

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 1. The machine shall be capable of removing stones, grit, grease, sludge and other debris from sanitary sewer and/or storm drain lines by the flushing action of high-pressure water. | _____ | _____ |
| 2. The high-pressure sewer cleaner shall operate independent of the vacuum system. | _____ | _____ |
| 3. The machine shall include an air conveying vacuum system to provide for the simultaneous removal of the debris flushed to the manhole by the high pressure water system or for the removal of debris from sewers, sumps, catch basins, digesters, wet wells, bar screens, etc. | _____ | _____ |
| 4. The machine shall be capable of being operated by one man, with all operating controls for high pressure water pump, hose reel, and vacuum, located at the front of the machine for safety. This is an essential safety feature, no exceptions will be allowed. | _____ | _____ |
| DEBRIS BODY | | |
| 5. Debris storage body shall have a minimum usable liquid capacity of 16 cubic yards. | _____ | _____ |
| 6. The body shall be round for maximum strength and constructed of 3/16" Corten "A" steel for corrosion resistance. Bidder shall submit a letter specifying the type of steel used for construction. | _____ | _____ |
| 7. The rear door shall be full opening, hinged at the top (hinges shall be adjustable) with a minimum 6" diameter liquid drain for removing excess liquids. The drain to have a knifevalve installed at the opening. Drain will have 10' of 6" layflat hose. | _____ | _____ |
| 8. The rear door will be supplied with a debris deflector shield located inside the debris tank that encompasses 75% of the rear door. The debris deflector shield shall deflect material from rear door and aid in draining off excess liquids. A rear door safety prop shall be provided. | _____ | _____ |
| 9. There shall be no hydraulic components located <i>inside</i> of the debris body. | _____ | _____ |
| 10. The debris body shall have five (5) externally mounted door locks that lock hydraulically. One manual "T" bolt will be installed for operator safety. The hydraulic locks shall be controlled by one hydraulic cylinder externally mounted for ease of service. Each lock shall be fully adjustable. | _____ | _____ |
| 11. A hydraulic grabber shall be installed and controlled by one hydraulic cylinder externally mounted for ease of service. The hydraulic locks and grabber shall be operated by one (1) sequential control. | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 12. In order to allow the operator to control the discharging of liquids from the debris tank. By <i>cracking</i> open the door prior to the dumping procedure, the hydraulic grabber shall engage the door at the bottom of the door from 0" - 6". Beyond the 6" stroke, the grabber shall automatically disengage the door, allowing for the dumping of the debris tank. | _____ | _____ |
| 13. A double acting power up/power down hydraulic scissors lift mechanism will be provided to raise body to a 50° angle. | _____ | _____ |
| 14. The scissors lift mechanism shall be designed to support a minimum of 24 inches of the debris tank width to provide stability and when dumping on uneven ground. | _____ | _____ |
| 15. The lift capacity of hydraulic scissors lift cylinder is 56,000 lbs. | _____ | _____ |
| 16. Dump controls shall be located on the curbside mid-ship of the unit, well forward of the dumping area for operator safety. A manual override system shall be provided in case of system failure. | _____ | _____ |
| 17. The debris body shall have a five-year warranty. If pro-rated so state:_____ | _____ | _____ |
| 18. Copy of warranty statement is enclosed with the bid. | _____ | _____ |
| 19. An internal polyethylene float device with internal indicator shall be supplied to show when body is loaded to capacity. | _____ | _____ |
| AUTOMATIC VACUUM BREAKER | | |
| 20. The automatic vacuum breaker assembly shall be located inside the body. | _____ | _____ |
| 21. A full indication will activate an automatic vacuum breaker shut down system that completely shuts down 100% of the airflow to the vacuum system to prevent body overfilling and wastewater discharge into the atmosphere. | _____ | _____ |
| 22. The vacuum breaker system shall be automatically activated (closed) when the parking brake system is released to eliminate carryover during transit. | _____ | _____ |
| 23. The system shall also be controlled, activated, at the front hose reel control station and pendant control. This feature will enable the operator to pick up large debris with boom and place debris on the road surface. This system will be used for safety in the event suction must be shut off in case of an emergency. | _____ | _____ |
| CENTRIFUGAL COMPRESSOR (FAN DESIGN) | | |
