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**County specific computer generated reports.*

ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Shawnee County, Kansas: Published

Map symbol	Soil name	Acres	Percent
045OE	Oska Silty Clay Loam, 3 To 6 Percent Slopes-----	143	*
045SV	Sibleyville Complex, 7 To 15 Percent Slopes-----	2	*
045SX	Vinland-Rock Outcrop Complex, 20 To 40 Percent Slopes-----	6	*
045VM	Vinland-Martin Complex, 7 To 15 Percent Slopes-----	84	*
045WS	Woodson Silt Loam, 1 To 3 Percent Slopes-----	171	*
085KB	Kennebec Soils, 0 To 3 Percent Slopes, Occasionally Flooded-----	11	*
085MC	Martin-Vinland Silty Clay Loams, 5 To 10 Percent Slopes-----	13	*
085ZA	Zook Silty Clay Loam, 0 To 2 Percent Slopes, Occasionally Flooded-----	55	*
087EC	Eudora-Bismarckgrove Fine Sandy Loams, 0 To 3 Percent Slopes, Overwash, Occasionally Flooded-----	87	*
087HC	Haig Silty Clay Loam, 0 To 2 Percent Slopes-----	369	0.1
087KV	Konawa Complex, 4 To 10 Percent Slopes-----	77	*
087RS	Rossville Silt Loam, 0 To 2 Percent Slopes, Very Rarely Flooded-----	23	*
087SO	Shelby-Pawnee Complex, 8 To 12 Percent Slopes-----	48	*
087WC	Wabash Silty Clay Loam, 0 To 1 Percent Slopes, Very Rarely Flooded-----	158	*
139ED	Elmont Loam, 3 To 7 Percent Slopes-----	3	*
149KM	Kimo Silty Clay, Rarely Flooded-----	147	*
197IB	Irwin Silty Clay Loam, 1 To 3 Percent Slopes-----	33	*
197IV	Ivan Silt Loam, Occasionally Flooded-----	25	*
197IX	Ivan Silty Clay Loam, Channeled-----	88	*
197MR	Morrill Loam, 4 To 7 Percent Slopes-----	51	*
197MS	Morrill Loam, 5 To 12 Percent Slopes, Very Stony-----	131	*
197SA	Sarpy Loamy Sand, Frequently Flooded-----	43	*
197WF	Wamego Silty Clay Loam, 7 To 15 Percent Slopes-----	252	*
197WY	Wymore Silty Clay Loam, 2 To 6 Percent Slopes-----	808	0.2
2797	Morrill Gravelly Loam, 4 To 20 Percent Slopes, Stony-----	240	*
AED	Arents, Earthen Dam-----	6	*
An	Kennebec Silt Loam, Channeled-----	4,957	1.4
Bk	Martin-Kennebec Complex, 0 To 12 Percent Slopes-----	7,528	2.1
BOA	Borrow Areas-----	484	0.1
Br	Fluvents, Channeled, Frequently Flooded-----	8,816	2.5
Dm	Dwight-Martin Silty Clay Loams, 1 To 3 Percent Slopes-----	2,532	0.7
Ds	Dwight Silty Clay Loam, 0 To 1 Percent Slopes-----	412	0.1
Dw	Dwight Silty Clay Loam, 1 To 3 Percent Slopes-----	1,987	0.6
El	Elmont Silt Loam, 3 To 7 Percent Slopes-----	2,329	0.7
Em	Elmont Silt Loam, 3 To 7 Percent Slopes, Eroded-----	1,057	0.3
En	Elmont Silt Loam, 7 To 12 Percent Slopes-----	1,505	0.4
Eo	Elmont Silt Loam, 7 To 12 Percent Slopes, Eroded-----	299	*
Ep	Elmont-Dwight Silty Clay Loams, 3 To 7 Percent Slopes, Eroded-----	196	*
Es	Eudora Fine Sandy Loam, 1 To 3 Percent Slopes-----	245	*
Et	Eudora Silt Loam, Rarely Flooded-----	12,011	3.4
Eu	Eudora Soils, 6 To 12 Percent Slopes, Eroded-----	1,638	0.5
Ev	Eudora-Kimo Complex, Rarely Flooded-----	6,837	1.9
Ew	Eudora-Kimo Complex, Overwash, Rarely Flooded-----	498	0.1
Gm	Gymer Silt Loam, 3 To 8 Percent Slopes-----	3,184	0.9
Gy	Gymer Silt Loam, 3 To 8 Percent Slopes, Eroded-----	431	0.1
INL	Aquolls-----	68	*
Kb	Kennebec Silt Loam, Occasionally Flooded-----	4,883	1.4
Kc	Chase Silt Loam, Occasionally Flooded-----	1,336	0.4
KF	Kennebec Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded-----	74	*
Km	Kimo Silty Clay Loam, Rarely Flooded-----	1,662	0.5
Ko	Kimo Soils, Depressional, Occasionally Flooded-----	356	0.1
Ks	Kipson-Sogn Complex, 3 To 25 Percent Slopes-----	1,391	0.4
Ku	Konawa Fine Sandy Loam, 4 To 8 Percent Slopes-----	497	0.1
Kw	Konawa Fine Sandy Loam, 8 To 12 Percent Slopes-----	339	*
La	Labette Silty Clay Loam, 1 To 3 Percent Slopes-----	6,430	1.8
Lb	Labette Silty Clay Loam, 3 To 6 Percent Slopes-----	8,211	2.3
Lc	Labette Silty Clay Loam, 3 To 6 Percent Slopes, Eroded-----	1,620	0.5
Ld	Ladysmith Silty Clay Loam, 0 To 1 Percent Slopes-----	4,264	1.2
LIQ	Limestone Quarries And Gravel Pits-----	1,386	0.4
Lm	Ladysmith Silty Clay Loam, 1 To 3 Percent Slopes-----	27,794	7.8
Ls	Ladysmith Silty Clay Loam, 1 To 3 Percent Slopes, Eroded-----	541	0.2
Ma	Made Land-----	319	*
Mb	Martin Silty Clay Loam, 1 To 3 Percent Slopes-----	9,762	2.7
Mc	Martin Silty Clay Loam, 3 To 7 Percent Slopes-----	52,370	14.7
Me	Martin Silty Clay Loam, 3 To 7 Percent Slopes, Eroded-----	13,311	3.7
Mf	Martin Silty Clay Loam, 7 To 11 Percent Slopes-----	7,438	2.1
Mh	Martin Silty Clay Loam, 7 To 11 Percent Slopes, Eroded-----	1,174	0.3
Mk	Martin Soils, 3 To 7 Percent Slopes, Severely Eroded-----	234	*
Mm	Morrill Clay Loam, 3 To 8 Percent Slopes-----	3,070	0.9
Mn	Morrill Clay Loam, 3 To 8 Percent Slopes, Eroded-----	1,203	0.3
Mo	Morrill Clay Loam, 8 To 12 Percent Slopes-----	632	0.2
MOO	Morrill Loam, 3 To 7 Percent Slopes-----	44	*
Mp	Morrill-Gravelly Land Complex, 4 To 12 Percent Slopes-----	301	*
Mr	Muir Silt Loam, Rarely Flooded-----	9,646	2.7
MRR	Morrill Clay Loam, 3 To 7 Percent Slopes-----	10	*
Pa	Pawnee Clay Loam, 0 To 3 Percent Slopes-----	6,018	1.7
Pc	Pawnee Clay Loam, 3 To 7 Percent Slopes-----	35,945	10.1
Pe	Pawnee Clay Loam, 3 To 7 Percent Slopes, Eroded-----	7,788	2.2
Pn	Pawnee Clay Loam, 7 To 11 Percent Slopes-----	452	0.1
RD	Reading Silt Loam, 0 To 2 Percent Slopes, Rarely Flooded-----	55	*
Re	Reading Silty Clay Loam, 0 To 2 Percent Slopes, Rarely Flooded-----	16,674	4.7
Rv	Riverwash-----	626	0.2
Sa	Sarpy Sand, Frequently Flooded-----	476	0.1
SAP	Sand Pit-----	80	*
Se	Sarpy-Eudora Complex, Overwash, Occasionally Flooded-----	2,834	0.8
Sg	Sharpsburg Silty Clay Loam, 1 To 3 Percent Slopes-----	844	0.2
Sh	Sharpsburg Silty Clay Loam, 3 To 6 Percent Slopes-----	1,267	0.4
Sk	Shelby Clay Loam, 1 To 3 Percent Slopes-----	620	0.2
Sm	Shelby Clay Loam, 3 To 8 Percent Slopes-----	3,072	0.9
Sn	Shelby Clay Loam, 3 To 8 Percent Slopes, Eroded-----	971	0.3
So	Shelby Clay Loam, 8 To 12 Percent Slopes-----	846	0.2

ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Shawnee County, Kansas: Published

Map symbol	Soil name	Acres	Percent
Sp	Morrill Fine Sandy Loam, 3 To 8 Percent Slopes-----	590	0.2
Sr	Morrill Fine Sandy Loam, 3 To 8 Percent Slopes, Eroded-----	167	*
Ss	Morrill Fine Sandy Loam, 8 To 12 Percent Slopes-----	117	*
St	Sibleyville Loam, 3 To 7 Percent Slopes-----	686	0.2
Su	Sibleyville Loam, 7 To 11 Percent Slopes-----	383	0.1
Sv	Sogn-Vinland Complex, 3 To 25 Percent Slopes-----	30,556	8.6
Sw	Vinland-Rock Outcrop Complex, 15 To 45 Percent Slopes-----	6,176	1.7
Vn	Vinland Silty Clay Loam, 4 To 10 Percent Slopes-----	1,742	0.5
W	Water-----	4,107	1.2
Wa	Wabash Silty Clay, Occasionally Flooded-----	4,990	1.4
Wb	Wabash Silty Clay Loam, Occasionally Flooded-----	6,829	1.9
We	Welda Silt Loam, 4 To 10 Percent Slopes-----	191	*
	Total-----	355,488	100.0

* Less than 0.1 percent.

Nontechnical Soil Descriptions
Shawnee County, Kansas

Nontechnical soil descriptions describe soil properties or management considerations specific to a soil map unit or group of map units, shown in the NonTechnical Descriptions report. These descriptions are written in terminology that Non-technical users of soil survey information can understand. Nontechnical soil descriptions are a powerful tool for creating reports. These high quality, easy to read reports can be generated by conservation planners and other NRCS employees for distribution to land users. Soil map unit descriptions and National Soil Information System records are the basis for these descriptions.

0450E Oska Silty Clay Loam, 3 To 6 Percent Slopes

Oska soil makes up 88 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from limestone and shale. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

045SV Sibleyville Complex, 7 To 15 Percent Slopes

Sibleyville soil makes up 50 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from sandstone and shale. The soil is 20 to 40 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderate. It has a low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

045SX Vinland-Rock Outcrop Complex, 20 To 40 Percent Slopes

Vinland soil makes up 26 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a steep to steep hillslope on upland. The runoff class is high. The parent material consists of sandy and silty residuum weathered from shale. The soil is 10 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

045VM Vinland-Martin Complex, 7 To 15 Percent Slopes

Vinland soil makes up 40 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from shale. The soil is 10 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

Martin soil makes up 25 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

045WS Woodson Silt Loam, 1 To 3 Percent Slopes

Woodson soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping divide on upland. The runoff class is very high. The parent material consists of silty and clayey alluvium over silty and clayey residuum weathered from clayey shale. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Clay Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

085KB Kennebec Soils, 0 To 3 Percent Slopes, Occasionally Flooded

Kennebec soil makes up 86 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 42 inches. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

085MC Martin-Vinland Silty Clay Loams, 5 To 10 Percent Slopes

Martin soil makes up 48 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

Vinland soil makes up 40 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from shale. The soil is 10 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

085ZA Zook Silty Clay Loam, 0 To 2 Percent Slopes, Occasionally Flooded

Zook soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is high. The parent material consists of silty and clayey alluvium. This soil is poorly drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

087EC Eudora-Bismarckgrove Fine Sandy Loams, 0 To 3 Percent Slopes, Overwash, Occasionally Flooded

Eudora soil makes up 65 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood-plain step on river valley. The runoff class is low. The parent material consists of coarse-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Bismarckgrove soil makes up 20 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood-plain step on river valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

087HC Haig Silty Clay Loam, 0 To 2 Percent Slopes

Haig soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey loess. This soil is poorly drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

087KV Konawa Complex, 4 To 10 Percent Slopes

Konawa soil makes up 91 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-loamy eolian deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Savannah (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

087RS Rossville Silt Loam, 0 To 2 Percent Slopes, Very Rarely Flooded

Rossville soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is very rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 1.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

087SO Shelby-Pawnee Complex, 8 To 12 Percent Slopes

Shelby soil makes up 65 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy till. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

Pawnee soil makes up 25 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is very high. The parent material consists of clayey till. This soil is moderately well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 12 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

087WC Wabash Silty Clay Loam, 0 To 1 Percent Slopes, Very Rarely Flooded

Wabash soil makes up 94 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is very high. The parent material consists of clayey alluvium. This soil is poorly drained. The slowest permeability is very slow. It has a moderate available water capacity and a very high shrink swell potential. This soil is very rare flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 3w.

139ED Elmont Loam, 3 To 7 Percent Slopes

Elmont soil makes up 85 percent of the map unit. This map unit is in the Cherokee Prairies Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of silty and clayey residuum weathered from shale and siltstone. The soil is 40 to 60 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

149KM Kimo Silty Clay, Rarely Flooded

Kimo soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood-plain step on river valley. The runoff class is high. The parent material consists of clayey alluvium over loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

197IB Irwin Silty Clay Loam, 1 To 3 Percent Slopes

Irwin soil makes up 80 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping shoulder hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey residuum weathered from clayey shale. This soil is moderately well drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Clay Upland (pe30-36) range site. It is in the nonirrigated land capability classification 3e.

197IV Ivan Silt Loam, Occasionally Flooded

Ivan soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on valley. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Lowland (pe30-36) range site. It is in the nonirrigated land capability classification 2w.

197IX Ivan Silty Clay Loam, Channeled

Ivan soil makes up 80 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on valley. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Lowland (pe30-36) range site. It is in the nonirrigated land capability classification 5w.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

197MR Morrill Loam, 4 To 7 Percent Slopes

Morrill soil makes up 75 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping backslope hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

197MS Morrill Loam, 5 To 12 Percent Slopes, Very Stony

Morrill, very stony, soil makes up 75 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

197SA Sarpy Loamy Sand, Frequently Flooded

Sarpy soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to moderately sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland (pe30-36) range site. It is in the nonirrigated land capability classification 4s.

197WF Wamego Silty Clay Loam, 7 To 15 Percent Slopes

Wamego soil makes up 75 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping to moderately steep backslope hillslope on upland. The runoff class is very high. The parent material consists of sandy and silty residuum weathered from shale. The soil is 20 to 40 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is slow. It has a low available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

197WY Wymore Silty Clay Loam, 2 To 6 Percent Slopes

Wymore soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping backslope, shoulder hillslope on upland. The runoff class is high. The parent material consists of silty and clayey loess. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 12 inches. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

2797 Morrill Gravelly Loam, 4 To 20 Percent Slopes, Stony

Morrill, stony, soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

An Kennebec Silt Loam, Channeled

Kennebec soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on valley. The runoff class is low. The parent material consists of silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 42 inches. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 5w.

Bk Martin-Kennebec Complex, 0 To 12 Percent Slopes

Martin soil makes up 54 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Shawnee County, Kansas

Kennebec soil makes up 43 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on valley. The runoff class is low. The parent material consists of silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 42 inches. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 5w.

Br Fluvents, Channeled, Frequently Flooded

Fluvents soil makes up 97 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a moderate available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 36 inches. It is in the nonirrigated land capability classification 6w.

Dm Dwight-Martin Silty Clay Loams, 1 To 3 Percent Slopes

Dwight soil makes up 60 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey residuum weathered from cherty limestone. This soil is moderately well drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil contains a slightly saline horizon, it has a horizon that is moderately sodic. This soil is in the Clay Pan (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Martin soil makes up 30 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Ds Dwight Silty Clay Loam, 0 To 1 Percent Slopes

Dwight soil makes up 97 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey residuum weathered from cherty limestone. This soil is moderately well drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil contains a slightly saline horizon, it has a horizon that is moderately sodic. This soil is in the Clay Pan (pe35-42) range site. It is in the nonirrigated land capability classification 4s.

Dw Dwight Silty Clay Loam, 1 To 3 Percent Slopes

Dwight soil makes up 85 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey residuum weathered from cherty limestone. This soil is moderately well drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil contains a slightly saline horizon, it has a horizon that is moderately sodic. This soil is in the Clay Pan (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

E1 Elmont Silt Loam, 3 To 7 Percent Slopes

Elmont soil makes up 90 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of silty and clayey residuum weathered from shale and siltstone. The soil is 40 to 60 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Em Elmont Silt Loam, 3 To 7 Percent Slopes, Eroded

Elmont, eroded, soil makes up 90 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of silty and clayey residuum weathered from shale and siltstone. The soil is 40 to 60 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

En Elmont Silt Loam, 7 To 12 Percent Slopes

Elmont soil makes up 90 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from shale and siltstone. The soil is 40 to 60 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Eo Elmont Silt Loam, 7 To 12 Percent Slopes, Eroded

Elmont, eroded, soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from shale and siltstone. The soil is 40 to 60 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

Ep Elmont-Dwight Silty Clay Loams, 3 To 7 Percent Slopes, Eroded

Elmont, eroded, soil makes up 75 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of silty and clayey residuum weathered from shale and siltstone. The soil is 40 to 60 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

Dwight soil makes up 25 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to gently sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey loess. This soil is moderately well drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil contains a slightly saline horizon, it has a horizon that is moderately sodic. This soil is in the Clay Pan (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Es Eudora Fine Sandy Loam, 1 To 3 Percent Slopes

Eudora soil makes up 95 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping fan terrace on river valley. The runoff class is low. The parent material consists of coarse-loamy colluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2e.

Et Eudora Silt Loam, Rarely Flooded

Eudora soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of coarse-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 1.

Eu Eudora Soils, 6 To 12 Percent Slopes, Eroded

Eudora soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping flood plain on river valley. The runoff class is medium. The parent material consists of coarse-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Ev Eudora-Kimo Complex, Rarely Flooded

Eudora soil makes up 60 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of coarse-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Kimo soil makes up 30 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is medium. The parent material consists of clayey over loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Ew Eudora-Kimo Complex, Overwash, Rarely Flooded

Eudora soil makes up 60 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of coarse-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Kimo soil makes up 30 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is high. The parent material consists of clayey over loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Gm Gymer Silt Loam, 3 To 8 Percent Slopes

Gymer soil makes up 88 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping backslope terrace on river valley. The runoff class is high. The parent material consists of fine-silty alluvium. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Gy Gymer Silt Loam, 3 To 8 Percent Slopes, Eroded

Gymer soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is high. The parent material consists of fine-silty loess. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

INL Aquolls

Aquolls soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level river valley, -- Error in Exists On --. The runoff class is negligible. <parent material is missing> This soil is very poorly drained. It has a very low available water capacity and a low shrink swell potential. This soil is occasionally flooded and is frequent ponded. The top of the seasonal high water table is at 1 inches. It is in the nonirrigated land capability classification 5w.

Kb Kennebec Silt Loam, Occasionally Flooded

Kennebec soil makes up 95 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 42 inches. This soil is in the Loamy Lowland (pe35-42) range site. It is in the nonirrigated land capability classification 2w.

Kc Chase Silt Loam, Occasionally Flooded

Chase soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is high. The parent material consists of silty and clayey alluvium. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a moderate shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

KF Kennebec Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded

Kennebec soil makes up 98 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of silty alluvium. This soil is moderately well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 42 inches. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 5w.

Km Kimo Silty Clay Loam, Rarely Flooded

Kimo soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is medium. The parent material consists of clayey over loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 2w.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Ko Kimo Soils, Depressional, Occasionally Flooded

Kimo soil makes up 95 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of clayey over loamy alluvium. This soil is poorly drained. The slowest permeability is slow. It has a high available water capacity and a low shrink swell potential. This soil is occasionally flooded and is frequent ponded. The top of the seasonal high water table is at 1 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 5w.

Ks Kipson-Sogn Complex, 3 To 25 Percent Slopes

Kipson soil makes up 50 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to steep hillslope on upland. The runoff class is medium. The parent material consists of calcareous loamy residuum weathered from shale. The soil is 7 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 60 percent calcium carbonate. This soil is in the Limy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

Sogn soil makes up 35 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of loamy residuum weathered from limestone. The soil is 4 to 20 inches deep to bedrock (lithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a very low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Shallow Limy (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

Ku Konawa Fine Sandy Loam, 4 To 8 Percent Slopes

Konawa soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Savannah (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Kw Konawa Fine Sandy Loam, 8 To 12 Percent Slopes

Konawa soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Savannah (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

La Labette Silty Clay Loam, 1 To 3 Percent Slopes

Labette soil makes up 88 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from limestone and shale. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 2e.

Lb Labette Silty Clay Loam, 3 To 6 Percent Slopes

Labette soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from limestone and shale. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Lc Labette Silty Clay Loam, 3 To 6 Percent Slopes, Eroded

Labette, eroded, soil makes up 95 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from limestone and shale. The soil is 20 to 40 inches deep to bedrock (lithic). This soil is well drained. The slowest permeability is slow. It has a low available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Ld Ladysmith Silty Clay Loam, 0 To 1 Percent Slopes

Ladysmith soil makes up 90 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level paleoterrace on upland. The runoff class is very high. The parent material consists of clayey alluvium. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Upland (pe35-42) range site. It is in the nonirrigated land capability classification 2s.

Lm Ladysmith Silty Clay Loam, 1 To 3 Percent Slopes

Ladysmith soil makes up 85 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on upland. The runoff class is very high. The parent material consists of clayey alluvium. This soil is somewhat poorly drained. The slowest permeability is impermeable. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Ls Ladysmith Silty Clay Loam, 1 To 3 Percent Slopes, Eroded

Ladysmith, eroded, soil makes up 100 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on upland. The runoff class is very high. The parent material consists of clayey alluvium. This soil is somewhat poorly drained. The slowest permeability is impermeable. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. This soil is in the Clay Upland (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Mb Martin Silty Clay Loam, 1 To 3 Percent Slopes

Martin soil makes up 90 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 2e.

Mc Martin Silty Clay Loam, 3 To 7 Percent Slopes

Martin soil makes up 85 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping backslope on upland. The runoff class is high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Me Martin Silty Clay Loam, 3 To 7 Percent Slopes, Eroded

Martin, eroded, soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Mf Martin Silty Clay Loam, 7 To 11 Percent Slopes

Martin soil makes up 90 percent of the map unit. This map unit is in the Cherokee Prairies Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Mh Martin Silty Clay Loam, 7 To 11 Percent Slopes, Eroded

Martin, eroded, soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is very high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Mk Martin Soils, 3 To 7 Percent Slopes, Severely Eroded

Martin soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale. This soil is moderately well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

Mm Morrill Clay Loam, 3 To 8 Percent Slopes

Morrill soil makes up 91 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Mn Morrill Clay Loam, 3 To 8 Percent Slopes, Eroded

Morrill, eroded, soil makes up 91 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Mo Morrill Clay Loam, 8 To 12 Percent Slopes

Morrill soil makes up 91 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

MOO Morrill Loam, 3 To 7 Percent Slopes

Morrill soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Mp Morrill-Gravelly Land Complex, 4 To 12 Percent Slopes

Morrill soil makes up 55 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

Mr Muir Silt Loam, Rarely Flooded

Muir soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 1.

MRR Morrill Clay Loam, 3 To 7 Percent Slopes

Morrill soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Pa Pawnee Clay Loam, 0 To 3 Percent Slopes

Pawnee soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping hillslope on upland. The runoff class is high. The parent material consists of clayey drift. This soil is moderately well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 12 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 2e.

Pc Pawnee Clay Loam, 3 To 7 Percent Slopes

Pawnee soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping backslope hillslope on upland. The runoff class is high. The parent material consists of clayey drift. This soil is moderately well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 12 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Pe Pawnee Clay Loam, 3 To 7 Percent Slopes, Eroded

Pawnee, eroded, soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping backslope hillslope on upland. The runoff class is high. The parent material consists of clayey drift. This soil is moderately well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 12 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Pn Pawnee Clay Loam, 7 To 11 Percent Slopes

Pawnee soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is very high. The parent material consists of clayey drift. This soil is moderately well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The top of the seasonal high water table is at 12 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Clay Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

RD Reading Silt Loam, 0 To 2 Percent Slopes, Rarely Flooded

Reading soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe35-42) range site. It is in the nonirrigated land capability classification 1.

Re Reading Silty Clay Loam, 0 To 2 Percent Slopes, Rarely Flooded

Reading soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping stream terrace on valley. The runoff class is medium. The parent material consists of silty alluvium. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 1.

Sa Sarpy Sand, Frequently Flooded

Sarpy soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is frequently flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 6s.

Se Sarpy-Eudora Complex, Overwash, Occasionally Flooded

Sarpy soil makes up 55 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 3w.

Eudora soil makes up 45 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of coarse-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 3w.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Sg Sharpsburg Silty Clay Loam, 1 To 3 Percent Slopes

Sharpsburg soil makes up 88 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is medium. The parent material consists of silty and clayey loess. This soil is moderately well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 2e.

