Do Not Attach to Pump Application (Reference Only)

INSTRUCTIONS

1 BEFORE THE DESIGN PHASE BEGINS

1.1 Contact the Central Contra Costa Sanitary District (Central San) Permit Counter at (925) 229-7371 for information, applications, fee quotes, etc.

1.2 Provide Central San with sufficient information to determine that a pump is required for sewer service and that a gravity system cannot be installed that meets Central San standards.

1.3 If Central San agrees that a sewage pump is required, the Applicant or their representative (engineer, supplier, etc.) shall start the design process by reviewing Central San's *Approved Materials List* as a guide only.

1.4 Single Family Residential (SFR) or Accessory Dwelling Unit (ADU) projects: All SFR and ADU pumps installed within the Central San service area shall be reviewed and approved by Central San prior to installation. Use appropriate application form.

1.5 Multi-Family Residential or Commercial Projects: Engineer of Record shall select and size pump according to Central San's Sewage Pumping System Requirements and *Central San's review is limited to impacts to Central San's sewer system only*. Use appropriate application form.

2 DESIGN PHASE

2.1 Critical Vertical Controls (*necessary for all pump applications except Sink Only*): For successful operation, the "pump on" level must be a minimum of 6" below the gravity "in" from building drain. This criterion may impact tank location, depth, and top-of-tank height above surface.

Do not start design or selection process until the following are field verified at the Proposed Tank Location:

- Distance from building and depth of gravity line coming from building drain (minimum 30" cover). A variance on the minimum cover may be allowed if the tank is adjacent to the building being served.

2.2 After the tank location has been field-determined to meet *Critical Vertical Control Criterion* as listed above, Applicant shall fill-in the Pump Systems Dimensions (page 2 of Application form).

2.3 The Applicant shall prepare a plot plan /sketch for the site **sufficient to determine the vertical lift** (height from tank surface to grade) **and the length of the pressure line.** The plot plan/sketch (no larger than 11x17) shall at a minimum include the following:

- Pump and Tank location
- Pressure line (pipe size, type and length)

- Gravity lateral (size and type)
- Sewer tie-in location
- Horizontal scale or provide dimensions
- Property lines
- Building footprint
- Clean-Out and Overflow Protection Device locations

3 REVIEW PHASE

3.1 Single Family Residential (SFR) or Accessory Dwelling Unit (ADU) projects:

3.1.1 Applicant shall complete and submit the appropriate application form, all required attachments, and fees.

- If a pump/tank is not selected from the *Approved Materials List* (additional fees and time for review may apply), Applicant shall also provide the following manufacturer product sheets: Pump Specifications, Pump Curve, and Tank Specifications.

3.1.2 Central San will review the submitted information, request additional information if necessary, and/or require changes for conformance with Central San's specifications.

3.2 Multi-Family Residential or Commercial projects:

3.2.1 Applicant shall complete and submit the appropriate application form, required attachments, and fees.

3.2.2 The Engineer of Record shall certify that selection and size of pumps comply with Central San's Sewage Pumping System Requirements and *Central San's review is limited to impacts to Central San's sewer system only*.

4 CONSTRUCTION PHASE

4.1 Applicant shall engage a properly licensed Contractor to install the pump system, including electrical.

4.2 The Applicant or Contractor shall pay all applicable fees and charges. A fee quote may be requested from the Permit Counter by emailing permits@centralsan.org or calling (925) 229-7371.

4.3 The Contractor shall obtain a Central San permit for pumps installed outside the footprint of the building (interior pumps require permitting from the local building department), and an electrical permit from the local building department prior to construction. All sewer work outside the building footprint shall be inspected by Central San. The Central San permit must be obtained prior to starting any sewer work, including trenching and excavating.

4.4 At least one business day prior to the start of work, notify the Central San Inspection Group at (925) 229-7373 or inspections@centralsan.org.

4.5 The Contractor shall notify the Inspector of the specific construction schedule. The Inspector will specify the points during the installation process when inspection is required.

4.6 At least one business day prior to the day each phase of the work is ready for inspection, schedule an inspection by contacting the Central San Inspection Group at (925) 229-7373 or inspections@centralsan.org.

SEWAGE PUMPING SYSTEM REQUIREMENTS

5 GENERAL

All design and installation shall be done in conformance with the general requirements of Cal OSHA, current applicable electrical, plumbing, and building codes, and Central Contra Costa Sanitary District Code, Standard Specifications, procedures and requirements.

The minimum requirements for a private, individual lot, outside sewage pumping system are specified in the following paragraphs. Central San accepts no responsibility for the design, operation, nor maintenance of such privately owned and operated systems.

All equipment and accessories shall be standard manufactured items, and those coming in direct contact with sewage shall be specifically manufactured for sewage-use by a company regularly engaged in the manufacture and assembly of similar units for a minimum of five (5) years. If not selecting a pump/tank from the *Approved Materials List* (additional fees may apply), Manufacturer's specifications for pump and tank systems shall be submitted to Central San for review and approval prior to the start of any work.

For uses other than service to an individual residential unit, installations require dual pumps (duplex systems) designed to function independently in case of overload or mechanical failure. Duplex systems may be used for individual residential units at the Owner's option.