| 24. The centrifugal vacuum compressor shall be a maximum of 27" diameter and of 3-stage construction (i.e. 3-27" minimum diameter fans in tandem). | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 25. The centrifugal compressor (fans) shall be constructed of Corten steel. | _____ | _____ |
| 26. The compressor shall operate independent of the high-pressure water system and be powered by the truck engine via hydrostatics. The compressor drive shall be a closed loop hydrostatic system using a variable piston pump and motor. | _____ | _____ |
| 27. This system shall include a heat exchanger for extreme ambient conditions and to maintain the pump suction oil temp at 160° F. max. The heat exchanger shall be protected by a 30-micron filter and cold weather bypass valve. Hydrostatic loop filtration shall be accomplished by a 10 Beta micron return filter and a 10-micron Absolute (no bypass) charge filter. | _____ | _____ |
| 28. To maximize long term durability by reducing the load on one side of the compressor, the compressor shaft shall extend through the compressor and shall be additionally stabilized by using two high speed bearings, one at each end of the shaft. No exceptions will be allowed to this requirement. | _____ | _____ |
| 29. A means of starting, stopping, and varying the vacuum suction from operator station at the front of the machine must be provided. | _____ | _____ |
| 30. The fans outer housing shall be spun from one piece of 3/16" steel for strength and provide proper airflow in operation. The housing shall have a coal tar epoxy coating to prevent corrosion. | _____ | _____ |
| 31. A centrifugal separator located in the inlet chamber to the fans with clean out box shall be provided. The separator shall remove particles from the air stream, thus enabling unit to vacuum wet or dry material. The separator shall be separate from the debris body. | _____ | _____ |
| 32. Bidder to supply with bid proposal a drawing showing airflow through the system and separator. | _____ | _____ |
| 33. Bidder to supply with bid proposal a certified performance graph showing CFM, inches of negative water pressure, and horsepower. | _____ | _____ |
| 34. The centrifugal compressor (fan) system must be capable of producing 90% vacuum with no airflow. This is an essential feature in the application where material needs to be vacuumed under the water surface, i.e. lift stations, plugged manholes, etc. | _____ | _____ |
| 35. System must be capable of vacuuming under water 16.5' (200") without special attachments. | _____ | _____ |
| 36. A manometer test may be required to demonstrate the centrifugal compressor system performance. | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 37. Centrifugal compressor fans shall have a five-year replacement warranty. If pro-rated so state:_____ | _____ | _____ |
| WATER SUPPLY | | |
| 38. The water tank shall have a minimum usable capacity of 1300 U.S. gallons. | _____ | _____ |
| 39. The water tanks shall be constructed of non-corrosive, non-metallic, durable, cross-linked polyethylene to eliminate rust, corrosion, and stress cracking. | _____ | _____ |
| 40. The water tank shall be mounted at and below the truck frame level to provide a low center of gravity for truck stability. | _____ | _____ |
| 41. A 2-1/2" diameter x 25' long hydrant hose with hydrant wrench shall be supplied on the unit. | _____ | _____ |
| 42. An anti-syphon fill device shall be installed on the unit. | _____ | _____ |
| 43. Quick removal hatches shall be provided on all water tanks for access for flush out, to fill tanks, or to add chemicals to the water tank. | _____ | _____ |
| 44. A sight gauge to indicate water level shall be located within sight of the operator station. | _____ | _____ |
| 45. The water tanks shall be protected by a minimum of 11 gauge steel plating mounted below the water tanks for protection against road hazards when unit travels over the road, off the road or to land fills. | _____ | _____ |
| 46. The water tanks shall have a five-year <i>replacement warranty</i> . | _____ | _____ |
| 47. Bidder to supply copy of warranty for water tanks with their bid proposal. | _____ | _____ |
| AUXILIARY ENGINE (WATER PUMP DRIVE ENGINE) | | |
| 48. The shrouded auxiliary engine used to drive the water pump shall be liquid cooled, turbo charged, diesel powered, 4 cylinder heavy-duty industrial engine. The engine shall have a minimum displacement of 239CID and a rated gross horsepower of 110 bhp at 2500 rpm. | _____ | _____ |
| 49. The engine shall come equipped with a counter balanced crankshaft, rubber-isolating mounts, automatic safety shut downs for low oil pressure and high water temperature, as well as an exhaust silencer. | _____ | _____ |