Sh Sharpsburg Silty Clay Loam, 3 To 6 Percent Slopes

Sharpsburg soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of silty and clayey loess. This soil is moderately well drained. The slowest permeability is moderately slow. It has a very high available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Sk Shelby Clay Loam, 1 To 3 Percent Slopes

Shelby soil makes up 95 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a gently sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-loamy drift. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 2e.

Sm Shelby Clay Loam, 3 To 8 Percent Slopes

Shelby soil makes up 88 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy drift. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Sn Shelby Clay Loam, 3 To 8 Percent Slopes, Eroded

Shelby, eroded, soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy drift. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

So Shelby Clay Loam, 8 To 12 Percent Slopes

Shelby soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy drift. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 30 percent calcium carbonate. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

Sp Morrill Fine Sandy Loam, 3 To 8 Percent Slopes

Morrill soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Sr Morrill Fine Sandy Loam, 3 To 8 Percent Slopes, Eroded

Morrill, eroded, soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Ss Morrill Fine Sandy Loam, 8 To 12 Percent Slopes

Morrill soil makes up 85 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is high. The parent material consists of fine-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Sandy (pe30-37) range site. It is in the nonirrigated land capability classification 4e.

St Sibleyville Loam, 3 To 7 Percent Slopes

Sibleyville soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from sandstone and shale. The soil is 20 to 40 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 3e.

Su Sibleyville Loam, 7 To 11 Percent Slopes

Sibleyville soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Cherokee Prairies Major Land Resource Area. This soil occurs on a strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from sandstone and shale. The soil is 20 to 40 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is moderate. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 4e.

Sv Sogn-Vinland Complex, 3 To 25 Percent Slopes

Sogn soil makes up 55 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of loamy residuum weathered from limestone. The soil is 4 to 20 inches deep to bedrock (lithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a very low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Shallow Limy (pe35-42) range site. It is in the nonirrigated land capability classification 7s.

Vinland soil makes up 25 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to steep hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from shale. The soil is 10 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6s.

Sw Vinland-Rock Outcrop Complex, 15 To 45 Percent Slopes

Vinland soil makes up 26 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately steep to steep hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from shale. The soil is 10 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Loamy Upland (pe30-37) range site. It is in the nonirrigated land capability classification 6e.

Vn Vinland Silty Clay Loam, 4 To 10 Percent Slopes

Vinland soil makes up 100 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of sandy and silty residuum weathered from shale. The soil is 10 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a low available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Limy Upland (pe35-42) range site. It is in the nonirrigated land capability classification 6e.

Wa Wabash Silty Clay, Occasionally Flooded

Wabash soil makes up 90 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is very high. The parent material consists of clayey alluvium. This soil is poorly drained. The slowest permeability is very slow. It has a moderate available water capacity and a very high shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 3w.

Nontechnical Soil Descriptions--Continued
Shawnee County, Kansas

Wb Wabash Silty Clay Loam, Occasionally Flooded

Wabash soil makes up 88 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a nearly level terrace on river valley. The runoff class is very high. The parent material consists of clayey alluvium. This soil is poorly drained. The slowest permeability is very slow. It has a moderate available water capacity and a very high shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 6 inches. This soil is in the Clay Lowland (pe30-37) range site. It is in the nonirrigated land capability classification 3w.

We Welda Silt Loam, 4 To 10 Percent Slopes

Welda soil makes up 95 percent of the map unit. This map unit is in the Nebraska and Kansas Loess-Drift Hills Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is high. The parent material consists of silty and clayey sediments. This soil is well drained. The slowest permeability is moderately slow. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. This soil is in the Savannah (pe30-37) range site. It is in the nonirrigated land capability classification 3e.

045OE—Oska silty clay loam, 3 to 6 percent slopes**Map Unit Composition**

Oska: 88 percent
 Minor components: 12 percent

Component Descriptions**Oska**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Silty and clayey residuum weathered from limestone and shale
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 6.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 5 inches; silty clay loam
 H2—5 to 38 inches; silty clay
 R—38 to 42 inches; unweathered bedrock

Minor Components**Gymer**

Composition: About 3 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Vinland

Composition: About 3 percent
Slope: 3 to 7 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Loamy Upland (pe35-42)

Sogn

Composition: About 3 percent
Slope: 7 to 15 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

045SV—Sibleyville complex, 7 to 15 percent slopes**Map Unit Composition**

Sibleyville: 50 percent
 Minor components: 50 percent

Component Descriptions**Sibleyville**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from sandstone and shale
Slope: 7 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 4.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; loam
 H2—7 to 15 inches; loam
 H3—15 to 27 inches; channery loam
 Cr—27 to 31 inches; weathered bedrock

Minor Components**Unnamed Series 1 - Shallow**

Composition: About 25 percent
Slope: 3 to 7 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe35-42)

Unnamed Series 2 - Deep

Composition: About 15 percent
Slope: 3 to 7 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe35-42)

Vinland

Composition: About 4 percent
Slope: 7 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Loamy Upland (pe35-42)

Gymer

Composition: About 3 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 3 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

045SX—Vinland-Rock outcrop complex, 20 to 40 percent slopes**Map Unit Composition**

Rock outcrop: 60 percent
 Vinland: 26 percent
 Minor components: 14 percent

Component Descriptions**Rock outcrop**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Slope: 20 to 40 percent
Depth to restrictive feature: 0 inches to bedrock (lithic)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very high
Land capability (irrigated):
Land capability (nonirrigated): 8

Vinland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland

Parent material: Sandy and silty residuum weathered from shale
Slope: 20 to 30 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 3.5 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; silty clay loam
 H2—7 to 17 inches; silty clay loam
 Cr—17 to 21 inches; weathered bedrock

Minor Components**Sogn**

Composition: About 10 percent
Slope: 15 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Martin

Composition: About 2 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Oska

Composition: About 2 percent
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe35-42)

045VM—Vinland-Martin complex, 7 to 15 percent slopes**Map Unit Composition**

Vinland: 40 percent
 Martin: 25 percent

Minor components: 35 percent

Component Descriptions

Vinland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Sandy and silty residuum weathered from shale

Slope: 7 to 15 percent

Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)

Drainage class: Somewhat excessively drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Low (About 3.5 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Loamy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; silty clay loam

H2—7 to 17 inches; silty clay loam

Cr—17 to 21 inches; weathered bedrock

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale

Slope: 7 to 11 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 9.7 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 22 to 26 inches

Runoff class: Very high

Ecological site: Loamy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 9 inches; silty clay loam

H2—9 to 14 inches; silty clay loam

H3—14 to 60 inches; silty clay

Minor Components

Unnamed Soil

Composition: About 20 percent

Slope: 3 to 7 percent

Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)

Drainage class: Somewhat excessively drained

Ecological site: Loamy Upland (pe35-42)

Sibleyville

Composition: About 8 percent

Slope: 7 to 15 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Sogn

Composition: About 7 percent

Slope: 7 to 15 percent

Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)

Drainage class: Somewhat excessively drained

Ecological site: Shallow Limy (pe30-37)

045WS—Woodson silt loam, 1 to 3 percent slopes

Map Unit Composition

Woodson: 90 percent

Minor components: 10 percent

Component Descriptions

Woodson

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Divide on upland

Parent material: Silty and clayey alluvium over silty and clayey residuum weathered from clayey

shale

Slope: 1 to 3 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: High (About 9.1 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 4 to 9 inches

Runoff class: Very high

Ecological site: Clay Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

- H1—0 to 11 inches; silt loam
- H2—11 to 45 inches; silty clay
- H3—45 to 78 inches; silty clay loam

Minor Components**Martin**

- Composition:* About 5 percent
- Slope:* 3 to 7 percent
- Drainage class:* Moderately well drained
- Ecological site:* Loamy Upland (pe35-42)

Pawnee

- Composition:* About 5 percent
- Slope:* 3 to 7 percent
- Drainage class:* Moderately well drained
- Ecological site:* Clay Upland (pe30-37)

085KB—Kennebec Soils, 0 to 3 percent slopes, occasionally flooded**Map Unit Composition**

Kennebec: 86 percent
 Minor components: 14 percent

Component Descriptions**Kennebec**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Fine-silty alluvium
Slope: 0 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.4 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 40 to 44 inches
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

- H1—0 to 48 inches; silt loam
- H2—48 to 60 inches; silt loam

Minor Components**Burchard**

- Composition:* About 3 percent
- Slope:* 12 to 17 percent

Drainage class: Well drained*Ecological site:* Loamy Upland (pe30-37)**Shelby**

- Composition:* About 3 percent
- Geomorphic Position:* hillslope on upland
- Slope:* 12 to 25 percent
- Drainage class:* Moderately well drained
- Ecological site:* Loamy Upland (pe30-37)

Chase

- Composition:* About 3 percent
- Slope:* 0 to 2 percent
- Drainage class:* Somewhat poorly drained
- Ecological site:* Loamy Lowland (pe30-37)

Kennebec

- Composition:* About 3 percent
- Slope:* 0 to 1 percent
- Drainage class:* Moderately well drained
- Ecological site:* Loamy Lowland (pe30-37)

Wabash

- Composition:* About 1 percent
- Slope:* 0 to 2 percent
- Drainage class:* Poorly drained
- Ecological site:* Clay Lowland (pe30-37)

Zook

- Composition:* About 1 percent
- Slope:* 0 to 2 percent
- Drainage class:* Poorly drained
- Ecological site:* Clay Lowland (pe30-37)

085MC—Martin-Vinland silty clay loams, 5 to 10 percent slopes**Map Unit Composition**

Martin: 48 percent
 Vinland: 40 percent
 Minor components: 12 percent

Component Descriptions**Martin**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale
Slope: 5 to 10 percent
Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 22 to 26 inches
Runoff class: Very high
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 11 inches; silty clay loam
 H2—11 to 17 inches; silty clay loam
 H3—17 to 60 inches; silty clay

Vinland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from shale
Slope: 5 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 3.7 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):

Typical Profile:

H1—0 to 11 inches; silty clay loam
 H2—11 to 17 inches; silty clay loam
 Cr—17 to 21 inches; weathered bedrock

Minor Components

Sogn

Composition: About 3 percent
Slope: 5 to 15 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Pawnee

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Clime

Composition: About 3 percent
Slope: 5 to 20 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe30-37)

Rock outcrop

Composition: About 3 percent
Slope: 20 to 40 percent
Depth to restrictive feature: 0 inches to bedrock (lithic)

085ZA—Zook silty clay loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Composition

Zook: 90 percent
 Minor components: 10 percent

Component Descriptions

Zook

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Silty and clayey alluvium
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 2 to 9 inches
Runoff class: High
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 18 inches; silty clay loam
 H2—18 to 60 inches; silty clay loam

Minor Components

Kennebec

Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Chase

Composition: About 3 percent
Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained
Ecological site: Loamy Lowland (pe30-37)

Reading

Phase: rare
Composition: About 2 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Olmitz

Composition: About 2 percent
Slope: 2 to 5 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe30-37)

087EC—Eudora-Bismarckgrove fine sandy loams, 0 to 3 percent slopes, Overwash, occasionally flooded

Map Unit Composition

Eudora: 65 percent
 Bismarckgrove: 20 percent
 Minor components: 15 percent

Component Descriptions

Eudora

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood-plain step on river valley
Parent material: Coarse-silty alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 6 inches; fine sandy loam
 A—6 to 12 inches; silt loam
 AC—12 to 18 inches; silt loam
 C1—18 to 25 inches; silt loam
 C2—25 to 44 inches; silt loam
 C3—44 to 60 inches; silt loam

Bismarckgrove

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood-plain step on river valley

Parent material: Fine-silty alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.4 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 7 inches; fine sandy loam
 A—7 to 33 inches; silty clay loam
 Bw—33 to 52 inches; silt loam
 C—52 to 80 inches; loamy very fine sand

Minor Components

Kimo

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Lowland (pe30-37)

Stonehouse

Composition: About 5 percent
Slope: 0 to 3 percent
Drainage class: Excessively drained

Bourbonais

Composition: About 5 percent
Slope: 0 to 3 percent
Drainage class: Somewhat excessively drained
Ecological site: Clay Lowland (pe30-37)

General Considerations: Most areas of these soils are cultivated. These soils are suited to all major crops commonly grown in the valley. These soils have good potential for hay or tame grasses. Flooding limits the suitability of these soils for many engineering uses. The land capability classification is 1lw.

087HC—Haig silty clay loam, 0 to 2 percent slopes**Map Unit Composition**

Haig: 85 percent
 Minor components: 15 percent

Component Descriptions**Haig**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Silty and clayey loess
Slope: 0 to 2 percent
Drainage class: Poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 2 to 9 inches
Runoff class: High
Ecological site: Clay Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 9 inches; silty clay loam
 H2—9 to 31 inches; silty clay
 H3—31 to 77 inches; silty clay loam

Minor Components**Martin**

Composition: About 5 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe30-37)

Pawnee

Composition: About 5 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Grundy

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Upland (pe30-37)

087KV—Konawa complex, 4 to 10 percent slopes**Map Unit Composition**

Konawa: 91 percent
 Minor components: 9 percent

Component Descriptions**Konawa**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy eolian deposits
Slope: 4 to 10 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.57 in/hr)
Available water capacity: Moderate (About 7.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Savannah (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 13 inches; fine sandy loam
 H2—13 to 44 inches; sandy clay loam
 H3—44 to 60 inches; fine sandy loam

Minor Components**Sogn**

Composition: About 3 percent
Slope: 5 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Morrill

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Gymer

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

engineering uses. The land capability classification is I.

087RS—Rossville silt loam, 0 to 2 percent slopes, very rarely flooded

Map Unit Composition

Rossville: 85 percent
Minor components: 15 percent

Component Descriptions

Rossville

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Terrace on river valley
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.9 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Very Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 1

Typical Profile:

Ap—0 to 7 inches; silt loam
A1—7 to 14 inches; silt loam
A2—14 to 21 inches; silt loam
Bw1—21 to 26 inches; silt loam
Bw2—26 to 39 inches; silt loam
Bw3—39 to 57 inches; silt loam
BC—57 to 80 inches; silt loam

Minor Components

Reading

Composition: About 10 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Muscotah

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations: Most areas of this soil are cultivated. This soil is well suited to all major crops commonly grown in the valley. This soil has good potential for hay or tame grasses. Flooding limits the suitability of this soil for many

087SO—Shelby-Pawnee complex, 8 to 12 percent slopes

Map Unit Composition

Shelby: 65 percent
Pawnee: 25 percent
Minor components: 15 percent

Component Descriptions

Shelby

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy till
Slope: 8 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.5 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 12 inches; loam
H2—12 to 48 inches; clay loam
H3—48 to 60 inches; clay loam

Pawnee

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Clayey till
Slope: 8 to 12 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 7.0 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 9 to 14 inches

Runoff class: Very high
Ecological site: Clay Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:
 H1—0 to 14 inches; clay loam
 H2—14 to 60 inches; clay

Minor Components

Vinland

Composition: About 3 percent
Slope: 7 to 15 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe30-37)

Sogn

Composition: About 3 percent
Slope: 5 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Oska

Composition: About 3 percent
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe35-42)

Morrill

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 3 percent
Slope: 3 to 8 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe30-37)

087WC—Wabash silty clay loam, 0 to 1 percent slopes, very rarely flooded

Map Unit Composition

Wabash: 94 percent
 Minor components: 6 percent

Component Descriptions

Wabash

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Terrace on river valley

Parent material: Clayey alluvium

Slope: 0 to 1 percent

Drainage class: Poorly drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.4 inches)

Shrink-swell potential: Very high (About 17.0 LEP)

Flooding hazard: Very Rare

Depth to seasonal water saturation: About 2 to 9 inches

Runoff class: Very high

Ecological site: Clay Lowland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 19 inches; silty clay loam
 H2—19 to 60 inches; silty clay

Minor Components

Kennebec

Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Reading

Composition: About 3 percent
Slope: 0 to 1 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

139ED—Elmont loam, 3 to 7 percent slopes

Map Unit Composition

Elmont: 85 percent
 Minor components: 15 percent

Component Descriptions

Elmont

MLRA: 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from shale and siltstone

Slope: 3 to 7 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

A—0 to 8 inches; loam
 AB—8 to 16 inches; loam
 Bt—16 to 42 inches; clay loam
 BC—42 to 52 inches; clay loam
 Cr—52 to 60 inches; unweathered bedrock

Minor Components

Eram

Composition: About 10 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe35-42)

Kenoma

Composition: About 5 percent
Slope: 1 to 4 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (lithic)
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe35-42)

149KM—Kimo silty clay, rarely flooded

Map Unit Composition

Kimo: 90 percent
 Minor components: 10 percent

Component Descriptions

Kimo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood-plain step on river valley
Parent material: Clayey alluvium over loamy alluvium
Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.4 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: About 22 to 26 inches
Runoff class: High
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 22 inches; silty clay
 H2—22 to 60 inches; silt loam

Minor Components

Eudora

Composition: About 4 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Sarpy

Composition: About 3 percent
Slope: 0 to 3 percent
Drainage class: Excessively drained
Ecological site: Sandy Lowland (pe30-37)

Haynie

Composition: About 3 percent
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Unnamed Hydric Soil

Composition: About

197IB—Irwin silty clay loam, 1 to 3 percent slopes

Map Unit Composition

Irwin: 80 percent
 Minor components: 20 percent

Component Descriptions

Irwin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Shoulder

Parent material: Silty and clayey residuum weathered from clayey shale
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.00 in/hr)
Available water capacity: Moderate (About 8.6 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very high
Ecological site: Clay Upland (pe30-36)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 12 inches; silty clay loam
 H2—12 to 42 inches; silty clay, clay
 H3—42 to 60 inches; clay

Minor Components**Ladysmith**

Composition: About 10 percent
Geomorphic Position: divide on upland
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Upland (pe30-36)

Dwight

Composition: About 10 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Clay Pan (pe35-42)

197IV—Ivan silt loam, occasionally flooded**Map Unit Composition**

Ivan: 90 percent
 Minor components: 10 percent

Component Descriptions**Ivan**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on valley
Parent material: Calcareous fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-36)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 36 inches; silt loam
 H2—36 to 60 inches; silt loam

Minor Components**Chase**

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Ecological site: Loamy Lowland (pe35-42)

Reading

Composition: About 4 percent
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-36)

Unnamed Hydric Soil (saturation)

Composition: About 1 percent
Slope: 0 to 2 percent
Drainage class: Poorly drained

197IX—Ivan silty clay loam, channeled**Map Unit Composition**

Ivan: 80 percent
 Minor components: 20 percent

Component Descriptions**Ivan**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on valley
Parent material: Calcareous fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Lowland (pe30-36)

Land capability (irrigated):

Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 40 inches; silty clay loam

H2—40 to 60 inches; silt loam

Minor Components

Martin

Composition: About 10 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe30-36)

Reading

Composition: About 10 percent

Slope: 0 to 1 percent

Drainage class: Moderately well drained

Ecological site: Loamy Lowland (pe30-36)

Unnamed Hydric Soil

Composition: About

Slope: 0 to 2 percent

Drainage class: Poorly drained

197MR—Morrill loam, 4 to 7 percent slopes

Map Unit Composition

Morrill: 75 percent

Minor components: 25 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Fine-loamy glaciofluvial deposits

Slope: 4 to 7 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 8 inches; loam

H2—8 to 37 inches; clay loam

H3—37 to 60 inches; clay loam

Minor Components

Pawnee

Composition: About 10 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Clay Upland (pe30-37)

Sogn

Composition: About 5 percent

Geomorphic Position: hillslope on upland

Slope: 5 to 20 percent

Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)

Drainage class: Somewhat excessively drained

Ecological site: Shallow Limy (pe30-36)

Wymore

Composition: About 5 percent

Geomorphic Position: hillslope on upland

Slope: 2 to 6 percent

Drainage class: Moderately well drained

Ecological site: Clay Upland (pe30-37)

Martin

Composition: About 5 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe30-36)

197MS—Morrill loam, 5 to 12 percent slopes, very stony

Map Unit Composition

Morrill: 75 percent

Minor components: 25 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Fine-loamy glaciofluvial deposits

Slope: 5 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 9.7 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 10 inches; very stony loam
 H2—10 to 15 inches; loam
 H3—15 to 42 inches; clay loam
 H4—42 to 60 inches; gravelly sandy clay loam

Minor Components**Clime**

Composition: About 15 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe30-36)

Pawnee

Composition: About 10 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

197SA—Sarpy loamy sand, frequently flooded**Map Unit Composition**

Sarpy: 85 percent
 Minor components: 15 percent

Component Descriptions**Sarpy**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Sandy alluvium
Slope: 0 to 4 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (About 5.95 in/hr)
Available water capacity: Low (About 4.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Frequent
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy Lowland (pe30-36)
Land capability (irrigated):
Land capability (nonirrigated): 4s

Typical Profile:

H1—0 to 5 inches; loamy sand
 H2—5 to 60 inches; sand

Minor Components**Haynie**

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Paxico

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

Eudora

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-36)

197WF—Wamego silty clay loam, 7 to 15 percent slopes**Map Unit Composition**

Wamego: 75 percent
 Minor components: 25 percent

Component Descriptions**Wamego**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Sandy and silty residuum weathered from shale
Slope: 7 to 15 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Low (About 4.8 inches)
Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very high
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 11 inches; silty clay loam
 H2—11 to 25 inches; silty clay loam
 Cr—25 to 29 inches; weathered bedrock

Minor Components**Sogn**

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 5 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-36)

Elmont

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe30-36)

Clime

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe30-36)

Rock outcrop

Composition: About 5 percent
Geomorphic Position: hillslope on upland

197WY—Wymore silty clay loam, 2 to 6 percent slopes**Map Unit Composition**

Wymore: 100 percent
 Minor components:

Component Descriptions**Wymore**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Backslope, shoulder
Parent material: Silty and clayey loess
Slope: 2 to 6 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.5 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 9 to 14 inches
Runoff class: High
Ecological site: Clay Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 8 inches; silty clay loam
 H2—8 to 40 inches; silty clay
 H3—40 to 60 inches; silty clay loam

2797—Morrill gravelly loam, 4 to 20 percent slopes, stony**Map Unit Composition**

Morrill: 85 percent
 Minor components: 15 percent

Component Descriptions**Morrill**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 4 to 20 percent

Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 9.7 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 10 inches; gravelly loam
 H2—10 to 15 inches; gravelly clay loam
 H3—15 to 42 inches; gravelly clay loam
 H4—42 to 60 inches; gravelly sandy clay loam

Minor Components

Sogn

Composition: About 10 percent
Slope: 3 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe35-42)

Pawnee

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

AED—Arents, Earthen Dam

An—Kennebec silt loam, channeled

Map Unit Composition

Kennebec: 90 percent
 Minor components: 10 percent

Component Descriptions

Kennebec

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on valley
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 13.4 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: About 40 to 44 inches

Runoff class: Low

Ecological site: Loamy Lowland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 48 inches; silt loam
 H2—48 to 80 inches; silty clay loam

Minor Components

Wabash

Composition: About 10 percent

Slope: 0 to 1 percent

Drainage class: Poorly drained

Ecological site: Clay Lowland (pe30-37)

Bk—Martin-Kennebec complex, 0 to 12 percent slopes

Map Unit Composition

Martin: 54 percent
 Kennebec: 43 percent
 Minor components: 3 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Silty and clayey colluvium derived from limestone and shale over silty and

clayey residuum weathered from limestone and shale

Slope: 3 to 12 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 9.9 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 21 to 26 inches

Runoff class: Very high

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 6e

Typical Profile:

- H1—0 to 12 inches; silty clay loam
- H2—12 to 17 inches; silty clay loam
- H3—17 to 72 inches; silty clay

Kennebec

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Flood plain on valley

Parent material: Silty alluvium

Slope: 0 to 2 percent

Drainage class: Moderately well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 13.4 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: About 40 to 44 inches

Runoff class: Low

Ecological site: Loamy Lowland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 5w

Typical Profile:

- H1—0 to 48 inches; silt loam
- H2—48 to 80 inches; silt loam

Minor Components

Wabash

Composition: About 3 percent

Slope: 0 to 1 percent

Drainage class: Poorly drained

Ecological site: Clay Lowland (pe30-37)

BOA—Borrow Areas

Br—Fluents, channeled, frequently flooded

Map Unit Composition

Fluents: 97 percent

Minor components: 3 percent

Component Descriptions

Fluents

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Flood plain on valley

Parent material: Fine-silty alluvium

Slope: 0 to 2 percent

Drainage class: Moderately well drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Moderate (About 8.9 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: About 33 to 38 inches

Runoff class: Low

Land capability (irrigated):

Land capability (nonirrigated): 6w

Typical Profile:

- H1—0 to 60 inches; silty clay loam

Minor Components

Wabash

Composition: About 3 percent

Slope: 0 to 1 percent

Drainage class: Poorly drained

Ecological site: Clay Lowland (pe30-37)

Dm—Dwight-Martin silty clay loams, 1 to 3 percent slopes

Map Unit Composition

Dwight: 60 percent

Martin: 30 percent

Minor components: 10 percent

Component Descriptions

Dwight

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from cherty limestone

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.0 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very high

Ecological site: Clay Pan (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 5 inches; silty clay loam
H2—5 to 22 inches; clay
H3—22 to 50 inches; silty clay
2C—50 to 80 inches; silty clay

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 9.9 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 21 to 26 inches

