

## INVITATION TO BID

Notice is hereby given that sealed bids will be received by the Jackson County Utility Authority until 10:00 a.m., February 6, 2012, at the Authority office, 1225 Jackson Avenue, Pascagoula, MS 39567 (Phone: 228/938-6809, ext. 303) for the purchase of simplex grinder station packages.

Complete specifications may be obtained from the Authority's office on request or may be inspected between 8:00 a.m. and 4:00 p.m., Monday through Friday at the above address.

Run: 01/03/12 & 01/10/12

Bill: Address in Ad.

**SPECIFICATIONS  
FOR  
SIMPLEX GRINDER STATION PACKAGES**

**Bid Requirements**

The Jackson County Utility Authority is accepting sealed bids for simplex grinder station packages with standard and high head pumps.

Bids will be accepted until **10:00 a.m. on February 6, 2012**, then opened and read aloud shortly thereafter.

Bids must be in a sealed envelope addressed to the Jackson County Utility Authority, 1225 Jackson Avenue, Pascagoula, MS 39567, and **must be clearly marked on the outside of the envelope:**

**“SIMPLEX GRINDER STATION PACKAGES - DO NOT OPEN”**

Delivery is the sole responsibility of the bidder. The Authority is not responsible for lost, misdirected, or late mail.

Submission of a bid proposal constitutes agreement on the part of the Bidder to all aspects of the requirements and specifications of this document.

All bids must be submitted on the attached bid form, and must be signed and dated.

It is the intent of the Authority to award the bid to the bidder providing the lowest and best bid.

The Authority reserves the right to reject any and/or all bids received.

It shall be incumbent upon the bidders to understand the specifications. Requests for clarifications shall be in writing and shall be submitted to the Authority at least five (5) days prior to the time and date set for the bid opening. The specifications and conditions of this bid are intended to promote competition to the maximum extent practicable. It is the responsibility of the bidder to notify the Authority's Purchasing Agent of restrictive competition. The notice of restrictive specifications/conditions must be submitted to the Authority at least five (5) days prior to the bid opening. Failure to conform to this requirement may be cause for a protest to be rejected.

**Bid Specifications**

The Authority intends to enter into a contract for the purchase of simplex grinder station packages. The term of the contract shall be for one (1) year, with a one (1) year option to renew. The bid price shall be in effect for the one (1) year contract and the (1) year option to renew.

Bids shall be quoted per package, which shall include all costs associated with the purchasing of these packages and every item that makes up a package (i.e. pump, basin, control panel, floats, delivery cost, etc.).

**An equipment qualification proposal shall be submitted to prove acceptance to these specifications. The proposal shall list the manufacturer and model number along with the manufacturer's specifications for the pump. The deadline to submit your proposal is January 20, 2011 or a bid will not be accepted. Owner approved pump manufacturers will be added by addendum.**

Deliveries shall be made upon request, and the vendor shall invoice the Authority for each of the separate deliveries and reference the purchase order number assigned. Invoice shall reflect the bid price for the each unit and the total amount of each delivery. No additional amount will be paid by the Authority.

All deliveries shall be FOB Jackson County Utility Authority, 11028 Hwy 57, Vancleave, MS 39565 between the hours of 8:00 a.m. and 3:00 p.m., Monday through Friday. Two day's notice is required for deliveries.

If the successful Bidder fails to provide required units or fails to correct problems within fifteen (15) days of notification by the Authority of such problems, the Jackson County Utility Authority reserves the right to cancel the proposed contract with thirty (30) days written notification by the Authority to the Bidder.

In the event the successful bidder fails to provide commodities contained in his bid for reasons beyond his control, purchases of such commodities shall be made by the Authority from one (1) of the bidders whose bid was accepted as an alternate.

Questions may be directed to the Authority's Purchasing office at 3103 Frederic Street, Pascagoula, MS 39567 or by calling Beverly Dennis at 228-938-6809, ext. 303.