| 50. All gauges, auxiliary engine tachometer, oil pressure, water temperature, hour meter, and shut down system shall be located on the drivers side of the unit in a lockable control panel. | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 51. The auxiliary engine start and stop controls will be at the front hose reel operator station for safety and convenience. | _____ | _____ |
| 52. The shrouded auxiliary engine will have a hinged driver's side door for access to the engine. Oil checking shall be accomplished from ground level on driver's side of the unit. | _____ | _____ |
| VACUUM PICK UP HOSE | | |
| 53. Shall be front loading, attached at the front of the machine in order to provide ease of positioning the machine over the manhole, as well as afford maximum safety for the operator. | _____ | _____ |
| 54. The 8" diameter hose will be mounted on a boom that will provide a minimum of 18' vertical lift utilizing <i>dual</i> hydraulic cylinders and 230° of boom rotation powered hydraulically for non-interrupted smooth movement. Boom to have a lift capacity of 500 lbs. at the front bumper. | _____ | _____ |
| 55. The boom will be powered by an electric over hydraulic system: up/down by dual lift cylinders. The right/left movements shall be hydraulics. | _____ | _____ |
| 56. Control of the boom shall be by means of a " <u>joy-stick</u> " control at the operator's station, requiring no cables at operator's feet for boom operation. A 6 way remote pendant station will also be supplied. | _____ | _____ |
| 57. A manual override system shall be provided in/out, right/left, and up/down functions in case of system failure. | _____ | _____ |
| 58. The boom shall hydraulically telescope a minimum of 10' forward from the front operator's station. The height of the pick up hose shall not change while the boom is being telescoped. | _____ | _____ |
| 59. A boom coverage chart shall be provided showing the reach capability in front of the vehicle and the total coverage of the telescopic function. | _____ | _____ |
| 60. Pipe extensions to clean to 20.5' will be carried on the truck as follows: <ol style="list-style-type: none"> 1. 1-6.5' nozzle. 2. 1-6' aluminum pipe extension. 3. 1-5' aluminum pipe extension. 4. 1-3' aluminum pipe extension. | _____ | _____ |
| HIGH PRESSURE WATER PUMP | | |
| 61. The high-pressure water pump shall be rated to deliver smooth continuous pressure and flow through the entire flow range of the pump. | _____ | _____ |
| 62. Does high-pressure system have smooth continuous flow for both high-pressure system and handgun system. | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 63. A continuous duty flow of 50 g.p.m. and 3000 p.s.i. shall be provided. | _____ | _____ |
| 64. High-pressure relief valves shall be provided for both the high-pressure system and handgun system. | _____ | _____ |
| 65. The water pump shall operate independently of the vacuum system and be powered by the auxiliary engine via a clutchless, direct dual powerband drive system | _____ | _____ |
| 66. The high-pressure water pump <i>drive</i> system shall carry a five-year replacement warranty. Warranty excludes the drive engine; i.e. auxiliary engine. | _____ | _____ |
| 67. The water pump shall be capable of running dry. | _____ | _____ |
| 68. Controls for starting and stopping the water pump, and to vary the flow and pressure shall be at the front hose reel operator's station. | _____ | _____ |
| 69. The high-pressure water pump will be equipped with cold weather drain valves. The valves will allow operator to completely drain the high-pressure pump. | _____ | _____ |
| HOSE REEL ASSEMBLY | | |
| 70. The hose reel assembly shall be on the front of the vehicle. | _____ | _____ |
| 71. The hose reel shall have a minimum of 30" inside diameter with a <i>capacity</i> of 800' x 3/4" hose. | _____ | _____ |
| 72. The hose reel will be hydraulically powered in both directions by means of a double chain and sprocket drive. The controls for operating the motor shall have a flow control device to regulate the rotational speed of the reel in both directions. All hydraulic hoses shall be behind a steel housing to protect operator from hydraulic oil if a hose fails. | _____ | _____ |
| 73. The hydraulic motor, chain, and sprockets will have a protective cover or be mounted on the radiator side of the hose reel for operator safety. | _____ | _____ |
| 74. The hose reel will <i>articulate</i> 180° allowing operator to work in any position through this arc. This allows greater flexibility in truck placement for manholes located in tough areas and provides greater safety to the operator. | _____ | _____ |
| 75. Reel will extend beyond the width of unit for greater flexibility for positioning reel over offset manholes, catch basins, etc. | _____ | _____ |
| 76. Does reel extend beyond the trucks width for greater flexibility in cleaning? | _____ | _____ |

