PART ONE - GENERAL

1.1 PROJECT SCOPE

1.1.1 Requirements for providing a portable diesel driven pump.

1.1.2 The pump shall be delivered to the owner within five weeks of contract commencement or as stated in the notice to proceed.

1.2 GENERAL

1.2.1 The specifications herein state the minimum requirements of the City of Aurora. All bids must be regular in every respect. Unauthorized conditions, limitations, or provisions shall be cause for rejection. The city may consider as "irregular" or "non-responsive", any bid not prepared and submitted in accordance with the bid documents and specification, or any bid lacking sufficient technical literature to enable the City of Aurora to make a reasonable determination of compliance to the specification. It shall be the bidder's responsibility to carefully examine each item of the specification. Failure to offer a completed bid or failure to respond to each section of the technical specification (exception yes or no) will cause the proposal to be rejected, without review, as "non-responsive". All variances, exceptions, and/or deviations shall be fully described in the appropriate section. Deceit in responding to the specification will be cause for rejection.

1.2.2 EQUIVALENT PRODUCT: Bids will be accepted for consideration on any make and model that is equal to or superior to the specified 2017 Godwin Dri-Prime® CD150M (6") trailer mounted pump or equal, as interpreted by the City of Aurora. A blanket statement that equipment proposed will meet all requirements will not be sufficient to establish equivalence, but will require an explanation at each deviation or substitution.

1.2.3 INTERPRETATIONS: In order to be fair to all bidders, no oral interpretations will be given to any bidder as to the meaning of the specifications documents or any part thereof. Every request for each a consideration shall be made in writing to the City of Aurora. Based upon such inquiry, the City of Aurora may choose to issue an Addendum in accordance with local public contract laws.

1.2.4 GENERAL SPECIFICATIONS: Units described shall be new, unused, and of the current year's production. The style of pump being bid must be in production for a minimum of 10 years (include users list). Unit shall be of the latest design and in current production completely serviced, ready for work and shall include all standard and optional equipment as specified herein. All bidders must provide a demonstration of the unit they are bidding to the City of Aurora prior to bid date.

1.2.5 Bidders must have a fully stocked parts and service facility within 50 miles of the City of Aurora. The City of Aurora shall have the right to inspect the office and shall be the sole judge of its adequacy to fulfill this requirement.

1.2.6 Bidders, on request of the City of Aurora, must be prepared to review their specifications with the City of Aurora and must, if requested, also be prepared to provide a unit for the convenience of the City of Aurora. These services, if needed, are considered as part of the bidder's proposal and will be provided without cost or obligation to the City of Aurora.

1.3 SYSTEM DESCRIPTION

1.3.1 The portable diesel driven pumpset.

1.3.2 Pump shall be fitted with a fully automatic priming system capable of repeated priming from a completely dry pump casing.

1.3.3 The pump and accessories shall be supplied by the pump manufacturer.

1.3.4 The pump offered shall be the manufacturer's standard production model. It shall have been in continuous use by municipal and industrial owners for a minimum of ten years. A list of five user contacts including contact names and telephone numbers shall be provided with the bid submittal. Failure to supply a verifiable users list will be cause for rejection of the bid.

1.4 DESIGN REQUIREMENTS

1.4.1

OPERATING SPEED (MAXIMUM)	2200 RPM
MAXIMUM SOLIDS HANDLING SIZE	3 INCHES
IMPELLER DIAMETER	11 INCHES
SUCTION SIZE	6 INCHES
DISCHARGE SIZE	6 INCHES
MAXIMUM SUCTION LIFT	28 FEET
MAXIMUM DUTY POINT	*2179* GPM AT *30*'TDH (INCLUDING A *28*' DYNAMIC SUCTION LIFT)
2 SECOND DUTY POINT	*1000* GPM AT *90*'TDH (INCLUDING A *25*' DYNAMIC SUCTION LIFT)

1.5 REFERENCES

1.5.1 ANSI B16.1 - Standard for Cast Iron Pipe Flanges and Flanged Fittings.

PART TWO - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

2.1.1 The pump shall be a Model CD150M, size 6" x 6" as manufactured by GODWIN PUMPS, Bridgeport, New Jersey OR APPROVED EQUAL.

2.2 EQUIPMENT

2.2.1 CASING, SUCTION COVER: Pump castings shall be cast iron. Pump design shall incorporate a direct suction flow path that is in axial alignment with the impeller eye. There shall be no turns, chambers, or valves between the suction flange and the impeller eye.