**BID FORM**

TO: JACKSON COUNTY UTILITY AUTHORITY  
1225 JACKSON AVENUE  
PASCAGOULA, MS 39567

BIDDER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

TELEPHONE: \_\_\_\_\_

DATE: \_\_\_\_\_

**SIMPLEX GRINDER STATION PACKAGE     \$ \_\_\_\_\_**  
**COMPLETE PER BID SPECIFICATIONS**  
**(STANDARD)**

**SIMPLEX GRINDER STATION PACKAGE**  
**COMPLETE PER BID SPECIFICATION     \$ \_\_\_\_\_**  
**(HIGH HEAD)**

BIDDER'S SIGNATURE: \_\_\_\_\_

BIDDER'S NAME (Type or Print): \_\_\_\_\_

## **SECTION 11100-1 SIMPLEX GRINDER PUMP SYSTEMS (JCUA STD)**

### **1. INTRODUCTION**

- 1.1. **GRINDER PUMP SYSTEMS:** Low Pressure Sewer Systems (LPSS) Grinder Pump Shall be **MYERS 2460WGL FIBERPRO GRINDER** or pre approved equal.
- 1.2. **GRINDER PUMPS** shall be of the high head centrifugal type. Motors shall be a minimum of two (2) horsepower rotating at no less than 3450RPM. 1750RPM pumps shall not be considered or approved equal.
- 1.3. **GRINDER PUMP SYSTEMS shall have a full five-year warranty.**

### **2. GENERAL**

#### **2.1. PACKAGE DESCRIPTION**

- 2.1.1. **Pump Model : WGL20-21, or pre-approved alternate.**
- 2.1.2. **Basin Model: Fiberglass**
- 2.1.3. **Panel Model: Pump Matched**

#### **2.2. SYSTEM PERFORMANCE REQUIREMENT**

- 2.2.1. Pumps shall be designed to meet the design head conditions based on the sewer system. Operating conditions shall be 10 GPM @ 90 TDH. Minimum flow requirements for a grinder pump, must illustrate minimum 2 fps velocity through force main.

#### **2.3. SUBMITTALS**

- 2.3.1. The complete submittal packet shall include shop drawings of all major components.

#### **2.4. SERVICE CENTER**

- 2.4.1. The grinder pump manufacturer shall be required to maintain an authorized warranty and repair service center within a fifty (50) mile radius of the project site.

#### **2.5. WARRANTY**

- 2.5.1. Manufacturer warrants to the original purchaser of each product(s) that any part thereof that proves to be defective in material or workmanship within 5 years from in service date. Purchaser shall assume all responsibility and expense from removal, reinstallation and freight. Any item(s) designated as manufactured by others shall be covered only by the express warranty of the manufacturer thereof. This warranty does not apply to damage resulting from accident, alteration, design, misuse or abuse. The pump must be installed, operated and maintained in accordance with the published instructions of the appropriate Installation & Service Manual.
- 2.5.2. In order to validate warranty a completed start-up sheet must be returned to the factory.

### **3. PRODUCTS – GRINDER PUMP SYSTEMS**

#### **3.1. PUMP ASSEMBLY**

### 3.1.1. Pump Model / General Construction

3.1.1.1. Pump shall be a centrifugal sealed grinder type, model **WGL20**, as manufactured by Myers Pump a division of Pentair Inc. Progressive Cavity or Positive Displacement (PD) pumps shall not be considered equal or allowed. The pump castings shall be high quality gray cast iron, ASTM A-48, Class 30. All external mating parts shall be machined and Buna-N Rubber O-ring seals. Fiber or paper gaskets shall not be acceptable. All fasteners exposed to the pumped liquid shall be 300 series stainless steel. The grinder unit shall be integrally built with a submersible type motor. The grinder pump shall be capable of macerating all material in normal domestic and commercial sewage including reasonable amounts of foreign objects such as small wood, sticks, plastic, thin rubber, sanitary napkins, disposable diapers and the like to a fine slurry that will pass freely through the pump and 1-1/4" discharge pipe.

### 3.1.2. Electrical Power/Control Cord

3.1.2.1. The motor power cord shall be 14 GA., 5 lead SOOW water resistant CSA/U.L. approved. The single cord shall incorporate power and seal sensor leads.

3.1.2.2. The pump shall be protected with compression fitting. Stator lead connection to the power cord shall be accomplished outside the motor compartment and free from any oil.

3.1.2.3. The cord cap assembly shall be sealed with a Buna N Sealing Ring in a gland to assure proper sealing.

### 3.1.3. Motor

3.1.3.1. **Pump Motor shall be of the oil filled type to promote superior cooling and longevity. Air filled motors shall not considered equal or allowed. Motor shall be at a minimum two horsepower (2HP) and shall rotate at a minimum of 3450RPM**

3.1.3.2. The stator, rotor and bearings shall be mounted in a sealed submersible frame. The stator winding shall be of the open type with Class F insulation, (155° C or 311° F) and NEMA B design (3 phase), NEMA L design (single phase). Single phase motors shall be capacitor start, capacitor run type for high start torque.

