

Engineering Interpretations

Water Management

Interpretations of soils for water management are given as limitations for pond reservoir areas; embankments, dikes, and levees; excavated pond (aquifer-fed); and as restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

POND RESERVOIR AREA is the area that holds water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by the permeability and depth to fractured or permeable bedrock, or other permeable material.

EMBANKMENTS, DIKES, AND LEVEES are raised structures of soil material constructed to impound water or protect land against overflow. They generally are less than 20 feet high and are constructed of "homogeneous" soil material (without a core zone) and compacted to medium density.

EXCAVATED PONDS (AQUIFER-FED) are bodies of water created by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds which are fed by surface runoff or that have embankments that impound water 3 feet or more above the original surface.

DRAINAGE is the process of removing excess surface and subsurface water from agricultural land. Soil features are listed that affect grading, excavation, and stability of trench sides or ditch banks. Features are also listed which might affect productivity after drainage is installed. The availability of drainage outlets must also be considered.

IRRIGATION is the controlled application of water to supplement rainfall for supporting plant growth. Soil features are listed that affect design, layout, construction, management, or performance of an irrigation system.

TERRACES AND DIVERSIONS are embankments or a combination of an embankment and a channel constructed across a slope to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope. Soil features are listed that affect the construction of terraces and diversions and that may cause problems after construction.

GRASSED WATERWAYS are natural or constructed channels that generally are broad and shallow and are covered with erosion-resistant grasses. They are used to conduct surface water to outlets at a nonerosive velocity. Soil features are listed that affect the construction and maintenance of the waterway, and also that affect the growth of grass after construction.

This subsection includes:

- **(a) Water Management**

Holt County, Missouri: Detailed Soil Map Legend

Water Management

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
14: Blencoe-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slow intake (limited) ~percs slowly (moderately limited)	0.75 0.39	Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.36
15G: Vanmeter-----	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00 0.70	Very limited ~slope (very limited) ~percs slowly (very limited)	1.00 1.00	Very limited ~percs slowly (very limited) ~slope (very limited) ~droughty (moderately limited)	1.00 1.00 0.41	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00 0.90	Very limited ~slope (very limited) ~depth to bedrock (limited) ~droughty (moderately limited)	1.00 0.70 0.41
16: Colo-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited) ~slow intake (moderately limited)	0.60 0.30	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
18B: Kenridge-----	Not limited		Moderately limited ~flooding (moderately limited) ~percs slowly (slightly limited)	0.60 0.13	Moderately limited ~flooding (moderately limited) ~slow intake (moderately limited) ~percs slowly (slightly limited)	0.60 0.30 0.13	Not limited		Not limited	
Judson-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.20	Limited ~slope (limited)	0.78	Limited ~slope (limited)	0.78	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20

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Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20D2: Contrary-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
22: Dockery-----	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (slightly limited)	0.60 0.28	Moderately limited ~erodes easily (moderately limited) ~wetness (slightly limited)	0.60 0.28
26: Grable-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited) ~flooding (limited)	0.90 0.90	Limited ~flooding (limited)	0.90	Very limited ~too sandy (very limited)	1.00	Not limited	
27: Grable-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited)	0.90	Not limited		Moderately limited ~too sandy (moderately limited)	0.60	Not limited	
Leta-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slow intake (limited) ~percs slowly (moderately limited)	0.68 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
28: Gilliam-----	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Not limited		Moderately limited ~wetness (moderately limited)	0.36	Moderately limited ~wetness (moderately limited)	0.36
29: Grable-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited)	0.90	Not limited		Very limited ~too sandy (very limited)	1.00	Not limited	

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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30: Haynie-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Not limited		Not limited	
32: Haynie-----	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	
34D2: Exira-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~slow intake (moderately limited)	1.00 0.60	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
36B: Timula-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.20	Limited ~slope (limited)	0.78	Limited ~slope (limited) ~erodes easily (moderately limited)	0.78 0.60	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60 0.20	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60 0.20
36D3: Timula-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Limited ~slope (limited) ~erodes easily (moderately limited)	0.99 0.60	Limited ~slope (limited) ~erodes easily (moderately limited)	0.99 0.60
36E3: Timula-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60

Holt County, Missouri: Detailed Soil Map Legend

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Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40: Kenmoor-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited ~percs slowly (moderately limited)	0.90 0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Slightly limited ~wetness (slightly limited)	0.13	Slightly limited ~wetness (slightly limited)	0.13
Grable-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited)	0.90	Not limited		Moderately limited ~too sandy (moderately limited)	0.60	Not limited	
42C2: Knox-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50 0.45	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.45	Moderately limited ~slope (moderately limited)	0.45
42D2: Knox-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
42E2: Knox-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
42F: Knox-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00

