

RAMVAC 2000

POSITIVE DISPLACEMENT VACUUM TRAILER

YES **NO**

Please check "YES" or "NO" for each item below. Items checked "YES" must meet specifications exactly. For all items checked "NO", please clearly note differences on a separate sheet of paper. The District reserves the right to review exceptions and judge the possibility of their acceptability. Failure to note exceptions will cause rejection of a said bid.

A. FRAME / TRAILER:

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|-------|-------|--|
| _____ | _____ | 1. The trailer manufacturer must be a National Association of Trailer Manufacturers (NATM). The trailer must be certified by NATM to have been manufactured in accordance with NATM guidelines. NATM member products are regulated by two sections in the Department of Transportation (DOT); primarily the National Traffic and Safety Administration (NHTSA), and secondarily, the Federal Motor Carrier Safety Administration (FMCSA). Both of these regulatory bodies develop regulations concerning trailer safety. |
| _____ | _____ | 2. Frame to be constructed of 2" x 6" rectangular tubing. |
| _____ | _____ | 3. Trailer to be a tandem axle; two spring style axles with a rating of 9000 LBS (4083 KG) per axle. |
| _____ | _____ | 4. Unit has four tires, 215/75R17.5 (H) rated at 4805 LBS (2180 KG) per tire. |
| _____ | _____ | 5. Total GVWR of unit: 18,000 LBS (9166 KG). |
| _____ | _____ | 6. Unit to have electric brakes on all four wheels. A breakaway switch will be mounted at tongue. |
| _____ | _____ | 7. Unit to be equipped with aluminum fenders. |
| _____ | _____ | 8. Hitch shall be a 2-5/16" ball type hitch, equipped with safety chains and hooks. |
| _____ | _____ | 9. A hydraulic tongue jack shall be provided and rated at 7,000 LBS. |
| _____ | _____ | 10. Unit to be equipped with sealed type safety lighting, ICC approved; rear and sides of unit to be equipped with DOT reflector safety tape. |
| _____ | _____ | 11. An aluminum toolbox shall be located on the tongue of the unit. |
| _____ | _____ | 12. Trailer shall be provided with a cone holder and 6 (six) safety cones. |

B. DEBRIS TANK & REAR DOOR:

- | | | |
|-------|-------|--|
| _____ | _____ | 1. Capacity of debris tank to be 6 cubic yards. |
| _____ | _____ | 2. Tank to be constructed of 1/4" steel, 60" in diameter with 1/4" x 60" diameter flanged and dished pressure heads. |
| _____ | _____ | 3. Tank to be equipped with an external debris level indicator, which monitors the internal level of debris in the tank. Sight eyes are not acceptable. |
| _____ | _____ | 4. Rear of the unit to be equipped with 6" brass discharge valve. |
| _____ | _____ | 5. Rear door to be a flat profile constructed of 1/4" high strength steel with adequate reinforcements. |
| _____ | _____ | 6. Door to be top hinged with two (2) heavy-duty industrial hinges which shall utilize shims to allow for adjusting the door for seal wear. Hinge assemblies utilizing slotted plates or other arrangements shall not be deemed acceptable. |
| _____ | _____ | 7. Door gasket to be one piece, 1-1/2" heavy-duty neoprene material and mounted on the rear door. Door seals mounted on the debris body are not acceptable as they are prone to more wear when mounted on the debris body. |
| _____ | _____ | 8. Door to be equipped with hydraulic door locks to assure proper sealing. These locks shall be mechanical over hydraulic such that if hydraulic pressure is lost the door shall remain sealed. Designs requiring any type of manual locking mechanism are not acceptable. |
| _____ | _____ | 9. The air inlet from the tank is to be equipped with two automatic shut-off float balls. These floats shall be 8" in diameter and constructed of stainless steel. |
| _____ | _____ | 10. Tank shall be capable of dumping by raising 50 degrees using a single hydraulic cylinder; hydraulic cylinder rating is 49,000 LBS. |

- ___ ___ 11. A splash plate shall be provided which wraps around the lower half of the debris body and acts to direct the material being dumped toward the rear of the body. This splash plate shall cover an area of approximately 180 degrees.
- ___ ___ 12. Fold down, spring assist pipe racks shall be provided to accommodate all of the standard aluminum pipe extensions.
- ___ ___ 13. Door shall be equipped with 2 hydraulic cylinders to open door.