3.1.3.3. Pump shall be equipped with Overloads. The overloads shall be current sensitive, being current sensitive, as the current increases the heat increase until therefore opening the temperature sensitive device. It (they) shall be mounted directly in the stator and sized to open between 100±5°C and automatically reset at 87±9°C.

3.1.3.4. The stator shall be securely held in place by a press fit for maximum heat dissipation. Drop in or bolt down stators shall not be considered equal or allowed. The stator must be capable of being repaired or rewound by a local motor service center.

3.1.3.5. The motor frame shall be filled with dielectric type oil for maximum heat dissipation by transferring heat from windings and rotor to outer shell. The pump and motor shall be specifically designed so that they may be operated two thirds or completely submerged in the liquid being pumped without compromise. The pump shall not require cooling water jackets. Dependence

upon, or use of water jackets for supplemental cooling shall not be acceptable.

**3.1.4. Bearings and Shaft**

3.1.4.1. Motor shall have an upper single row ball radial bearing and a lower single row ball thrust bearing. Ball bearings shall be designed for 50,000 hours B-10 life. Bearings are to be permanently lubricated by the dielectric oil which fills the motor housing. Grease packed ball bearings requiring periodic maintenance for lubrication shall not be acceptable.

3.1.4.2. The common motor pump and grinder shaft shall be machined from solid #400 series stainless steel and be designed for minimum shaft overhang to reduce shaft deflection and prolong bearing life.

**3.1.5. Mechanical Seals**

3.1.5.1. Motor shall be protected by two mechanical seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell. The rotor and stator in the motor housing shall be separated and protected from the pumped liquid by an oil filled seal housing incorporating two type 21 carbon ceramic mechanical seals mounted in tandem. The seal housing shall be equipped with a moisture sensing probe installed between the seals, and the sensing of moisture in the seal chamber shall be automatic, continuous, and not require the pump be stopped or removed from the wet well. Single seal protection will not be considered equal. Seal face shall be carbon and ceramic and lapped to a flatness of one light band. All hardware is to 300 series stainless steel and sealing elastomers are to Buna-N Rubber.

**3.1.6. Pump Impeller**

3.1.6.1. The impeller shall be designed for rough duty service and shall be of a ten vane, vortex design with hydrodynamic pump out vanes on the rear shroud. The impeller shall be constructed of cast iron. The impeller shall be of a non-overloading design and be factory or field trimmable to meet specific performance conditions. Wear or field trimming shall not deter the factory balance. Impeller is to be threaded onto the pump/motor shaft.

**3.1.7. Grinder Construction**

3.1.7.1. Grinder assembly shall consist of grinder impeller and shredding ring and shall be mounted directly below the volute passage. Grinder impeller shall be threaded onto stainless shaft and shall be locked with screw and washer. The shredding ring shall be pressed into iron holding flange for easy removal. Flange shall be provided with tapped back-off holes so that screws can be used to push the shredding ring from housing. All grinding of solids shall be from action of the 16 rotating cutter impeller against the 27 stationary shredding ring cutters, producing 24,840 cuts per seconds to none. All grinder cutters and shredding ring shall be of 440 C stainless steel hardened to 58-60 Rockwell C and ground to close tolerance.

**3.2. PACKAGE SYSTEM**

**3.2.1. Fiberglass Basin**

3.2.1.1. Basin – Basin shall be of the wetwell type as to allow storage capacity and for ease of serviceability. Drywell/Wetwell combinations will not be allowed. The basins shall be 24” X 60”.

3.2.1.2. Tank Wall – Wall thickness shall vary with the basin height to provide the aggregate strength necessary to meet the tensile and flexural physical properties requirements. The basin wall laminate must be designed to withstand wall collapse or buckling based on:

- A. Wall thickness (see prior statement)
- B. Hydrostatic pressure (62.4 lbs per square foot)
- C. Saturated soil weight (120 lbs per cubic foot)
- D. Soil Modulus (700 lbs per square foot)
- E. Pipe stiffness values as specified (ASTM D3753)

Tank wall laminate must be constructed to withstand or exceed (2) two times the actual imposed loading on any depth of basin.

