

## 4.3 Capping Fill System

Revision: July 22, 2015

### 4.3.1 Description

A capping fill trench is a drainfield constructed so that its bottom is at least 3 inches into the natural soil but less than 2 feet deep in the natural soil. A selected fill material caps the trench to cover the drainfield aggregate or gravelless trench product. The two subcategories of a capping fill system are (1) below-grade capping fill system and (2) above-grade capping fill system. Capping fill systems may be installed by any installer with a basic installer's permit unless a complex component is used in conjunction with the capping fill system design.

### 4.3.2 Below-Grade Capping Fill System

A below-grade capping fill system is constructed so the bottom of the drainfield is less than 24 inches deep in the natural soil but deep enough in the natural soil to keep the entire drainfield below the natural soil. The installation depth is between 12 and 24 inches below the natural soil. The bottom depth of the drainfield necessary to keep the drainfield below the natural soil may be deeper for gravelless system products or combination extra drainrock and below-grade capping fill systems (Figure 4-5).

#### ***Below-Grade Capping Fill System Approval Conditions***

1. Effective soil depths below the drainfield bottom must be met as required by IDAPA 58.01.03 or as allowed in section 2.2 of this manual following the separation distance hierarchy.
2. Site may not exceed 20% slope.
3. The soil cap may be constructed before system excavation but after natural soil scarification if the cap must extend above the natural soil to achieve the minimum cover requirement of 12 inches.
4. The fill material (section 4.3.4), construction (section 4.3.5), and inspection (section 4.3.6) requirements must be met.

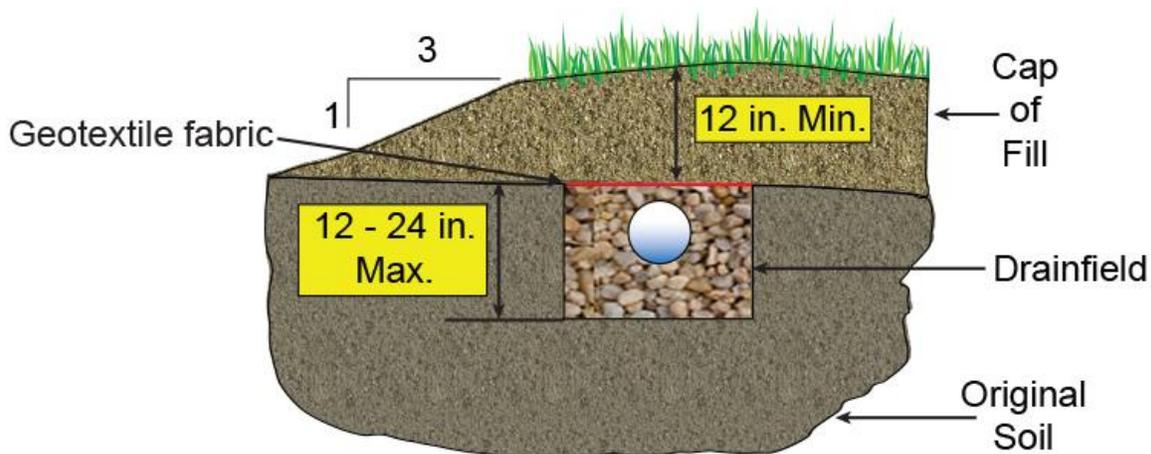


Figure 4-5. Cross-sectional view of a below-grade capping fill trench.

### 4.3.3 Above-Grade Capping Fill System

An above-grade capping fill system is constructed so that the upper portion of the drainfield is above the natural soil. The drainfield installation depth is typically less than 12 inches deep for a standard drainrock and perforated pipe drainfield. The bottom depth of the drainfield that results in the upper portion of the drainfield being above the natural soil may be deeper for gravelless system products or combination extra drainrock and capping fill systems (Figure 4-6).

#### ***Above-Grade Capping Fill System Approval Conditions***

1. Effective soil depth below the drainfield bottom must be met as required by IDAPA 58.01.03 or as allowed in section 2.2 of this manual following the separation distance hierarchy.
2. Site may not exceed 12% slope.
3. The soil cap must be constructed before system excavation but after natural soil scarification when constructing with pipe and aggregate.
4. The soil cap shall extend at least 10 feet beyond the nearest trench sidewall in all directions.
5. The invert of the perforated distribution pipe in a combination extra drainrock and above-grade capping fill system shall not extend more than 3 inches above the natural soil.
6. The bottom of the drainfield shall be installed no shallower than 3 inches below the natural soil.
7. The minimum cover over the drainfield shall be 18 inches.
8. The fill material (section 4.3.4), construction (section 4.3.5), and inspection (section 4.3.6) requirements must be met.