C. HYDRAULIC BOOM ASSEMBLY:

- ___ ___ 1. Unit shall be equipped with a rotating hydraulic boom, which allows for vacuuming of debris within a 320-degree arc.
- ___ ___ 1a. Boom shall be equipped with a 60" hydraulic extension to allow for ease of operation in areas varying from 12' to 17'
- ___ ___ 2. Boom shall be designed to raise hydraulically.
- ___ ___ 3. Hydraulic boom functions shall be controlled via a hand-held control box.
- ___ ___ 4. Boom shall utilize a 6" suction hose.
- ___ ___ 5. Boom shall be equipped with curved guide plate at operating end for protection of hose during extension and retraction.
- ___ ___ 6. Boom rotation drive mechanism to be hydraulically driven worm gear.
- ___ ___ 7. The boom receiver head shall rotate on the above worm gear drive and be equipped with a clean out port as well as a replaceable wear plate.

D. AIR CONVEYANCE SYSTEM:

- ___ ___ 1. Airflow shall be provided via a positive displacement blower and shall have a capacity of 2400 CFM and 15" of vacuum.
- ___ ___ 2. Airflow shall be filtered via a moisture separator complete with a clean out door.
- ___ ___ 2a. Airflow shall be filtered via a single cyclone separator complete with a clean out chamber located below the cyclone.
- ___ ___ 3. A final filter chamber shall be a drop box with two (2) mesh screens.
- ___ ___ 3a. A final filter chamber shall be located immediately prior to the blower intake and shall include a replaceable and /or reusable 10 micron cartridge filter element.
- ___ ___ 4. Blower to be belt driven from engine via a power belt system.
- ___ ___ 5. Blower shall be equipped with 8" discharge silencer.
- ___ ___ 6. The airflow system shall be equipped with two (2) vacuum relief valves, which allow air to enter the system when vacuum exceeds 15" HG.
- ___ ___ 7. A vacuum enhancer device shall be supplied for increased vacuum assistance, as applications require.

E. ENGINE / CONTROLS:

- ___ ___ 1. Unit to be powered by a four cylinder 115 HP diesel engine.
- ___ ___ 2. Unit shall be equipped with the following items:
 - 12-volt electrical system with keyed ignition switch
 - Heavy-duty alternator and battery
 - Replaceable type oil filter cartridge
 - Electronic fuel system
 - Electronic throttle
 - Ammeter
 - Oil pressure gauge
 - Water temperature gauge
 - Low oil pressure/high water temperature automatic shut-down switches
 - Tachometer/Hour meter

- Fuel gauge
 - Boom functions for movement of boom up/down, side to side, in/out, and flapper open/close.
 - Manual override switch for pump-off
 - Debris tank door open/close
- ___ ___ 3. Engine shall be equipped with a PTO clutch furnished to engage and disengage the positive displacement blower.
- ___ ___ 4. Engine shall be equipped with a 16-gallon fuel tank.
- ___ ___ 5. All electrical controls/switches shall be housed in a NEMA 4 enclosure for maximum resistance to the elements.

F. EXCESS LIQUID PUMP OFF SYSTEM

- ___ ___ 1. Unit shall be equipped with a 3" hydraulically driven solids handling centrifugal pump mounted external to the debris body.
- ___ ___ 2. Trash pump shall be capable of pumping 300 GPM of liquid.
- ___ ___ 3. Pump shall be capable of passing solid objects up to 2" in diameter. Pump inlet shall be screened and plumbed to within 4" of debris box floor to insure maximum water off loading. Pump shall be activated via an electrical switch located on the unit's control panel.
- ___ ___ 4. Pump system shall be equipped with one quick-coupler with a shut-off valve, which allow for pumping from curb side of unit.
- ___ ___ 5. Pump shall be capable of running dry. Any type of float system to turn it on or off is unacceptable.