3.2.1.3. Tank Bottom – The basin bottom shall be of sufficient thickness to withstand applicable hydrostatic uplift pressure. In saturated conditions, the center deflection of the empty basin bottom shall be less than 3/8" (elastic deflection) and shall not interfere with bottom pump mounting requirements. Tank Collar (Anti-Flotation) – A means to counteract buoyancy forces shall be provided on the tank bottom in the form of a ring, and shall extend a minimum of 2" beyond the O. D. of the basin wall. Wall and collar should be blended with a radius not to exceed 1 1/2" beyond wall O.D.

3.2.1.4. Top Flange – The top flange should be parallel to the tank bottom/collar and perpendicular to the tank wall. Corrosion resistant inserts shall be embedded in the top flange for securing the basin cover. The inserts shall be totally encapsulated to prevent turning (minimum turning torque should not be less than 30 foot/lbs.), pullout and corrosion.

#### 3.2.1.5. Basin Cover

3.2.1.5.1. A one piece, solid fiberglass cover shall be provided for each installation. Design of cover allows for basin to be mounted flush with ground. Basin vent shall be included.

#### 3.2.2. Piping

3.2.2.1. Discharge piping shall be 1-1/4" flex hose and shall connect to a 1-1/4" stainless steel discharge flange factory located in the basin.

#### 3.2.3. Check Valve

3.2.3.1. Check valve shall be of flapper type.

#### 3.2.4. Shutoff Valve

3.2.4.1. The ball type shutoff valve shall be furnished and installed as an integral part of the internal pipe assembly. Valve shall be of the Tru-Union type to ease installation and removal of the pump.

#### 3.2.5. Inlet Flange

3.2.5.1. A one-piece, flexible basin inlet fitting for 4" SCH 40 plastic pipe shall be shipped loose for field installation.

#### 3.2.6. Electric Flange

3.2.6.1. A one-piece, flexible basin inlet fitting for 1-1/2" electric conduit shall be shipped lose for field installation.

### 3.3. ELECTRICAL CONTROL PANEL AND APPURTENANCES

#### 3.3.1. Control Panel Model / General Construction

3.3.1.1. Control Panel shall be a simplex 230V/60Hz/1pH operation. FLA of pumps shall be 12amps. **Panel shall be equipped for three normally open weighted float switches. Pressure switches mounted either to the pump or remotely shall not be considered equal or allowed.** Enclosure shall be NEMA 4X equipped with control bracket and have top mounted alarm light.

**3.3.2. General Operation / Construction**

3.3.2.1. A complete wiring diagram and installation instructions will be provided. The control panel assembly shall be completely factory tested and shall be "UL" listed and labeled.

3.3.2.2. A Hand-Off-Auto switch shall be provided.

**3.3.3. Enclosure**

3.3.3.1. Durable NEMA 4X Enclosure, padlock receivable.

**3.3.4. Alarms / Indicators**

3.3.4.1. Visual Alarm A top mounted high intensity red light and shall flash during high water conditions. Flashing light shall reset once high water condition ceases. (No audible alarm required.)

**3.3.5. Circuit Breakers**

3.3.5.1. Control Circuit Breakers - 120 Volt common control circuit shall be protected by an auxiliary single (1) pole circuit breaker. Breaker shall be rated 10,000 Amps interrupt current (10KAIC) and shall be Cutler-Hammer.

3.3.5.2. Motor Circuit Breakers The pump breakers shall be thermal magnetic trip devices and provide for individual motor disconnect and overload / short circuit protection as required by the NEC rating for motor branch circuit protection. Breaker shall be rated 10,000 Amps interrupt current (10KAIC). The voltage rating shall match that of the panel incoming service.

3.3.5.3. Motor Contactors. The motor contactor shall be a 18 amp. heavy duty I.E.C. rated contactor manufactured by Cutler-Hammer. It shall provide the electrical start / stop control for each pump along with an integral overload protection and have 120.volt operating coil.

**3.3.6. Level Controls- Float Switch Operation**

3.3.6.1. The control panel shall provide terminal strip inputs for: pump off, pump on, and alarm float controls.

3.3.6.2. Simplex control panel operation shall be automatically controlled by three mercury level controls. Float switches shall control off, on and alarm functions.

3.3.6.3. Float switch shall be capable of operating at temperatures between 32 and 170 degrees F. Float switches shall be of normally open type.

3.3.6.4. Float switch cables shall be made of chlorinated polyethylene, type SJOOW, 18 AWG, 2-wire type. Float switch contacts and shall be capable of handling 10 amps at 115 VAC or 3 amps at 240 VAC.

3.3.6.5. Float switch shall be third party safety listed by cUL,US and shall be capable of operating intrinsic safe relays.

