

**POLICY AND REQUIREMENTS
FOR
PUMP GRINDER UNITS
BEAR CREEK WATER ASSOCIATION, INC.
February 6, 2014**

1. General

Each customer served by pressure sewer and customers served by gravity sewer who cannot gravity flow into the sewer serving their area shall install, own, and maintain a wastewater pump grinder unit. The minimum system meeting Bear Creek Water Association's (the Association) requirement is a simplex, two-horsepower, wastewater pump grinder unit capable of pumping at least 18 gallons per minute of wastewater against a total dynamic head of 85 feet. Some locations in the system require units that produce additional head due to the particular operating conditions in the pressure system at that location. It is the customer's responsibility to notify the Association of the proposed installation prior to any commitment to a particular pump grinder unit. The Association will make the determination if the higher head units are required and provide this information to the customer during the application process.

Each pump grinder unit and the installation of the unit shall be in substantial conformity with the specifications and standard installation details included herewith and each unit and installation shall be approved by the Association. Duplex grinder pumping units meeting the same specifications set forth herein will provide greater reliability and are encouraged by the Association. Generally, commercial customers served by a standard ¾-inch water meter will be required to meet the same pump grinder requirements as residential customers. Pump grinder units that create excessive heads that dominate other units on the pressure system will not be allowed.

Purchase, installation, operation, and maintenance of the wastewater grinder pumping unit shall be the home owner's responsibility. The Association shall develop, maintain, and furnish to the customer a list of approved pump grinder installation contractors. The pump grinder shall not be placed into service until a representative of the Association has inspected and approved the customer's installation and connection to The Association's pressure or gravity main. The Association does not assume any responsibility for proper operation of the pumping unit by virtue of its inspection and approval.

The customer shall keep the pump grinder unit and installation in good operating condition and shall not allow the leakage of wastewater into the environment from the privately owned wastewater system. In the event the system malfunctions or becomes inoperative, the customer shall immediately cease discharging wastewater and shall repair the defective portion of the system before resuming wastewater discharge. When a pump grinder is defective or inoperable, the Association will suspend the water service to the customer until the pump grinder unit is brought into compliance with the Association's requirements.

Standard installation and site requirements are shown on the enclosed drawings entitled

“Attachment 1, Residential Pump Grinder” and “Attachment 2, Residential or Commercial Pump Grinder.”

2. Pumping Unit Specifications

Simplex or duplex wastewater grinder pumping stations shall be electrically operated and shall be the wet pit, totally submersible type capable of achieving long term stable operation against widely fluctuating changes in total dynamic head conditions. The station shall include a minimum of one sewage grinder pump with lift-out sealing flanges, internal piping with check valve and gate valve, lifting chain, and a NEMA 4 junction box with three liquid level sensors, all mounted in a prefabricated fiberglass basin. The station shall include a NEMA 4X electrical panel with an outside alarm light and audible alarm as illustrated by the standard installation details included herewith.

The wastewater pump shall be rated at two horsepower, 230 volt, single phase, 60 hertz, and shall have a speed of not more than 3500 rpm. The pumping unit shall be capable of pumping a minimum of 18 gallons per minute of wastewater at 85 feet of Total Dynamic Head. In locations requiring heads in excess of 85 feet, the Association shall determine the head requirements and provide this information to the customer.

Simplex or duplex grinder pumping stations and accessories shall be Hydromatic as manufactured by Aurora Pumps, Inc., North Aurora, Illinois; Shark as manufactured by Zoeller Pump Company of Louisville, Ky.; Hyd-0-Grind as manufactured by F. E. Meyers Co.; Homa GRP Series or approved equal.

3. Pump Design

The grinder pump shall be specifically designed for pressure sewer applications and shall be capable of handling raw, unscreened, domestic sewage including foreign objects such as wood, plastic, glass, rubber, sanitary napkins, disposable diapers and the like. The grinder pump shall be capable of macerating domestic sewage and reasonable amounts of foreign objects into a fine slurry that will pass freely through the pump and the discharge pipe and fittings.

Grinder pumps shall be of the centrifugal type with a combination centrifugal impeller and grinder assembly. The pump and motor shall be specifically designed so that they may be operated partially dry or completely submerged in domestic wastewater. The pump shall be capable of operating at any point on its performance curve without overloading the motor. The pump and with its appurtenances and cable shall be designed for and capable of continuous operation underwater without loss of watertight integrity.

The pump grinder shall consist of two stages and the cutting action of the second stage shall be perpendicular to the plane of the first cut for better control of particle size. All cutters, stationary or rotating, shall be made of hardened and ground stainless steel.

