



CITY OF
FOLSOM
DISTINCTIVE BY NATURE
City of Folsom

Community Development Department

50 Natoma Street
Folsom, California 95630
(916) 461-6212

RESIDENTIAL SEWAGE EJECTOR PUMP SYSTEMS

For all building sites in which the approved improvement plans designate a pumped service or for any owner wishing to construct a structure on a portion of a lot or parcel for which gravity service was not provided, the owner shall install a sewage pump as specified herein for the purpose of lifting sewage to the public sewer.

The pump and holding tank shall be installed in a location such as to be reasonably accessible for inspection and maintenance. If the holding tank is located outside of the building foundation it shall be located a minimum of 5 feet from any building used as a dwelling, a minimum of 10 feet from any property line and a minimum of 50 feet from any lake, stream, or reservoir. Where installed, the owner at the owner's expense shall maintain such installations. A duplex pump system is suggested for residential applications when more than one residence is served by the same pump system.

Required Building Permit submittal items:

Installation of a residential sewage pump system requires a building permit. The following is a list of items required for the Building Department to review before a permit can be issued:

Two copies of the following items:

- Approved grading plan with a building plan set or acceptable plan for lot showing house location, lot lines, electrical power source for system, alarms, discharge line location, gravity sewer tie in location and dimensioned pump system location.
- Manufacturer's information sheets for pump, controls, holding tank and controls enclosures.
- A sheet containing a tabulation of number of fixture units to be pumped by system, the. Total vertical difference between point of gravity sewer tie in and bottom of holding tank.
- Drawing of pump system including a cross section showing relationship of components as installed. All components should be listed including, but not limited to all valving, wiring, enclosures, vent piping, electrical conduits and float switches.
- Cost estimate of all components including labor for installation

CONSTRUCTION AND INSPECTION SPECIFICATIONS –

Gravity Pipeline:

The gravity sewer lateral from the building sewer to the wastewater holding tank shall be installed in accordance with the City of Folsom Standard Specifications. Pipe must be grouted or sealed to a watertight condition at the point of holding tank penetration.

Waste Water Holding Tank:

The holding tank shall be a solid impervious walled container. All openings in the walls of the tank, including pipe or conduit penetrations, are to be sealed to prevent inflow of surface water, infiltration of ground water, or exfiltration of contained wastewater. The tank shall be vented with a 1 1/4 inch minimum vent line. The tanks shall be buried to a depth such that the top cover of the tank is 18 inches below finished grade. A weatherproof housing shall be installed and extended to 6 inches above finished grade. It shall be the owner's responsibility to determine groundwater conditions that may cause the tank to float when empty and to provide the appropriate solutions to prevent it. A groundwater drainage system is not permitted in the event that the tank leaks it will not discharge to any surface or storm drainage system.

Pumping Equipment:

Pumps shall be either ejector or centrifugal of the non-clog or grinder type. Centrifugal pumps shall be capable of passing a minimum of a 2-inch diameter sphere. Pumps and motors shall be sized to maintain a minimum of 4-feet per second flow velocity throughout the entire discharge piping system when a maximum of one pump is pumping under actual installed conditions. A copy of the pump specifications and pump curve shall be required and made available to the City inspector before testing is allowed.

Electrical:

The electrical control cabinet shall be isolated from the holding tank. All wiring, controls, conduits, boxes, etc. shall meet or exceed National Electrical Code (NEC) requirements for materials, ratings, placement, installation, etc. All equipment located in the holding tank shall be U.L. approved for its specific and proper use. All wiring in the area above the holding tank shall be provided with protection from physical damage by a combination of cable routing and/or conduits. Any wiring, which hinders entry or view into the holding tank when opened, will not be acceptable. All electrical connections shall be in an approved electrical junction box. All conduits leaving the holding tank, or the enclosed area above or surrounding the holding tank shall be sealed. A circuit disconnect for all circuits shall be located within sight of the holding tank or a lockout device shall be installed on the disconnect for each circuit attached to or relating to the pump system at the holding tank.