2.2.2 IMPELLERS: The pump impeller shall be an open, three-bladed, non-clog type with pump-out vanes on the back shroud and fabricated of hardened cast- chromium steel construction (minimum Brinell Hardness 200 HB).

2.2.3 WEARPLATES: Shall be fully adjustable and replaceable, fabricated of cast iron. Wear plate clearances shall have no relationship to the ability of the pump to achieve a prime.

2.2.4 BEARINGS AND SHAFTS: Pump shall be fitted with a bearing bracket to contain the shaft and bearings. Bearings shall be tapered roller bearings of adequate size to withstand imposed loads for sustained pumping at maximum duty points. Minimum ISO L_{10} bearing life to be 100,000 hours. Impeller shafts shall be fabricated of 1.5% chromium alloy.

2.2.5 SEALS: Seals shall be high pressure, mechanical self-adjusting type with silicon carbide faces capable of withstanding suction pressures to 58 psi. The mechanical seal shall be cooled and lubricated in an oil bath reservoir, requiring no maintenance or adjustment. Pump shall be capable of running dry, with no damage, for periods up to twenty-four hours. All metal parts shall be of stainless steel. Elastomers shall be Viton.

2.2.6 PUMP SUCTION AND DISCHARGE FLANGES: Shall be cast iron ANSI (B16.1) Class 150, flat faced.

2.2.7 PUMP GASKETS: Shall be compressed fiber and/or Teflon.

2.2.8 PUMP O RINGS: Shall be Buna-N.

2.2.9 PRIMING SYSTEM: Pump shall be fitted with a fully automatic priming system

incorporating a twin-cylinder compressor and air ejector assembly. No vacuum pumps will be accepted. The self-lubricated, self-cooled compressor shall be mounted on the pump bearing bracket and belt driven by the pump shaft. The priming system shall require no fail-safe protection float gear or any adjusting at high or low suction lifts. Pumps with self-priming chambers modified with vacuum priming systems shall not be accepted as equal. The pump must be capable of running totally dry for periods up to 24 hours, then re-priming and returning to normal pumping volumes. Pump and priming system is capable of priming the pump from a completely dry pump casing. The pump shall be capable of static suction lifts to 28 vertical feet, at sea level. It shall also be capable of operation using extended suction lines. Equipment acceptance shall be contingent upon the pump's ability to run continuously at full speed in a completely dry condition for periods up to 24 hours. The engineer may require a demonstration.

2.2.10 CHECK VALVE: Pump shall be supplied with an integral ball-type check valve mounted on the discharge of the pump, allowing unrestricted flow from the impeller. The check valve shall prevent in-line return of flow when the pump is shut off. Non-return valve elastomers shall be Nitrile rubber and shall be field replaceable.

2.2.11 DRIVE UNIT: The drive unit shall be a diesel water-cooled engine. The engine shall drive the pump by use of direct-connected intermediate drive plate. Starter shall be 12VDC electric. Safety shut down switches for low oil pressure and high temperature shall be integrated into the engine control panel. Battery shall have 180-amp hour rating. Unit shall include a tachometer and an hour meter. Drive unit shall be a John Deere 4045TFC03 final Tier 4 or equal, rated at 74HP (continuous) at 2200 R.P.M. A certified continuous-duty engine curve shall be supplied to the owner/engineer.

2.2.12 GOVERNOR: Governor shall be electronic type. Engine speed shall be adjustable to operate the pump between maximum and minimum design operation speeds.

2.2.13 FUEL SOURCE: Integral skid fuel tank capacity shall be sufficient to provide at least twenty hours of operating time at full load. The engines shall be capable of operating satisfactorily on commercial grade of distilled No. 2 fuel oil.

2.2.14 EXHAUST: Exhaust system shall include critical grade silencer.

2.2.15 TRAILER: The pump and engine shall be mounted on a two wheeled, pneumatic type, single-axle trailer, incorporating a structural steel integral fuel tank of sixty gallons, giving up to twenty-four hours of nominal running time. The chassis will be constructed of heavy-duty rolled mild steel channel of 4 x 2 x 3/16 section. The fuel tank shall be equipped with drain plugs and large inspection/cleaning access plate. Trailer shall be equipped with fenders, electric brakes, front and rear support

stands, lifting bar, safety chains, and side and rear reflectors. Trailer design shall be in compliance with applicable D.O.T. regulations.

2.2.16 FACTORY PAINTING: Pump, engine, and base shall be shop primed and finish painted at the place of manufacturer. Materials and dry film thickness for priming and finish paint shall be in accordance with customer specifications.