4. Pump Test

The pump manufacturer shall perform the following inspections and test on each pump before shipment from the factory:

1. Impeller, motor rating and electrical connections shall first be checked for compliance to the customers purchase order.
2. A motor and cable insulation test for moisture content or insulation defects.
3. Prior to submergence, the pump shall be run dry to establish correct rotation and mechanical integrity.
4. The pump shall be run for 30 minutes submerged a minimum of six feet under water.
5. After the operational test above, the insulation test shall be performed again. A written report stating that the forgoing tests have been performed shall be supplied with each pump at the time of shipment.

5. Liquid Level Sensors

Three liquid level sensors for a simplex unit shall be furnished and installed with the pumping unit to control "pump off", "pump on", and "high water alarm" operations. An additional sensor and control alternator shall be furnished and installed for the lead and lag pump operation for a duplex unit. Level sensors shall be as recommended by the manufacturer.

6. Electrical Controls

The station shall be equipped with a wall mounted (exterior wall of house) or pedestal mounted electrical control panel in a NEMA4X, weather tight, non-corrosive fiberglass enclosure with a dead front outer door with a locking hasp or handle. A hinged inner door shall be provided for mounting a hand-off-automatic pump control switch, electrical overload reset buttons, running light, and related electrical equipment.

The panel shall be provided with proper overload protection, lightning protection, circuit breaker, electrical terminals, and all other electrical control equipment required for a complete installation. The electrical panel shall be U.L. listed/CSA approved. The entire electrical installation shall be in strict compliance with requirements of the National Electrical Code.

The exterior of the control panel shall be equipped with a red flashing high water alarm light, a motor seal failure light, and audible high water alarm. The high water alarm light shall glow dim at all times except under alarm conditions. The audible alarm shall product 85 db at 10 feet distance. Under alarm conditions, the light shall glow brightly and flash. The alarm light shall consist of a weather-proof bracket fixture with a red globe.

The motor seal failure sensor shall consist of an electrode probe, a sensing unit, and a flashing red light mounted on the exterior surface of the control panel. The electrode probe shall be factory-installed in a sealed chamber so that if any water enters the chamber through the lower seal, the electrode will be energized and a signal will be transmitted to the sensing unit at the control panel and activate the red alarm light and audible alarm.

7. Valves and Piping

The pump station discharge piping shall include a self-cleaning ball-type check valve, hydraulically-sealed discharge flange, and a gate valve with handle extension, as illustrated by the installation drawings included herewith. The sealing flange shall permit lifting the pump from the wet pit without mechanical unfastening. Sealing shall be produced by a heavy rubber diaphragm, which shall seal to a discharge flange. The size of the discharge pipe shown on the attached drawings is the minimum size allowed. Larger pipe sizes may be recommended and/or required by the pump manufacturer.

8. Pump Pits

Pump basins shall be of non-corrosive fiberglass construction as illustrated by the typical installation drawings. The basins shall be a minimum of 24 inches in diameter for a simplex installation (48 inches for a duplex) and 60 inches in depth unless otherwise approved by the Association.

9. Operational Site Test

The home owner's entire grinder pump installation, including pump, valves, discharge piping, electrical controls, and accessories shall be subjected to an operational test by the home owner or his representative and the pumping unit installation contractor in the presence of a representative of the Association. The test shall be conducted before the system is put into service.

The unit to be tested shall be properly installed, including the discharge piping to the Association's point of delivery. The unit shall, prior to initiating the pumping test, be checked for proper service voltage and checked to determine that pump impeller rotation is in the proper direction.

The operational test shall be performed by introducing a sufficient quantity of potable water into the pumping station for a continuous period to thoroughly check the installation. Testing shall include checking at least three points (a minimum 5 psi apart) on the pump curve. Testing shall also include checking proper operation of the automatic and manual control systems, checking the running temperature of the pump, and ensuring that all discharge piping is operating properly. All electrical testing equipment, pipe orifices, pressure gages, valves, and other equipment required to perform the test shall be furnished by the installation contractor.

Upon completion of the test, the Association shall install a tamper-proof tag with instructions to contact the Association if maintenance, repair or replacement is required.

