Table 2-8. Criteria for reducing separation distances to permanent water.

Setback (feet)[a]	Soil Class	Soil Reduction (feet)	Vertical Soil Depth Above Water: > 25 feet; and Depth to Limiting Layer: > 10 feet	Maximum Setback Reduction (feet)	Minimum Distance to Surface Water (feet)
300	A-1	0	25	25	275
300	A-2	25	25	50	250
200	B-1	0	25	25	175
200	B-2	25	25	50	150
100	C-1	0	0	0	100
100	C-2	0	0	0	100

The distance to permanent surface water may also be reduced to not less than 100 feet for all soil types when it can be demonstrated that

1. Either:
    a. The surface water is sealed so there is no movement of ground water into the surface water body, or
    b. The surface water body is discharging into the ground water, and
2. There are no limiting layers between the drainfield elevation and the surface water elevation.

Each site should be reviewed on its own merits. Additional criteria, such as population density and watershed characteristics, must be examined before an allowance is granted. Alternative systems may be required.

No additional technical allowance may be granted without a formal variance procedure.

2.2.3 Method of 72 to Determine Effective Soil Depths to Porous Layers and Ground Water

Often, effective soil depths, as required by IDAPA 58.01.03.008.02.c, are not achievable due to various site conditions. In response to this issue, section 2.2.1 provides guidance for reducing separation distances to limiting layers based upon soil design subgroups. In some situations, this guidance does not go far enough to address these site limitations, nor does it provide guidance on how to approach separation distances to limiting layers when the soil profile is variable and does not meet the minimum effective soil depths as described in IDAPA 58.01.03.008.02 or Table 2-6, or when the in-trench sand filter system design is used. To address these situations, use the method of 72.

The method of 72 assigns treatment units to soil design subgroups. Treatment units assigned to soil design subgroups are extrapolated from the effective soil depths required by IDAPA 58.01.03.008.02.c. Based on this rule, it can be determined that 72 treatment units are necessary from the drainfield-soil interface to the porous layer/ground water to ensure adequate treatment of effluent by the soil. Table 2-9 provides the treatment units assigned to each soil design subgroup.

Table 2-9. Treatment units assigned to each soil design subgroup per foot and per inch.

Soil Design Subgroup	A-1/ Medium Sand	A-2	B-1	B-2	C-1	C-2
Treatment units per 12 inches of soil	12	14.4	18	24	24	28.8
Treatment units per inch of soil	1	1.2	1.5	2	2	2.4

2.2.3.1 Native Soil Profiles and the Method of 72

When the soil profile contains multiple suitable layers, but no layer is thick enough to meet the separation guidance provided in IDAPA 58.01.03.008.02.c or Table 2-6, use the method of 72 to determine the suitable separation distance for the proposed drainfield site. The following example is based on the soil profile identified in Figure 2-3.

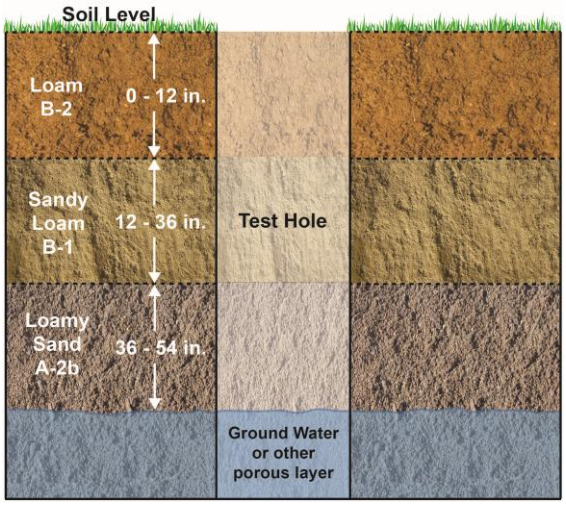

Figure 2-3. Test hole profile used in example 1.

Example 1:

Based upon the soil profile in Figure 2-3 and treatment units from Table 2-9, the following treatment unit equivalent would be ascribed:

Treatment units = 24 + 36 + 21.6 = 81.6

Since this is the treatment unit equivalent from grade to the porous layer or normal high ground water level, the installation depth must still be determined. In this example, the soil profile has 9.6 treatment units more than the minimum necessary to be considered suitable for a standard alternative drainfield. To determine installation depth, use the upper layer of the soil profile where the system will be installed and determine the treatment units per inch of soil. Once the treatment units per inch are known, the depth of allowable installation can be determined.

- 24 treatment units /12 inches of B-2 soil = 2 treatment units per inch
- Installation depth = 9.6 excess treatment units /2 treatment units per inch
- Installation depth = 4.8 inches

In this example, a standard basic alternative system can be permitted. The system design would be a capping fill trench with a maximum installation depth of 4.5 inches below grade.

2.2.3.2 In-Trench Sand Filters and the Method of 72

The method of 72 may also be used in determining the necessary depth of medium sand required for installation between a drainfield and the native soils overlying a porous limiting layer or normal high ground water. Installation of medium sand may be necessary to access suitable soils below an unsuitable layer. The following example is based on the soil profile identified in Figure 2-4.

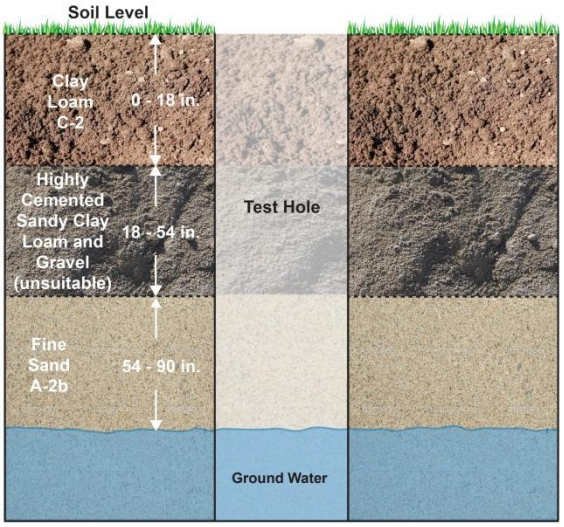

Figure 2-4. Test hole profile used in example 2.

Example 2*:*

In this example, the site soils must be excavated down to 54 inches to access suitable soils. This leaves 36 inches of A-2b soils, providing 43.2 treatment units. The amount of medium sand required to be backfilled prior to system installation would be determined as follows:

- Remaining treatment units = 72 – 43.2 = 28.8
- Depth of medium sand required = 28.8 treatment units remaining/1 treatment unit per inch
- Depth of medium sand required = 29 inches

Thus the medium sand would be backfilled to a depth of 25 inches below grade. The drainfield would then be installed on top of the leveled medium sand.

Note: Regardless of the soil profile and treatment units needed, drainfields must be installed no deeper than 48 inches below grade per IDAPA 58.01.03.008.04. Drainfield depth restrictions only apply to the aggregate as defined in IDAPA 58.01.03.008.08 or the gravelless trench components approved in section 5.6. Medium sand may be installed to any depth necessary to reach suitable soils as long as the excavation and installation of the medium sand meet the requirements in section 4.24.