4.5 Capping Fill System

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4.5.1 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 provide cover. The two subcategories of a capping fill system are (1) standard capping fill system and (2) extreme 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.

4.5.2 Standard Capping Fill System

A standard 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 invert of the drainfield pipe below the natural soil. The installation depth is deeper than 6 inches for a standard drainrock and perforated pipe drainfield. The bottom depth of the drainfield necessary to keep the invert of the drainfield pipe below the natural soil may be deeper for gravelless system products or combination extra drainrock and capping fill systems.

Standard 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 12% slope if the drainfield extends above natural soil.
3. If the drainfield is at or below natural soil, the site may not exceed 20% slope.
4. The soil cap may be constructed prior to system excavation but after natural soil scarification if the drainfield extends above the natural soil.

4.5.3 Extreme Capping Fill System

An extreme capping fill system is constructed so that the invert of the drainfield pipe is above the natural soil. This is typically 6 inches deep or less for a standard drainrock and perforated pipe drainfield. The bottom depth of the drainfield that results in the invert of the drainfield pipe being above the natural soil may be deeper for gravelless system products or combination extra drainrock and capping fill systems.

Extreme 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 may be constructed prior to system excavation but after natural soil scarification.

4. The soil cap shall be compacted to 90% of the existing soils, which shall be verified by a soil compaction test after cap construction.
5. The invert of the perforated distribution pipe in a combination extra drainrock and extreme 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.

4.5.4 Fill Material

The capping fill drainfield must meet the minimum (12 inches) and 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 that of the upper layer of the natural site soil, except that no fill material finer than clay loam may be used.
3. Fill material shall be free of debris, stones, frozen clods, or ice.

4.5.5 Construction

1. 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 of 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 prior to system construction.
3. Construction-related requirements in sections 4.5.2 and 4.5.3 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. Edges of the finished cap fill should be at least 10 feet beyond the nearest trench sidewall.
6. 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 slope of 3:1 or less (three horizontal to one vertical).
7. Compaction of the scarified area must be prevented. Use of equipment with pneumatic tires is prohibited on the fill or cover.
8. At least 12 inches of fill must be applied to cover the trenches.

4.5.6 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.

Figure 4-1 shows a cross section of a capping fill trench.

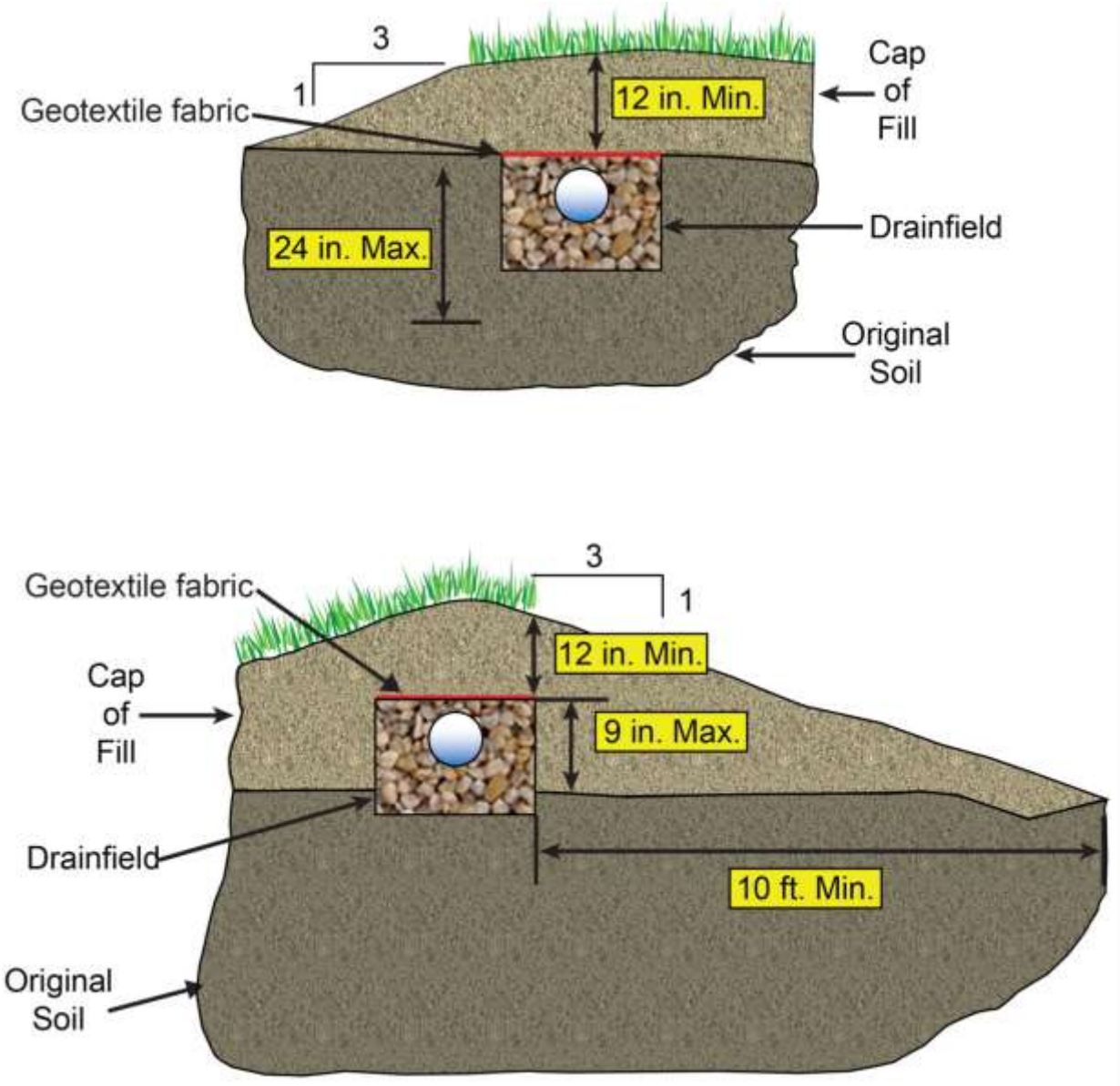

Figure 4-1. Cross-sectional view of a capping fill trench.