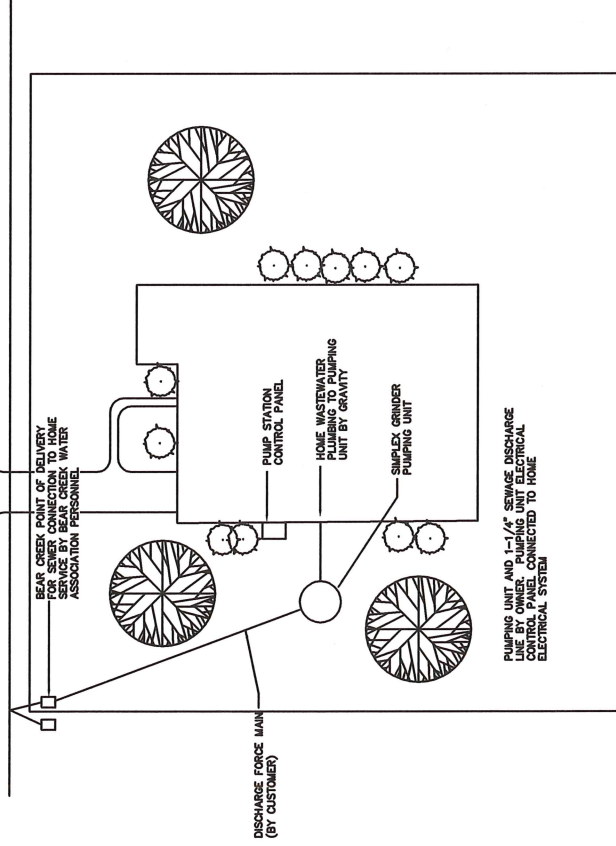
10. Repair and Replacement

Prior to any repairs, maintenance, or replacement of the pump grinder unit, the Association shall be notified. If the pump grinder is inoperable, the Association will suspend water service to the customer until the pump grinder is restored to normal function. The materials, installation and testing requirements of these policies shall apply to replacement pump grinder units as well as new installations. Upon completion of the repairs and/or replacement, the property owner (or the service contractor) shall notify the Association to arrange for the unit testing, placing the unit back into normal operation and replacement of the tamper-proof tag all as described in Section 9 above.

If a missing or broken tag is found or reported, the Association will determine if there are signs of an improper or malfunctioning pump grinder unit. If the unit appears to no longer comply with the requirements described herein, the Association will require the customer to retest and verify the pump grinder unit as described in Section 9 above. After this verification, the Association will install new tamper-proof tags. If the tags are missing or broken and there are no signs of a malfunctioning or modified unit, the Association will reinstall the tags. Excessive expenses incurred by the Association in re-tagging and observing re-testing of pump grinder units may be passed on to the individual customer on a case by case basis.

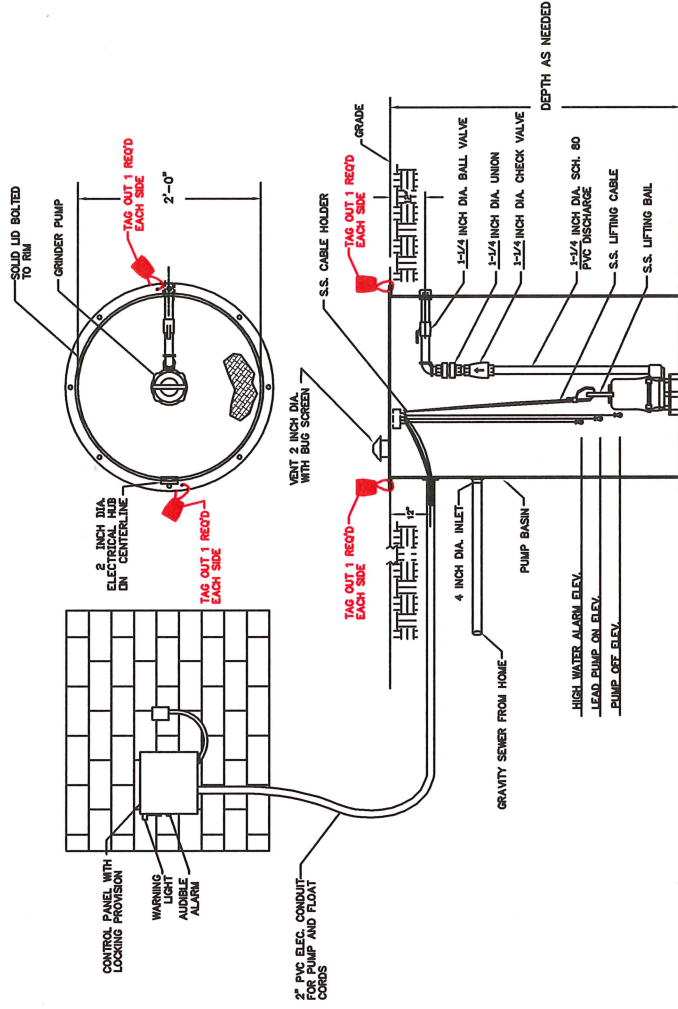
END

PUBLIC ROAD



PUMPING UNIT AND 1-1/4" SEWAGE DISCHARGE LINE BY OWNER. PUMPING UNIT ELECTRICAL CONNECTIONS CONNECTED TO HOME ELECTRICAL SYSTEM