2.3 AUTOMATIC STARTING CONTROL SYSTEM

2.3.1 The engine shall be equipped with a factory installed microprocessor-based controller designed to start/stop the engine at a signal supplied by high and low level floats or a 4-20 mA transducer.

2.3.2 ENGINE / PUMP CONTROL SPECIFICATIONS

The engine shall have the ability to be started, stopped, and controlled by a PrimeGuard 2 OR EQUAL high performance state of the art digital controller as supplied by Godwin Pumps of America, Inc. The controller shall be weather proof enclosed, and contain an external weatherproof 12-position keypad accessible without the need to remove or open any protective cover or enclosure. It shall be designed to start/stop the engine at a signal supplied by high and low level floats or a 4-20 mA transducer. The PrimeGuard 2 OR EQUAL controller shall provide the following functions without modification, factory recalibration, or change of chips or boards, by simply accessing the keypad.

2.3.2.1 The keypad shall be a capacitive touch sensing system. No mechanical switches will be acceptable. The keypad shall operate in extreme temperatures, with gloves, through ice, snow, mud, grease, etc. and maintain complete weather-tight sealing of the PrimeGuard 2 OR EQUAL controller.

2.3.2.2 In automatic mode, the unit shall conserve energy and go to "sleep".

2.3.2.3 The PrimeGuard 2 OR EQUAL controller shall function interchangeably from float switches, pressure switch, or transducer, as well as manual start/stop by selection at the keypad. No other equipment or hardware changes are required.

2.3.2.4 The start function can be programmed to provide three (3) separate functions each day for seven days (i.e. a start, exercise cycle) OR on three separate days at different times and for a varying length of time all via the keypad.

2.3.2.5 Manual-Automatic Button:

2.3.2.5.1 In Manual Mode, manual "Start" button shall start engine and engine shall continue to run until "Stop" button is depressed or an emergency shutdown

occurs.

2.3.2.5.2 In Automatic Mode, start/stop sequencing shall be initiated by either one (1) high-level N/O and one (1) low-level N/C narrow angler float switches, pressure switch, transducer, or a signal from a digital input.

2.3.2.6 The controller shall integrate the engine safety shut-off for low and high oil temperature, and provide over-speed protection.

2.3.2.7 The controller shall include standard, field-adjustable parameters for engine cycle crank timer, and shutdown time delay.

2.3.2.8 The PrimeGuard 2 OR EQUAL controller shall have only one circuit board with eight built-in relays. Three (3) of the relays shall be programmable to output desired parameter on display and to be used as dry-contacts for communication with City of Aurora SCADA system, all via the keypad without changing relays, chips, printed circuits, or any hardware or software.

2.3.2.9 Standard components shall consist of (24) digital inputs, (7) analog inputs, (1) magnetic pick-up input, (8) 20-amp form "C" relays, (1) RS232 port, (1) RS485 port, (1) RS232/RS485 port, (1) J1939 port, and (1) 64X128 pixel full graphic LCD display with backlight.

2.3.2.10 The industrially-hardened PrimeGuard 2 OR EQUAL Controller shall withstand Vibration of 3 g, 3 axis, frequency swept 10-1000 Hz, in an operating temperature Range of 4° to 176°F (-20° to 80°C) and an operating humidity range of 0-95% Non-Condensing.

2.4 OPTIONS

2.4.1 CAM AND GROOVE FITTINGS: The unit shall include a 6" female cam & groove x 6" 150# flange adapter as well as a 6" male cam & groove x 6" 150# flange adapter

PART THREE - EXECUTION

3.1 MANUFACTURERS SERVICES

3.1.1 The manufacturer shall furnish the services of a competent factory representative to

do the following:

3.1.1.1 Inspect the system prior to delivery, supervise the start up and testing of the system, and certify the system has been properly furnished and is ready for operation.

3.1.1.2 Instruct the owner's operating personnel in the proper operation and maintenance of the system for a period of not less than one-half day.

3.2 TOOLS AND SPARE PARTS

3.2.1 The manufacturer shall furnish the following on delivery of the pumping system.

3.2.1.1 A recommended list of spare parts.

3.2.1.2 An Operations and Maintenance manual for the pump and engine.

3.3 WARRANTY

3.3.1 The manufacturer shall furnish the following to the owner:

3.3.1.1 A copy of the engine manufacturer's parts and labor warranty.

3.3.1.2 A one-year Parts and Labor Warranty issued by the manufacturer on the Portable Pump. This warranty must cover all pump parts, including the mechanical seal.