

## **AT-GRADE MOUND SYSTEM CONSTRUCTION PROCEDURES**

### **GENERAL**

Proper construction is extremely important if the At-Grade is to function as designed. Installation of an At-Grade system is prohibited when soils are frozen. Construction of the system should NOT occur if the soil is too wet. Compaction and puddling of the soil in the location of the At-Grade, replacement area and downslope areas should be avoided. Soil is too wet for construction if a sample, taken anywhere within the upper eight inches, when rolled between the hands forms a wire. If the sample crumbles, the soil is dry enough for construction to proceed. Approval of soil moisture must be obtained from the Local Approving Authority (Health Dept) prior to beginning construction.

### **EQUIPMENT**

The following equipment is recommended:

1. A small track machine (low ground pressure) with blade for placing and spreading the aggregate, cap and topsoil is preferred. For some designs a backhoe may be used.
2. A cordless drill for drilling holes in the pipe on-site. A Sharp drill bit of specified size.
3. A chisel plow, plow attachment or moldboard plow for plowing the soil within the perimeter of the At-Grade. Other scarification equipment (preferably on tracks) may be used but must be approved in advance by the inspector. Rototilling is prohibited.
4. A rod and level for determining bed elevations, slope on pipes, outlet elevation of septic tank or BAT unit, slope of site, etc.

### **MATERIALS**

The following specifications are required:

1. Aggregate shall be clean aggregate free of fines and between ¾ and 2 inches in diameter. Washed river gravel is preferred. Soft limestone is not allowed. Aggregate is to be approved by the inspector.
2. Geotextile fabric shall be of a type approved by the inspector. Spun filter fabric rather than woven is preferred.
3. Cap material shall be soil relatively free of coarse fragments and preferably a silt loam texture.
4. Topsoil shall be of good quality, and free of debris such as rocks and trash. A silt loam or other medium textured soil is recommended.

### **TANK INSTALLATION AND SITE PREPARATION**

1. Locate, fence or rope-off the entire sewage disposal area to prevent damage to the area during other construction activity on the site. Vehicular traffic over the disposal area and directly downslope of the disposal area is **prohibited** to avoid soil compaction.
2. Install septic tank or BAT unit treatment tank with pumping chamber and pumps as shown on the approved design plan and drawings. **Call for inspection.**
3. Stake out the At-Grade perimeters in their proper orientation as shown in the drawings. Reference stakes offset from the At-Grade corner stakes are recommended. Locate the upslope edge of the absorption bed within the At-

Grade and determine the ground elevation at the highest location. Reference this elevation to a benchmark for future use. This is necessary to determine the elevation of the top of the absorption bed, as well as the cap and topsoil elevations. **Call for inspection.**

4. Excess vegetation should be cut and removed carefully. Trees should be cut at ground level and stumps left in place.
5. Determine the location where the force main from the pumping chamber will connect to the distribution network manifold within the At-Grade.
6. Install the force main from the pumping chamber to the proper location within the At-Grade. Pipe should be laid with uniform slope back to the chamber so that it drains after dosing. Cut and stub off pipe one foot below existing grade within the proposed perimeter of the initial system. Backfill trench and compact to prevent seepage along the trench. **Call for inspection.**
7. Once soil conditions are approved by the inspector, plow or properly scarify the soil within the entire perimeter of the At-Grade to a depth of about eight inches, if the soil is not too wet. Chisel plows are preferred. Plowing should be done along the contour. If using a moldboard plow use a two bottom or larger plow and throw the soil upslope leaving a dead furrow at the bottom. Rototilling may not be used. After plowing, all foot and vehicular traffic shall be kept off the plowed area. **Call for inspection.**

#### **FILL PLACEMENT AND DISTRIBUTION NETWORK**

1. Relocate and extend the force main at least one foot above the ground surface. Temporarily cap or otherwise cover the pipe opening to prevent anything from entering the pipe.
2. Carefully place the coarse aggregate in the bed area. Level the aggregate to a minimum depth of six inches. Keep delivery trucks and all vehicular traffic off the plowed area and off the downslope side. Install observation pipes.
3. Uncap the force main terminus. The distribution network is assembled in place, using PVC primer and glue. The manifold should be set on the force main to ensure that it drains between doses. The laterals should be laid level with the holes directed downward (except for the last perforation in each lateral). The lateral turnups should be sleeved in either a larger diameter pipe or turf box for protection and access. **Call for inspection.** Test the pumping chamber and distribution network with clean water.
4. Place additional aggregate to a depth of at least 2 inches over the crown of the lateral(s).
5. Place the approved spun filter fabric over the aggregate bed. The fabric may extend beyond the edge of the gravel bed approximately a foot.

#### **COVER MATERIAL**

1. Place a finer textured topsoil such as a loam or silt loam on top of the fabric over the bed. The minimum depth of the topsoil shall be 12 inches over the bed to promote shedding of rainfall. For wider beds, the depth of topsoil at the center of the bed may be increased. Final grading should divert surface water away from the site. **Call for inspection.**

#### **VEGETATION**

1. Fertilize, lime, seed and mulch the entire surface of the mound. Grass mixtures adapted to the area should be used. Consult the county extension agent or Soil Conservation Service for recommendations.
2. Irrigate the seeded mound sufficient to establish growth in a timely manner.

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