PLOT PLAN



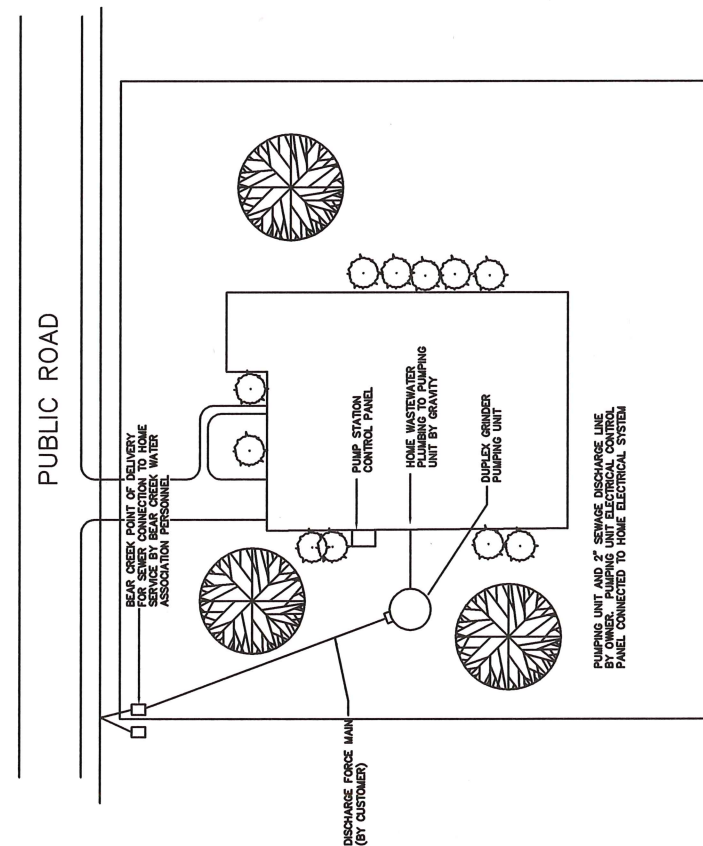
PUMP DETAILS

NOTE: Tag outs to be installed through holes drilled through lid and tank top flange.

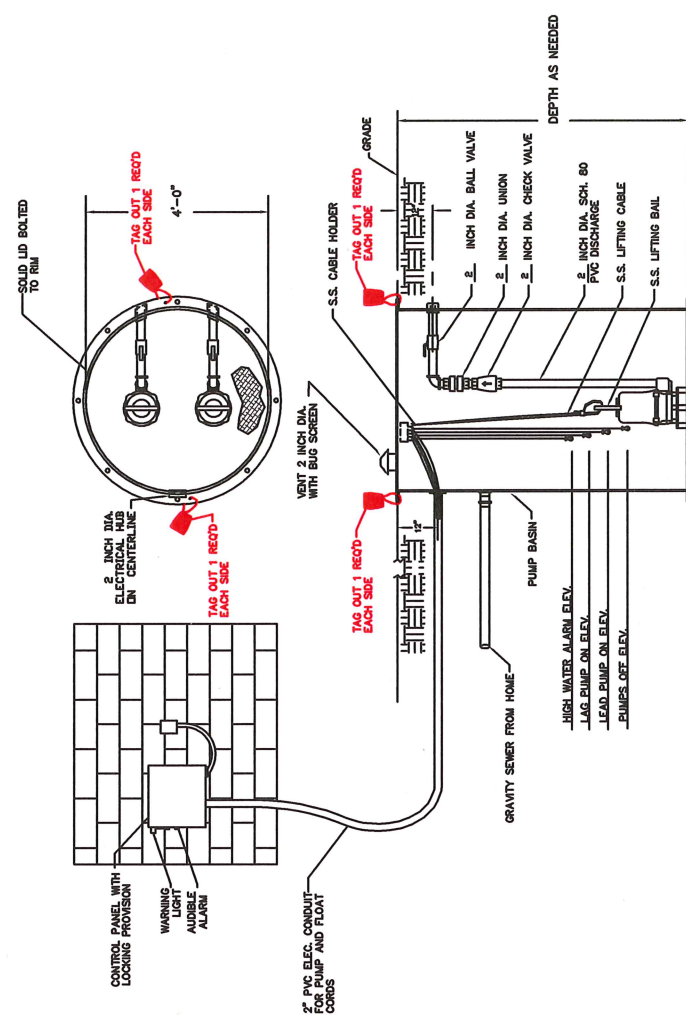
TYPICAL INSTALLATION DETAILS RESIDENTIAL SIMPLEX WASTEWATER PUMPING STATION



ATTACHMENT 1
RESIDENTIAL PUMP GRINDER
REVISED DECEMBER 16, 2013



PLOT PLAN



PUMP DETAILS

NOTE: Tag outs to be installed through holes drilled through lid and tank top flange.

TYPICAL INSTALLATION DETAILS
RESIDENTIAL OR COMMERCIAL DUPLEX
WASTEWATER
PUMPING STATION



ATTACHMENT 2
RESIDENTIAL OR COMMERCIAL
DUPLEX PUMP GRINDER
REVISED DECEMBER 16, 2013