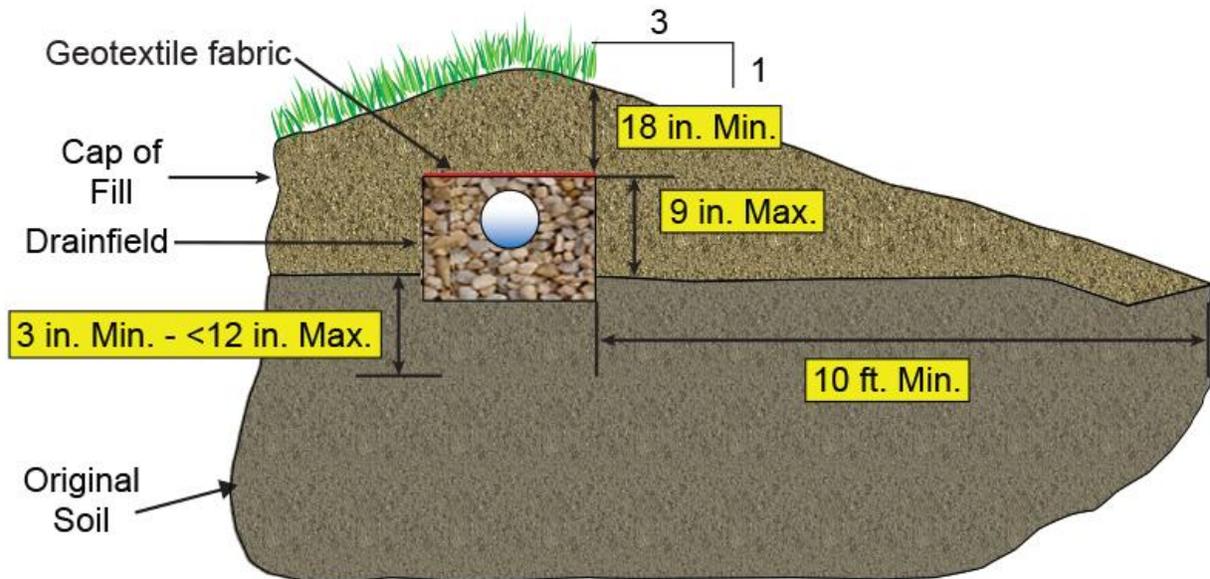


Figure 4-6. Cross-sectional view of an above-grade capping fill trench.

#### 4.3.4 Fill Material

The capping fill drainfield must meet the minimum cover requirements described in sections 4.3.2 and 4.3.3 and the maximum (36 inches) cover requirements of IDAPA 58.01.03.008.04. Fill material must be imported or removed from a location greater than 6 feet away from the edge of the drainfield cap to meet the texture requirements of the cap. The material requirements for the cap are as follows:

1. The upper layer of the natural site soil must be one of the approved effective soil design subgroups as described in Table 2-4.
2. The texture of the fill material used for the soil cap shall be the same as or one soil design subgroup finer than the upper layer of the natural site soil, except no fill material finer than clay loam may be used.
3. Fill material shall be free of debris, stones, frozen clods, or ice.

#### 4.3.5 Construction

1. When the fill cap must extend above the natural ground, the entire cap area is scarified to a depth of 6–8 inches using a chisel plow or backhoe teeth to disrupt the vegetative mat. Smearing the soil during scarification shall be avoided.
2. Site soil should not be removed during the scarification process unless heavy vegetation (e.g., bushes) or heavy vegetative mat is present. Any site soil that is removed should be replaced with medium sand before system construction.
3. Construction-related requirements in sections 4.3.2 and 4.3.3 shall be followed.
4. Systems shall be installed to a depth below the natural soil surface according to the specifications outlined on the permit.
5. Finished side slopes of the fill are to be evenly graded from the outer edges of the trenches to the natural soil surface with a maximum slope of 3:1 or less (three horizontal to one vertical).
6. Compaction of the scarified area must be prevented. Use of equipment with pneumatic tires is prohibited on the scarified area and fill or cover.
7. At least 12 inches of fill must be applied to cover the trenches in a below-grade capping fill system, and 18 inches of fill must be applied to cover the trenches in an above-grade capping fill system.

#### 4.3.6 Inspections

1. Site soil texture, fill soil texture, and the scarification or vegetative mat disruption process will be inspected by the Director.
2. Installed trenches will be inspected by the Director prior to cover.
3. Final inspection after covering may be conducted by the Director to ensure proper cap placement and slope.