Runoff class: High

Ecological site: Loamy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 12 inches; silty clay loam
H2—12 to 17 inches; silty clay loam
H3—17 to 60 inches; silty clay

Minor Components

Labette

Composition: About 5 percent

Slope: 1 to 3 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained

Ecological site: Limy Upland (pe35-42)

Ladysmith

Composition: About 5 percent

Slope: 1 to 3 percent

Drainage class: Somewhat poorly drained

Ecological site: Clay Upland (pe35-42)

Ds—Dwight silty clay loam, 0 to 1 percent slopes

Map Unit Composition

Dwight: 97 percent

Minor components: 3 percent

Component Descriptions

Dwight

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from cherty limestone

Slope: 0 to 1 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.0 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very high

Ecological site: Clay Pan (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 4s

Typical Profile:

H1—0 to 5 inches; silty clay loam
H2—5 to 22 inches; clay
H3—22 to 50 inches; silty clay
2C—50 to 80 inches;

Minor Components

Ladysmith

Composition: About 3 percent

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Ecological site: Clay Upland (pe35-42)

Dw—Dwight silty clay loam, 1 to 3 percent slopes

Map Unit Composition

Dwight: 85 percent

Minor components: 15 percent

Component Descriptions

Dwight

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from cherty limestone

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.0 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very high

Ecological site: Clay Pan (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 5 inches; silty clay loam

H2—5 to 22 inches; clay

H3—22 to 50 inches; silty clay

2C—50 to 80 inches;

Minor Components

Martin

Composition: About 5 percent

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Labette

Composition: About 5 percent

Slope: 1 to 3 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained

Ecological site: Limy Upland (pe35-42)

Ladysmith

Composition: About 5 percent

Slope: 1 to 3 percent

Drainage class: Somewhat poorly drained

Ecological site: Clay Upland (pe35-42)

El—Elmont silt loam, 3 to 7 percent slopes

Map Unit Composition

Elmont: 90 percent

Minor components: 10 percent

Component Descriptions

Elmont

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from shale and siltstone

Slope: 3 to 7 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 22 inches; silty clay loam

H3—22 to 50 inches; silty clay loam

Cr—50 to 54 inches; unweathered bedrock

Minor Components

Sibleyville

Composition: About 5 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Martin

Composition: About 5 percent

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Em—Elmont silt loam, 3 to 7 percent slopes, eroded**Map Unit Composition**

Elmont: 90 percent
 Minor components: 10 percent

Component Descriptions**Elmont**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from shale and siltstone

Slope: 3 to 7 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 22 inches; silty clay loam

H3—22 to 50 inches; silty clay loam

Cr—50 to 54 inches; unweathered bedrock

Minor Components**Sibleyville**

Composition: About 5 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Martin

Composition: About 5 percent

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

En—Elmont silt loam, 7 to 12 percent slopes**Map Unit Composition**

Elmont: 90 percent
 Minor components: 10 percent

Component Descriptions**Elmont**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from shale and siltstone

Slope: 7 to 12 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Limy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 22 inches; silty clay loam

H3—22 to 50 inches; silty clay loam

Cr—50 to 60 inches; unweathered bedrock

Minor Components**Sibleyville**

Composition: About 5 percent

Slope: 7 to 11 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Martin

Composition: About 5 percent

Slope: 7 to 11 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Eo—Elmont silt loam, 7 to 12 percent slopes, eroded**Map Unit Composition**

Elmont: 90 percent
 Minor components: 10 percent

Component Descriptions**Elmont**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from shale and siltstone

Slope: 7 to 12 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Limy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; silt loam

H2—7 to 22 inches; silty clay loam

H3—22 to 50 inches; silty clay loam

Cr—50 to 54 inches; unweathered bedrock

Minor Components**Sibleyville**

Composition: About 5 percent

Slope: 7 to 11 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Martin

Composition: About 5 percent

Slope: 7 to 11 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Ep—Elmont-Dwight silty clay loams, 3 to 7 percent slopes, eroded**Map Unit Composition**

Elmont: 75 percent
 Dwight: 25 percent
 Minor components:

Component Descriptions**Elmont**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Silty and clayey residuum weathered from shale and siltstone

Slope: 3 to 7 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 9.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Limy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; silty clay loam

H2—7 to 22 inches; silty clay loam

H3—22 to 50 inches; silty clay loam

Cr—50 to 54 inches; unweathered bedrock

Dwight

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Silty and clayey loess

Slope: 3 to 3 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.00 in/hr)

Available water capacity: Moderate (About 8.0 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet
Runoff class: Very high
Ecological site: Clay Pan (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 5 inches; silty clay loam
 H2—5 to 22 inches; clay
 H3—22 to 50 inches; silty clay
 2C—50 to 80 inches; silty clay

Es—Eudora fine sandy loam, 1 to 3 percent slopes

Map Unit Composition

Eudora: 95 percent
 Minor components: 5 percent

Component Descriptions

Eudora

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Fan terrace on river valley
Parent material: Coarse-loamy colluvium
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 12 inches; fine sandy loam
 H2—12 to 60 inches; fine sandy loam

Minor Components

Kennebec

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Et—Eudora silt loam, rarely flooded

Map Unit Composition

Eudora: 90 percent
 Minor components: 10 percent

Component Descriptions

Eudora

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Coarse-silty alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 1

Typical Profile:

H1—0 to 12 inches; silt loam
 H2—12 to 72 inches; silt loam

Minor Components

Kimo

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Lowland (pe30-37)

Sarpy

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Ecological site: Sandy Lowland (pe30-37)

Unnamed Hydric Soil

Composition: About
Drainage class: Poorly drained

Eu—Eudora Soils, 6 to 12 percent slopes, eroded**Map Unit Composition**

Eudora: 85 percent
 Minor components: 15 percent

Component Descriptions**Eudora**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Coarse-silty alluvium
Slope: 6 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 12 inches; silt loam
 H2—12 to 72 inches; silt loam

Minor Components**Kimo**

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Lowland (pe30-37)

Muir

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Reading

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Ev—Eudora-Kimo complex, rarely flooded**Map Unit Composition**

Eudora: 60 percent
 Kimo: 30 percent
 Minor components: 10 percent

Component Descriptions**Eudora**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Coarse-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 12 inches; silt loam
 H2—12 to 72 inches; silt loam

Kimo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Clayey over loamy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: About 22 to 26 inches
Runoff class: Medium
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 6 inches; silty clay loam
 H2—6 to 28 inches; silty clay
 H3—28 to 60 inches; silt loam

Minor Components**Sarpy**

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Ecological site: Sandy Lowland (pe30-37)

Wabash

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

**Ew—Eudora-Kimo complex,
Overwash, rarely flooded****Map Unit Composition**

Eudora: 60 percent
 Kimo: 30 percent
 Minor components: 10 percent

Component Descriptions**Eudora**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Coarse-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 12 inches; fine sandy loam
 H2—12 to 60 inches; silt loam

Kimo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Clayey over loamy alluvium
Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.3 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: Rare

Depth to seasonal water saturation: About 22 to 26 inches

Runoff class: High

Ecological site: Clay Lowland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 8 inches; fine sandy loam
 H2—8 to 24 inches; silty clay loam
 H3—24 to 60 inches; silt loam

Minor Components**Sarpy**

Phase: OVERWASH
Composition: About 10 percent
Slope: 0 to 1 percent
Drainage class: Excessively drained
Ecological site: Sandy Lowland (pe30-37)

**Gm—Gymer silt loam, 3 to 8
percent slopes****Map Unit Composition**

Gymer: 88 percent
 Minor components: 12 percent

Component Descriptions**Gymer**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Terrace on river valley
Hillslope position: Backslope
Parent material: Fine-silty alluvium
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 11.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 15 inches; silt loam

H2—15 to 34 inches; silty clay loam

H3—34 to 68 inches; silty clay loam

Minor Components

Morrill

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Thurman

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 4 to 10 percent

Drainage class: Somewhat excessively drained

Ecological site: Savannah (pe30-37)

Sharpsburg

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 4 to 10 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe30-37)

Gy—Gymer silt loam, 3 to 8 percent slopes, eroded

Map Unit Composition

Gymer: 100 percent

Minor components:

Component Descriptions

Gymer

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Fine-silty loess

Slope: 3 to 8 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 4 inches; silt loam

H2—4 to 42 inches; silty clay loam

H3—42 to 60 inches; silty clay loam

INL—Aquolls

Map Unit Composition

Aquolls: 100 percent

Minor components:

Component Descriptions

Aquolls

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: River valley,

Slope: 0 to 1 percent

Drainage class: Very poorly drained

Flooding hazard: Occasional

Ponding hazard: Frequent

Depth to seasonal water saturation: About 0 to 2 inches

Runoff class: Negligible

Land capability (irrigated):

Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 60 inches; variable

Kb—Kennebec silt loam, occasionally flooded

Map Unit Composition

Kennebec: 95 percent
Minor components: 5 percent

Component Descriptions

Kennebec

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on valley
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.4 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 40 to 44 inches
Runoff class: Low
Ecological site: Loamy Lowland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 48 inches; silt loam
H2—48 to 60 inches; silt loam

Minor Components

Wabash

Composition: About 4 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Unnamed Hydric Soil

Composition: About 1 percent
Slope: 0 to 2 percent
Drainage class: Poorly drained

Kc—Chase silt loam, occasionally flooded

Map Unit Composition

Chase: 85 percent
Minor components: 15 percent

Component Descriptions

Chase

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Terrace on river valley
Parent material: Silty and clayey alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.3 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 22 to 26 inches

Runoff class: High

Ecological site: Loamy Lowland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 2w

Typical Profile:

H1—0 to 30 inches; silt loam
H2—30 to 48 inches; silty clay loam
H3—48 to 60 inches; silty clay loam

Minor Components

Wabash

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Kennebec

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Reading

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

KF—Kennebec silt loam, 0 to 2 percent slopes, channeled, frequently flooded

Map Unit Composition

Kennebec: 98 percent
Minor components: 2 percent

Component Descriptions

Kennebec

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Silty alluvium
Slope: 0 to 2 percent
Drainage class: Moderately well drained

Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: About 40 to 44 inches
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 5w

Typical Profile:
 H1—0 to 47 inches; silt loam
 H2—47 to 60 inches; silt loam

Minor Components

Colo

Composition: About 2 percent

Km—Kimo silty clay loam, rarely flooded

Map Unit Composition

Kimo: 90 percent
 Minor components: 10 percent

Component Descriptions

Kimo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Clayey over loamy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: About 22 to 26 inches
Runoff class: Medium
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2w

Typical Profile:
 H1—0 to 6 inches; silty clay loam
 H2—6 to 28 inches; silty clay
 H3—28 to 60 inches; silt loam

Minor Components

Wabash

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Eudora

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Ko—Kimo Soils, Depressional, occasionally flooded

Map Unit Composition

Kimo: 95 percent
 Minor components: 5 percent

Component Descriptions

Kimo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Clayey over loamy alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 11.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Occasional
Ponding hazard: Frequent
Depth to seasonal water saturation: About 0 to 2 inches
Runoff class: Negligible
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 5w

Typical Profile:

H1—0 to 15 inches; silty clay loam
 H2—15 to 24 inches; silty clay loam
 H3—24 to 60 inches; very fine sandy loam

Minor Components

Wabash

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Ks—Kipson-Sogn complex, 3 to 25 percent slopes

Map Unit Composition

Kipson: 50 percent
Sogn: 35 percent
Minor components: 15 percent

Component Descriptions

Kipson

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Calcareous loamy residuum weathered from shale
Slope: 3 to 25 percent
Depth to restrictive feature: 7 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 3.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 8 inches; silty clay loam
H2—8 to 17 inches; silty clay loam
Cr—17 to 21 inches; weathered bedrock

Sogn

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Loamy residuum weathered from limestone
Slope: 0 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very low (About 2.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Shallow Limy (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 10 inches; silty clay loam
R—10 to 14 inches; unweathered bedrock

Minor Components

Martin

Composition: About 5 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Elmont

Composition: About 5 percent
Slope: 7 to 12 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Labette

Composition: About 5 percent
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Ku—Konawa fine sandy loam, 4 to 8 percent slopes

Map Unit Composition

Konawa: 85 percent
Minor components: 15 percent

Component Descriptions

Konawa

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 4 to 8 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Savannah (pe30-37)
Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 20 inches; fine sandy loam
H2—20 to 50 inches; sandy clay loam
H3—50 to 60 inches; sandy clay loam

Minor Components

Morrill

Composition: About 5 percent
Slope: 4 to 8 percent
Drainage class: Well drained

Gymer

Composition: About 5 percent
Slope: 4 to 8 percent
Drainage class: Well drained

Morrill

Phase: SHELLABARGER
Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Sandy (pe30-37)

Kw—Konawa fine sandy loam, 8 to 12 percent slopes

Map Unit Composition

Konawa: 85 percent
Minor components: 15 percent

Component Descriptions

Konawa

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 8 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 8.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Savannah (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 20 inches; fine sandy loam
H2—20 to 50 inches; clay loam

H3—50 to 60 inches; sandy clay loam

Minor Components

Morrill

Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Shelby

Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Morrill

Phase: SHELLABARGER
Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Sandy (pe30-37)

La—Labette silty clay loam, 1 to 3 percent slopes

Map Unit Composition

Labette: 88 percent
Minor components: 12 percent

Component Descriptions

Labette

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey residuum weathered from limestone and shale
Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 6.6 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Limy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 13 inches; silty clay loam
 H2—13 to 38 inches; silty clay
 R—38 to 42 inches; unweathered bedrock

Minor Components

Dwight

Composition: About 3 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Clay Pan (pe35-42)

Sogn

Composition: About 3 percent
Slope: 3 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Ladysmith

Composition: About 3 percent
Slope: 1 to 3 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Upland (pe35-42)

Martin

Composition: About 3 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Lb—Labette silty clay loam, 3 to 6 percent slopes

Map Unit Composition

Labette: 85 percent
 Minor components: 15 percent

Component Descriptions

Labette

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey residuum weathered from limestone and shale
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 6.6 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Limy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 13 inches; silty clay loam
 H2—13 to 38 inches; silty clay
 R—38 to 42 inches; unweathered bedrock

Minor Components

Vinland

Composition: About 5 percent
Slope: 4 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Limy Upland (pe35-42)

Sogn

Composition: About 5 percent
Slope: 3 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Martin

Composition: About 5 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Lc—Labette silty clay loam, 3 to 6 percent slopes, eroded

Map Unit Composition

Labette: 95 percent
 Minor components: 5 percent

Component Descriptions

Labette

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey residuum weathered from limestone and shale
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Low (About 5.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Limy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 4 inches; silty clay loam
 H2—4 to 36 inches; silty clay
 R—36 to 40 inches; unweathered bedrock

Minor Components

Martin

Composition: About 5 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Ld—Ladysmith silty clay loam, 0 to 1 percent slopes

Map Unit Composition

Ladysmith: 90 percent
 Minor components: 10 percent

Component Descriptions

Ladysmith

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Paleoterrace on upland
Parent material: Clayey alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.00 in/hr)
Available water capacity: Moderate (About 8.8 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 21 to 26 inches
Runoff class: Very high
Ecological site: Clay Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 2s

Typical Profile:

H1—0 to 10 inches; silty clay loam

H2—10 to 48 inches; silty clay
 H3—48 to 60 inches; silty clay

Minor Components

Martin

Composition: About 5 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Labette

Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

LIQ—Limestone Quarries And Gravel Pits

Map Unit Composition

Limestone Quarry: 100 percent
 Minor components:

Component Descriptions

Limestone Quarry

MLRA: -
Depth to seasonal water saturation: More than 6 feet
Land capability (irrigated):

Lm—Ladysmith silty clay loam, 1 to 3 percent slopes

Map Unit Composition

Ladysmith: 85 percent
 Minor components: 15 percent

Component Descriptions

Ladysmith

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Paleoterrace on upland
Parent material: Clayey alluvium
Slope: 1 to 3 percent
Drainage class: Somewhat poorly drained

Slowest permeability: Impermeable (About 0.00 in/hr)
Available water capacity: Moderate (About 8.8 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 22 to 26 inches
Runoff class: Very high
Ecological site: Clay Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 10 inches; silty clay loam
 H2—10 to 48 inches; silty clay
 H3—48 to 60 inches; silty clay

Minor Components

Martin

Composition: About 5 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Labette

Composition: About 5 percent
Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Pawnee

Composition: About 5 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Ls—Ladysmith silty clay loam, 1 to 3 percent slopes, eroded

Map Unit Composition

Ladysmith: 100 percent
 Minor components:

Component Descriptions

Ladysmith

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Paleoterrace on upland
Parent material: Clayey alluvium
Slope: 1 to 3 percent

Drainage class: Somewhat poorly drained
Slowest permeability: Impermeable (About 0.00 in/hr)
Available water capacity: Moderate (About 8.4 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 21 to 26 inches
Runoff class: Very high
Ecological site: Clay Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 6 inches; silty clay loam
 H2—6 to 48 inches; silty clay
 H3—48 to 60 inches; silty clay

Ma—Made Land

Map Unit Composition

Made Land: 100 percent
 Minor components:

Component Descriptions

Made Land

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Depth to seasonal water saturation: More than 6 feet
Land capability (irrigated):

Mb—Martin silty clay loam, 1 to 3 percent slopes

Map Unit Composition

Martin: 90 percent
 Minor components: 10 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland

Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 9.9 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 21 to 26 inches

Runoff class: High

Ecological site: Loamy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 12 inches; silty clay loam

H2—12 to 17 inches; silty clay loam

H3—17 to 60 inches; silty clay

Minor Components

Labette

Composition: About 5 percent

Slope: 1 to 3 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained

Ecological site: Limy Upland (pe35-42)

Ladysmith

Composition: About 5 percent

Slope: 1 to 3 percent

Drainage class: Somewhat poorly drained

Ecological site: Clay Upland (pe35-42)

Mc—Martin silty clay loam, 3 to 7 percent slopes

Map Unit Composition

Martin: 85 percent

Minor components: 15 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Silty and clayey colluvium derived from limestone and shale over silty and

clayey residuum weathered from limestone and shale

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 9.7 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 21 to 26 inches

Runoff class: High

Ecological site: Loamy Upland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 9 inches; silty clay loam

H2—9 to 14 inches; silty clay loam

H3—14 to 60 inches; silty clay

Minor Components

Sogn

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 7 to 15 percent

Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)

Drainage class: Somewhat excessively drained

Ecological site: Shallow Limy (pe30-37)

Pawnee

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Ecological site: Clay Upland (pe30-37)

Oska

Composition: About 3 percent

Slope: 3 to 6 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Gymer

Composition: About 3 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 8 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

Vinland

Composition: About 2 percent

Geomorphic Position: hillslope on upland

Slope: 3 to 7 percent

Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)

Drainage class: Somewhat excessively drained
Ecological site: Loamy Upland (pe35-42)

Sibleyville

Phase: eroded
Composition: About 1 percent
Slope: 3 to 7 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe35-42)

Me—Martin silty clay loam, 3 to 7 percent slopes, eroded

Map Unit Composition

Martin: 90 percent
 Minor components: 10 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.4 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 21 to 26 inches
Runoff class: High
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 7 inches; silty clay loam
 H2—7 to 60 inches; silty clay

Minor Components

Elmont

Phase: eroded
Composition: About 10 percent
Slope: 3 to 7 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Mf—Martin silty clay loam, 7 to 11 percent slopes

Map Unit Composition

Martin: 90 percent
 Minor components: 10 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 21 to 26 inches
Runoff class: Very high
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 12 inches; silty clay loam
 H2—12 to 17 inches; silty clay loam
 H3—17 to 60 inches; silty clay

Minor Components

Elmont

Composition: About 5 percent
Slope: 7 to 11 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Martin

Composition: About 5 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Limy Upland (pe35-42)

Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Mh—Martin silty clay loam, 7 to 11 percent slopes, eroded

Map Unit Composition

Martin: 85 percent
 Minor components: 15 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: High (About 9.4 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 21 to 26 inches
Runoff class: Very high
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 7 inches; silty clay loam
 H2—7 to 60 inches; silty clay

Minor Components

Vinland

Composition: About 5 percent
Slope: 4 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Limy Upland (pe35-42)

Elmont

Composition: About 5 percent
Slope: 7 to 11 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Martin

Composition: About 5 percent
Slope: 7 to 11 percent

Mk—Martin Soils, 3 to 7 percent slopes, severely eroded

Map Unit Composition

Martin: 90 percent
 Minor components: 10 percent

Component Descriptions

Martin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Silty and clayey colluvium derived from limestone and shale over silty and clayey residuum weathered from limestone and shale
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 21 to 26 inches
Runoff class: High
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 4 inches; silty clay
 H2—4 to 60 inches; silty clay

Minor Components

Vinland

Composition: About 5 percent
Slope: 4 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Limy Upland (pe35-42)

Martin

Composition: About 5 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Limy Upland (pe35-42)

Mm—Morrill clay loam, 3 to 8 percent slopes

Map Unit Composition

Morrill: 91 percent
Minor components: 9 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 17 inches; clay loam
H2—17 to 32 inches; clay loam
H3—32 to 60 inches; sandy clay loam

Minor Components

Gymer

Composition: About 3 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Pawnee

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Shelby

Composition: About 3 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Mn—Morrill clay loam, 3 to 8 percent slopes, eroded

Map Unit Composition

Morrill: 91 percent
Minor components: 9 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 6 inches; clay loam
H2—6 to 32 inches; clay loam
H3—32 to 60 inches; sandy clay loam

Minor Components

Martin

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Pawnee

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Shelby

Composition: About 3 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Mo—Morrill clay loam, 8 to 12 percent slopes**Map Unit Composition**

Morrill: 91 percent
 Minor components: 9 percent

Component Descriptions**Morrill**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 8 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 17 inches; clay loam
 H2—17 to 32 inches; clay loam
 H3—32 to 60 inches; sandy clay loam

Minor Components**Martin**

Composition: About 3 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Pawnee

Composition: About 3 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Shelby

Composition: About 3 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

MOO—Morrill loam, 3 to 7 percent slopes**Map Unit Composition**

Morrill: 90 percent
 Minor components: 10 percent

Component Descriptions**Morrill**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 3 to 7 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 13 inches; loam
 H2—13 to 34 inches; clay loam
 H3—34 to 60 inches; clay loam

Minor Components**Ortello**

Composition: About 5 percent
Slope: 3 to 7 percent
Drainage class: Well drained
Ecological site: Sandy (pe30-36)

Pawnee

Composition: About 5 percent
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Mp—Morrill-gravelly Land complex, 4 to 12 percent slopes

Map Unit Composition

Morrill: 55 percent
Gravelly Land: 30 percent
Minor components: 15 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 4 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.2 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 17 inches; clay loam
H2—17 to 32 inches; clay loam
H3—32 to 60 inches; sandy clay loam

Gravelly Land

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Gravelly alluvium
Slope: 4 to 12 percent
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Very low (About 1.9 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Minor Components

Limestone Outcrops

Composition: About 5 percent

Pawnee

Composition: About 5 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Shelby

Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Mr—Muir silt loam, rarely flooded

Map Unit Composition

Muir: 85 percent
Minor components: 15 percent

Component Descriptions

Muir

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Terrace on river valley
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.4 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated): 1
Land capability (nonirrigated): 1

Typical Profile:

H1—0 to 20 inches; silt loam
H2—20 to 62 inches; silty clay loam
H3—62 to 80 inches; silt loam

Minor Components

Eudora

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Wabash

Composition: About 5 percent

Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Ecological site: Clay Upland (pe30-37)

Reading

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Pa—Pawnee clay loam, 0 to 3 percent slopes

Map Unit Composition

Pawnee: 100 percent
 Minor components:

Component Descriptions

Pawnee

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Clayey drift

Slope: 0 to 3 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: Moderate (About 7.4 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 9 to 14 inches

Runoff class: High

Ecological site: Clay Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 19 inches; clay loam

H2—19 to 79 inches; clay

MRR—Morrill clay loam, 3 to 7 percent slopes

Map Unit Composition

Morrill: 90 percent
 Minor components: 10 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Fine-loamy glaciofluvial deposits

Slope: 3 to 7 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.1 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 10 inches; clay loam

H2—10 to 56 inches; clay loam

H3—56 to 66 inches; clay loam

Minor Components

Oska

Composition: About 5 percent

Slope: 3 to 6 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Drainage class: Well drained

Ecological site: Loamy Upland (pe35-42)

Pawnee

Composition: About 5 percent

Slope: 1 to 3 percent

Drainage class: Moderately well drained

Map Unit Composition

Pawnee: 85 percent
 Minor components: 15 percent

Component Descriptions

Pawnee

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Clayey drift
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 9 to 14 inches
Runoff class: High
Ecological site: Clay Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 14 inches; clay loam
 H2—14 to 34 inches; clay
 H3—34 to 72 inches; sandy clay loam

Minor Components

Oska

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Loamy Upland (pe35-42)

Morrill

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Pe—Pawnee clay loam, 3 to 7 percent slopes, eroded

Map Unit Composition

Pawnee: 90 percent
 Minor components: 10 percent

Component Descriptions

Pawnee

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Clayey drift
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: About 9 to 14 inches
Runoff class: High
Ecological site: Clay Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 14 inches; clay loam
 H2—14 to 34 inches; clay
 H3—34 to 72 inches; sandy clay loam

Minor Components

Morrill

Phase: eroded
Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Martin

Phase: eroded
Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Pn—Pawnee clay loam, 7 to 11 percent slopes

