

# ON-SITE SEWAGE SYSTEMS

## CONSTRUCTION GUIDE AND SPECIFICATION SHEET

### GENERAL NOTES

1. Shoot elevation grades and stake drainfield location prior to excavating. Start from drainfield towards structure to determine exact elevation to set tank and stub-out for plumbing.
2. All shallow systems, 18 inches or less, will require concrete septic tanks without exception.
3. Roof and surface water runoff or discharge must be directed away from or down slope from the sewage disposal system by means of footing and/or foundation floor drains or surface diversion ditches.
4. All pipe used in the sewage disposal system must be National Sanitation Foundation (NSF) approved.
5. Only 4 inch plastic pipe or pvc (polyvinylchloride) is permitted. This pipe must meet or exceed ASTM standards that are printed on our list which include: D 3033, D 3034, or schedule 40. All pipes must be bedded with ASTM readings turned up. If pipe other than those listed are used, written verification of standards must be provided by installer. This standard also applies to pipe used to case tight lines when it is required.
6. All pipe joints, including those in drainfield, must be glued and water tight with no exceptions. It is recommended that the bells be on the upgrade side when possible.
7. All or any portions of the sewage disposal system must be inspected and approved before it is covered with soil, otherwise we will require it to be uncovered for visual verification that standards have been met.

### BUILDING SEWER (pipe from structure to the septic tank):

1. The plumbing stub out must be high enough to allow the system to gravity flow to the septic tank and drain field without exceeding the maximum allowable trench depth. Otherwise a pump may be required. **THIS INFORMATION MUST BE PROVIDED TO THE PLUMBER TO ASSURE PROPER STUB OUT DEPTH.**
2. The grade on all parts of the building sewer must be 1/8 inch minimum fall per foot, and the last 10 foot section of pipe can be 1/4 inch maximum fall per foot.
3. At least one clean-out must be installed on this line outside of the structure. If the building sewer exceeds 50 feet in length, clean-outs must be installed at 50 foot intervals. Two way clean-outs are recommended. This pipe must be brought to within two feet of the structure or be hooked up to it.
4. If there are elbows or bends in the building sewer, they shall be no greater than a 45 degree angle, or a sweep 90 degree may be used. It is recommended to install a clean out at any such elbow.
5. Any pipe under driving/parking or vehicular encroachment areas must be bedded and enclosed in 5 or 6 inch pvc, steel, or concrete pipe which meets or exceeds the crush strength of ASTM 3034. The pipe length must exceed the drive width. Using astm 3034 grade or better is another option.
6. If the building sewer crosses any water line, the crossing must be perpendicular or at right angles (90 degrees) to the water line. No joints are allowed within 10 feet in any direction of where these lines cross. When possible, cross the sewer line under the waterline. Waterlines include domestic and irrigation.
7. The building sewer must be connected watertight (sealed/grouted) to the inlet side of the tank.
8. The building sewer must be 50 feet minimum from any well or open surface water suchas canals, streams, ponds, etc.

### SEPTIC TANK

1. The inlet and outlet are to be bedded and braced underneath the pipe in such a manner as to provide vertical support. Use of a 2 x 4 or equivalent is suggested.
2. The septic tank must be set on undisturbed soil, or by manufacturer's standards if other than concrete tank.
3. All pipe connections to the tank must be watertight with proper grade.
4. All access points to the septic tank must be brought to ground surface with risers. All lids must be secured.
5. Again, bed with soil (don't cover), all pipe connected to and from the tank.
6. The septic tank must be at least 50 feet from any well or open surface water such as weir boxes, canals, streams, ponds, etc. The tank must be 5 feet minimum from property lines, easements, driveways, and buildings. It must be 10 feet from any domestic/irrigation water line.

## **LINE FROM SEPTIC TANK TO DRAINFIELD OR DISTRIBUTION BOX**

1. The pipes must be bedded with ASTM readings face up and have glued and water tight joints.
2. The grade on the pipes must be 1 inch minimum downward fall per 100 feet from the tank outlet.
3. If the pipe crosses any water line (domestic/irrigation), the crossing must be perpendicular or at right angles (90 degrees) to the water line. No joints are allowed within 10 feet in any direction from where they cross. When possible the sewer line shall cross under the waterline.
4. Any pipe under driving/parking or vehicular encroachment areas must be bedded and enclosed in 5 or 6 inch pvc, steel, or concrete pipe which meets or exceeds the crush strength of ASTM 3034. The pipe length must exceed the drive width. Using astm 3034 grade or better is another option.
5. When using a distribution box, the pipe must have a watertight connection (sealed, grouted, or manufactured fittings).
6. The pipe must be 50 feet minimum from any well or open surface water such as: canals, streams, ponds, etc.

## **DISTRIBUTION BOX (D-BOX)**

1. The D-box must be set on undisturbed soil 5 feet minimum from the beginning of trench, gravel, and perforated pipe.
2. All outlets in use must be equipped with flow equalizers (such as dial-a-flow inserts). The flow equalizers must be set to allow liquid to enter all lines with equal flow simultaneously.
3. All unused outlets must be water tight.
4. The D-box must be 5 feet minimum from the beginning of the drain field infiltration area, property lines, easement lines, and driveway. It shall be a minimum of 50 feet from any well (domestic/irrigation) and open surface water (ditches, weir boxes, ponds, canals, lakes, streams, etc.)
5. The inlet of the D-box must be equipped with a vented baffle (90 degree sweep with hole drilled or a PVC "t"; this prevents airlock).

## **DRAINFIELDS, ABSORPTION BEDS, SSAS (SUB-SURFACE ABSORPTION SYSTEMS)**

1. Drainfields must run perpendicular to the slope (across/right angles or 90 degrees) and may need to be contoured or curved to accomplish this.
2. The trench bottom must be level. The perforated pipe in the trench must have a grade of 0 inches to 3 inches per 100 feet. (Use of metal security pins, grade boards, etc. is recommended).
3. The ends of all perforated pipes must be capped and exposed for inspection.
4. Drainfields must be 100 feet minimum from wells (domestic/irrigation) and open surface water; 5 feet minimum from the tank, property lines, driveways, and easement lines. It shall be 50 feet minimum from weir boxes and concrete lined canals, and 10 feet minimum from any water lines (domestic/irrigation), and building foundation.
5. The soil barrier over the drainfield must be filter fabric (for example, typar 3301 & 3341 or approved equivalent, 3.0 to 4.0 oz/square yard and spun-bonded (not woven) material without petroleum/oil properties).
6. If your drainfield is designed as a 12 inch deep trench, the sod and soil in the drainfield area must be broken up before the trenches are installed (this includes area between trenches). Go over the drainfield area across the slope once with a plow, or disc. Do not use backhoe teeth or rototillers.
7. Drainfield and replacement area must be protected from encroachment or damage by: vehicular and equipment traffic; concentrated livestock; heavy weights or objects, impervious coverings (such as asphalt or concrete), or anything which can obstruct aeration of the system.
8. No cutting or filling with soil is allowed in the drainfield area (replacement area included). The drainfield must be in original undisturbed soil, otherwise permit may be void unless alternative suitable location is found.