## **SECTION 11100-1 SIMPLEX GRINDER PUMP SYSTEMS (JCUA HH)**

### **1. INTRODUCTION**

- 1.1. **GRINDER PUMP SYSTEMS:** Low Pressure Sewer Systems (LPSS) Grinder Pump Shall be **MYERS 2460WGL FIBERPRO GRINDER** or pre approved equal.
- 1.2. **GRINDER PUMPS** shall be of the high head centrifugal type. Motors shall be a minimum of two (2) horsepower rotating at no less than 3450RPM. 1750RPM pumps shall not be considered or approved equal.
- 1.3. **GRINDER PUMP SYSTEMS shall have a full five-year warranty.**

### **2. GENERAL**

#### **2.1. PACKAGE DESCRIPTION**

- 2.1.1. **Pump Model : WGL20-21H, or pre-approved alternate.**
- 2.1.2. **Basin Model: Fiberglass**
- 2.1.3. **Panel Model: Pump Matched**

#### **2.2. SYSTEM PERFORMANCE REQUIREMENT**

- 2.2.1. Pumps shall be designed to meet the design head conditions based on the sewer system. Operating conditions shall be 10 GPM @ 110 TDH. Minimum flow requirements for a grinder pump, must illustrate minimum 2 fps velocity through force main.

#### **2.3. SUBMITTALS**

- 2.3.1. The complete submittal packet shall include shop drawings of all major components.

#### **2.4. SERVICE CENTER**

- 2.4.1. The grinder pump manufacturer shall be required to maintain an authorized warranty and repair service center within a fifty (50) mile radius of the project site.

#### **2.5. WARRANTY**

- 2.5.1. Manufacturer warrants to the original purchaser of each product(s) that any part thereof that proves to be defective in material or workmanship within 5 years from in service date. Purchaser shall assume all responsibility and expense from removal, reinstallation and freight. Any item(s) designated as manufactured by others shall be covered only by the express warranty of the manufacturer thereof. This warranty does not apply to damage resulting from accident, alteration, design, misuse or abuse. The pump must be installed, operated and maintained in accordance with the published instructions of the appropriate Installation & Service Manual.
- 2.5.2. In order to validate warranty a completed start-up sheet must be returned to the factory.

### **3. PRODUCTS – GRINDER PUMP SYSTEMS**

#### **3.1. PUMP ASSEMBLY**

### 3.1.1. **Pump Model / General Construction**

3.1.1.1. Pump shall be a centrifugal sealed grinder type, model **WGL20**, as manufactured by Myers Pump a division of Pentair Inc. Progressive Cavity or Positive Displacement (PD) pumps shall not be considered equal or allowed. The pump castings shall be high quality gray cast iron, ASTM A-48, Class 30. All external mating parts shall be machined and Buna-N Rubber O-ring seals. Fiber or paper gaskets shall not be acceptable. All fasteners exposed to the pumped liquid shall be 300 series stainless steel. The grinder unit shall be integrally built with a submersible type motor. The grinder pump shall be capable of macerating all material in normal domestic and commercial sewage including reasonable amounts of foreign objects such as small wood, sticks, plastic, thin rubber, sanitary napkins, disposable diapers and the like to a fine slurry that will pass freely through the pump and 1-1/4" discharge pipe.

### 3.1.2. **Electrical Power/Control Cord**

- 3.1.2.1. The motor power cord shall be 14 GA., 5 lead SOOW water resistant CSA/U.L. approved. The single cord shall incorporate power and seal sensor leads.
- 3.1.2.2. The pump shall be protected with compression fitting. Stator lead connection to the power cord shall be accomplished outside the motor compartment and free from any oil.
- 3.1.2.3. The cord cap assembly shall be sealed with a Buna N Sealing Ring in a gland to assure proper sealing.