Map Unit Composition

Pawnee: 85 percent
 Minor components: 15 percent

Component Descriptions

Pawnee

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Clayey drift

Slope: 7 to 11 percent

Drainage class: Moderately well drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: Moderate (About 7.4 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 9 to 14 inches

Runoff class: Very high

Ecological site: Clay Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 19 inches; clay loam

H2—19 to 79 inches; clay

Minor Components

Morrill

Composition: About 5 percent

Slope: 8 to 12 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

Martin

Composition: About 5 percent

Slope: 7 to 11 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Shelby

Composition: About 5 percent

Slope: 8 to 12 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

RD—Reading silt loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

Reading: 90 percent

Minor components: 10 percent

Component Descriptions

Reading

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Terrace on river valley

Parent material: Fine-silty alluvium

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 11.5 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Rare

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Loamy Lowland (pe35-42)

Land capability (irrigated):

Land capability (nonirrigated): 1

Typical Profile:

H1—0 to 15 inches; silt loam

H2—15 to 41 inches; silty clay loam

H3—41 to 60 inches; silty clay

Minor Components

Wabash

Composition: About 5 percent

Slope: 0 to 1 percent

Drainage class: Poorly drained

Ecological site: Clay Lowland (pe30-37)

Chase

Composition: About 5 percent

Slope: 0 to 2 percent

Drainage class: Somewhat poorly drained

Ecological site: Loamy Lowland (pe35-42)

Re—Reading silty clay loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

Reading: 85 percent

Minor components: 15 percent

Component Descriptions

Reading

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Stream terrace on valley

Parent material: Silty alluvium

Slope: 0 to 2 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 11.6 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 1

Typical Profile:

H1—0 to 14 inches; silty clay loam
H2—14 to 56 inches; silty clay loam
H3—56 to 70 inches; silty clay loam

Minor Components

Wabash

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Kennebec

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Muir

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe30-37)

Rv—Riverwash

Sa—Sarpy sand, Frequently flooded

Map Unit Composition

Sarpy: 100 percent
Minor components:

Component Descriptions

Sarpy

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (About 5.95 in/hr)
Available water capacity: Low (About 4.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: More than 6 feet

Runoff class: Negligible
Ecological site: Sandy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6s

Typical Profile:

H1—0 to 7 inches; sand
H2—7 to 66 inches; fine sand

SAP—sand Pit

Se—Sarpy-Eudora complex, overwash, occasionally flooded

Map Unit Composition

Sarpy: 55 percent
Eudora: 45 percent
Minor components:

Component Descriptions

Sarpy

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Sandy alluvium
Slope: 0 to 1 percent
Drainage class: Excessively drained
Slowest permeability: Rapid (About 5.95 in/hr)
Available water capacity: Low (About 4.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 12 inches; loamy fine sand
H2—12 to 60 inches; fine sand

Eudora

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Flood plain on river valley
Parent material: Coarse-silty alluvium
Slope: 0 to 1 percent
Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 8 inches; fine sandy loam
H2—8 to 60 inches; silt loam

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Upland (pe35-42)

Pawnee

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Shelby

Composition: About 3 percent
Slope: 1 to 3 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Sg—Sharpsburg silty clay loam, 1 to 3 percent slopes

Map Unit Composition

Sharpsburg: 88 percent
Minor components: 12 percent

Component Descriptions

Sharpsburg

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Silty and clayey loess
Slope: 1 to 3 percent
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 23 inches; silty clay loam
H2—23 to 72 inches; silty clay loam

Minor Components

Gymer

Composition: About 3 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Ladysmith

Composition: About 3 percent

Sh—Sharpsburg silty clay loam, 3 to 6 percent slopes

Map Unit Composition

Sharpsburg: 85 percent
Minor components: 15 percent

Component Descriptions

Sharpsburg

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Silty and clayey loess
Slope: 3 to 6 percent
Drainage class: Moderately well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 23 inches; silty clay loam
H2—23 to 72 inches; silty clay loam

Minor Components

Martin

Composition: About 5 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Pawnee

Composition: About 5 percent

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Clay Upland (pe30-37)

Shelby

Composition: About 5 percent

Slope: 3 to 8 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

Sk—Shelby clay loam, 1 to 3 percent slopes

Map Unit Composition

Shelby: 95 percent

Minor components: 5 percent

Component Descriptions

Shelby

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Fine-loamy drift

Slope: 1 to 3 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Medium

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 2e

Typical Profile:

H1—0 to 17 inches; clay loam

H2—17 to 44 inches; clay loam

H3—44 to 60 inches; clay loam

Minor Components

Pawnee

Composition: About 5 percent

Slope: 0 to 3 percent

Drainage class: Moderately well drained

Ecological site: Clay Upland (pe30-37)

Sm—Shelby clay loam, 3 to 8 percent slopes

Map Unit Composition

Shelby: 88 percent

Minor components: 12 percent

Component Descriptions

Shelby

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Parent material: Fine-loamy drift

Slope: 3 to 8 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Loamy Upland (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 17 inches; clay loam

H2—17 to 44 inches; clay loam

H3—44 to 60 inches; clay loam

Minor Components

Morrill

Composition: About 3 percent

Slope: 3 to 8 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

Elmont

Composition: About 3 percent

Slope: 3 to 7 percent

Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)

Drainage class: Well drained

Ecological site: Limy Upland (pe35-42)

Martin

Composition: About 3 percent

Slope: 3 to 7 percent

Drainage class: Moderately well drained

Ecological site: Loamy Upland (pe35-42)

Pawnee

Composition: About 3 percent
Slope: 3 to 7 percent
Drainage class: Moderately well drained
Ecological site: Clay Upland (pe30-37)

Sn—Shelby clay loam, 3 to 8 percent slopes, eroded

Map Unit Composition

Shelby: 100 percent
 Minor components:

Component Descriptions

Shelby

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy drift
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 6 inches; clay loam
 H2—6 to 44 inches; clay loam
 H3—44 to 60 inches; clay loam

So—Shelby clay loam, 8 to 12 percent slopes

Map Unit Composition

Shelby: 85 percent
 Minor components: 15 percent

Component Descriptions

Shelby

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland

Parent material: Fine-loamy drift
Slope: 8 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 17 inches; clay loam
 H2—17 to 44 inches; clay loam
 H3—44 to 60 inches; clay loam

Minor Components**Morrill**

Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Elmont

Composition: About 5 percent
Slope: 7 to 12 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Martin

Composition: About 5 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Sp—Morrill fine sandy loam, 3 to 8 percent slopes

Map Unit Composition

Morrill: 85 percent
 Minor components: 15 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 3 to 8 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 9.7 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Sandy (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 19 inches; fine sandy loam
 H2—19 to 42 inches; sandy clay loam
 H3—42 to 60 inches; fine sandy loam

Minor Components

Morrill

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Gymer

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Shelby

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Sr—Morrill fine sandy loam, 3 to 8 percent slopes, eroded

Map Unit Composition

Morrill: 85 percent
 Minor components: 15 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits
Slope: 3 to 8 percent

Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 9.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Sandy (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 6 inches; fine sandy loam
 H2—6 to 42 inches; sandy clay loam
 H3—42 to 60 inches; fine sandy loam

Minor Components

Morrill

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Gymer

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Shelby

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Ss—Morrill fine sandy loam, 8 to 12 percent slopes

Map Unit Composition

Morrill: 85 percent
 Minor components: 15 percent

Component Descriptions

Morrill

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Fine-loamy glaciofluvial deposits

Slope: 8 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 9.5 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Sandy (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 19 inches; fine sandy loam
 H2—19 to 42 inches; sandy clay loam
 H3—42 to 60 inches; fine sandy loam

Minor Components

Morrill

Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Gymer

Composition: About 5 percent
Slope: 3 to 8 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

Shelby

Composition: About 5 percent
Slope: 8 to 12 percent
Drainage class: Well drained
Ecological site: Loamy Upland (pe30-37)

St—Sibleyville loam, 3 to 7 percent slopes

Map Unit Composition

Sibleyville: 90 percent
 Minor components: 10 percent

Component Descriptions

Sibleyville

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from sandstone and shale
Slope: 3 to 7 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 7.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 14 inches; loam
 H2—14 to 38 inches;
 Cr—38 to 42 inches;

Minor Components

Vinland

Composition: About 5 percent
Slope: 4 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Limy Upland (pe35-42)

Elmont

Composition: About 5 percent
Slope: 3 to 7 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Su—Sibleyville loam, 7 to 11 percent slopes

Map Unit Composition

Sibleyville: 90 percent
 Minor components: 10 percent

Component Descriptions

Sibleyville

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills, 112 - Cherokee Prairies
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from sandstone and shale
Slope: 7 to 11 percent

Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Moderate (About 7.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 4e

Typical Profile:

H1—0 to 14 inches; loam
 H2—14 to 38 inches; sandy clay loam
 Cr—38 to 42 inches; weathered bedrock

Minor Components

Vinland

Composition: About 5 percent
Slope: 4 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Limy Upland (pe35-42)

Elmont

Composition: About 5 percent
Slope: 7 to 11 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Sv—Sogn-Vinland complex, 3 to 25 percent slopes

Map Unit Composition

Sogn: 55 percent
 Vinland: 25 percent
 Minor components: 20 percent

Component Descriptions

Sogn

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Loamy residuum weathered from limestone
Slope: 3 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)

Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very low (About 2.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Shallow Limy (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 7s

Typical Profile:

H1—0 to 10 inches; silty clay loam
 R—10 to 14 inches; unweathered bedrock

Vinland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from shale
Slope: 3 to 25 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 3.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 6s

Typical Profile:

H1—0 to 6 inches; silty clay loam
 H2—6 to 15 inches; channery silty clay loam
 Cr—15 to 19 inches; weathered bedrock

Minor Components

Elmont

Composition: About 5 percent
Slope: 7 to 12 percent
Depth to restrictive feature: 40 to 60 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Martin

Composition: About 5 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Rock outcrop

Composition: About 5 percent

Labette

Composition: About 5 percent
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Sw—Vinland-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Composition

Stony Steep Land: 60 percent
 Vinland: 26 percent
 Minor components: 14 percent

Component Descriptions

Stony Steep Land

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Slope: 15 to 45 percent
Drainage class: Excessively drained
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Land capability (irrigated):
Land capability (nonirrigated): 8

Vinland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from shale
Slope: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 3.7 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 11 inches; silty clay loam
 H2—11 to 17 inches;
 Cr—17 to 20 inches;

Minor Components**Sogn**

Composition: About 10 percent
Slope: 15 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy (pe30-37)

Martin

Composition: About 2 percent
Slope: 7 to 11 percent
Drainage class: Moderately well drained
Ecological site: Loamy Upland (pe35-42)

Labette

Composition: About 2 percent
Slope: 3 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Ecological site: Limy Upland (pe35-42)

Vn—Vinland silty clay loam, 4 to 10 percent slopes

Map Unit Composition

Vinland: 100 percent
 Minor components:

Component Descriptions

Vinland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Parent material: Sandy and silty residuum weathered from shale
Slope: 4 to 10 percent
Depth to restrictive feature: 10 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Low (About 3.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe35-42)
Land capability (irrigated):
Land capability (nonirrigated): 6e

Typical Profile:

H1—0 to 6 inches; silty clay loam
 H2—6 to 15 inches; channery silty clay loam
 Cr—15 to 19 inches; weathered bedrock

W—Water

Wa—Wabash silty clay, occasionally flooded

Map Unit Composition

Wabash: 90 percent
 Minor components: 10 percent

Component Descriptions

Wabash

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Terrace on river valley
Parent material: Clayey alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.00 in/hr)
Available water capacity: Moderate (About 6.4 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 2 to 9 inches
Runoff class: Very high
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 16 inches; silty clay
 H2—16 to 70 inches; silty clay

Minor Components

Reading

Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe35-42)

Wabash

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Wb—Wabash silty clay loam, occasionally flooded

Map Unit Composition

Wabash: 88 percent
 Minor components: 12 percent

Component Descriptions

Wabash

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Terrace on river valley
Parent material: Clayey alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.00 in/hr)
Available water capacity: Moderate (About 8.0 inches)
Shrink-swell potential: Very high (About 17.0 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 2 to 9 inches
Runoff class: Very high
Ecological site: Clay Lowland (pe30-37)
Land capability (irrigated):
Land capability (nonirrigated): 3w

Typical Profile:

H1—0 to 16 inches; silty clay loam
 H2—16 to 70 inches; silty clay

Minor Components

Kennebec

Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Loamy Lowland (pe30-37)

Reading

Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Lowland (pe35-42)

Wabash

Composition: About 3 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Clay Lowland (pe30-37)

Leanna

Composition: About 3 percent
Geomorphic Position: flood plain on valley
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Ecological site: Clay Lowland (pe35-42)

We—Welda silt loam, 4 to 10 percent slopes**Map Unit Composition**

Welda: 95 percent
 Minor components: 5 percent

Component Descriptions**Welda**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland

Parent material: Silty and clayey sediments

Slope: 4 to 10 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)

Available water capacity: High (About 10.7 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: High

Ecological site: Savannah (pe30-37)

Land capability (irrigated):

Land capability (nonirrigated): 3e

Typical Profile:

H1—0 to 12 inches; silt loam

H2—12 to 60 inches; silty clay

H3—60 to 72 inches; silty clay loam

Minor Components**Gymer**

Composition: About 5 percent

Slope: 3 to 8 percent

Drainage class: Well drained

Ecological site: Loamy Upland (pe30-37)

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in the following table. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in the "Acres and Proportionate Extent of Soils" table. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described in other tables in this document."

Map symbol	Mapunit name	Farmland Classification
045WS	Woodson silt loam, 1 to 3 percent slopes	All areas are prime farmland
085KB	Kennebec soils, 0 to 3 percent slopes, occasionally flooded	All areas are prime farmland
087RS	Rossville silt loam, 0 to 2 percent slopes, very rarely flooded	All areas are prime farmland
139ED	Elmont loam, 3 to 7 percent slopes	All areas are prime farmland
149KM	Kimo silty clay, rarely flooded	All areas are prime farmland
197IB	Irwin silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
197IV	Ivan silt loam, occasionally flooded	All areas are prime farmland
197MR	Morrill loam, 4 to 7 percent slopes	All areas are prime farmland
197WY	Wymore silty clay loam, 2 to 6 percent slopes	All areas are prime farmland
El	Elmont silt loam, 3 to 7 percent slopes	All areas are prime farmland
Em	Elmont silt loam, 3 to 7 percent slopes, eroded	All areas are prime farmland
Es	Eudora fine sandy loam, 1 to 3 percent slopes	All areas are prime farmland
Et	Eudora silt loam, rarely flooded	All areas are prime farmland
Ev	Eudora-kimo complex, rarely flooded	All areas are prime farmland
Ew	Eudora-kimo complex, overwash, rarely flooded	All areas are prime farmland
Gm	Gymer silt loam, 3 to 8 percent slopes	All areas are prime farmland
Kb	Kennebec silt loam, occasionally flooded	All areas are prime farmland
Kc	Chase silt loam, occasionally flooded	All areas are prime farmland
Km	Kimo silty clay loam, rarely flooded	All areas are prime farmland
La	Labette silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
Lb	Labette silty clay loam, 3 to 6 percent slopes	All areas are prime farmland
Ld	Ladysmith silty clay loam, 0 to 1 percent slopes	All areas are prime farmland
Lm	Ladysmith silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
Ls	Ladysmith silty clay loam, 1 to 3 percent slopes, eroded	All areas are prime farmland
Mb	Martin silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
Mc	Martin silty clay loam, 3 to 7 percent slopes	All areas are prime farmland
Mm	Morrill clay loam, 3 to 8 percent slopes	All areas are prime farmland
MOO	Morrill loam, 3 to 7 percent slopes	All areas are prime farmland
Mr	Muir silt loam, rarely flooded	All areas are prime farmland
MRR	Morrill clay loam, 3 to 7 percent slopes	All areas are prime farmland
Pa	Pawnee clay loam, 0 to 3 percent slopes	All areas are prime farmland
RD	Reading silt loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland
Re	Reading silty clay loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland
Sg	Sharpsburg silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
Sk	Shelby clay loam, 1 to 3 percent slopes	All areas are prime farmland
Sp	Morrill fine sandy loam, 3 to 8 percent slopes	All areas are prime farmland
Sr	Morrill fine sandy loam, 3 to 8 percent slopes, eroded	All areas are prime farmland
St	Sibleyville loam, 3 to 7 percent slopes	All areas are prime farmland
085ZA	Zook silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
087HC	Haig silty clay loam, 0 to 2 percent slopes	Prime farmland if drained
087WC	Wabash silty clay loam, 0 to 1 percent slopes, very rarely flooded	Prime farmland if drained
Wa	Wabash silty clay, occasionally flooded	Prime farmland if drained
Wb	Wabash silty clay loam, occasionally flooded	Prime farmland if drained

The "Soil Rating for Plant Growth, modified 1998" (SRPG) is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values, and taxes and to perform risk analysis when land management decisions are made. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Map symbol	Soil name	Crop Index
045OE	Oska Silty Clay Loam, 3 To 6 Percent Slopes-----	65
045SV	Sibleyville Complex, 7 To 15 Percent Slopes-----	38
045SX	Vinland-Rock Outcrop Complex, 20 To 40 Percent Slopes-----	3
045VM	Vinland-Martin Complex, 7 To 15 Percent Slopes-----	30
045WS	Woodson Silt Loam, 1 To 3 Percent Slopes-----	78
085KB	Kennebec Soils, 0 To 3 Percent Slopes, Occasionally Flooded-----	81
085MC	Martin-Vinland Silty Clay Loams, 5 To 10 Percent Slopes-----	44
085ZA	Zook Silty Clay Loam, 0 To 2 Percent Slopes, Occasionally Flooded-----	69
087EC	Eudora-Bismarckgrove Fine Sandy Loams, 0 To 3 Percent Slopes, Overwash, Occasionally Flooded-----	75
087HC	Haig Silty Clay Loam, 0 To 2 Percent Slopes-----	73
087KV	Konawa Complex, 4 To 10 Percent Slopes-----	64
087RS	Rossville Silt Loam, 0 To 2 Percent Slopes, Very Rarely Flooded-----	88
087SO	Shelby-Pawnee Complex, 8 To 12 Percent Slopes-----	66
087WC	Wabash Silty Clay Loam, 0 To 1 Percent Slopes, Very Rarely Flooded-----	73
139ED	Elmont Loam, 3 To 7 Percent Slopes-----	77
149KM	Kimo Silty Clay, Rarely Flooded-----	64
197IB	Irwin Silty Clay Loam, 1 To 3 Percent Slopes-----	67
197IV	Ivan Silt Loam, Occasionally Flooded-----	63
197IX	Ivan Silty Clay Loam, Channeled-----	55
197MR	Morrill Loam, 4 To 7 Percent Slopes-----	72
197MS	Morrill Loam, 5 To 12 Percent Slopes, Very Stony-----	14
197SA	Sarpy Loamy Sand, Frequently Flooded-----	21
197WF	Wamego Silty Clay Loam, 7 To 15 Percent Slopes-----	33
197WY	Wymore Silty Clay Loam, 2 To 6 Percent Slopes-----	73
2797	Morrill Gravelly Loam, 4 To 20 Percent Slopes, Stony-----	17
AED	Arents, Earthen Dam-----	0
An	Kennebec Silt Loam, Channeled-----	59
BOA	Borrow Areas-----	0
Bk	Martin-Kennebec Complex, 0 To 12 Percent Slopes-----	67
Br	Fluents, Channeled, Frequently Flooded-----	54
Dm	Dwight-Martin Silty Clay Loams, 1 To 3 Percent Slopes-----	63
Ds	Dwight Silty Clay Loam, 0 To 1 Percent Slopes-----	55
Dw	Dwight Silty Clay Loam, 1 To 3 Percent Slopes-----	56
El	Elmont Silt Loam, 3 To 7 Percent Slopes-----	78
Em	Elmont Silt Loam, 3 To 7 Percent Slopes, Eroded-----	77
En	Elmont Silt Loam, 7 To 12 Percent Slopes-----	73
Eo	Elmont Silt Loam, 7 To 12 Percent Slopes, Eroded-----	72
Ep	Elmont-Dwight Silty Clay Loams, 3 To 7 Percent Slopes, Eroded-----	72
Es	Eudora Fine Sandy Loam, 1 To 3 Percent Slopes-----	72
Et	Eudora Silt Loam, Rarely Flooded-----	75
Eu	Eudora Soils, 6 To 12 Percent Slopes, Eroded-----	69
Ev	Eudora-Kimo Complex, Rarely Flooded-----	73
Ew	Eudora-Kimo Complex, Overwash, Rarely Flooded-----	67
Gm	Gymer Silt Loam, 3 To 8 Percent Slopes-----	80
Gy	Gymer Silt Loam, 3 To 8 Percent Slopes, Eroded-----	75
INL	Aquolls-----	14
KF	Kennebec Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded-----	61
Kb	Kennebec Silt Loam, Occasionally Flooded-----	80
Kc	Chase Silt Loam, Occasionally Flooded-----	78
Km	Kimo Silty Clay Loam, Rarely Flooded-----	74
Ko	Kimo Soils, Depressional, Occasionally Flooded-----	32
Ks	Kipson-Sogn Complex, 3 To 25 Percent Slopes-----	16
Ku	Konawa Fine Sandy Loam, 4 To 8 Percent Slopes-----	55
Kw	Konawa Fine Sandy Loam, 8 To 12 Percent Slopes-----	58
LIQ	Limestone Quarries And Gravel Pits-----	0
La	Labette Silty Clay Loam, 1 To 3 Percent Slopes-----	66
Lb	Labette Silty Clay Loam, 3 To 6 Percent Slopes-----	60
Lc	Labette Silty Clay Loam, 3 To 6 Percent Slopes, Eroded-----	60
Ld	Ladysmith Silty Clay Loam, 0 To 1 Percent Slopes-----	71
Lm	Ladysmith Silty Clay Loam, 1 To 3 Percent Slopes-----	71
Ls	Ladysmith Silty Clay Loam, 1 To 3 Percent Slopes, Eroded-----	69
MOO	Morrill Loam, 3 To 7 Percent Slopes-----	75
MRR	Morrill Clay Loam, 3 To 7 Percent Slopes-----	80
Ma	Made Land-----	0
Mb	Martin Silty Clay Loam, 1 To 3 Percent Slopes-----	77
Mc	Martin Silty Clay Loam, 3 To 7 Percent Slopes-----	74
Me	Martin Silty Clay Loam, 3 To 7 Percent Slopes, Eroded-----	74
Mf	Martin Silty Clay Loam, 7 To 11 Percent Slopes-----	70
Mh	Martin Silty Clay Loam, 7 To 11 Percent Slopes, Eroded-----	66
Mk	Martin Soils, 3 To 7 Percent Slopes, Severely Eroded-----	65
Mm	Morrill Clay Loam, 3 To 8 Percent Slopes-----	76
Mn	Morrill Clay Loam, 3 To 8 Percent Slopes, Eroded-----	75
Mo	Morrill Clay Loam, 8 To 12 Percent Slopes-----	71
Mp	Morrill-Gravelly Land Complex, 4 To 12 Percent Slopes-----	56
Mr	Muir Silt Loam, Rarely Flooded-----	81
Pa	Pawnee Clay Loam, 0 To 3 Percent Slopes-----	64
Pc	Pawnee Clay Loam, 3 To 7 Percent Slopes-----	69
Pe	Pawnee Clay Loam, 3 To 7 Percent Slopes, Eroded-----	69
Pn	Pawnee Clay Loam, 7 To 11 Percent Slopes-----	59
RD	Reading Silt Loam, 0 To 2 Percent Slopes, Rarely Flooded-----	86

SOIL RATING FOR PLANT GROWTH, modified 1998
Shawnee County, Kansas

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The "Soil Rating for Plant Growth, modified 1998" (SRPG) is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values, and taxes and to perform risk analysis when land management decisions are made. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Map symbol	Soil name	Crop Index
Re	Reading Silty Clay Loam, 0 To 2 Percent Slopes, Rarely Flooded-----	81
Rv	Riverwash-----	44
SAP	Sand Pit-----	0
Sa	Sarpy Sand, Frequently Flooded-----	17
Se	Sarpy-Eudora Complex, Overwash, Occasionally Flooded-----	43
Sg	Sharpsburg Silty Clay Loam, 1 To 3 Percent Slopes-----	77
Sh	Sharpsburg Silty Clay Loam, 3 To 6 Percent Slopes-----	74
Sk	Shelby Clay Loam, 1 To 3 Percent Slopes-----	79
Sm	Shelby Clay Loam, 3 To 8 Percent Slopes-----	75
Sn	Shelby Clay Loam, 3 To 8 Percent Slopes, Eroded-----	75
So	Shelby Clay Loam, 8 To 12 Percent Slopes-----	70
Sp	Morrill Fine Sandy Loam, 3 To 8 Percent Slopes-----	73
Sr	Morrill Fine Sandy Loam, 3 To 8 Percent Slopes, Eroded-----	73
Ss	Morrill Fine Sandy Loam, 8 To 12 Percent Slopes-----	67
St	Sibleyville Loam, 3 To 7 Percent Slopes-----	69
Su	Sibleyville Loam, 7 To 11 Percent Slopes-----	64
Sv	Sogn-Vinland Complex, 3 To 25 Percent Slopes-----	15
Sw	Vinland-Rock Outcrop Complex, 15 To 45 Percent Slopes-----	9
Vn	Vinland Silty Clay Loam, 4 To 10 Percent Slopes-----	11
W	Water-----	0
Wa	Wabash Silty Clay, Occasionally Flooded-----	51
Wb	Wabash Silty Clay Loam, Occasionally Flooded-----	64
We	Welda Silt Loam, 4 To 10 Percent Slopes-----	73