G. TETHERED PENDANT CONTROL:

- ___ ___ 1. The unit shall come standard with a tethered pendant control.
- ___ ___ 2. The pendant shall be tethered to control panel via a quarter turn, military grade quick connector.
- ___ ___ 3. The tether cord shall be a minimum of 35' long Teflon coated, multi wire color-coded cable.
- ___ ___ 4. The pendant controls shall be in a NEMA 4 housing and will use watertight push button controls.
- ___ ___ 5. The pendant shall be labeled with engraved tags for identifying functions. Sticker type labels will not be accepted.
- ___ ___ 6. Pendant functions will include boom control left/right, extend/retract, up/down, vacuum enhancer, and kill switch as applicable.

Ga. WIRELESS REMOTE CONTROL:

- ___ ___ 1. The unit shall come with a wireless pendant control.
- ___ ___ 2. The wireless remote RF unit will use a microprocessor controlled PLL synthesizer with up to 85 different channels.
- ___ ___ 3. The wireless remote will operate in the frequency range of 902 – 928 MHz.
- ___ ___ 4. The wireless remote will have a range of 300' with an obstructed view and 1,000' with an unobstructed view.
- ___ ___ 5. The wireless remote will have an automatic shutdown feature if the base unit loses remote's signal.
- ___ ___ 6. The wireless remote will have an operating time of 130 hours of continuous use.
- ___ ___ 7. The wireless remote shall have a temperature range of -20° to 160° F.
- ___ ___ 8. Remote functions will include boom control left/right, extend/retract, up/down, vacuum enhancer, and kill switch.

H. HYDRAULIC SYSTEM:

- ___ ___ 1. Shall have a gear driven live hydraulic system powered by auxiliary engine.
- ___ ___ 2. Rating: 19 GPM/2000 PSI (minimum).
- ___ ___ 3. All functions controlled hydraulically shall have said valves mounted to one of two manifolds in order to facilitate maintenance. These valves shall utilize DIN electrical connections and have their respective switches located in the units control panel.

I. HIGH PRESSURE WATER SYSTEM:

- ___ ___ 1. The water system will be used for washing out the debris body as well as assisting in the cleaning process during vacuuming.
- ___ ___ 2. Water pump shall be a hydraulically driven triplex design unit having a capacity of 5 gallons per minute and up to 2500 PSI. System shall be activated via electrical control located on the unit's control panel.
- ___ ___ 3. Unit shall be equipped with a water tank on each fender; total water system gallonage: 150 gallons; water tanks shall be constructed of 1/2" thick, non-corrosive Duraprolene; tank system to be baffled and have a drain.
- ___ ___ 4. Water system shall be equipped with a pressure relief valve for system safety; overflow pressure will return to water tank.
- ___ ___ 5. A wash-down gun shall be included with on/off trigger. Gun shall have 25' of 1/2" extension hose that will be stored on a unit mounted hose reel.
- ___ ___ 6. Unit shall include a potholing tool that features two water nozzles integrated into the bottom of a vacuum tube for hydro-excavating the soil below
- ___ ___ 7. Unit shall include a hydro-excavator kit: two (2) digging nozzles, two (2) pipe extensions, and one (1) hydro suction tube, wash down gun with on/off trigger (gun shall have 50' of 1/2" extension hose that will be stored on a unit mounted hose reel).

J. PAINT:

- ___ ___ 1. Before painting, all metal shall be cleaned and etched with a phosphoric wash to insure permanent bond of primer and paint.
- ___ ___ 2. All components of the unit whether purchased or manufactured shall be BOTH primed and painted prior to assembly in order to assure maximum resistance to corrosion. Painting after the assembly process is NOT acceptable.
- ___ ___ 3. The unit shall have the trailer frame painted black and the hose reel and shroud assemblies shall be painted standard white.

K. STANDARD ACCESSORIES:

- ___ ___ 1. 10' X 6" Flat Discharge Tube
- ___ ___ 2. 6" Crown Nozzle
- ___ ___ 3. 16' X 6" Boom Hose
- ___ ___ 4. Two (2) 6' X 6" Extension Tubes
- ___ ___ 5. 4' X 6" Extension Tube
- ___ ___ 6. 4' X 6" Fluid Tube
- ___ ___ 7. Owners Manual

L. LIGHTING ACCESSORIES:

- ___ ___ 1. Rotating beacon.
- ___ ___ 2. Flood light x 2 on boom.
- ___ ___ 3. Arrow board.
- ___ ___ 4. Stop-Turn-Tail Lighting