| SPECIFICATIONS | Comply | |
|---|--------|-------|
| | Yes | No |
| 77. A hydraulic outrigger leg that is controlled hydraulically shall be supplied that comes in contact with the ground at any one position. | _____ | _____ |
| 78. A warning light is located in the cab to warn the operator that the outrigger leg is not in its transported position prior to moving the unit | _____ | _____ |
| 79. A manual bypass system for the hose reel assembly shall be provided to manually pull the reel assembly away from its transported position. This feature allows operator to check fluids without starting engines. | _____ | _____ |
| MANHOLE CLEANING WATER SYSTEM (HAND GUN) | | |
| 80. The high-pressure pump and independent water tank assembly supplied shall be used for manhole cleaning. | _____ | _____ |
| 81. A smooth continuous flow of 20 g.p.m. and pressure of 600 psi shall be provided for ease of operation. | _____ | _____ |
| 82. A handgun pressure relief valve set at 600 psi shall be provided. | _____ | _____ |
| 83. One full functioning hand gun with on/off hand control, replaceable nozzle tip, 12" extension, adjustable spray 50' x 1/2" hand gun hose with quick disconnects and retractable reel will be provided. | _____ | _____ |
| 84. The handgun will attach to the system via a quick couple connection at the curbside of the unit. To avoid being coiled at the operators station a hand gun holder will be provided at the front bumper. | _____ | _____ |
| JET HOSE | | |
| 85. 600' X 3/4" high pressure jet hose, rated for 3000 psi working pressure and 7500 psi burst pressure will be provided on the unit. | _____ | _____ |
| 86. A heavy-duty hose guide with 25' of nylon rope will be provided. | _____ | _____ |
| 87. Nozzles will be provided as follows: 1. 1-Chisel head "penetrating" nozzle with tungsten carbide inserts 2. 1-30°sanitary nozzle with tungsten carbide inserts | _____ | _____ |
| HYDRAULIC SYSTEM AND LUBRICATION | | |
| 88. The hydraulic system shall have a 45-gallon capacity. | _____ | _____ |
| 89. The hydraulic system shall incorporate a main shut off valve in case of hydraulic failure. | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| 90. The hydraulic system shall incorporate hydraulic pressure relief valves and pressure gauges for ease of trouble shooting and maintenance. | _____ | _____ |
| 91. The unit shall be equipped on the passenger side, mid-section of the module, a permanent weatherproof white vinyl lubrication chart. | _____ | _____ |
| 92. The chart will point out lubrication points on the module and specify what type of lubrication and hydraulic fluids are required. The chart will also specify the frequency of each lubrication point. | _____ | _____ |
| 93. Remote plumbed grease fittings shall be provided for the vacuum compressor, boom rotation, and water pump drive areas. | _____ | _____ |
| ACCESSORIES | | |
| 94. A minimum twelve (12) month manufacturers guarantee on the unit will be provided. | _____ | _____ |
| 95. A 16" x 42" x 96" storage box behind the cab will be provided with adjustable shelf. | _____ | _____ |
| 96. Bidder to supply dimensions for the tool boxes being supplied: Dimensions:_____ | _____ | _____ |
| 97. Hose footage counter | _____ | _____ |
| 98. Electronic back up alarm | _____ | _____ |
| 99. Debris body flush out system | _____ | _____ |
| 100. Winter recirculating system shall be capable of operating throughout the <i>full flow</i> range of the high-pressure pump system in transport or stopped position. | _____ | _____ |
| 101. Bidder to state flow capacities of winter recirculating system: Flow capacities:_____ | _____ | _____ |
| 102. Air purge system | _____ | _____ |
| 103. 2 ½" water drain gate valve | _____ | _____ |
| 104. Variable flow valve | _____ | _____ |
| 105. Rear mounted tow hooks | _____ | _____ |
| 106. Auxiliary engine remote oil drain | _____ | _____ |
| 107. 5 lb fire extinguisher | _____ | _____ |
| 108. Triangle kit | _____ | _____ |
| 109. Remote grease zerks for telescoping boom | _____ | _____ |
| 110. Remote grease zerks for debris body | _____ | _____ |
| 111. 10' leader hose | _____ | _____ |