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(Entries under "Erosion factors--T" apply to the entire profile. Entries under "K", "Kf", "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer)

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
045OE:OSKA-----	88	N/A	3e	Not prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	2	7	38
045SV:SIBLEYVILL E-----	50	N/A	6e	Not prime farmland	B	Loamy Upland (pe35-42)	7	.28	.28	3	6	48
045SX:ROCK OUTCROP-----	60	N/A	8	Not prime farmland		Unspecified		---	---	-	---	0
045SX:VINLAND---	26	N/A	6e	Not prime farmland	D	Loamy Upland (pe35-42)	8	.32	.32	2	7	38
045VM:VINLAND---	40	N/A	6e	Not prime farmland	D	Loamy Upland (pe35-42)	8	.32	.32	2	7	38
045VM:MARTIN---	25	N/A	4e	Not prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38
045WS:WOODSON---	90	N/A	3e	All areas are prime farmland	D	Clay Upland (pe35-42)	7	.43	.43	4	6	48
085KB:KENNEBEC--	86	N/A	2w	All areas are prime farmland	B	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48
085MC:MARTIN----	48	N/A	4e	Not prime farmland	C	Loamy Upland (pe30-37)	8	.37	.37	5	7	38
085MC:VINLAND---	40	N/A	N/A	Not prime farmland	D	Loamy Upland (pe30-37)	8	.32	.32	2	7	38
085ZA:ZOOK-----	90	N/A	2w	Prime farmland if drained	C/D	Clay Lowland (pe30-37)	8	.37	.37	5	7	38
087EC:EUDORA----	65	N/A	2w	Not prime farmland	B	Loamy Lowland (pe30-37)	6	.32	.32	5	5	56
087EC:BISMARCKGR OVE-----	20	N/A	2w	Not prime farmland	B	Loamy Lowland (pe30-37)	8	.32	.32	5	7	38
087HC:HAIG-----	85	N/A	2w	Prime farmland if drained	C/D	Clay Upland (pe30-37)	8	.37	.37	5	7	38
087KV:KONAWA----	91	N/A	4e	Not prime farmland	B	Savannah (pe30- 37)	3	.24	.24	5	3	86
087RS:ROSSVILLE-	85	N/A	1	All areas are prime farmland	B	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48
087SO:SHELBY----	65	N/A	4e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.28	.28	5	6	48
087SO:PAWNEE----	25	N/A	4e	Not prime farmland	D	Clay Upland (pe30-37)	7	.37	.37	5	6	48
087WC:WABASH----	94	N/A	3w	Prime farmland if drained	D	Clay Lowland (pe30-37)	8	.37	.37	5	7	38

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Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
139ED:ELMONT----	85	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe35-42)	7	.32	.32	5	6	48
149KM:KIMO-----	90	N/A	2w	All areas are prime farmland	C	Clay Lowland (pe30-37)	4	.37	.37	5	4	86
197IB:IRWIN-----	80	N/A	3e	All areas are prime farmland	D	Clay Upland (pe30-36)	8	.32	.32	5	7	38
197IV:IVAN-----	90	N/A	2w	All areas are prime farmland	B	Loamy Lowland (pe30-36)	5	.32	.32	5	4L	86
197IX:IVAN-----	80	N/A	5w	Not prime farmland	B	Loamy Lowland (pe30-36)	5	.32	.32	5	4L	86
197MR:MORRILL---	75	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe30-37)	7	.28	.32	5	6	48
197MS:MORRILL---	85	N/A	6e	Not prime farmland	B	Loamy Upland (pe30-37)	9	.20	.24	5	8	0
	75	N/A	6e	Not prime farmland	B	Loamy Upland (pe30-37)	9	.20	.24	5	8	0
197SA:SARPY-----	85	N/A	4s	Not prime farmland	A	Sandy Lowland (pe30-36)	2	.17	.17	5	2	134
197WF:WAMEGO----	75	N/A	6e	Not prime farmland	C	Loamy Upland (pe30-37)	8	.32	.32	3	7	38
197WY:WYMORE----	100	N/A	3e	All areas are prime farmland	D	Clay Upland (pe30-37)	8	.37	.37	5	7	38
2797:MORRILL----	85	N/A	6e	Not prime farmland	B	Loamy Upland (pe30-37)	9	.20	.24	5	8	0
AED:ARENTS, EARTHEN DAM----	100	N/A	8	Not prime farmland		Unspecified		---	---	-	---	---
An:KENNEBEC-----	90	N/A	5w	Not prime farmland	B	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48
BOA:BORROW AREAS	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
Bk:MARTIN-----	54	N/A	6e	Not prime farmland	C	Loamy Upland (pe30-37)	8	.37	.37	5	7	38
Bk:KENNEBEC-----	43	N/A	5w	Not prime farmland	B	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48
Br:FLUVENTS-----	97	N/A	6w	Not prime farmland		Unspecified	8	.32	.32	5	7	38
Dm:DWIGHT-----	60	N/A	4e	Not prime farmland	D	Clay Pan (pe35- 42)	8	.43	.43	5	7	38
Dm:MARTIN-----	30	N/A	3e	Not prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38

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Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Ds:DWIGHT-----	97	N/A	4s	Not prime farmland	D	Clay Pan (pe35- 42)	8	.43	.43	5	7	38
Dw:DWIGHT-----	85	N/A	4e	Not prime farmland	D	Clay Pan (pe35- 42)	8	.43	.43	5	7	38
El:ELMONT-----	90	N/A	3e	All areas are prime farmland	B	Limy Upland (pe35-42)	7	.32	.32	5	6	48
Em:ELMONT-----	90	N/A	3e	All areas are prime farmland	B	Limy Upland (pe35-42)	7	.32	.32	5	6	48
En:ELMONT-----	90	N/A	4e	Not prime farmland	B	Limy Upland (pe35-42)	7	.32	.32	5	6	48
Eo:ELMONT-----	90	N/A	6e	Not prime farmland	B	Limy Upland (pe35-42)	7	.32	.32	5	6	48
Ep:ELMONT-----	75	N/A	6e	Not prime farmland	B	Limy Upland (pe35-42)	8	.32	.32	5	7	38
Ep:DWIGHT-----	25	N/A	4e	Not prime farmland	D	Clay Pan (pe35- 42)	8	.43	.43	5	7	38
Es:EUDORA-----	95	N/A	2e	All areas are prime farmland	B	Sandy Lowland (pe30-37)	3	.20	.20	5	3	86
Et:EUDORA-----	90	N/A	1	All areas are prime farmland	B	Loamy Lowland (pe30-37)	6	.32	.32	5	5	56
Eu:EUDORA-----	85	N/A	3e	Not prime farmland	B	Loamy Lowland (pe30-37)	6	.32	.32	5	5	56
Ev:EUDORA-----	60	N/A	2w	All areas are prime farmland	B	Loamy Lowland (pe30-37)	6	.32	.32	5	5	56
Ev:KIMO-----	30	N/A	2w	All areas are prime farmland	C	Clay Lowland (pe30-37)	4	.37	.37	5	4	86
Ew:EUDORA-----	60	N/A	2w	All areas are prime farmland	B	Loamy Lowland (pe30-37)	3	.20	.20	5	3	86
Ew:KIMO-----	30	N/A	2w	All areas are prime farmland	C	Clay Lowland (pe30-37)	3	.24	.24	5	3	86
Gm:GYMER-----	88	N/A	3e	All areas are prime farmland	C	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
Gy:GYMER-----	100	N/A	3e	Not prime farmland	C	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
INL:AQUOLLS-----	100	N/A	5w	Not prime farmland	C	Unspecified		---	---	-	---	0
KF:KENNEBEC-----	98	N/A	5w	Not prime farmland	B	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48

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Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	90	N/A	5w	Not prime farmland	B	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48
Kb:KENNEBEC----	95	N/A	2w	All areas are prime farmland	B	Loamy Lowland (pe35-42)	7	.28	.28	5	6	48
Kc:CHASE-----	85	N/A	2w	All areas are prime farmland	C	Loamy Lowland (pe30-37)	7	.28	.28	5	6	48
Km:KIMO-----	90	N/A	2w	All areas are prime farmland	C	Clay Lowland (pe30-37)	4	.37	.37	5	4	86
Ko:KIMO-----	95	N/A	5w	Not prime farmland	C	Clay Lowland (pe30-37)	4	.37	.37	5	4	86
Ks:KIPSON-----	50	N/A	6e	Not prime farmland	D	Limy Upland (pe30-37)	5	.32	.32	2	4L	86
Ks:SOGN-----	35	N/A	6e	Not prime farmland	D	Shallow Limy (pe30-37)	5	.32	.32	1	4L	86
Ku:KONAWA-----	85	N/A	3e	Not prime farmland	B	Savannah (pe30- 37)	3	.24	.24	5	3	86
Kw:KONAWA-----	85	N/A	4e	Not prime farmland	B	Savannah (pe30- 37)	3	.24	.24	5	3	86
LIQ:LIMESTONE QUARRY-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	0
La:LABETTE-----	88	N/A	2e	All areas are prime farmland	C	Limy Upland (pe35-42)	8	.37	.37	2	7	38
Lb:LABETTE-----	85	N/A	3e	All areas are prime farmland	C	Limy Upland (pe35-42)	8	.37	.37	2	7	38
Lc:LABETTE-----	95	N/A	3e	Not prime farmland	C	Limy Upland (pe35-42)	8	.37	.37	2	7	38
Ld:LADYSMITH----	90	N/A	2s	All areas are prime farmland	D	Clay Upland (pe35-42)	8	.37	.37	5	7	38
Lm:LADYSMITH----	85	N/A	3e	All areas are prime farmland	D	Clay Upland (pe35-42)	8	.37	.37	5	7	38
Ls:LADYSMITH----	100	N/A	4e	All areas are prime farmland	D	Clay Upland (pe35-42)	8	.37	.37	5	7	38
MOO:MORRILL----	90	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe30-37)	7	.28	.32	5	6	48
MRR:MORRILL----	91	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
	90	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe30-37)	7	.28	.28	5	6	48

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Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Ma:MADE LAND----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
Mb:MARTIN-----	90	N/A	2e	All areas are prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38
Mc:MARTIN-----	85	N/A	3e	All areas are prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38
Me:MARTIN-----	90	N/A	4e	Not prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38
Mf:MARTIN-----	90	N/A	4e	Not prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38
Mh:MARTIN-----	85	N/A	6e	Not prime farmland	C	Loamy Upland (pe35-42)	8	.37	.37	5	7	38
Mk:MARTIN-----	90	N/A	6e	Not prime farmland	C	Loamy Upland (pe35-42)	4	.28	.28	5	4	86
Mm:MORRILL-----	91	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
Mn:MORRILL-----	91	N/A	3e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
Mo:MORRILL-----	91	N/A	4e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
Mp:MORRILL-----	55	N/A	4e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.32	.32	5	6	48
Mp:GRAVELLY LAND	30	N/A	6e	Not prime farmland	C	Loamy Upland (pe30-37)	9	.24	.43	5	8	0
Mr:MUIR-----	85	1-	1	All areas are prime farmland	B	Loamy Lowland (pe30-37)	7	.32	.32	5	6	48
Pa:PAWNEE-----	100	N/A	2e	All areas are prime farmland	D	Clay Upland (pe30-37)	7	.37	.37	5	6	48
Pc:PAWNEE-----	85	N/A	3e	Not prime farmland	D	Clay Upland (pe30-37)	7	.37	.37	5	6	48
Pe:PAWNEE-----	90	N/A	3e	Not prime farmland	D	Clay Upland (pe30-37)	7	.37	.37	5	6	48
Pn:PAWNEE-----	85	N/A	4e	Not prime farmland	D	Clay Upland (pe30-37)	7	.37	.37	5	6	48
RD:READING-----	90	N/A	1	All areas are prime farmland	B	Loamy Lowland (pe35-42)	7	.32	.32	5	6	48
Re:READING-----	85	N/A	1	All areas are prime farmland	B	Loamy Lowland (pe30-37)	8	.32	.32	5	7	38

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Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Rv:RIVER WASH---	100	N/A	8s	Not prime farmland		Unspecified		---	---	-	---	0
SAP:SAND PIT----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
Sa:SARPY-----	100	N/A	6s	Not prime farmland	A	Sandy Lowland (pe30-37)	1	.15	.15	5	1	220
Se:SARPY-----	55	N/A	3w	Not prime farmland	A	Sandy Lowland (pe30-37)	2	.17	.17	5	2	134
Se:EUDORA-----	45	N/A	3w	Not prime farmland	B	Loamy Lowland (pe30-37)	3	.20	.20	5	3	86
Sg:SHARPSBURG---	88	N/A	2e	All areas are prime farmland	B	Loamy Upland (pe30-37)	8	.32	.32	5	7	38
Sh:SHARPSBURG---	85	N/A	3e	Not prime farmland	B	Loamy Upland (pe30-37)	8	.32	.32	5	7	38
Sk:SHELBY-----	95	N/A	2e	All areas are prime farmland	B	Loamy Upland (pe30-37)	7	.28	.28	5	6	48
Sm:SHELBY-----	88	N/A	3e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.28	.28	5	6	48
Sn:SHELBY-----	100	N/A	3e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.28	.28	5	6	48
So:SHELBY-----	85	N/A	4e	Not prime farmland	B	Loamy Upland (pe30-37)	7	.28	.28	5	6	48
Sp:MORRILL-----	85	N/A	3e	All areas are prime farmland	B	Sandy (pe30-37)	3	.28	.32	5	3	86
Sr:MORRILL-----	85	N/A	3e	All areas are prime farmland	B	Sandy (pe30-37)	3	.28	.32	5	3	86
Ss:MORRILL-----	85	N/A	4e	Not prime farmland	B	Sandy (pe30-37)	3	.28	.32	5	3	86
St:SIBLEYVILLE--	90	N/A	3e	All areas are prime farmland	B	Loamy Upland (pe35-42)	7	.32	.32	3	6	48
Su:SIBLEYVILLE--	90	N/A	4e	Not prime farmland	B	Loamy Upland (pe35-42)	7	.32	.32	3	6	48
Sv:SOGN-----	55	N/A	7s	Not prime farmland	D	Shallow Limy (pe35-42)	5	.32	.32	1	4L	86
Sv:VINLAND-----	25	N/A	6s	Not prime farmland	D	Limy Upland (pe35-42)	8	.32	.32	2	7	38
Sw:STONY STEEP LAND-----	60	N/A	8	Not prime farmland		Unspecified		---	---	-	---	---
Sw:VINLAND-----	26	N/A	6e	Not prime farmland	D	Loamy Upland (pe30-37)	8	.32	.32	2	7	38

Shawnee County, Kansas: Published
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro- logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
Vn:VINLAND-----	100	N/A	6e	Not prime farmland	D	Limy Upland (pe35-42)	8	.32	.32	2	7	38
W:WATER-----	100	N/A	N/A			Unspecified		---	---	-	---	---
Wa:WABASH-----	90	N/A	3w	Prime farmland if drained	D	Clay Lowland (pe30-37)	4	.28	.28	5	4	86
Wb:WABASH-----	88	N/A	3w	Prime farmland if drained	D	Clay Lowland (pe30-37)	8	.28	.28	5	7	38
We:WELDA-----	95	N/A	3e	Not prime farmland	C	Savannah (pe30- 37)	7	.37	.37	5	6	48

RANGELAND PRODUCTIVITY
Shawnee County, Kansas

Use and Explanation of Rangeland, Grazed Forest Land, Native Pastureland Interpretations

Information in this subsection can be used to plan the use and management of soils for rangeland, grazed forest land, and native pasture. Different kinds of soils vary in their capacity to produce native grasses and other plants suitable for grazing. Information in this subsection provides groupings of similar soils and estimates of potential forage production, which can be used to determine livestock stocking rates.

Rangeland. Range is land on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grasslike plants, forbs, and shrubs suitable for grazing and browsing. Range includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain shrub and forb communities. Rangeland receives no regular or frequent cultural treatment. The composition and production of the plant community are determined by soil, climate, topography, overstory canopy, and grazing management.

Grazed Forest Land. Includes land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

Native Pasture. Includes land on which the native vegetation (climax or natural potential plant community) is forest but which is used and managed primarily for production of native plants for forage. Native pasture includes cut-over forest land and forest land cleared and now managed for native or naturalized forage plants.

Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management based on the relationship between the soils and vegetation and water.

The Rangeland, Grazed Forest land, Native Pastureland Interpretations shows, for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, unfavorable years. An explanation of the column headings in this table follows.

An ecological site is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, average, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the National Range and Pasture Handbook, which is available in local offices of the Natural Resources Conservation Service. The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

RANGELAND PRODUCTIVITY--Continued
Shawnee County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
045OE:				
Oska-----	Loamy Upland (pe35-42)	6,000	5,000	3,500
045SV:				
Sibleyville-----	Loamy Upland (pe35-42)	6,000	5,000	3,500
045SX:				
Rock Outcrop-----	---	---	---	---
045VM:				
Vinland-----	Loamy Upland (pe35-42)	5,500	4,500	3,500
045WS:				
Woodson-----	Loamy Upland (pe35-42)	5,500	4,500	3,500
085KB:				
Kennebec-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
085MC:				
Martin-----	Clay Upland (pe35-42)	6,000	4,500	2,500
085ZA:				
Zook-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
087EC:				
Eudora-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
Bismarckgrove-----	Loamy Upland (pe30-37)	5,500	4,500	3,500
087HC:				
Haig-----	Loamy Upland (pe30-37)	5,500	4,500	3,500
087KV:				
Konawa-----	Clay Lowland (pe30-37)	9,000	8,000	7,000
087RS:				
Rossville-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
087SO:				
Shelby-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
087WC:				
Wabash-----	Clay Upland (pe30-37)	6,000	4,000	3,000
139ED:				
Elmont-----	Savannah (pe30-37)	4,500	3,300	2,500
149KM:				
Kimo-----	Loamy Lowland (pe30-37)	5,300	4,900	4,500
197IB:				
Irwin-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
197IV:				
Ivan-----	Clay Upland (pe30-37)	3,700	3,200	2,700
197IX:				
Ivan-----	Clay Lowland (pe30-37)	10,000	9,000	7,000
197MR:				
Morrill-----	Loamy Upland (pe30-37)	10,000	8,000	6,000
197MS:				
Morrill, very stony-----	Loamy Upland (pe30-37)	10,000	8,000	6,000
197SA:				
Sarpy-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
197WF:				
Wamego-----	Sandy Lowland (pe30-36)	3,800	3,500	3,000
197WY:				
Wymore-----	Loamy Upland (pe30-37)	6,000	4,500	3,500
2797:				
Morrill, stony-----	Clay Upland (pe30-37)	4,100	3,600	3,200
AED:				
Arents, Earthen Dam-----	Loamy Upland (pe30-37)	5,500	4,500	3,500
An:				
Kennebec-----	---	---	---	---
Bk:				
Martin-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Kennebec-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
BOA:				
Borrow Areas-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Br:				
Fluvents-----	---	---	---	---
Dm:				
Dwight-----	---	---	---	---
Martin-----	Clay Pan (pe35-42)	4,000	3,000	2,000
Ds:				
Dwight-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Dw:				
Dwight-----	Clay Pan (pe35-42)	4,000	3,000	2,000
El:				
Elmont-----	Clay Pan (pe35-42)	4,000	3,000	2,000
Em:				
Elmont, eroded-----	Limy Upland (pe35-42)	7,000	5,500	4,000
En:				
Elmont-----	Limy Upland (pe35-42)	7,000	5,500	4,000
EO:				
Elmont, eroded-----	Limy Upland (pe35-42)	7,000	5,500	4,000
Ep:				
Elmont, eroded-----	Limy Upland (pe35-42)	7,000	5,500	4,000
Es:				
Dwight-----	Limy Upland (pe35-42)	7,000	5,500	4,000
	Clay Pan (pe35-42)	4,000	3,000	2,000

RANGELAND PRODUCTIVITY--Continued
Shawnee County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
Eudora-----	Sandy Lowland (pe30-37)	10,000	8,000	6,000
Et:				
Eudora-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Eu:				
Eudora-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Ev:				
Eudora-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Kimo-----	Clay Lowland (pe30-37)	9,000	7,000	5,000
Ew:				
Eudora-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Kimo-----	Clay Lowland (pe30-37)	9,000	7,000	5,000
Gm:				
Gymer-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
Gy:				
Gymer-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
INL:				
Aquolls-----	---	---	---	---
Kb:				
Kennebec-----	Loamy Lowland (pe35-42)	10,000	8,000	6,000
Kc:				
Chase-----	Loamy Lowland (pe30-37)	10,000	8,500	6,000
KF:				
Kennebec-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Km:				
Kimo-----	Clay Lowland (pe30-37)	9,000	7,000	5,000
Ko:				
Kimo-----	Clay Lowland (pe30-37)	9,000	7,000	5,000
Ks:				
Kipson-----	Limy Upland (pe30-37)	4,500	3,500	2,000
Sogn-----	Shallow Limy (pe30-37)	3,500	2,500	1,500
Ku:				
Konawa-----	Savannah (pe30-37)	4,500	3,300	2,500
Kw:				
Konawa-----	Savannah (pe30-37)	4,500	3,300	2,500
La:				
Labette-----	Limy Upland (pe35-42)	5,500	4,500	3,500
Lb:				
Labette-----	Limy Upland (pe35-42)	5,500	4,500	3,500
Lc:				
Labette, eroded-----	Limy Upland (pe35-42)	5,500	4,500	3,500
Ld:				
Ladysmith-----	Clay Upland (pe35-42)	5,000	3,500	2,000
LIQ:				
Limestone Quarry-----	---	---	---	---
Lm:				
Ladysmith-----	Clay Upland (pe35-42)	5,000	3,500	2,000
Ls:				
Ladysmith, eroded-----	Clay Upland (pe35-42)	5,000	3,500	2,000
Ma:				
Made Land-----	---	---	---	---
Mb:				
Martin-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Mc:				
Martin-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Me:				
Martin, eroded-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Mf:				
Martin-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Mh:				
Martin, eroded-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Mk:				
Martin-----	Loamy Upland (pe35-42)	7,000	5,500	4,000
Mm:				
Morrill-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
Mn:				
Morrill, eroded-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
Mo:				
Morrill-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
MOO:				
Morrill-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
Mp:				
Morrill-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
Gravelly Land-----	Loamy Upland (pe30-37)	6,000	4,500	3,000
Mr:				
Muir-----	Loamy Lowland (pe30-37)	7,500	5,500	4,000
MRR:				
Morrill-----	Loamy Upland (pe30-37)	6,000	5,000	4,000
Pa:				
Pawnee-----	Clay Upland (pe30-37)	3,700	3,200	2,700
Pc:				
Pawnee-----	Clay Upland (pe30-37)	3,700	3,200	2,700
Pe:				
Pawnee, eroded-----	Clay Upland (pe30-37)	3,700	3,200	2,700
Pn:				
Pawnee-----	Clay Upland (pe30-37)	3,700	3,200	2,700

RANGELAND PRODUCTIVITY--Continued
Shawnee County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
RD:				
Reading-----	Loamy Lowland (pe35-42)	10,000	8,000	6,000
Re:				
Reading-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Rv:				
River Wash-----	---	---	---	---
Sa:				
Sarpy-----	Sandy Lowland (pe30-37)	3,800	3,500	3,000
SAP:				
Sand Pit-----	---	---	---	---
Se:				
Sarpy-----	Sandy Lowland (pe30-37)	3,800	3,500	3,000
Eudora-----	Loamy Lowland (pe30-37)	10,000	8,000	6,000
Sg:				
Sharpsburg-----	Loamy Upland (pe30-37)	4,800	4,400	4,000
Sh:				
Sharpsburg-----	Loamy Upland (pe30-37)	4,800	4,400	4,000
Sk:				
Shelby-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
Sm:				
Shelby-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
Sn:				
Shelby, eroded-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
So:				
Shelby-----	Loamy Upland (pe30-37)	7,000	5,500	4,000
Sp:				
Morrill-----	Sandy (pe30-37)	6,000	5,000	4,000
Sr:				
Morrill, eroded-----	Sandy (pe30-37)	6,000	5,000	4,000
Ss:				
Morrill-----	Sandy (pe30-37)	6,000	5,000	4,000
St:				
Sibleyville-----	Loamy Upland (pe35-42)	6,000	5,000	3,500
Su:				
Sibleyville-----	Loamy Upland (pe35-42)	6,000	5,000	3,500
Sv:				
Sogn-----	Shallow Limy (pe35-42)	3,500	2,500	1,500
Vinland-----	Limy Upland (pe35-42)	5,500	4,500	3,500
Sw:				
Stony Steep Land-----	---	---	---	---
Vinland-----	Loamy Upland (pe30-37)	5,500	4,500	3,500
Vn:				
Vinland-----	Limy Upland (pe35-42)	5,500	4,500	3,500
W:				
Water-----	---	---	---	---
Wa:				
Wabash-----	Clay Lowland (pe30-37)	10,000	9,000	7,000
Wb:				
Wabash-----	Clay Lowland (pe30-37)	10,000	9,000	7,000
We:				
Welda-----	Savannah (pe30-37)	5,500	4,500	3,500