### 3.1.3. **Motor**

- 3.1.3.1. **Pump Motor shall be of the oil filled type to promote superior cooling and longevity. Air filled motors shall not considered equal or allowed. Motor shall be at a minimum two horsepower (2HP) and shall rotate at a minimum of 3450RPM**
- 3.1.3.2. The stator, rotor and bearings shall be mounted in a sealed submersible frame. The stator winding shall be of the open type with Class F insulation, (155° C or 311° F) and NEMA B design (3 phase), NEMA L design (single phase). Single phase motors shall be capacitor start, capacitor run type for high start torque.
- 3.1.3.3. Pump shall be equipped with Overloads. The overloads shall be current sensitive, being current sensitive, as the current increases the heat increase until therefore opening the temperature sensitive device. It (they) shall be mounted directly in the stator and sized to open between 100±5°C and automatically reset at 87±9°C.
- 3.1.3.4. The stator shall be securely held in place by a press fit for maximum heat dissipation. Drop in or bolt down stators shall not be considered equal or allowed. The stator must be capable of being repaired or rewound by a local motor service center.
- 3.1.3.5. The motor frame shall be filled with dielectric type oil for maximum heat dissipation by transferring heat from windings and rotor to outer shell. The pump and motor shall be specifically designed so that they may be operated two thirds or completely submerged in the liquid being pumped without compromise. The pump shall not require cooling water jackets. Dependence

upon, or use of water jackets for supplemental cooling shall not be acceptable.

#### **3.1.4. Bearings and Shaft**

- 3.1.4.1. Motor shall have an upper single row ball radial bearing and a lower single row ball thrust bearing. Ball bearings shall be designed for 50,000 hours B-10 life. Bearings are to be permanently lubricated by the dielectric oil which fills the motor housing. Grease packed ball bearings requiring periodic maintenance for lubrication shall not be acceptable.
- 3.1.4.2. The common motor pump and grinder shaft shall be machined from solid #400 series stainless steel and be designed for minimum shaft overhang to reduce shaft deflection and prolong bearing life.

#### **3.1.5. Mechanical Seals**

- 3.1.5.1. Motor shall be protected by two mechanical seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell. The rotor and stator in the motor housing shall be separated and protected from the pumped liquid by an oil filled seal housing incorporating two type 21 carbon ceramic mechanical seals mounted in tandem. The seal housing shall be equipped with a moisture sensing probe installed between the seals, and the sensing of moisture in the seal chamber shall be automatic, continuous, and not require the pump be stopped or removed from the wet well. Single seal protection will not be considered equal. Seal face shall be carbon and ceramic and lapped to a flatness of one light band. All hardware is to 300 series stainless steel and sealing elastomers are to Buna-N Rubber.

#### **3.1.6. Pump Impeller**

- 3.1.6.1. The impeller shall be designed for rough duty service and shall be of a ten vane, vortex design with hydrodynamic pump out vanes on the rear shroud. The impeller shall be constructed of cast iron. The impeller shall be of a non-overloading design and be factory or field trimmable to meet specific performance conditions. Wear or field trimming shall not deter the factory balance. Impeller is to be threaded onto the pump/motor shaft.

#### **3.1.7. Grinder Construction**

- 3.1.7.1. Grinder assembly shall consist of grinder impeller and shredding ring and shall be mounted directly below the volute passage. Grinder impeller shall be threaded onto stainless shaft and shall be locked with screw and washer. The shredding ring shall be pressed into iron holding flange for easy removal. Flange shall be provided with tapped back-off holes so that screws can be used to push the shredding ring from housing. All grinding of solids shall be from action of the 16 rotating cutter impeller against the 27 stationary shredding ring cutters, producing 24,840 cuts per seconds to none. All grinder cutters and shredding ring shall be of 440 C stainless steel hardened to 58-60 Rockwell C and ground to close tolerance.

### **3.2. PACKAGE SYSTEM**

#### **3.2.1. Fiberglass Basin**

- 3.2.1.1. Basin – Basin shall be of the wetwell type as to allow storage capacity and for ease of serviceability. Drywell/Wetwell combinations will not be allowed. The basins shall be 24" X 60".

3.2.1.2. Tank Wall – Wall thickness shall vary with the basin height to provide the aggregate strength necessary to meet the tensile and flexural physical properties requirements. The basin wall laminate must be designed to withstand wall collapse or buckling based on:

- A. Wall thickness (see prior statement)
- B. Hydrostatic pressure (62.4 lbs per square foot)
- C. Saturated soil weight (120 lbs per cubic foot)
- D. Soil Modulus (700 lbs per square foot)
- E. Pipe stiffness values as specified (ASTM D3753)

Tank wall laminate must be constructed to withstand or exceed (2) two times the actual imposed loading on any depth of basin.