Alarm System:

The holding tank and electrical controls shall include an alarm system that produces an audible and visual alarm when the liquid level in the holding tank exceeds a predetermined safe level. The audible and visual alarm devices shall be located at all inhabited buildings or structures served by the sewage pump system. The alarm system shall be supplied with power through a separate dedicated circuit. It is recommended the alarm system include a battery backup.

Discharge Piping:

The discharge pipeline shall be ductile iron, polyvinyl chloride (PVC), polyethylene, or an approved pressure rated material designed for wastewater. The piping shall be pressure class 130 minimum and rated for the pressure service being installed. The pipeline size shall be 2-inch diameter minimum and no smaller than the pump discharge port. The discharge pipeline shall be fitted with an approved pressure rated sewer check valve and a gate valve. The discharge pipeline shall also include a 1/4" pressure test port located between the check valve and the gate valve. The gate valve shall be located on the discharge side of the check valve. Both valves and the test port may be located in an accessible area inside or outside of the holding tank in such a manner that they are accessible for operation, maintenance and repairs. If both valves and the test port are located inside the wet well, an additional gate or ball valve shall be installed on the discharge pipeline, adjacent to the wet well/weatherproof insulated box. Additional gate/ball valve shall be boxed separately and brought to grade. It is recommended that valves be installed with unions. Discharge pipelines shall have a trench cutoff block located every 50 linear feet of pipe, at changes in pipeline type and/or grade, and at the pump tank. Thrust blocks shall be located at all fittings that change the direction of the pipe. Thrust blocks

shall be constructed of concrete with a minimum size of 2 cubic feet. A siphon break shall be installed on the discharge pipeline at its connection point to the gravity sewer.

Inspection and Testing:

The gravity portion of the pipeline from the building to the holding tank shall be tested in accordance with the SS-100 of the City of Folsom Standard Specifications and the following tests.

A visual inspection shall be performed by a City inspector to check the following:

- Proper venting of the holding tank.
- An acceptable weather proof, insulated box with an insulated lid directly above the holding tank.
- A weather-tight seal on the holding tank lid and at all pipe or conduit penetrations.

The discharge pipeline shall be pressured tested with air or water to a pressure of 150 percent of the calculated maximum possible working pressure (the Total Dynamic Head, TDH) for the installed pump. The maximum possible working pressure for the system can be assumed to occur at the pump's shut off point. The pump shut off point can be obtained from the pump's performance curve by following the curve to the point at which it meets the axis representing the head of liquid. The pressure must remain constant for 10 minutes. The required test equipment shall be provided by the owner or owner's agent and be acceptable to the City. The electrical system and controls shall be inspected and approved by City Building Inspection. Pumping and alarm tests shall only be performed after the electrical system has been inspected and approved by the City. When all inspections have been done and approved, the following functional tests will be performed in the presence of a

City inspector:

- The pump shall be started and stopped so the check valve can be tested for proper operation.
- The pumping system shall be tested for a discharge pipeline velocity of 4 feet per second. The flow velocity test shall be performed with the discharge pipeline full of water and the pumping system functional under normal operating conditions.
- The pump shall be run to pump down the holding tank to allow a visual inspection of the tank and to check it for leaks.
- The alarm system shall be checked for proper function of audio and visual alarms.

Septic tanks converted for use as holding tanks shall be air, water, or vacuum tested. The test shall be the same as specified for sanitary sewer pipelines, manholes, and grease and sand oil interceptors.

Deviation from Requirements:

Any deviation from the above stated requirements must be approved in writing by the Chief Building Official of the City of Folsom.

PLANS CHECK LIST

- DEDICATED CIRCUIT FOR PUMP
- DEDICATED CIRCUIT FOR ALARM
- CLEANOUT AT PUMP SYSTEM
- CLEANOUT AT TIE-IN TO GRAVITY SYSTEM
- NOTE ON PLAN: "SYSTEM MUST MEET MINIMUM APPLICABLE AND APPROPRIATE NATIONAL CODES (CEC, NSF, CPC, etc.)"