BUILDING SITE DEVELOPMENT
Shawnee County, Kansas

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. The following tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables 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 building site development. 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. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 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).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Very limited Shrink-swell Depth to hard bedrock	1.00 0.01	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.12 0.01
045SV: Sibleyville-----	50	Somewhat limited Slope	0.37	Somewhat limited Depth to soft bedrock Slope	0.71 0.37	Very limited Slope	1.00
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50
045VM: Vinland-----	40	Somewhat limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.37	Very limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.37	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50
Martin-----	25	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.44 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 1.00 0.44
045WS: Woodson-----	90	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00
085KB: Kennebec-----	86	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.82 0.50	Very limited Flooding Shrink-swell	1.00 0.50
085MC: Martin-----	48	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.44 0.00	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.00	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 1.00 0.44
Vinland-----	40	Somewhat limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.00	Very limited Depth to soft bedrock Shrink-swell Slope	1.00 0.50 0.00	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50
085ZA: Zook-----	90	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
087EC: Eudora-----	65	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Bismarckgrove-----	20	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
087HC: Haig-----	85	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
087KV: Konawa-----	91	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope Shrink-swell	0.86 0.50
087RS: Rossville-----	85	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
087SO: Shelby-----	65	Somewhat limited Shrink-swell Slope	0.50 0.16	Somewhat limited Shrink-swell Slope	0.50 0.16	Very limited Slope Shrink-swell	1.00 0.50
Pawnee-----	25	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.16	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.16	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 1.00
087WC: Wabash-----	94	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
139ED: Elmont-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
149KM: Kimo-----	90	Very limited Flooding Depth to saturated zone	1.00 0.44	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.44
197IB: Irwin-----	80	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
197IV: Ivan-----	90	Very limited Flooding Shrink-swell	1.00 0.00	Very limited Flooding	1.00	Very limited Flooding Shrink-swell	1.00 0.00
197IX: Ivan-----	80	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
197MR: Morrill-----	75	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
197MS: Morrill, very stony-	75	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Slope Shrink-swell	1.00 0.50
197SA: Sarpy-----	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
197WF: Wamego-----	75	Very limited Shrink-swell Slope	1.00 0.37	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 0.84 0.37	Very limited Shrink-swell Slope	1.00 1.00
197WY: Wymore-----	100	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.00
2797: Morrill, stony-----	85	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Shrink-swell Slope	0.50 0.04	Very limited Slope Shrink-swell	1.00 0.50
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
An: Kennebec-----	90	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.82 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Bk: Martin-----	54	Very limited Shrink-swell Depth to saturated zone	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Slope Depth to saturated zone	1.00 0.86 0.50
Kennebec-----	43	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.82 0.50	Very limited Flooding Shrink-swell	1.00 0.50
BOA: Borrow Areas-----	100	Not rated		Not rated		Not rated	
Br: Fluvents-----	97	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.95 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Dm: Dwight-----	60	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Martin-----	30	Very limited Shrink-swell Depth to saturated zone	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.50
Ds: Dwight-----	97	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Dw: Dwight-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
El: Elmont-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Em: Elmont, eroded-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
En: Elmont-----	90	Somewhat limited Shrink-swell Slope	0.50 0.16	Somewhat limited Shrink-swell Slope	0.50 0.16	Very limited Slope Shrink-swell	1.00 0.50
Eo: Elmont, eroded-----	90	Somewhat limited Shrink-swell Slope	0.50 0.16	Somewhat limited Shrink-swell Slope	0.50 0.16	Very limited Slope Shrink-swell	1.00 0.50
Ep: Elmont, eroded-----	75	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.12
Dwight-----	25	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Es: Eudora-----	95	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Et: Eudora-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Eu: Eudora-----	85	Very limited Flooding Slope	1.00 0.04	Very limited Flooding Slope	1.00 0.04	Very limited Flooding Slope	1.00 1.00

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ev: Eudora-----	60	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Kimo-----	30	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00
		Depth to saturated zone	0.44			Depth to saturated zone	0.44
Ew: Eudora-----	60	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Kimo-----	30	Very limited Flooding Depth to saturated zone	1.00 1.00 0.44	Very limited Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00 0.44
Gm: Gymer-----	88	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
Gy: Gymer-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
INL: Aguolls-----	100	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Kb: Kennebec-----	95	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.82 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Kc: Chase-----	85	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.44	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 0.50 0.44
KF: Kennebec-----	98	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.82 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Km: Kimo-----	90	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 1.00 0.44	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Shrink-swell Depth to saturated zone	1.00 1.00 1.00 0.44
Ko: Kimo-----	95	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	1.00 1.00 1.00
Ks: Kipson-----	50	Somewhat limited Depth to soft bedrock Slope Shrink-swell	1.00 0.96 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 0.96 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50
Sogn-----	35	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.16	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.16	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50
Ku: Konawa-----	85	Not limited		Not limited		Somewhat limited Slope	0.48

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Kw: Konawa-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
La: Labette-----	88	Very limited Shrink-swell Depth to hard bedrock	1.00 0.01	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 0.01
Lb: Labette-----	85	Very limited Shrink-swell Depth to hard bedrock	1.00 0.01	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.12 0.01
Lc: Labette, eroded----	95	Very limited Shrink-swell Depth to hard bedrock	1.00 0.06	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Slope Depth to hard bedrock	1.00 0.12 0.06
Ld: Ladysmith-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.50
LIQ: Limestone Quarry----	100	Not rated		Not rated		Not rated	
Lm: Ladysmith-----	85	Very limited Shrink-swell Depth to saturated zone	1.00 0.44	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.44
Ls: Ladysmith, eroded----	100	Very limited Shrink-swell Depth to saturated zone	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.50
Ma: Made Land-----	100	Not rated		Not rated		Not rated	
Mb: Martin-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.44	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone	1.00 0.44
Mc: Martin-----	85	Very limited Shrink-swell Depth to saturated zone	1.00 0.44	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.44 0.12
Me: Martin, eroded-----	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.50	Very limited Depth to saturated zone Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.50 0.12
Mf: Martin-----	90	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.50 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.50

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mh: Martin, eroded-----	85	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	0.50		1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.50
Mk: Martin-----	90	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	0.50		1.00	Depth to saturated zone	0.50
						Slope	0.12
Mm: Morrill-----	91	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
						Slope	0.48
Mn: Morrill, eroded----	91	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
						Slope	0.48
Mo: Morrill-----	91	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope	0.16	Very limited Slope	1.00
		Slope	0.16			Shrink-swell	0.50
MOO: Morrill-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
						Slope	0.12
Mp: Morrill-----	55	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope	0.00	Very limited Slope	1.00
		Slope	0.00			Shrink-swell	0.50
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
			0.50		0.50		0.50
MRR: Morrill-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
						Slope	0.12
Pa: Pawnee-----	100	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00
			1.00		1.00		1.00
Pc: Pawnee-----	85	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00
			1.00		1.00	Slope	0.12
Pe: Pawnee, eroded-----	90	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00
			1.00		1.00	Slope	0.12
Pn: Pawnee-----	85	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00	Very limited Depth to saturated zone Shrink-swell	1.00
			1.00		1.00	Slope	1.00
		Slope	0.04	Slope	0.04		
RD: Reading-----	90	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
			0.50		0.50		0.50
Re: Reading-----	85	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00	Very limited Flooding Shrink-swell	1.00
			0.50		0.50		0.50

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rv: River Wash-----	100	Not rated		Not rated		Not rated	
Sa: Sarpy-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Eudora-----	45	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Sg: Sharpsburg-----	88	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Sh: Sharpsburg-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.12
Sk: Shelby-----	95	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Sm: Shelby-----	88	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
Sn: Shelby, eroded-----	100	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
So: Shelby-----	85	Somewhat limited Shrink-swell Slope	0.50 0.16	Somewhat limited Shrink-swell Slope	0.50 0.16	Very limited Slope Shrink-swell	1.00 0.50
Sp: Morrill-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
Sr: Morrill, eroded-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.48
Ss: Morrill-----	85	Somewhat limited Shrink-swell Slope	0.50 0.16	Somewhat limited Shrink-swell Slope	0.50 0.16	Very limited Slope Shrink-swell	1.00 0.50
St: Sibleyville-----	90	Not limited		Somewhat limited Depth to soft bedrock	0.01	Somewhat limited Slope	0.12
Su: Sibleyville-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope Depth to soft bedrock	0.04 0.01	Very limited Slope	1.00
Sv: Sogn-----	55	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.00	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 0.50 0.00	Very limited Depth to hard bedrock Slope Shrink-swell	1.00 1.00 0.50
Vinland-----	25	Somewhat limited Depth to soft bedrock Slope Shrink-swell	1.00 0.96 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 0.96 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50
Sw: Stony Steep Land----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50	Very limited Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.50

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Vn: Vinland-----	100	Somewhat limited Depth to soft bedrock Shrink-swell	1.00 0.50	Very limited Depth to soft bedrock Shrink-swell	1.00 0.50	Somewhat limited Depth to soft bedrock Slope Shrink-swell	1.00 0.86 0.50
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wabash-----	90	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Wb: Wabash-----	88	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
We: Welda-----	95	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope Shrink-swell	0.86 0.50

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Very limited Shrink-swell	1.00	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to bedrock	0.01
		Frost action	0.50	Too clayey	0.41		
		Depth to hard bedrock	0.01	Cutbanks cave	0.10		
045SV: Sibleyville-----	50	Somewhat limited Frost action	0.50	Somewhat limited Depth to soft bedrock	0.71	Somewhat limited Depth to bedrock	0.71
		Slope	0.37	Slope	0.37	Slope	0.37
				Cutbanks cave	0.10		
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Slope	1.00	Very limited Depth to soft bedrock	1.00	Very limited Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	0.11
		Frost action	0.50				
045VM: Vinland-----	40	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Very limited Depth to bedrock	1.00
		Shrink-swell	0.50	Slope	0.37	Slope	0.37
		Frost action	0.50	Cutbanks cave	0.10	Droughty	0.11
		Slope	0.37				
Martin-----	25	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.19
		Shrink-swell	1.00	Too clayey	0.32	Slope	0.04
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
		Slope	0.04	Slope	0.04		
045WS: Woodson-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Frost action	1.00	Too clayey	0.50		
		Shrink-swell	1.00	Cutbanks cave	0.10		
085KB: Kennebec-----	86	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone	0.82	Somewhat limited Flooding	0.60
		Flooding	1.00	Flooding	0.60		
		Shrink-swell	0.50	Cutbanks cave	0.10		
085MC: Martin-----	48	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.19
		Shrink-swell	1.00	Too clayey	0.32	Slope	0.00
		Depth to saturated zone	0.19	Cutbanks cave	0.10		
		Slope	0.00	Slope	0.00		
Vinland-----	40	Somewhat limited Depth to soft bedrock	1.00	Very limited Depth to soft bedrock	1.00	Very limited Depth to bedrock	1.00
		Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	0.05
		Frost action	0.50	Slope	0.00	Slope	0.00
		Slope	0.00				
085ZA: Zook-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
		Shrink-swell	1.00	Too clayey	0.01		

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
087EC: Eudora-----	65	Very limited Frost action Flooding	1.00 1.00	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
Bismarckgrove-----	20	Very limited Frost action Flooding Shrink-swell	1.00 1.00 0.50	Very limited Cutbanks cave Flooding	1.00 0.60	Somewhat limited Flooding	0.60
087HC: Haig-----	85	Very limited Depth to saturated zone Frost action Shrink-swell	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Depth to saturated zone	1.00
087KV: Konawa-----	91	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
087RS: Rossville-----	85	Very limited Frost action Shrink-swell Flooding	1.00 0.50 0.20	Somewhat limited Cutbanks cave	0.10	Not limited	
087SO: Shelby-----	65	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Pawnee-----	25	Very limited Frost action Shrink-swell Depth to saturated zone Slope	1.00 1.00 1.00 0.16	Very limited Depth to saturated zone Slope Too clayey Cutbanks cave	1.00 0.16 0.12 0.10	Very limited Depth to saturated zone Slope	1.00 0.16
087WC: Wabash-----	94	Very limited Shrink-swell Depth to saturated zone Frost action Flooding	1.00 1.00 0.50 0.20	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.50 0.10	Very limited Depth to saturated zone	1.00
139ED: Elmont-----	85	Very limited Frost action Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
149KM: Kimo-----	90	Very limited Frost action Flooding Depth to saturated zone	1.00 0.40 0.19	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Too clayey Depth to saturated zone	1.00 0.19
197IB: Irwin-----	80	Very limited Shrink-swell Frost action	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	
197IV: Ivan-----	90	Very limited Flooding Frost action Shrink-swell	1.00 0.50 0.00	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
197IX: Ivan-----	80	Very limited Flooding Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Flooding Cutbanks cave	0.80 0.10	Very limited Flooding	1.00
197MR: Morrill-----	75	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
197MS: Morrill, very stony-	75	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.04	Very limited Cutbanks cave Slope	1.00 0.04	Somewhat limited Slope Content of large stones	0.04 0.01

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
197SA: Sarpy-----	85	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding	1.00 0.80	Very limited Flooding Droughty	1.00 0.69
197WF: Wamego-----	75	Very limited Shrink-swell	1.00	Somewhat limited Depth to soft bedrock	0.84	Somewhat limited Depth to bedrock	0.84
		Frost action	0.50	Slope	0.37	Slope	0.37
		Slope	0.37	Cutbanks cave	0.10		
197WY: Wymore-----	100	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Shrink-swell	1.00	Too clayey	0.32		
		Depth to saturated zone	1.00	Cutbanks cave	0.10		
2797: Morrill, stony-----	85	Somewhat limited Shrink-swell	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Slope	0.04
		Frost action	0.50	Slope	0.04		
		Slope	0.04				
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
An: Kennebec-----	90	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone	0.82	Very limited Flooding	1.00
		Flooding	1.00	Flooding	0.80		
		Shrink-swell	0.50	Cutbanks cave	0.10		
Bk: Martin-----	54	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.22
		Shrink-swell	1.00	Too clayey	0.32		
		Depth to saturated zone	0.22	Cutbanks cave	0.10		
Kennebec-----	43	Very limited Frost action	1.00	Somewhat limited Depth to saturated zone	0.82	Very limited Flooding	1.00
		Flooding	1.00	Flooding	0.80		
		Shrink-swell	0.50	Cutbanks cave	0.10		
BOA: Borrow Areas-----	100	Not rated		Not rated		Not rated	
Br: Fluents-----	97	Very limited Flooding	1.00	Somewhat limited Depth to saturated zone	0.95	Very limited Flooding	1.00
		Shrink-swell	0.50	Flooding	0.80		
				Cutbanks cave	0.10		
Dm: Dwight-----	60	Very limited Shrink-swell	1.00	Somewhat limited Too clayey	0.68	Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Martin-----	30	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.22
		Shrink-swell	1.00	Too clayey	0.32		
		Depth to saturated zone	0.22	Cutbanks cave	0.10		
Ds: Dwight-----	97	Very limited Shrink-swell	1.00	Somewhat limited Too clayey	0.68	Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Dw: Dwight-----	85	Very limited Shrink-swell	1.00	Somewhat limited Too clayey	0.76	Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
El: Elmont-----	90	Very limited Frost action	1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
		Shrink-swell	0.50				

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Em: Elmont, eroded-----	90	Very limited Frost action Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
En: Elmont-----	90	Very limited Frost action Shrink-swell Slope	1.00 0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Eo: Elmont, eroded-----	90	Very limited Frost action Shrink-swell Slope	1.00 0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Ep: Elmont, eroded-----	75	Very limited Frost action Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Dwight-----	25	Very limited Shrink-swell Frost action	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.76 0.10	Not limited	
Es: Eudora-----	95	Very limited Frost action Flooding	1.00 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Et: Eudora-----	90	Very limited Frost action Flooding	1.00 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Eu: Eudora-----	85	Very limited Frost action Flooding Slope	1.00 0.40 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Ev: Eudora-----	60	Very limited Frost action Flooding	1.00 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Kimo-----	30	Very limited Frost action Shrink-swell Flooding Depth to saturated zone	1.00 1.00 1.00 0.40 0.19	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Somewhat limited Depth to saturated zone	0.19
Ew: Eudora-----	60	Very limited Frost action Flooding	1.00 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Kimo-----	30	Very limited Frost action Flooding Depth to saturated zone	1.00 0.40 0.19	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10	Somewhat limited Depth to saturated zone	0.19
Gm: Gymer-----	88	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Gy: Gymer-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
INL: Aquolls-----	100	Very limited Ponding Depth to saturated zone Flooding Frost action	1.00 1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Flooding Cutbanks cave	1.00 1.00 0.60 0.10	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.60
Kb: Kennebec-----	95	Very limited Frost action Flooding Low strength Shrink-swell	1.00 1.00 1.00 0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.82 0.60 0.10	Somewhat limited Flooding	0.60

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Kc: Chase-----	85	Very limited Frost action Flooding Shrink-swell Depth to saturated zone	1.00 1.00 0.50 0.19	Very limited Depth to saturated zone Flooding Too clayey Cutbanks cave	1.00 0.60 0.12 0.10	Somewhat limited Flooding Depth to saturated zone	0.60 0.19
KF: Kennebec-----	98	Very limited Frost action Flooding Low strength Shrink-swell	1.00 1.00 1.00 0.50	Somewhat limited Depth to saturated zone Flooding Cutbanks cave	0.82 0.80 0.10	Very limited Flooding	1.00
Km: Kimo-----	90	Very limited Frost action Shrink-swell Flooding Depth to saturated zone	1.00 1.00 0.40 0.19	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Somewhat limited Depth to saturated zone	0.19
Ko: Kimo-----	95	Very limited Ponding Depth to saturated zone Frost action Flooding	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Flooding Cutbanks cave Too clayey	1.00 1.00 0.60 0.10 0.04	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.60
Ks: Kipson-----	50	Somewhat limited Depth to soft bedrock Slope Shrink-swell Frost action	1.00 0.96 0.50 0.50	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Depth to bedrock Carbonate content Slope Droughty Content of large stones	1.00 1.00 0.96 0.36 0.20
Sogn-----	35	Very limited Depth to hard bedrock Shrink-swell Frost action Slope	1.00 0.50 0.50 0.16	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.16 0.10	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.16 0.00
Ku: Konawa-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Kw: Konawa-----	85	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
La: Labette-----	88	Very limited Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.01	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.12 0.10	Somewhat limited Depth to bedrock	0.01
Lb: Labette-----	85	Very limited Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.01	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.12 0.10	Somewhat limited Depth to bedrock	0.01
Lc: Labette, eroded----	95	Very limited Shrink-swell Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Too clayey Cutbanks cave	1.00 0.12 0.10	Somewhat limited Depth to bedrock	0.06

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ld: Ladysmith-----	90	Very limited Shrink-swell Frost action Depth to saturated zone	1.00 0.50 0.22	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.50 0.10	Somewhat limited Depth to saturated zone	0.22
LIQ: Limestone Quarry----	100	Not rated		Not rated		Not rated	
Lm: Ladysmith-----	85	Very limited Shrink-swell Frost action Depth to saturated zone	1.00 0.50 0.19	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.50 0.10	Somewhat limited Depth to saturated zone	0.19
Ls: Ladysmith, eroded----	100	Very limited Shrink-swell Frost action Depth to saturated zone	1.00 0.50 0.22	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.50 0.10	Somewhat limited Depth to saturated zone	0.22
Ma: Made Land-----	100	Not rated		Not rated		Not rated	
Mb: Martin-----	90	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 0.19	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.32 0.10	Somewhat limited Depth to saturated zone	0.19
Mc: Martin-----	85	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 0.19	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.32 0.10	Somewhat limited Depth to saturated zone	0.19
Me: Martin, eroded-----	90	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 0.22	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.32 0.10	Somewhat limited Depth to saturated zone	0.22
Mf: Martin-----	90	Very limited Frost action Shrink-swell Depth to saturated zone Slope	1.00 1.00 0.22 0.04	Very limited Depth to saturated zone Too clayey Cutbanks cave Slope	1.00 0.32 0.10 0.04	Somewhat limited Depth to saturated zone Slope	0.22 0.04
Mh: Martin, eroded-----	85	Very limited Frost action Shrink-swell Depth to saturated zone Slope	1.00 1.00 0.22 0.04	Very limited Depth to saturated zone Too clayey Cutbanks cave Slope	1.00 0.32 0.10 0.04	Somewhat limited Depth to saturated zone Slope	0.22 0.04
Mk: Martin-----	90	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 0.22	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.32 0.10	Very limited Too clayey Depth to saturated zone	1.00 0.22
Mm: Morrill-----	91	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mn: Morrill, eroded-----	91	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Mo: Morrill-----	91	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
MOO: Morrill-----	90	Somewhat limited Shrink-swell Frost action Low strength	0.50 0.50 0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
Mp: Morrill-----	55	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Somewhat limited Shrink-swell Frost action Flooding	0.50 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
MRR: Morrill-----	90	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Pa: Pawnee-----	100	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Depth to saturated zone	1.00
Pc: Pawnee-----	85	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Depth to saturated zone	1.00
Pe: Pawnee, eroded-----	90	Very limited Frost action Shrink-swell Depth to saturated zone	1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.12 0.10	Very limited Depth to saturated zone	1.00
Pn: Pawnee-----	85	Very limited Frost action Shrink-swell Depth to saturated zone Slope	1.00 1.00 1.00 0.04	Very limited Depth to saturated zone Too clayey Cutbanks cave Slope	1.00 0.12 0.10 0.04	Very limited Depth to saturated zone Slope	1.00 0.04
RD: Reading-----	90	Very limited Frost action Low strength Shrink-swell Flooding	1.00 1.00 0.50 0.40	Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
Re: Reading-----	85	Very limited Frost action Shrink-swell Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
Rv: River Wash-----	100	Not rated		Not rated		Not rated	

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sa: Sarpy-----	100	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding	1.00 0.80	Very limited Flooding Droughty Too sandy	1.00 0.69 0.50
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding	1.00 0.60	Somewhat limited Droughty Flooding	0.69 0.60
Eudora-----	45	Very limited Frost action Flooding	1.00 1.00	Somewhat limited Flooding Cutbanks cave	0.60 0.10	Somewhat limited Flooding	0.60
Sg: Sharpsburg-----	88	Very limited Frost action Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Sh: Sharpsburg-----	85	Very limited Frost action Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
Sk: Shelby-----	95	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Sm: Shelby-----	88	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Sn: Shelby, eroded-----	100	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
So: Shelby-----	85	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
Sp: Morrill-----	85	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Sr: Morrill, eroded-----	85	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ss: Morrill-----	85	Somewhat limited Shrink-swell Frost action Slope	0.50 0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
St: Sibleyville-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave Depth to soft bedrock	0.10 0.01	Somewhat limited Depth to bedrock	0.01
Su: Sibleyville-----	90	Somewhat limited Frost action Slope	0.50 0.04	Somewhat limited Cutbanks cave Slope Depth to soft bedrock	0.10 0.04 0.01	Somewhat limited Slope Depth to bedrock	0.04 0.01

BUILDING SITE DEVELOPMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sv: Sogn-----	55	Very limited Depth to hard bedrock Shrink-swell Frost action Slope	1.00 0.50 0.50 0.00	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.00	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.00 0.00
Vinland-----	25	Somewhat limited Depth to soft bedrock Slope Shrink-swell Frost action	1.00 0.96 0.50 0.50	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Depth to bedrock Slope Droughty	1.00 0.96 0.40
Sw: Stony Steep Land----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Depth to soft bedrock Slope Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.05
Vn: Vinland-----	100	Somewhat limited Depth to soft bedrock Shrink-swell Frost action	1.00 0.50 0.50	Very limited Depth to soft bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Droughty	1.00 0.40
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wabash-----	90	Very limited Shrink-swell Depth to saturated zone Flooding Frost action	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Flooding Too clayey Cutbanks cave	1.00 0.60 0.50 0.10	Very limited Depth to saturated zone Too clayey Flooding	1.00 1.00 0.60
Wb: Wabash-----	88	Very limited Shrink-swell Depth to saturated zone Flooding Frost action	1.00 1.00 1.00 0.50	Very limited Depth to saturated zone Flooding Too clayey Cutbanks cave	1.00 0.60 0.50 0.10	Very limited Depth to saturated zone Flooding	1.00 0.60
We: Welda-----	95	Somewhat limited Shrink-swell Frost action	0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