6 PUMPS

Pumps shall be approved for sewage service by a Nationally Recognized Testing Laboratory (NRTL) such as Underwriters Laboratories (UL Listed) and/or CSA, shall carry an NRTL label for this use, and shall be one of the types described below:

1. Centrifugal, non-clog, vertical column with enclosed shaft.
2. Submersible, centrifugal, non-clog.
3. Submersible, centrifugal, grinder pump.
4. Positive displacement, grinder pump (Mandatory for Multi-User Low Pressure Sewer Systems).

The pump selected shall produce a velocity in the force main of 3 to 7 ft/s when pumping against the non-surcharged head at pump on level. If the pump discharge line connects to an outside side sewer the maximum flow rate shall be 70 gpm. The pump pressure line may run through the building but it shall be a dedicated line that does not connect to any inside plumbing lines.

If pump Type 1) or 2) is used, the impeller shall be a non-clog type and shall be capable of passing a 2-inch sphere, and the pump discharge line shall be at least 2-inches inside diameter.

If pump Type 3) or 4) is used, the pump discharge shall be at least 1-1/4 inches in diameter. The grinder shall be constructed of long-lasting, low maintenance material that is capable of reducing all components in normal domestic sewage (including "foreign objects," such as paper, wood, plastic, glass, rubber, etc.) to finely divided particles which will pass freely through the passages of the pump, force main, and fittings.

7 TANKS

The tank shall be cylindrical in configuration with a minimum diameter of 24-inches and minimum height of 60-inches (see *Approved Materials List* for exceptions with tank height).

The pump tank shall be made of one of the following materials or approved equal:

- Asphalt-coated steel (prefabricated 3/16-inch steel plate); with tank surface protected with a minimum of 0.10-inch thick corrosion barrier
- Filament wound fiberglass, minimum ¼-inch wall thickness with tank interior surface protected with a minimum of 0.10-inch thick, resin-rich, corrosion barrier
- PVC T-lock lined reinforced concrete pipe
- High-density polyethylene

Tanks with an anti-floatation flange shall be installed, according to manufacturer's recommendations, if the calculated buoyant force exceeds 0.75 times the weight of the tank assuming the groundwater surface is one foot (1') below existing grade. As a minimum, the collar shall be weighted with 0.2 cubic yards of concrete ballast.

The tank shall have a 4-inch minimum inlet and an outlet at least the size of the pump discharge. The invert of the inlet shall be 6-inches above the first pump on set-point and have a minimum cover of 30 inches. A standard cleanout with a backwater overflow prevention device shall be placed immediately upstream of the inlet stub of the tank and downstream where forced line converts to gravity.

The pump tank cover shall be epoxy coated steel plate (1/2-inch minimum thickness), heavy cast iron or manufacturer's standard molded plastic made to accommodate the pump (if column type) with an opening for the electrical conduits, vent, and an inspection plate. The cover shall be designed to support reasonably anticipated dead

and live loads, including impact (H-20 required for traffic areas). The top of the cover shall be 3-inches above the surrounding ground surface in non-traffic areas. The tank cover shall be securely anchored to the pump tank by stainless steel bolts, and all joints between the component parts shall be sealed with gasketed-covers that are gas-tight.

8 MOTORS

Must be approved for sewage use.

9 CONTROL PANELS

Select *Outdoor Rating*.

A. LEVEL CONTROLS

Mandatory level control switches:

1. A “Pump On” switch set to start the single pump in a simplex system or the “lead” pump in a duplex system at least two inches (2”) below the Alarm (HWA).
2. A “Pump Off” switch set to turn off the pump(s) at a reasonable elevation above the Low Water Alarm. The distance between the First Pump On and Pump Off shall be great enough to allow the pump to run for at least 30 seconds during each pump cycle

Optional level control switches:

3. A “High Water Alarm (HWA)” switch set to alarm a minimum of three inches (3”) below the invert elevation of the gravity inlet sewer from the house and start the “lag” pump in a duplex system.
4. A “Low Water Alarm” (LWA) switch wired to a redundant fail-safe circuit cutoff in the control panel that will shut off the pump at an elevation above the pump inlet and activate an alarm.

B. ALARM SYSTEMS (Recommended, but no review by Central San)

The alarm system shall be mounted within the building(s) that is (are) served by the pump or in conjunction with the control panel adjacent to the pump and shall provide a visible pilot light and audible alarm with silencer to alert the occupant. An exterior alarm shall be for outside operation. The alarm system shall be on a separate circuit from the pump motor(s). When activated by a high water or low water condition, the alarm system shall remain latched until manually acknowledged and cleared.

10 ELECTRICAL WORK (No Central San Review)

All electrical work shall conform to the technical and permitting requirements of the applicable Building Code enforcement jurisdiction for the location of the house being served. DISCHARGE LINES

Pressure discharge line to the gravity private side sewer shall be PVC (SCH 40), or high-density polyethylene (SDR 11) conforming to Central San’s Standard

Specifications and shall meet Central San depth and bedding requirements for side sewers.

The gravity portion of the discharge line shall meet Central San requirements for private side sewers. The gravity portion of the discharge line shall extend at least five feet from the sewer main. A wye/45 degree or combo with cleanout with overflow protection devices shall be placed where the discharge line transitions from pressure to gravity as shown on the Pump System Dimensions Form. The pressure discharge line may connect to an existing building lateral downstream of the building cleanout with a wye connection.

11 TESTING

When tested, the force main shall test at a minimum of 1-1/2 times the operating pressure or 60 pounds, whichever is more.