

Sewage Disposal

Madison County, Tennessee

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Ar:					
Arents	50	Not rated		Not rated	
Urban land	50	Not rated		Not rated	
Ca:					
Calhoun	50	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Henry	50	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	0.50
Co:					
Calloway	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slow water movement	0.50	Seepage	0.50
Cs:					
Collins	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
DuB:					
Dulac	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
				Seepage	0.50
				Slope	0.32

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		Rating class and limiting features	Value	Rating class and limiting features	Value
DuB3:					
Dulac	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Seepage	0.50
				Slope	0.32
DuC3:					
Dulac	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Slope	1.00
				Seepage	0.50
DuD3:					
Dulac	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	1.00
		Slope	0.16	Seepage	0.50
EuE:					
Eustis	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Filtering capacity	1.00		
Fa:					
Falaya	91	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.82	Seepage	0.50
GrA:					
Grenada	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Slow water movement	0.50	Seepage	0.50

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		Rating class and limiting features	Value	Rating class and limiting features	Value
GrB:					
Grenada	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.96
		Slow water movement	0.50	Seepage	0.50
				Slope	0.32
GrB3:					
Grenada	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
				Seepage	0.50
				Slope	0.32
GrC3:					
Grenada	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Depth to saturated zone	0.99
				Seepage	0.50
Iu:					
Iuka	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	1.00
LeB:					
Lexington	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
LeB3:					
Lexington	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32

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		Rating class and limiting features	Value	Rating class and limiting features	Value
LeC:					
Lexington	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
LeC3:					
Lexington	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
LeD:					
Lexington	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
		Slope	0.16		
LeD3:					
Lexington	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
		Slope	0.16		
LeE:					
Lexington	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
LgC:					
Lexington	50	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.68
Urban land	50	Not rated		Not rated	

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		Rating class and limiting features	Value	Rating class and limiting features	Value
LmE3:					
Lexington	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
Smithdale	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	0.50
LoB:					
Loring	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Slow water movement	0.50	Seepage	0.50
				Slope	0.32
LoB3:					
Loring	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Slow water movement	0.50	Seepage	0.50
				Slope	0.32
LoC3:					
Loring	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	0.50	Depth to saturated zone	0.99
				Seepage	0.50
Ma:					
Mantachie	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

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Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MeA:					
Memphis	100	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
MeB:					
Memphis	100	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
MeB2:					
Memphis	100	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
MeC3:					
Memphis	100	Somewhat limited Slow water movement	0.50	Very limited Slope Seepage	1.00 0.50
Oc:					
Ochlockonee	100	Very limited Flooding Seepage, bottom layer Depth to saturated zone Slow water movement	1.00 1.00 0.99 0.50	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 0.71
PrB:					
Providence	100	Very limited Depth to cemented pan Depth to saturated zone Slow water movement	1.00 1.00 0.50	Very limited Depth to cemented pan Depth to saturated zone Seepage Slope	1.00 0.99 0.50 0.32
PrC3:					
Providence	100	Very limited Depth to cemented pan Depth to saturated zone	1.00 1.00	Very limited Depth to cemented pan Slope Depth to saturated zone Seepage	1.00 1.00 0.99 0.50

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		Rating class and limiting features	Value	Rating class and limiting features	Value
PrD3:					
Providence	100	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.16	Depth to saturated zone	1.00
				Seepage	0.50
SmE:					
Smithdale	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
SmF:					
Smithdale	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.50	Seepage	1.00
SwD:					
Sweatman	100	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.04		
SwE:					
Sweatman	100	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
Vk:					
Vicksburg	100	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.97	Depth to saturated zone	0.52
		Slow water movement	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
Wa:					
Waverly	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

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		Rating class and limiting features	Value	Rating class and limiting features	Value
Wf:					
Waverly	100	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50

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This table shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

"Septic tank absorption fields" are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches or between a depth of 24 inches and a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

"Sewage lagoons" are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (Ksat) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.