CONSTRUCTION MATERIALS
Shawnee County, Kansas

Construction Materials

The following tables give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated good, fair, or poor as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a probable or improbable source of sand and gravel. A rating of probable means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In these tables, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
045OE: Oska-----	88	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
045SV: Sibleyville-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.01
045SX: Rock Outcrop-----	60	Not rated		Not rated	
Vinland-----	26	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
045VM: Vinland-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Martin-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
045WS: Woodson-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
085KB: Kennebec-----	86	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
085MC: Martin-----	48	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Vinland-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
085ZA: Zook-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
087EC: Eudora-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Bismarckgrove-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.22
087HC: Haig-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
087KV: Konawa-----	91	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.03 0.08
087RS: Rossville-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
087SO: Shelby-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Pawnee-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
087WC: Wabash-----	94	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
139ED: Elmont-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
149KM: Kimo-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197IB: Irwin-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197IV: Ivan-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197IX: Ivan-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197MR: Morrill-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197MS: Morrill, very stony-	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197SA: Sarpy-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.50 0.50
197WF: Wamego-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
197WY: Wymore-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2797: Morrill, stony-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.04
AED: Arents, Earthen Dam-	100	Not rated		Not rated	
An: Kennebec-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Bk: Martin-----	54	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Kennebec-----	43	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
BOA: Borrow Areas-----	100	Not rated		Not rated	
Br: Fluents-----	97	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dm: Dwight-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Martin-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ds: Dwight-----	97	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dw: Dwight-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
El: Elmont-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Em: Elmont, eroded-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
En: Elmont-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Eo: Elmont, eroded-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ep: Elmont, eroded-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dwight-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Es: Eudora-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.06 0.08
Et: Eudora-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Eu: Eudora-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Ev: Eudora-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Kimo-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ew: Eudora-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.08
Kimo-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Gm: Gymer-----	88	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Gy: Gymer-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
INL: Aquolls-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Kb: Kennebec-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Kc: Chase-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
KF: Kennebec-----	98	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Km: Kimo-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ko: Kimo-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.07
Ks: Kipson-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sogn-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ku: Konawa-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Thickest layer Bottom layer	0.00 0.00
Kw: Konawa-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Thickest layer Bottom layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
La: Labette-----	88	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Lb: Labette-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Lc: Labette, eroded----	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ld: Ladysmith-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
LIQ: Limestone Quarry----	100	Not rated		Not rated	
Lm: Ladysmith-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ls: Ladysmith, eroded---	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ma: Made Land-----	100	Not rated		Not rated	
Mb: Martin-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mc: Martin-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Me: Martin, eroded-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mf: Martin-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mh: Martin, eroded-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mk: Martin-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mm: Morrill-----	91	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mn: Morrill, eroded-----	91	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Mo: Morrill-----	91	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
MOO: Morrill-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Mp: Morrill-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Gravelly Land-----	30	Not rated		Not rated	
Mr: Muir-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
MRR: Morrill-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Pa: Pawnee-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Pc: Pawnee-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Pe: Pawnee, eroded-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Pn: Pawnee-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RD: Reading-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Re: Reading-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rv: River Wash-----	100	Not rated		Not rated	
Sa: Sarpy-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.50 0.50
SAP: Sand Pit-----	100	Not rated		Not rated	
Se: Sarpy-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.50 0.50
Eudora-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.08

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Sg: Sharpsburg-----	88	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sh: Sharpsburg-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sk: Shelby-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sm: Shelby-----	88	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sn: Shelby, eroded-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
So: Shelby-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sp: Morrill-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.03 0.08
Sr: Morrill, eroded-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.03 0.08
Ss: Morrill-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.03 0.08
St: Sibleyville-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Su: Sibleyville-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sv: Sogn-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Vinland-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sw: Stony Steep Land----	60	Not rated		Not rated	
Vinland-----	26	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Vn: Vinland-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
W: Water-----	100	Not rated		Not rated	
Wa: Wabash-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Wb: Wabash-----	88	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
We: Welda-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Poor Too clayey Too acid Depth to bedrock No water erosion limitation	0.00 0.95 0.99 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.12	Poor Too Clayey Depth to bedrock	0.00 0.99
045SV: Sibleyville-----	50	Fair Depth to bedrock Droughty Low content of organic matter Too acid	0.29 0.57 0.88 0.97	Poor Depth to bedrock	0.00	Fair Depth to bedrock Rock fragments Slope	0.29 0.50 0.63
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Poor Depth to bedrock Droughty Low content of organic matter Water erosion Too clayey	0.00 0.07 0.88 0.90 0.92	Poor Depth to bedrock Slope Shrink-swell	0.00 0.00 0.87	Poor Slope Depth to bedrock Too Clayey Rock fragments	0.00 0.00 0.66 0.97
045VM: Vinland-----	40	Poor Depth to bedrock Droughty Low content of organic matter Water erosion Too clayey	0.00 0.07 0.88 0.90 0.92	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Depth to bedrock Slope Too Clayey Rock fragments	0.00 0.63 0.66 0.97
Martin-----	25	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.17 0.53	Poor Too Clayey Depth to saturated zone Slope	0.00 0.53 0.96
045WS: Woodson-----	90	Poor Too clayey Water erosion Too acid	0.00 0.90 0.95	Poor Depth to saturated zone Shrink-swell	0.00 0.15	Poor Too Clayey Depth to saturated zone	0.00 0.00
085KB: Kennebec-----	86	Good		Fair Shrink-swell	0.87	Good	
085MC: Martin-----	48	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.21 0.53	Poor Too Clayey Depth to saturated zone	0.00 0.53
Vinland-----	40	Poor Depth to bedrock Droughty Water erosion Too clayey	0.00 0.11 0.90 0.98	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Depth to bedrock Rock fragments Too Clayey	0.00 0.97 0.98
085ZA: Zook-----	90	Poor Too clayey No water erosion limitation	0.00 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Depth to saturated zone Too Clayey	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
087EC: Eudora-----	65	Fair Low content of organic matter Water erosion	0.32 0.90	Good		Good	
Bismarckgrove-----	20	Fair Water erosion Too clayey	0.90 0.92	Good		Fair Too Clayey	0.92
087HC: Haig-----	85	Poor Too clayey Low content of organic matter Too acid No water erosion limitation	0.00 0.32 0.74 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Too Clayey Depth to saturated zone	0.00 0.00
087KV: Konawa-----	91	Fair Low content of organic matter Too acid	0.32 0.84	Fair Shrink-swell	0.99	Good	
087RS: Rossville-----	85	Fair Low content of organic matter Water erosion Too acid	0.50 0.90 0.99	Fair Shrink-swell	0.88	Good	
087SO: Shelby-----	65	Fair Low content of organic matter Too clayey Too acid	0.88 0.92 0.97	Fair Shrink-swell	0.87	Fair Too Clayey Slope	0.66 0.84
Pawnee-----	25	Poor Too clayey No water erosion limitation	0.00 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.17	Poor Too Clayey Depth to saturated zone Slope	0.00 0.00 0.84
087WC: Wabash-----	94	Poor Too clayey No water erosion limitation	0.00 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.00	Poor Too Clayey Depth to saturated zone	0.00 0.00
139ED: Elmont-----	85	Fair Water erosion Too acid Too clayey	0.90 0.97 0.98	Fair Depth to bedrock Shrink-swell	0.74 0.91	Fair Too Clayey	0.81
149KM: Kimo-----	90	Poor Too clayey Low content of organic matter Water erosion	0.00 0.08 0.90	Fair Depth to saturated zone	0.53	Poor Too Clayey Depth to saturated zone	0.00 0.53
197IB: Irwin-----	80	Poor Too clayey	0.00	Fair Shrink-swell	0.15	Poor Too Clayey	0.00
197IV: Ivan-----	90	Good		Fair Shrink-swell	0.97	Good	
197IX: Ivan-----	80	Fair Too clayey	0.98	Fair Shrink-swell	0.87	Fair Too Clayey	0.98

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
197MR: Morrill-----	75	Fair Low content of organic matter Too clayey Too acid No water erosion limitation	0.88 0.92 0.97 0.99	Fair Shrink-swell	0.99	Fair Too Clayey Rock fragments	0.66 0.88
197MS: Morrill, very stony-	75	Fair Too acid Too clayey	0.97 0.98	Fair Shrink-swell	0.99	Fair Hard to reclaim Too Clayey Rock fragments Slope	0.50 0.81 0.88 0.96
197SA: Sarpy-----	85	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.08 0.35	Good		Poor Too sandy	0.00
197WF: Wamego-----	75	Fair Too clayey Depth to bedrock Droughty Water erosion Too acid	0.02 0.16 0.72 0.90 0.95	Poor Depth to bedrock Shrink-swell	0.00 0.19	Fair Too Clayey Depth to bedrock Slope	0.02 0.16 0.63
197WY: Wymore-----	100	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.12	Poor Too Clayey Depth to saturated zone	0.00 0.00
2797: Morrill, stony-----	85	Fair Too clayey Low content of organic matter Too acid	0.68 0.88 0.97	Fair Shrink-swell	0.99	Fair Too Clayey Rock fragments Slope	0.49 0.76 0.96
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
An: Kennebec-----	90	Good		Fair Shrink-swell	0.87	Good	
Bk: Martin-----	54	Poor Too clayey Low content of organic matter Too acid No water erosion limitation	0.00 0.88 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.21 0.50	Poor Too Clayey Depth to saturated zone	0.00 0.50
Kennebec-----	43	Good		Fair Shrink-swell	0.87	Good	
BOA: Borrow Areas-----	100	Not rated		Not rated		Not rated	
Br: Fluents-----	97	Fair Too acid	0.99	Fair Shrink-swell	0.87	Good	

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dm: Dwight-----	60	Poor Too clayey Low content of organic matter Water erosion	0.00 0.32 0.90	Fair Shrink-swell	0.12	Poor Too Clayey Sodium content	0.00 0.78
Martin-----	30	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.21 0.50	Poor Too Clayey Depth to saturated zone	0.00 0.50
Ds: Dwight-----	97	Poor Too clayey Low content of organic matter Water erosion	0.00 0.32 0.90	Fair Shrink-swell	0.12	Poor Too Clayey Sodium content	0.00 0.78
Dw: Dwight-----	85	Poor Too clayey Low content of organic matter Water erosion	0.00 0.32 0.90	Fair Shrink-swell	0.12	Poor Too Clayey Sodium content	0.00 0.78
El: Elmont-----	90	Fair Too clayey Water erosion Too acid	0.68 0.90 0.97	Fair Depth to bedrock Shrink-swell	0.58 0.87	Fair Too Clayey	0.53
Em: Elmont, eroded-----	90	Fair Too clayey Water erosion Too acid	0.82 0.90 0.97	Fair Depth to bedrock Shrink-swell	0.58 0.87	Fair Too Clayey	0.64
En: Elmont-----	90	Fair Too clayey Water erosion Too acid	0.82 0.90 0.97	Fair Depth to bedrock Shrink-swell	0.58 0.87	Fair Too Clayey Slope	0.64 0.84
Eo: Elmont, eroded-----	90	Fair Too clayey Water erosion Too acid	0.68 0.90 0.97	Fair Depth to bedrock Shrink-swell	0.58 0.87	Fair Too Clayey Slope	0.53 0.84
Ep: Elmont, eroded-----	75	Fair Too clayey Water erosion Too acid	0.82 0.90 0.97	Fair Depth to bedrock Shrink-swell	0.58 0.87	Fair Too Clayey	0.64
Dwight-----	25	Poor Too clayey Low content of organic matter Water erosion	0.00 0.32 0.90	Fair Shrink-swell	0.12	Poor Too Clayey Sodium content	0.00 0.78
Es: Eudora-----	95	Fair Water erosion Low content of organic matter	0.90 0.98	Good		Good	
Et: Eudora-----	90	Fair Low content of organic matter Water erosion	0.08 0.90	Good		Good	

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Eu: Eudora-----	85	Fair Low content of organic matter Water erosion	0.08 0.90	Good		Fair Slope	0.96
Ev: Eudora-----	60	Fair Water erosion	0.90	Good		Good	
Kimo-----	30	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.50 0.99	Fair Depth to saturated zone Shrink-swell	0.53 0.97	Poor Too Clayey Depth to saturated zone	0.00 0.53
Ew: Eudora-----	60	Fair Low content of organic matter Water erosion	0.08 0.90	Good		Good	
Kimo-----	30	Fair Too clayey Low content of organic matter Water erosion	0.02 0.88 0.90	Fair Depth to saturated zone Shrink-swell	0.53 0.99	Fair Too Clayey Depth to saturated zone	0.02 0.53
Gm: Gymer-----	88	Fair Too clayey Too acid Low content of organic matter Water erosion	0.02 0.84 0.88 0.90	Fair Shrink-swell	0.90	Fair Too Clayey	0.02
Gy: Gymer-----	100	Fair Too clayey Too acid Water erosion	0.68 0.84 0.90	Fair Shrink-swell	0.87	Fair Too Clayey	0.59
INL: Aquolls-----	100	Poor Low content of organic matter	0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone	0.00
Kb: Kennebec-----	95	Good		Poor Low strength Shrink-swell	0.00 0.87	Good	
Kc: Chase-----	85	Good		Fair Shrink-swell Depth to saturated zone	0.41 0.53	Fair Depth to saturated zone	0.53
KF: Kennebec-----	98	Good		Poor Low strength Shrink-swell	0.00 0.87	Good	
Km: Kimo-----	90	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.50 0.99	Fair Depth to saturated zone Shrink-swell	0.53 0.97	Poor Too Clayey Depth to saturated zone	0.00 0.53

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ko: Kimo-----	95	Fair Low content of organic matter No water erosion limitation	0.50 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.99	Poor Depth to saturated zone	0.00
Ks: Kipson-----	50	Poor Depth to bedrock Carbonate content Droughty Low content of organic matter Too clayey	0.00 0.00 0.01 0.88 0.92	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Depth to bedrock Carbonate content Slope Too Clayey Rock fragments	0.00 0.00 0.04 0.66 0.68
Sogn-----	35	Poor Droughty Depth to bedrock Too clayey	0.00 0.00 0.98	Poor Depth to bedrock	0.00	Poor Depth to bedrock Slope Too Clayey	0.00 0.84 0.93
Ku: Konawa-----	85	Fair Low content of organic matter Too acid	0.32 0.54	Good		Good	
Kw: Konawa-----	85	Fair Low content of organic matter Too acid	0.32 0.54	Good		Fair Slope	0.84
La: Labette-----	88	Poor Too clayey Too acid Depth to bedrock No water erosion limitation	0.00 0.95 0.99 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.19	Poor Rock fragments Too Clayey Depth to bedrock	0.00 0.00 0.99
Lb: Labette-----	85	Poor Too clayey Too acid Depth to bedrock No water erosion limitation	0.00 0.95 0.99 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.19	Poor Rock fragments Too Clayey Depth to bedrock	0.00 0.00 0.99
Lc: Labette, eroded----	95	Poor Too clayey Depth to bedrock Too acid No water erosion limitation	0.00 0.93 0.95 0.99	Poor Depth to bedrock Shrink-swell	0.00 0.12	Poor Rock fragments Too Clayey Depth to bedrock	0.00 0.00 0.93
Ld: Ladysmith-----	90	Poor Too clayey No water erosion limitation	0.00 0.99	Fair Shrink-swell Depth to saturated zone	0.12 0.50	Poor Too Clayey Depth to saturated zone	0.00 0.50
LIQ: Limestone Quarry----	100	Not rated		Not rated		Not rated	
Lm: Ladysmith-----	85	Poor Too clayey No water erosion limitation	0.00 0.99	Fair Shrink-swell Depth to saturated zone	0.26 0.53	Poor Too Clayey Depth to saturated zone	0.00 0.53
Ls: Ladysmith, eroded---	100	Poor Too clayey No water erosion limitation	0.00 0.99	Fair Shrink-swell Depth to saturated zone	0.26 0.50	Poor Too Clayey Depth to saturated zone	0.00 0.50

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ma: Made Land-----	100	Not rated		Not rated		Not rated	
Mb: Martin-----	90	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.21 0.53	Poor Too Clayey Depth to saturated zone	0.00 0.53
Mc: Martin-----	85	Poor Too clayey Low content of organic matter Too acid No water erosion limitation	0.00 0.88 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.17 0.53	Poor Too Clayey Depth to saturated zone	0.00 0.53
Me: Martin, eroded-----	90	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.12 0.50	Poor Too Clayey Depth to saturated zone	0.00 0.50
Mf: Martin-----	90	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.21 0.50	Poor Too Clayey Depth to saturated zone Slope	0.00 0.50 0.96
Mh: Martin, eroded-----	85	Poor Too clayey Too acid No water erosion limitation	0.00 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.12 0.50	Poor Too Clayey Depth to saturated zone Slope	0.00 0.50 0.96
Mk: Martin-----	90	Poor Too clayey Low content of organic matter Too acid No water erosion limitation	0.00 0.50 0.95 0.99	Fair Shrink-swell Depth to saturated zone	0.12 0.50	Poor Too Clayey Depth to saturated zone	0.00 0.50
Mm: Morrill-----	91	Fair Low content of organic matter Too acid No water erosion limitation	0.50 0.97 0.99	Fair Shrink-swell	0.94	Fair Rock fragments	0.97
Mn: Morrill, eroded-----	91	Fair Low content of organic matter Too acid No water erosion limitation	0.50 0.97 0.99	Good		Fair Rock fragments	0.88
Mo: Morrill-----	91	Fair Low content of organic matter Too acid No water erosion limitation	0.50 0.97 0.99	Good		Fair Slope Rock fragments	0.84 0.97

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MOO: Morrill-----	90	Fair Low content of organic matter Too acid No water erosion limitation	0.50 0.97 0.99	Fair Shrink-swell	0.90	Fair Rock fragments	0.88
Mp: Morrill-----	55	Fair Low content of organic matter Too acid No water erosion limitation	0.50 0.97 0.99	Good		Fair Rock fragments	0.97
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Good		Fair Shrink-swell	0.87	Good	
MRR: Morrill-----	90	Fair Low content of organic matter Too clayey Too acid	0.88 0.92 0.97	Fair Shrink-swell	0.87	Fair Too Clayey Rock fragments	0.66 0.88
Pa: Pawnee-----	100	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.50 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.23	Poor Too Clayey Depth to saturated zone	0.00 0.00
Pc: Pawnee-----	85	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.08 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.17	Poor Too Clayey Depth to saturated zone	0.00 0.00
Pe: Pawnee, eroded-----	90	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.08 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.17	Poor Too Clayey Depth to saturated zone	0.00 0.00
Pn: Pawnee-----	85	Poor Too clayey Low content of organic matter No water erosion limitation	0.00 0.50 0.99	Poor Depth to saturated zone Shrink-swell	0.00 0.23	Poor Too Clayey Depth to saturated zone Slope	0.00 0.00 0.96
RD: Reading-----	90	Fair Water erosion Too acid Too clayey	0.90 0.95 0.98	Poor Low strength Shrink-swell	0.00 0.90	Fair Too Clayey	0.89
Re: Reading-----	85	Fair Water erosion Too acid Too clayey	0.90 0.95 0.98	Fair Shrink-swell	0.87	Fair Too Clayey	0.89

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rv: River Wash-----	100	Not rated		Not rated		Not rated	
Sa: Sarpy-----	100	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.63	Good		Poor Too sandy	0.00
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Poor Too sandy Wind erosion Low content of organic matter Droughty	0.00 0.00 0.12 0.35	Good		Poor Too sandy	0.00
Eudora-----	45	Fair Water erosion	0.90	Good		Good	
Sg: Sharpsburg-----	88	Fair Too acid Low content of organic matter Water erosion Too clayey	0.74 0.88 0.90 0.92	Fair Shrink-swell	0.29	Fair Too Clayey	0.92
Sh: Sharpsburg-----	85	Fair Too acid Low content of organic matter Water erosion Too clayey	0.74 0.88 0.90 0.98	Fair Shrink-swell	0.29	Fair Too Clayey	0.98
Sk: Shelby-----	95	Fair Low content of organic matter Too clayey Too acid	0.88 0.92 0.97	Fair Shrink-swell	0.87	Fair Too Clayey	0.66
Sm: Shelby-----	88	Fair Low content of organic matter Too clayey Too acid	0.88 0.92 0.97	Fair Shrink-swell	0.87	Fair Too Clayey	0.66
Sn: Shelby, eroded-----	100	Fair Low content of organic matter Too clayey Too acid	0.88 0.92 0.97	Fair Shrink-swell	0.87	Fair Too Clayey	0.66
So: Shelby-----	85	Fair Low content of organic matter Too clayey Too acid	0.88 0.92 0.97	Fair Shrink-swell	0.87	Fair Too Clayey Slope	0.66 0.84
Sp: Morrill-----	85	Fair Low content of organic matter Too acid	0.88 0.97	Good		Fair Rock fragments	0.88

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sr: Morrill, eroded-----	85	Fair Low content of organic matter Too acid	0.88 0.97	Fair Shrink-swell	0.99	Fair Rock fragments	0.88
Ss: Morrill-----	85	Fair Low content of organic matter Too acid	0.88 0.97	Good		Fair Slope Rock fragments	0.84 0.88
St: Sibleyville-----	90	Fair Too acid Depth to bedrock	0.97 0.99	Poor Depth to bedrock	0.00	Fair Depth to bedrock	0.99
Su: Sibleyville-----	90	Fair Too acid Depth to bedrock	0.97 0.99	Poor Depth to bedrock	0.00	Fair Slope Depth to bedrock	0.96 0.99
Sv: Sogn-----	55	Poor Droughty Depth to bedrock Too clayey	0.00 0.00 0.98	Poor Depth to bedrock	0.00	Poor Depth to bedrock Too Clayey	0.00 0.93
Vinland-----	25	Poor Depth to bedrock Droughty Low content of organic matter Water erosion Too clayey	0.00 0.00 0.88 0.90 0.92	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Depth to bedrock Slope Too Clayey Rock fragments	0.00 0.04 0.66 0.97
Sw: Stony Steep Land----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Poor Depth to bedrock Droughty Water erosion Too clayey	0.00 0.11 0.90 0.98	Poor Depth to bedrock Slope Shrink-swell	0.00 0.00 0.87	Poor Depth to bedrock Slope Rock fragments Too Clayey	0.00 0.00 0.97 0.98
Vn: Vinland-----	100	Poor Depth to bedrock Droughty Low content of organic matter Water erosion Too clayey	0.00 0.00 0.88 0.90 0.92	Poor Depth to bedrock Shrink-swell	0.00 0.87	Poor Depth to bedrock Too Clayey Rock fragments	0.00 0.66 0.97
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wabash-----	90	Poor Too clayey	0.00	Poor Depth to saturated zone Shrink-swell	0.00 0.00	Poor Too Clayey Depth to saturated zone	0.00 0.00
Wb: Wabash-----	88	Poor Too clayey	0.00	Poor Depth to saturated zone Shrink-swell	0.00 0.00	Poor Too Clayey Depth to saturated zone	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
We: Welda-----	95	Fair Low content of organic matter Too clayey Too acid No water erosion limitation	0.18 0.32 0.84 0.99	Fair Shrink-swell	0.89	Fair Too Clayey	0.19

RECREATIONAL INTERPRETATIONS
Shawnee County, Kansas

Recreation

The soils of the survey area are rated in the following tables according to limitations that affect their suitability for recreation. 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 the recreational 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. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 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).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in this table can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Somewhat limited Restricted permeability	0.94	Somewhat limited Restricted permeability	0.94	Somewhat limited Restricted permeability Slope Depth to bedrock	0.94 0.87 0.01
045SV: Sibleyville-----	50	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope Depth to bedrock	1.00 0.71
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.04
045VM: Vinland-----	40	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.04
Martin-----	25	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.94 0.44 0.04	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.94 0.19 0.04	Very limited Slope Restricted permeability Depth to saturated zone	1.00 0.94 0.44
045WS: Woodson-----	90	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Very limited Depth to saturated zone Restricted permeability Slope	1.00 1.00 0.00
085KB: Kennebec-----	86	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
085MC: Martin-----	48	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.94 0.44 0.00	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.94 0.19 0.00	Very limited Slope Restricted permeability Depth to saturated zone	1.00 0.94 0.44
Vinland-----	40	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.04
085ZA: Zook-----	90	Very limited Depth to saturated zone Flooding Restricted permeability	1.00 1.00 0.94	Very limited Depth to saturated zone Restricted permeability	1.00 0.94	Very limited Depth to saturated zone Restricted permeability Flooding	1.00 0.94 0.60
087EC: Eudora-----	65	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Bismarckgrove-----	20	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
087HC: Haig-----	85	Very limited Depth to saturated zone Restricted permeability	1.00 0.94	Very limited Depth to saturated zone Restricted permeability	1.00 0.94	Very limited Depth to saturated zone Restricted permeability	1.00 0.94
087KV: Konawa-----	91	Not limited		Not limited		Very limited Slope	1.00
087RS: Rossville-----	85	Very limited Flooding	1.00	Not limited		Not limited	
087SO: Shelby-----	65	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pawnee-----	25	Restricted permeability	0.15	Restricted permeability	0.15	Restricted permeability	0.15
		Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Slope	1.00
		Slope	0.16	Slope	0.16	Restricted permeability	0.94
087WC: Wabash-----	94	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Flooding	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Restricted permeability	1.00				
139ED: Elmont-----	85	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope	0.87
						Restricted permeability	0.15
149KM: Kimo-----	90	Very limited Flooding	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
		Too clayey	1.00	Restricted permeability	0.94	Restricted permeability	0.94
		Restricted permeability	0.94	Depth to saturated zone	0.19	Depth to saturated zone	0.44
		Depth to saturated zone	0.44				
197IB: Irwin-----	80	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45
						Slope	0.00
197IV: Ivan-----	90	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
197IX: Ivan-----	80	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
197MR: Morrill-----	75	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
						Restricted permeability	0.15
						Gravel content	0.06
197MS: Morrill, very stony-	75	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
		Slope	0.04	Slope	0.04	Restricted permeability	0.15
						Gravel content	0.02
						Content of large stones	0.01
197SA: Sarpy-----	85	Very limited Flooding	1.00	Somewhat limited Too sandy	0.88	Very limited Flooding	1.00
		Too sandy	0.88	Flooding	0.40	Too sandy Slope	0.88 0.00
197WF: Wamego-----	75	Somewhat limited Restricted permeability	0.94	Somewhat limited Restricted permeability	0.94	Very limited Slope	1.00
		Slope	0.37	Slope	0.37	Restricted permeability	0.94
						Depth to bedrock	0.84
197WY: Wymore-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
						Slope	0.50
2797: Morrill, stony-----	85	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Slope	0.04	Slope	0.04	Gravel content Restricted permeability	0.70 0.15
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
An: Kennebec-----	90	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Bk: Martin-----	54	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.50	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.22	Very limited Slope Restricted permeability Depth to saturated zone	1.00 0.94 0.50
Kennebec-----	43	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
BOA: Borrow Areas-----	100	Not rated		Not rated		Not rated	
Br: Fluents-----	97	Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Dm: Dwight-----	60	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability Slope	0.45 0.00
Martin-----	30	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.50	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.22	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.94 0.50 0.00
Ds: Dwight-----	97	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45
Dw: Dwight-----	85	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability Slope	0.45 0.00
El: Elmont-----	90	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope Restricted permeability	0.87 0.15
Em: Elmont, eroded-----	90	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope Restricted permeability	0.87 0.15
En: Elmont-----	90	Somewhat limited Slope Restricted permeability	0.16 0.15	Somewhat limited Slope Restricted permeability	0.16 0.15	Very limited Slope Restricted permeability	1.00 0.15
Eo: Elmont, eroded-----	90	Somewhat limited Slope Restricted permeability	0.16 0.15	Somewhat limited Slope Restricted permeability	0.16 0.15	Very limited Slope Restricted permeability	1.00 0.15
Ep: Elmont, eroded-----	75	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope Restricted permeability	0.87 0.15
Dwight-----	25	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability	0.45	Somewhat limited Restricted permeability Slope	0.45 0.13
Es: Eudora-----	95	Very limited Flooding	1.00	Not limited		Somewhat limited Slope	0.00