3.2.1.3. Tank Bottom – The basin bottom shall be of sufficient thickness to withstand applicable hydrostatic uplift pressure. In saturated conditions, the center deflection of the empty basin bottom shall be less than 3/8" (elastic deflection) and shall not interfere with bottom pump mounting requirements. Tank Collar (Anti-Flotation) – A means to counteract buoyancy forces shall be provided on the tank bottom in the form of a ring, and shall extend a minimum of 2" beyond the O. D. of the basin wall. Wall and collar should be blended with a radius not to exceed 1 1/2" beyond wall O.D.

3.2.1.4. Top Flange – The top flange should be parallel to the tank bottom/collar and perpendicular to the tank wall. Corrosion resistant inserts shall be embedded in the top flange for securing the basin cover. The inserts shall be totally encapsulated to prevent turning (minimum turning torque should not be less than 30 foot/lbs.), pullout and corrosion.

#### 3.2.1.5. Basin Cover

3.2.1.5.1. A one piece, solid fiberglass cover shall be provided for each installation. Design of cover allows for basin to be mounted flush with ground. Basin vent shall be included.

#### 3.2.2. Piping

3.2.2.1. Discharge piping shall be 1-1/4" flex hose and shall connect to a 1-1/4" stainless steel discharge flange factory located in the basin.

#### 3.2.3. Check Valve

3.2.3.1. Check valve shall be of flapper type.

#### 3.2.4. Shutoff Valve

3.2.4.1. The ball type shutoff valve shall be furnished and installed as an integral part of the internal pipe assembly. Valve shall be of the Tru-Union type to ease installation and removal of the pump.

#### 3.2.5. Inlet Flange

3.2.5.1. A one-piece, flexible basin inlet fitting for 4" SCH 40 plastic pipe shall be shipped loose for field installation.

#### 3.2.6. Electric Flange

3.2.6.1. A one-piece, flexible basin inlet fitting for 1-1/2" electric conduit shall be shipped lose for field installation.

### 3.3. ELECTRICAL CONTROL PANEL AND APPURTENANCES

#### 3.3.1. Control Panel Model / General Construction

3.3.1.1. Control Panel shall be a simplex 230V/60Hz/1pH operation. FLA of pumps shall be 12amps. **Panel shall be equipped for three normally open weighted float switches. Pressure switches mounted either to the pump or remotely shall not be considered equal or allowed.** Enclosure shall be NEMA 4X equipped with control bracket and have top mounted alarm light.

**3.3.2. General Operation / Construction**

3.3.2.1. A complete wiring diagram and installation instructions will be provided. The control panel assembly shall be completely factory tested and shall be "UL" listed and labeled.

3.3.2.2. A Hand-Off-Auto switch shall be provided.

**3.3.3. Enclosure**

3.3.3.1. Durable NEMA 4X Enclosure, padlock receivable.

**3.3.4. Alarms / Indicators**

3.3.4.1. Visual Alarm A top mounted high intensity red light and shall flash during high water conditions. Flashing light shall reset once high water condition ceases. (No audible alarm required.)

**3.3.5. Circuit Breakers**

3.3.5.1. Control Circuit Breakers - 120 Volt common control circuit shall be protected by an auxiliary single (1) pole circuit breaker. Breaker shall be rated 10,000 Amps interrupt current (10KAIC) and shall be Cutler-Hammer.

3.3.5.2. Motor Circuit Breakers The pump breakers shall be thermal magnetic trip devices and provide for individual motor disconnect and overload / short circuit protection as required by the NEC rating for motor branch circuit protection. Breaker shall be rated 10,000 Amps interrupt current (10KAIC). The voltage rating shall match that of the panel incoming service.

3.3.5.3. Motor Contactors. The motor contactor shall be a 18 amp. heavy duty I.E.C. rated contactor manufactured by Cutler-Hammer. It shall provide the electrical start / stop control for each pump along with an integral overload protection and have 120 volt operating coil.