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Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
44C2: Lamoni-----	Moderately limited ~slope (moderately limited)	0.45	Very limited ~slope (very limited) ~percs slowly (moderately limited)	1.00 0.39	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~slow intake (moderately limited)	1.00 0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited) ~wetness (moderately limited)	0.60 0.45 0.44	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited) ~wetness (moderately limited)	0.60 0.45 0.44
46: Luton-----	Not limited		Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited) ~slow intake (very limited)	1.00 1.00	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
50B: Marshall-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.10	Moderately limited ~slope (moderately limited)	0.40	Moderately limited ~slow intake (moderately limited) ~slope (moderately limited)	0.60 0.40	Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10
50C2: Marshall-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50 0.45	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~slow intake (moderately limited)	1.00 0.60	Moderately limited ~slope (moderately limited)	0.45	Moderately limited ~slope (moderately limited)	0.45
50D2: Marshall-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~slow intake (moderately limited)	1.00 0.60	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
52: Motark-----	Moderately limited ~seepage (moderately limited)	0.50	Not limited		Not limited		Not limited		Not limited	

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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
54B: Monona-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.10	Moderately limited ~slope (moderately limited)	0.40	Moderately limited ~slope (moderately limited)	0.40	Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10
54C2: Monona-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50 0.45	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.45	Moderately limited ~slope (moderately limited)	0.45
54D2: Monona-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
56: Dupo-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.60 0.39	Moderately limited ~erodes easily (moderately limited) ~wetness (slightly limited)	0.60 0.26	Moderately limited ~erodes easily (moderately limited) ~wetness (slightly limited)	0.60 0.26
57: Modale-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~erodes easily (moderately limited) ~percs slowly (moderately limited)	0.60 0.39	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.36	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.36
58B: Motark-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60	Not limited		Not limited	

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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58B: (cont) Napier-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.20	Limited ~slope (limited)	0.78	Limited ~slope (limited)	0.78	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
59B: Nodaway-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60	Not limited		Not limited	
Judson-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.20	Limited ~slope (limited)	0.78	Limited ~slope (limited)	0.78	Slightly limited ~slope (slightly limited)	0.20	Slightly limited ~slope (slightly limited)	0.20
60: Nodaway-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60	Not limited		Not limited	
61B: Napier-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.10	Moderately limited ~slope (moderately limited)	0.40	Moderately limited ~slope (moderately limited)	0.40	Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10
62B: Napier-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.10	Moderately limited ~slope (moderately limited)	0.40	Moderately limited ~slope (moderately limited)	0.40	Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10
Gullied land---	Not rated		Not rated		Not rated		Not rated		Not rated	

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63: Leta-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited) ~percs slowly (moderately limited)	0.90 0.39	Moderately limited ~percs slowly (moderately limited)	0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
64: Leta-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~percs slowly (moderately limited)	0.39	Limited ~slow intake (limited) ~percs slowly (moderately limited)	0.68 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
65: Leta-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~flooding (limited) ~percs slowly (moderately limited)	0.90 0.39	Limited ~flooding (limited) ~slow intake (limited) ~percs slowly (moderately limited)	0.90 0.70 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
66: Leta-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited) ~percs slowly (moderately limited)	0.90 0.39	Limited ~slow intake (limited) ~percs slowly (moderately limited)	0.68 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44
74: Sarpy-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited)	0.90	Limited ~fast intake (limited) ~droughty (limited)	0.90 0.69	Very limited ~too sandy (very limited)	1.00	Limited ~droughty (limited)	0.69

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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75: Sarpy-----	Very limited ~seepage (very limited)	1.00	Limited ~cutbanks cave (limited) ~flooding (limited)	0.90 0.90	Very limited ~fast intake (very limited) ~flooding (limited) ~droughty (limited)	1.00 0.90 0.69	Very limited ~too sandy (very limited)	1.00	Limited ~droughty (limited)	0.69
78D2: Shelby-----	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~slow intake (moderately limited) ~percs slowly (slightly limited)	1.00 0.60 0.13	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
79F: Timula-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60
Knox-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00
80G: Timula-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60
Hamburg-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60

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	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81: Wabash-----	Not limited		Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited) ~slow intake (limited)	1.00 0.66	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00
82: Zook-----	Not limited		Moderately limited ~flooding (moderately limited) ~percs slowly (moderately limited)	0.60 0.39	Moderately limited ~slow intake (moderately limited) ~flooding (moderately limited) ~erodes easily (moderately limited)	0.60 0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60
84: Udifluvents----	Not Rated		Not Rated Not Rated ~flooding (limited)	 0.90	Not Rated Not Rated Not Rated	 	Not Rated Not Rated	 	Not Rated Not Rated Not Rated	
85: Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	
W: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	