| SPECIFICATIONS | Comply | |
|--|--------|-------|
| | Yes | No |
| PAINT | | |
| 112. Chassis to be painted white. | _____ | _____ |
| 113. Unit paint surface shall be shot blasted, primed and sanded prior to paint. | _____ | _____ |
| 114. Unit shall be painted _____ with DuPont Imron 5000 polyurethane paint, and shall have reflective _____ boom, and side stripes and rear chevrons | _____ | _____ |
| LIGHTING | | |
| 115. The entire module electrical system shall be vapor sealed to eliminate moisture damage. | _____ | _____ |
| 116. All wiring shall be color-coded, labeled and run in sealed terminal enclosures. | _____ | _____ |
| 117. All module circuits shall be protected by circuit breakers. | _____ | _____ |
| 118. Clearance lights and reflectors shall be furnished in accordance with D.O.T. requirements. | _____ | _____ |
| 119. Front and rear mounted strobe lights | _____ | _____ |
| 120. Arrowboard | _____ | _____ |
| 121. Hand held spot light | _____ | _____ |
| 122. Front and rear mounted flood lights | _____ | _____ |
| AWARDING OF BID | | |
| 123. The owner will award the bid on the basis of price, quality of equipment with this set of specifications and the delivery. The owner reserves the right to reject any or all bids and to waive all informalities. | _____ | _____ |
| OPERATOR TRAINING | | |
| 124. Operator training is to be conducted by a factory-trained representative for a minimum of one day at the time of delivery. | _____ | _____ |
| 125. One copy of the operating and maintenance manual for the sewer cleaner module shall be provided upon unit delivery. | _____ | _____ |
| 126. An operational video will be provided with the unit. | _____ | _____ |
| MOUNTING AND DELIVERY | | |
| 127. The unit described shall be mounted on the truck chassis at the factory of the body manufacturer. | _____ | _____ |
| 128. Transportation charges shall be included in proposal pricing. | _____ | _____ |

SPECIFICATIONS

Comply
Yes No

129. Bidder shall state delivery time after receipt of order:
_____ days.

ATTENTION TO BIDDERS

130. It will be the bidder's responsibility to carefully examine each item of the specification. Failure to respond to each section of the technical specifications comply section: yes/no will cause the proposal to be rejected without review as "non-responsive". *All* variances, *no* responses, exceptions, and/or deviations will be fully described in the appropriate section provided.

Insert Chassis Specifications Here