**3.3.6. Level Controls- Float Switch Operation**

3.3.6.1. The control panel shall provide terminal strip inputs for: pump off, pump on, and alarm float controls.

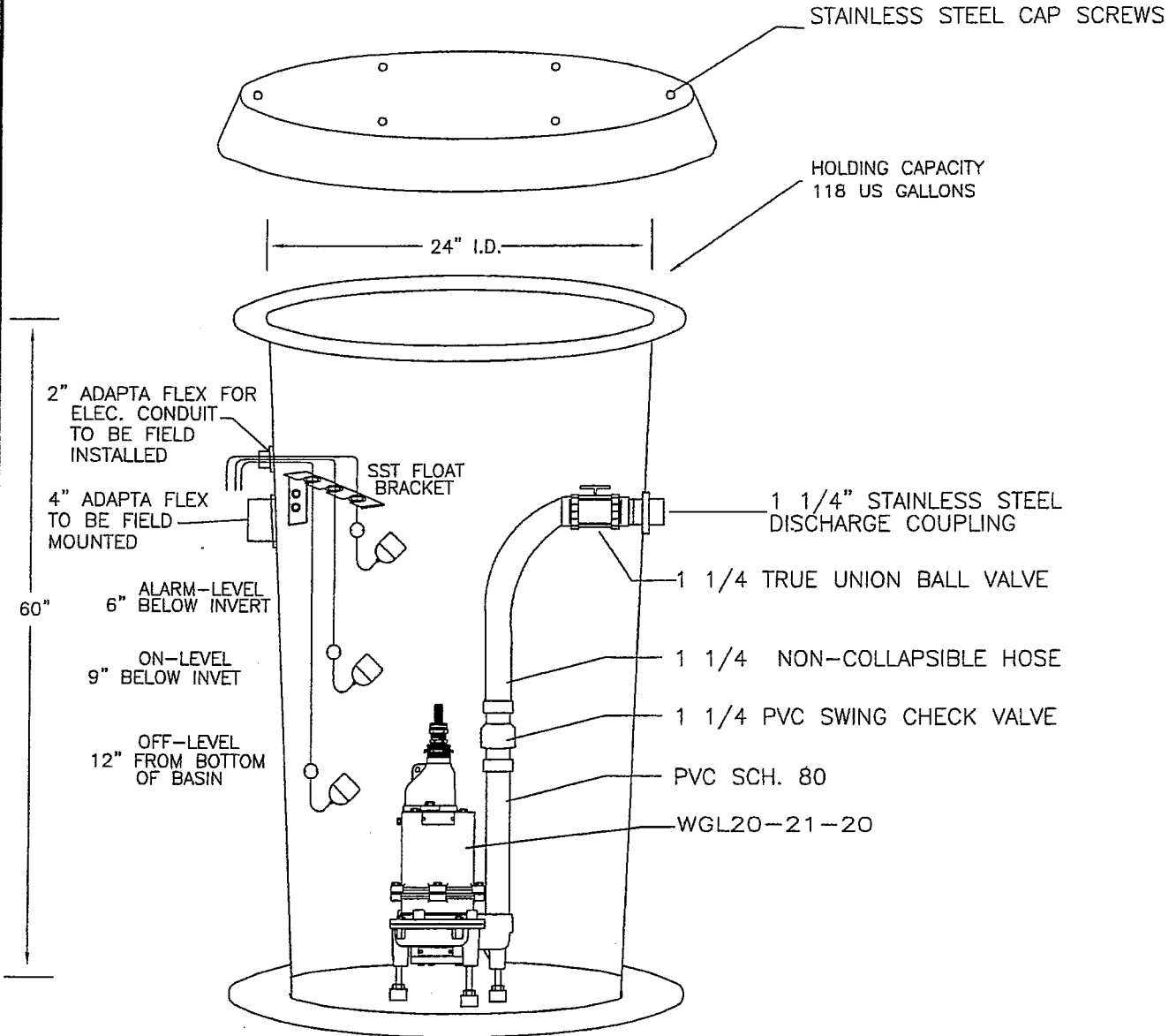
3.3.6.2. Simplex control panel operation shall be automatically controlled by three mercury level controls. Float switches shall control off, on and alarm functions.

3.3.6.3. Float switch shall be capable of operating at temperatures between 32 and 170 degrees F. Float switches shall be of normally open type.

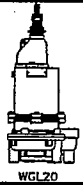

3.3.6.4. Float switch cables shall be made of chlorinated polyethylene, type SJOOW, 18 AWG, 2-wire type. Float switch contacts and shall be capable of handling 10 amps at 115 VAC or 3 amps at 240 VAC.

3.3.6.5. Float switch shall be third party safety listed by cUL,US and shall be capable of operating intrinsic safe relays.

# SIMPLEX GRINDER STATION



F.E. MYERS		
PUMP MODEL	PHASE	VOLTAGE
WGL20-21-20	1 PH	230 VOLTS

 <p>WGL20</p>	<p>GULF COAST PUMP &amp; EQUIPMENT</p> <p>PH: (251) 645-5006 FAX: (251) 645-5038</p>		
	<p>DRAWING: SIMPLEX GRINDER STATION</p>	<p>DRAWING NO. F41013A</p>	