” I.D. hose with 2-1/2” I.D. JIC swivel crimps on hose ends or stainless steel piping with ball valves with approval by the MCRC.
6. All necessary hoses, fittings and adaptors: All hose to be Parker hose and have JIC crimp swivel type fittings each end and have abrasive resistant sleeve covering in high wear areas. All clamps to be stainless steel lined with abrasive resistant sleeve covering. Routing of pressure hoses shall be on the right side of engine using proper extension hangers and to leave room for service of engine filters
7. Spreader and wing plumbing to the rear shall be stainless steel piping. Shall have jumper hoses each end rated minimum 3,000 PSI, including bulk head fittings capped off.
8. Hydraulic system to be filled with automatic transmission fluid (ATF), all pressures set and system tested.
9. All other necessary components

Yes \_\_\_\_\_ No \_\_\_\_\_ Deviations \_\_\_\_\_

**INSTALLATION OF MANISTEE COUNTY ROAD COMMISSION (MCRC)  
FURNISHED COMPONENTS AND/OR MODIFICATIONS TO TRUCK CAB AND  
CHASSIS**

1. Install MCRC furnished front bumper with a minimum of twelve (12) 3/4” diameter high strength bolts
2. Furnish and install a chassis mounted spray bar system under the V-Box Spreader including installation of the MCRC furnished 3/16” thick stainless steel sheet
3. Install MCRC furnished rear Airfoil on V-Box Spreader
4. Install MCRC furnished stainless steel wind deflector (box) for the Tarp System
5. Furnish and install Flaming River Manual Battery Disconnect with Amber Marker Light
6. Remove passenger side tool box and replace with MCRC supplied steps and brackets

**MANISTEE COUNTY ROAD COMMISSION  
EQUIPMENT SPECIFICATIONS AND BID REQUIREMENTS  
FOR 2023 TANDEM AXLE TRUCK  
November 18, 2021**

**INSTALLATION OF MANISTEE COUNTY ROAD COMMISSION (MCRC)  
FURNISHED COMPONENTS AND/OR MODIFICATIONS TO TRUCK CAB AND  
CHASSIS (CONTINUED)**

7. Remove step on driver's side tool box and replace with MCRC supplied stainless steel bracket
8. Move stainless steel pipe and furnish and install 1" PVC on body and run all wiring in down both sides and across the front
9. Install the MCRC furnished light brackets for the rear lights for the V-Box Spreader body

The MCRC will supply the MCRC furnished components to the equipment installer in advance of or at the start of the truck equipment installation work and the equipment installer shall coordinate all of this work with the MCRC.

MCRC personnel will meet with the Equipment installation vendor at their site prior to the start of the equipment installation to discuss the proposed equipment installation.

**MANUALS SECTION**

**MANUALS**

Furnish one (1) set of manufacture's manuals for the operation, maintenance, and parts for all auxiliary equipment installed.

**COMPLETION DATE**

1. The bids shall specify the completion date for the installation of all equipment on the tandem axle blade truck as the number of calendar days from the date of the delivery of the truck cab and chassis to the equipment installer by the Manistee County Road Commission (MCRC) or the truck cab & chassis vendor.

Date: 11/18/21

MPS

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