

## **Mound Construction Guidelines**

### **Greene County Combined Health District**

Mound construction procedures are just as important as the mound design. Good design with poor construction will result in mound operating poorly and may result in failure. Proper equipment is essential. The following is a step by step procedure for mound construction, which has been tried and proven. Other techniques could be used as long as the basic principles of mound design, operation and construction are not violated.

- ✓ Stake out the mound on the site so that the trenches or beds follow the contour of the ground surface. In general, the mound will run perpendicular to the direction of the slope. Reference stakes are recommended in case corner stakes are disturbed.
- ✓ Measure the average ground elevation along the upslope edge of the absorption bed or upper trench. This is necessary to determine the bottom elevation of the trenches or bed.
- ✓ Determine where the force main from the pump chamber connects to the distribution system in the mound.
- ✓ Trench and lay the force main pipe from the pump chamber to the mound. Cut and cap the pipe above the ground surface. Lay the pipe below frost line or sloping uniformly back to the pump chamber so that it drains after dosing. Backfill and compact the soil around the pipe to prevent back seepage of effluent along the force main. This step must be done before plowing to avoid compacting and disturbance of the surface.
- ✓ Check the moisture content of the soil at 7 to 8 in. deep. If it is too wet, smearing and compaction will result, thus reducing the infiltration capacity of the soil. Soil moisture can be determined by rolling a soil sample between the hands. If it rolls into a ribbon, the site is too wet to prepare. If it crumbles, soil preparation can proceed.
- ✓ Cut trees to ground level, remove excess vegetation by mowing. Do not remove the stumps. Prepare the site by plowing with the contour of the ground, 12 inches deep. A **chisel plow** must be used or a backhoe with chisel teeth mounted on the bucket. Immediate construction after plowing is desirable. Avoid rutting of the plowed area with vehicular traffic.
- ✓ Extend the force main pipe to several feet above the ground surface.

### **CALL FOR THE FIRST INSPECTION**

- ✓ Place the ODOT specification concrete sand around the edge of the plowed area. Keep the wheels of the trucks off the plowed areas. Minimize traffic on the downslope side of mound. Work from the end and upslope side.
- ✓ Move the fill material into place using a small track type tractor with a blade. Wheel type tractors are too difficult to maneuver in the fill. Always keep a minimum of 6 in. of sand beneath the tracks to prevent compaction of the natural soil.
- ✓ Place the fill material to the required depth which is the top of the trenches or bed. Shape the sides to the desired slope. In most cases a 3:1 slope will be used.
- ✓ With the blade on the tractor form the gravel bed or absorption trench. Hand level the bottom of the trenches and beds. Make sure bottoms are at the same elevation and level. Verify the grade elevations with the design specifications. Contact the designer if there are problems.

- ✓ Place the coarse aggregate in the trenches or bed. It should be 3/4 to 1 1/2 inch washed round gravel. Level the aggregate to the design depth. Be sure to follow all of the design specifications.
- ✓ Prepare the pressure distribution pipe. Drill the required holes at the required spacing with the proper size drill bit. Be sure to use a new or very sharp drill bit to ensure a clean hole. A drill press is the best way to drill accurate holes. Clean the holes of all excess material both inside and outside of the lateral pipe.
- ✓ Place the distribution system on the aggregate. Connect the manifold (if required) to the force main pipe from the pump chamber. Slope the manifold to effluent pipe. Lay the lateral pipe level. Ensure that the holes are clean and smooth and the interior of the pipes are clean.
- ✓ Place 2 inches of aggregate over the distribution pipe.
- ✓ Install the observation ports and the lateral access ports in the proper location. Be sure to install the required ports according to the design specifications.

**CALL FOR THE SECOND INSPECTION. THIS INSPECTION WILL INCLUDE DOSING THE MOUND WITH THE PUMP AND OBSERVING THE LATERALS FOR EQUAL DISTRIBUTION.**

There must be water in the pump chamber and the pump must be supplied with electricity to pump.

- ✓ Place a 2-4 ounce Geotextile fabric over the gravel bed.
- ✓ Place 18 inches of soil fill over the center of the gravel bed, 12 inches at the edge of the gravel bed, and 6 inches at the toe of the mound. Form a diversion swale at the proper depth upslope of the mound to divert surface water away from the mound system.
- ✓ Landscape the mound by planting grass, using the best vegetation adaptable to the area. A mixture of 90% birdsfoot trefoil and 10% timothy may be desirable if the mound is not manicured. If manicuring is desired, a combination of 60% bluegrass, 30% creeping red fescue and 10% annual rye grass may be desired vegetative cover. Shrubs may be planted around the base and up the sideslopes.

**CALL FOR THE THIRD INSPECTION**

Mound maintenance involves pumping the septic tank every 2 to 3 years to avoid carryover of solids into the mound. A good water conservation plan within the house assures that the mound will not be overloaded. Avoid excess traffic in the mound area. Winter traffic on mound should be avoided to minimize frost penetration.