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Et: Eudora-----	90	Very limited Flooding	1.00	Not limited		Not limited	
Eu: Eudora-----	85	Very limited Flooding Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
Ev: Eudora-----	60	Very limited Flooding	1.00	Not limited		Not limited	
Kimo-----	30	Very limited Flooding	1.00	Somewhat limited		Somewhat limited	
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Depth to saturated zone	0.44	Depth to saturated zone	0.19	Depth to saturated zone	0.44
Ew: Eudora-----	60	Very limited Flooding	1.00	Not limited		Not limited	
Kimo-----	30	Very limited Flooding	1.00	Somewhat limited		Somewhat limited	
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Depth to saturated zone	0.44	Depth to saturated zone	0.19	Depth to saturated zone	0.44
Gm: Gymer-----	88	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
Gy: Gymer-----	100					Restricted permeability	0.15
		Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
						Restricted permeability	0.15
INL: Aguolls-----	100	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Restricted permeability	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Restricted permeability	1.00	Ponding	1.00
		Restricted permeability	1.00			Flooding	0.60
Kb: Kennebec-----	95	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Kc: Chase-----	85	Very limited Flooding	1.00	Somewhat limited		Somewhat limited	
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Depth to saturated zone	0.44	Depth to saturated zone	0.19	Flooding	0.60
KF: Kennebec-----	98					Depth to saturated zone	0.44
		Very limited Flooding	1.00	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Km: Kimo-----	90	Very limited Flooding	1.00	Somewhat limited		Somewhat limited	
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Depth to saturated zone	0.44	Depth to saturated zone	0.19	Depth to saturated zone	0.44
Ko: Kimo-----	95	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00	Very limited Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Restricted permeability	0.94	Restricted permeability	0.94
		Restricted permeability	0.94			Flooding	0.60

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ks: Kipson-----	50	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope Content of large stones	1.00 1.00 0.20
Sogn-----	35	Very limited Depth to bedrock Slope	1.00 0.16	Very limited Depth to bedrock Slope	1.00 0.16	Very limited Depth to bedrock Slope Content of large stones	1.00 1.00 0.00
Ku: Konawa-----	85	Not limited		Not limited		Very limited Slope	1.00
Kw: Konawa-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
La: Labette-----	88	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability Slope	0.39 0.00
Lb: Labette-----	85	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Slope Restricted permeability Depth to bedrock	0.87 0.39 0.01
Lc: Labette, eroded----	95	Somewhat limited Restricted permeability	0.39	Somewhat limited Restricted permeability	0.39	Somewhat limited Slope Restricted permeability Depth to bedrock	0.87 0.39 0.06
Ld: Ladysmith-----	90	Somewhat limited Depth to saturated zone Restricted permeability	0.50 0.45	Somewhat limited Restricted permeability Depth to saturated zone	0.45 0.22	Somewhat limited Depth to saturated zone Restricted permeability	0.50 0.45
LIQ: Limestone Quarry----	100	Not rated		Not rated		Not rated	
Lm: Ladysmith-----	85	Somewhat limited Restricted permeability Depth to saturated zone	0.45 0.44	Somewhat limited Restricted permeability Depth to saturated zone	0.45 0.19	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.45 0.44 0.00
Ls: Ladysmith, eroded---	100	Somewhat limited Depth to saturated zone Restricted permeability	0.50 0.45	Somewhat limited Restricted permeability Depth to saturated zone	0.45 0.22	Somewhat limited Depth to saturated zone Restricted permeability Slope	0.50 0.45 0.00
Ma: Made Land-----	100	Not rated		Not rated		Not rated	
Mb: Martin-----	90	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.44	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.19	Somewhat limited Restricted permeability Depth to saturated zone Slope	0.94 0.44 0.00
Mc: Martin-----	85	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.44	Somewhat limited Restricted permeability Depth to saturated zone	0.94 0.19	Somewhat limited Restricted permeability Slope Depth to saturated zone	0.94 0.87 0.44
Me: Martin, eroded-----	90	Somewhat limited		Somewhat limited		Somewhat limited	

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mf: Martin-----	90	Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Depth to saturated zone	0.50	Depth to saturated zone	0.22	Slope	0.87
						Depth to saturated zone	0.50
		Somewhat limited Restricted permeability	0.94	Somewhat limited Restricted permeability	0.94	Very limited Slope	1.00
Mh: Martin, eroded-----	85	Depth to saturated zone	0.50	Depth to saturated zone	0.22	Restricted permeability	0.94
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.50
		Somewhat limited Restricted permeability	0.94	Somewhat limited Restricted permeability	0.94	Very limited Slope	1.00
		Depth to saturated zone	0.50	Depth to saturated zone	0.22	Restricted permeability	0.94
Mk: Martin-----	90	Slope	0.04	Slope	0.04	Depth to saturated zone	0.50
		Very limited Too clayey	1.00	Very limited Too clayey	1.00	Very limited Too clayey	1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Depth to saturated zone	0.50	Depth to saturated zone	0.22	Slope	0.87
Mm: Morrill-----	91					Depth to saturated zone	0.50
		Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
						Restricted permeability	0.15
						Gravel content	0.06
Mn: Morrill, eroded-----	91	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
						Restricted permeability	0.15
						Gravel content	0.06
Mo: Morrill-----	91	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
		Restricted permeability	0.15	Restricted permeability	0.15	Restricted permeability	0.15
						Gravel content	0.06
MOO: Morrill-----	90	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope	0.87
						Restricted permeability	0.15
						Gravel content	0.06
Mp: Morrill-----	55	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
		Slope	0.00	Slope	0.00	Restricted permeability	0.15
						Gravel content	0.06
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Very limited Flooding	1.00	Not limited		Not limited	
MRR: Morrill-----	90	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope	0.87
						Restricted permeability	0.15
Pa: Pawnee-----	100	Very limited		Very limited		Gravel content	0.06
						Very limited	

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pc: Pawnee-----	85	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Slope		Slope		Slope	0.00
Pe: Pawnee, eroded-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Slope		Slope		Slope	0.87
Pn: Pawnee-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	0.94	Restricted permeability	0.94	Restricted permeability	0.94
		Slope	0.04	Slope	0.04	Slope	0.87
RD: Reading-----	90	Very limited Flooding	1.00	Not limited		Not limited	
Re: Reading-----	85	Very limited Flooding	1.00	Not limited		Not limited	
Rv: River Wash-----	100	Not rated		Not rated		Not rated	
Sa: Sarpy-----	100	Very limited Flooding Too sandy	1.00 0.88	Somewhat limited Too sandy Flooding	0.88 0.40	Very limited Flooding Too sandy	1.00 0.88
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Very limited Flooding Too sandy	1.00 0.88	Somewhat limited Too sandy	0.88	Somewhat limited Too sandy Flooding	0.88 0.60
Eudora-----	45	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
Sg: Sharpsburg-----	88	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability Slope	0.15 0.00
Sh: Sharpsburg-----	85	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope Restricted permeability	0.87 0.15
Sk: Shelby-----	95	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability Slope	0.15 0.00
Sm: Shelby-----	88	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope Restricted permeability	1.00 0.15
Sn: Shelby, eroded-----	100	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope Restricted permeability	1.00 0.15
So: Shelby-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sp: Morrill-----	85	Restricted permeability	0.15	Restricted permeability	0.15	Restricted permeability	0.15
		Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
						Restricted permeability Gravel content	0.15 0.06
Sr: Morrill, eroded----	85	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope	1.00
						Restricted permeability Gravel content	0.15 0.06
Ss: Morrill-----	85	Somewhat limited Slope Restricted permeability	0.16 0.15	Somewhat limited Slope Restricted permeability	0.16 0.15	Very limited Slope Restricted permeability Gravel content	1.00 0.15 0.06
St: Sibleyville-----	90	Not limited		Not limited		Somewhat limited Slope Depth to bedrock	0.87 0.01
Su: Sibleyville-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope Depth to bedrock	1.00 0.01
Sv: Sogn-----	55	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to bedrock Slope Content of large stones	1.00 1.00 0.00
Vinland-----	25	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.04
Sw: Stony Steep Land----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.04
Vn: Vinland-----	100	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Slope Gravel content	1.00 1.00 0.04
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wabash-----	90	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Restricted permeability Too clayey	1.00 1.00 1.00	Very limited Depth to saturated zone Restricted permeability Too clayey Flooding	1.00 1.00 1.00 0.60
		Restricted permeability Too clayey	1.00				
Wb: Wabash-----	88	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Very limited Depth to saturated zone Restricted permeability Flooding	1.00 1.00 0.60
		Restricted permeability	1.00				
We: Welda-----	95	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Very limited Slope Restricted permeability	1.00 0.15

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Not limited		Somewhat limited Depth to bedrock	0.01
045SV: Sibleyville-----	50	Not limited		Somewhat limited Depth to bedrock Slope	0.71 0.37
045SX: Rock Outcrop-----	60	Not rated		Not rated	
Vinland-----	26	Very limited Slope	1.00	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.11
045VM: Vinland-----	40	Not limited		Very limited Depth to bedrock Slope Droughty	1.00 0.37 0.11
Martin-----	25	Not limited		Somewhat limited Depth to saturated zone Slope	0.19 0.04
045WS: Woodson-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
085KB: Kennebec-----	86	Not limited		Somewhat limited Flooding	0.60
085MC: Martin-----	48	Not limited		Somewhat limited Depth to saturated zone Slope	0.19 0.00
Vinland-----	40	Not limited		Very limited Depth to bedrock Droughty Slope	1.00 0.05 0.00
085ZA: Zook-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
087EC: Eudora-----	65	Not limited		Somewhat limited Flooding	0.60
Bismarckgrove-----	20	Not limited		Somewhat limited Flooding	0.60
087HC: Haig-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
087KV: Konawa-----	91	Not limited		Not limited	
087RS: Rossville-----	85	Not limited		Not limited	
087SO: Shelby-----	65	Not limited		Somewhat limited Slope	0.16
Pawnee-----	25	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.16
087WC: Wabash-----	94	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
139ED: Elmont-----	85	Not limited		Not limited	
149KM: Kimo-----	90	Very limited Too clayey	1.00	Very limited Too clayey Depth to saturated zone	1.00 0.19
197IB: Irwin-----	80	Not limited		Not limited	
197IV: Ivan-----	90	Not limited		Somewhat limited Flooding	0.60

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
197IX: Ivan-----	80	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
197MR: Morrill-----	75	Not limited		Not limited	
197MS: Morrill, very stony-	75	Not limited		Somewhat limited Slope Content of large stones	0.04 0.01
197SA: Sarpy-----	85	Somewhat limited Too sandy Flooding	0.88 0.40	Very limited Flooding Droughty	1.00 0.69
197WF: Wamego-----	75	Not limited		Somewhat limited Depth to bedrock Slope	0.84 0.37
197WY: Wymore-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
2797: Morrill, stony-----	85	Not limited		Somewhat limited Slope	0.04
AED: Arents, Earthen Dam-	100	Not rated		Not rated	
An: Kennebec-----	90	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Bk: Martin-----	54	Not limited		Somewhat limited Depth to saturated zone	0.22
Kennebec-----	43	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
BOA: Borrow Areas-----	100	Not rated		Not rated	
Br: Fluents-----	97	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Dm: Dwight-----	60	Not limited		Not limited	
Martin-----	30	Not limited		Somewhat limited Depth to saturated zone	0.22
Ds: Dwight-----	97	Not limited		Not limited	
Dw: Dwight-----	85	Not limited		Not limited	
El: Elmont-----	90	Not limited		Not limited	
Em: Elmont, eroded-----	90	Not limited		Not limited	
En: Elmont-----	90	Not limited		Somewhat limited Slope	0.16
Eo: Elmont, eroded-----	90	Not limited		Somewhat limited Slope	0.16
Ep: Elmont, eroded-----	75	Not limited		Not limited	
Dwight-----	25	Not limited		Not limited	
Es: Eudora-----	95	Not limited		Not limited	
Et: Eudora-----	90	Not limited		Not limited	
Eu: Eudora-----	85	Not limited		Somewhat limited Slope	0.04
Ev: Eudora-----	60	Not limited		Not limited	
Kimo-----	30	Not limited		Somewhat limited Depth to saturated zone	0.19
Ew: Eudora-----	60	Not limited		Not limited	

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Kimo-----	30	Not limited		Somewhat limited Depth to saturated zone	0.19
Gm: Gymer-----	88	Not limited		Not limited	
Gy: Gymer-----	100	Not limited		Not limited	
INL: Aguolls-----	100	Very limited Depth to saturated zone Ponding	1.00	Very limited Ponding	1.00
			1.00	Depth to saturated zone Flooding	1.00 0.60
Kb: Kennebec-----	95	Not limited		Somewhat limited Flooding	0.60
Kc: Chase-----	85	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
KF: Kennebec-----	98	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
Km: Kimo-----	90	Not limited		Somewhat limited Depth to saturated zone	0.19
Ko: Kimo-----	95	Very limited Depth to saturated zone Ponding	1.00	Very limited Ponding	1.00
			1.00	Depth to saturated zone Flooding	1.00 0.60
Ks: Kipson-----	50	Not limited		Very limited Depth to bedrock Carbonate content Slope Droughty Content of large stones	1.00 1.00 0.96 0.36 0.20
Sogn-----	35	Not limited		Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.16 0.00
Ku: Konawa-----	85	Not limited		Not limited	
Kw: Konawa-----	85	Not limited		Somewhat limited Slope	0.16
La: Labette-----	88	Not limited		Somewhat limited Depth to bedrock	0.01
Lb: Labette-----	85	Not limited		Somewhat limited Depth to bedrock	0.01
Lc: Labette, eroded----	95	Not limited		Somewhat limited Depth to bedrock	0.06
Ld: Ladysmith-----	90	Not limited		Somewhat limited Depth to saturated zone	0.22
LIQ: Limestone Quarry----	100	Not rated		Not rated	
Lm: Ladysmith-----	85	Not limited		Somewhat limited Depth to saturated zone	0.19
Ls: Ladysmith, eroded----	100	Not limited		Somewhat limited Depth to saturated zone	0.22

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Ma: Made Land-----	100	Not rated		Not rated	
Mb: Martin-----	90	Not limited		Somewhat limited Depth to saturated zone	0.19
Mc: Martin-----	85	Not limited		Somewhat limited Depth to saturated zone	0.19
Me: Martin, eroded-----	90	Not limited		Somewhat limited Depth to saturated zone	0.22
Mf: Martin-----	90	Not limited		Somewhat limited Depth to saturated zone	0.22
Mh: Martin, eroded-----	85	Not limited		Somewhat limited Depth to saturated zone Slope	0.04
Mk: Martin-----	90	Very limited Too clayey	1.00	Very limited Too clayey Depth to saturated zone	1.00 0.22
Mm: Morrill-----	91	Not limited		Not limited	
Mn: Morrill, eroded-----	91	Not limited		Not limited	
Mo: Morrill-----	91	Not limited		Somewhat limited Slope	0.16
MOO: Morrill-----	90	Not limited		Not limited	
Mp: Morrill-----	55	Not limited		Somewhat limited Slope	0.00
Gravelly Land-----	30	Not rated		Not rated	
Mr: Muir-----	85	Not limited		Not limited	
MRR: Morrill-----	90	Not limited		Not limited	
Pa: Pawnee-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Pc: Pawnee-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Pe: Pawnee, eroded-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Pn: Pawnee-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.04
RD: Reading-----	90	Not limited		Not limited	
Re: Reading-----	85	Not limited		Not limited	
Rv: River Wash-----	100	Not rated		Not rated	
Sa: Sarpy-----	100	Somewhat limited Too sandy Flooding	0.88 0.40	Very limited Flooding Droughty Too sandy	1.00 0.69 0.50
SAP: Sand Pit-----	100	Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Se: Sarpy-----	55	Somewhat limited Too sandy	0.88	Somewhat limited Droughty Flooding	0.69
Eudora-----	45	Not limited		Somewhat limited Flooding	0.60
Sg: Sharpsburg-----	88	Not limited			0.60
Sh: Sharpsburg-----	85	Not limited		Not limited	
Sk: Shelby-----	95	Not limited		Not limited	
Sm: Shelby-----	88	Not limited		Not limited	
Sn: Shelby, eroded----	100	Not limited		Not limited	
So: Shelby-----	85	Not limited		Somewhat limited Slope	0.16
Sp: Morrill-----	85	Not limited		Not limited	
Sr: Morrill, eroded----	85	Not limited		Not limited	
Ss: Morrill-----	85	Not limited		Somewhat limited Slope	0.16
St: Sibleyville-----	90	Not limited		Somewhat limited Depth to bedrock	0.01
Su: Sibleyville-----	90	Not limited		Somewhat limited Slope Depth to bedrock	0.04 0.01
Sv: Sogn-----	55	Not limited		Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.00 0.00
Vinland-----	25	Not limited		Very limited Depth to bedrock Slope Droughty	1.00 0.96 0.40
Sw: Stony Steep Land----	60	Not rated		Not rated	
Vinland-----	26	Very limited Slope	1.00	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.05
Vn: Vinland-----	100	Not limited		Very limited Depth to bedrock Droughty	1.00 0.40
W: Water-----	100	Not rated		Not rated	
Wa: Wabash-----	90	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone Too clayey Flooding	1.00 1.00 0.60
Wb: Wabash-----	88	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
We: Welda-----	95	Not limited		Not limited	

WILDLIFE INTERPRETATIONS Shawnee County, Kansas

Use and Explanation of Wildlife Interpretations

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the development of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, water, and living space. If any one of these elements is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area. If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

In the Wildlife Interpretations table, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

Suitability Ratings

The potential of the soil is rated good, fair, poor, or very poor.

Good - means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose.

Fair - means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results.

Poor - means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and requires intensive effort.

Very Poor - means that limitations are very severe for the designated element or kind of wildlife habitat. Habitat is difficult to create, improve, or maintain in most places, and management is difficult and requires intensive effort.

Description of Wildlife Habitat Elements

Openland habitat consists of croplands, pastures, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kind of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, killdeer, cottontail rabbit, red fox, and coyote.

Woodland habitat consists of hardwood or conifers, or a mixture of these and associated grasses, legumes and wild herbaceous plants. Examples of wildlife attracted to this habitat are wild turkey, thrushes, woodpeckers, owl, tree squirrels, raccoon, and deer.

Wetland habitat consists of water-tolerant plants in open, marshy or swampy, shallow water areas. Examples of wildlife attracted to this habitat are ducks, geese, herons, bitterns, rails, kingfishers, shorebirds, muskrat, mink, and beaver.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are fragrant sumac, chokecherry, American plum, sand plum, and gorden currant.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, saltgrass, cordgrass, rushes, sedges, and cattails.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, red fox and coyote.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, cottontail rabbit, prairie chicken, meadowlark, quail, and pheasant.

WILDLIFE INTERPRETATIONS
Shawnee County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
045OE: OSKA-----	Fair	Good	Good	---	---	Good	Poor	Poor	Fair	---	Poor	Good
045SV: SIBLEYVILLE----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
045SX: ROCK OUTCROP----	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
VINLAND-----	Poor	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
045VM: VINLAND-----	Poor	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
045WS: WOODSON-----	Fair	Good	Fair	Poor	Poor	Fair	Poor	Good	Fair	Fair	Fair	Fair
085KB: KENNEBEC-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
085MC: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
VINLAND-----	Poor	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
085ZA: ZOOK-----	Good	Fair	Good	Fair	Poor	---	Good	Good	Fair	Fair	Good	---
087EC: EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
BISMARCKGROVE---	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Poor	---
087HC: HAIG-----	Good	Fair	Fair	Fair	Poor	---	Good	Good	Fair	Fair	Good	---
087KV: KONAWA-----	Fair	Good	Good	---	---	Good	Very poor	Very poor	Good	---	Very poor	Good
087RS: ROSSVILLE-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
087SO: SHELBY-----	Fair	Good	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
PAWNEE-----	Fair	Good	Good	---	Fair	Fair	Very poor	Poor	Good	---	Poor	Fair
087WC: WABASH-----	Poor	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
139ED: ELMONT-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
149KM: KIMO-----	Fair	Fair	Good	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	---
197IB: IRWIN-----	Good	Good	Good	---	---	Fair	Poor	Poor	Good	---	Poor	Fair
197IV: IVAN-----	Good	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	Good
197IX: IVAN-----	Poor	Fair	Fair	Good	Good	Good	Poor	Fair	Fair	Good	Poor	Good
197MR: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good

WILDLIFE INTERPRETATIONS--Continued
Shawnee County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
197MS: MORRILL-----	Very poor	Poor	Good	Good	Good	Good	Poor	Very poor	Poor	Good	Very poor	Good
197SA: SARPY-----	Poor	Poor	Fair	Poor	Poor	---	Very poor	Very poor	Poor	Poor	Very poor	---
197WF: WAMEGO-----	Poor	Fair	Fair	Fair	Fair	Good	Very poor	Very poor	Fair	Fair	Very poor	Fair
197WY: WYMORE-----	Fair	Good	Fair	Good	Good	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
2797: MORRILL-----	Poor	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor	Good
AED: ARENTS, EARTHEN DAM-----	---	---	---	---	---	---	---	---	---	---	---	---
An: KENNEBEC-----	Poor	Poor	Good	Good	Good	---	Poor	Poor	Poor	Good	Poor	---
Bk: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
KENNEBEC-----	Poor	Poor	Good	Good	Good	Good	Poor	Poor	Poor	Good	Poor	Good
BOA: BORROW AREAS----	---	---	---	---	---	---	---	---	---	---	---	---
Br: FLUVENTS-----	---	---	---	---	---	---	---	---	---	---	---	---
Dm: DWIGHT-----	Fair	Fair	Fair	---	---	Fair	Poor	Fair	Fair	---	Poor	Fair
MARTIN-----	Good	Good	Good	Fair	Fair	Good	Poor	Poor	Good	Fair	Poor	Good
Ds: DWIGHT-----	Fair	Fair	Fair	---	---	Fair	Poor	Fair	Fair	---	Poor	Fair
Dw: DWIGHT-----	Fair	Fair	Fair	---	---	Fair	Poor	Fair	Fair	---	Poor	Fair
El: ELMONT-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Em: ELMONT-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
En: ELMONT-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Eo: ELMONT-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Ep: ELMONT-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
DWIGHT-----	Fair	Fair	Fair	---	---	Fair	Poor	Fair	Fair	---	Poor	Fair
Es: EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Et: EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Eu: EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Ev: EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---

WILDLIFE INTERPRETATIONS--Continued
Shawnee County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
KIMO-----	Good	Good	Good	Fair	Fair	Fair	Good	Good	Good	Fair	Good	---
Ew: EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
KIMO-----	---	---	---	---	---	---	---	---	---	---	---	---
Gm: GYMER-----	Fair	Good	Fair	Good	Good	Good	Poor	Very poor	Fair	---	Very poor	Fair
Gy: GYMER-----	Fair	Good	Fair	Good	Good	Good	Poor	Very poor	Fair	---	Very poor	Fair
INL: AQUOLLS-----	---	---	---	---	---	---	---	---	---	---	---	---
Kb: KENNEBEC-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
Kc: CHASE-----	Good	Good	Good	Good	Good	Good	Good	Fair	Good	Good	Fair	---
KF: KENNEBEC-----	Poor	Poor	Good	Good	Good	---	Poor	Poor	Poor	Good	Poor	---
Km: KIMO-----	Good	Good	Good	Fair	Fair	Fair	Good	Good	Good	Fair	Good	---
Ko: KIMO-----	Good	Good	Good	Fair	Fair	Fair	Good	Good	Good	Fair	Good	---
Ks: KIPSON-----	Poor	Fair	Fair	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Poor
SOGN-----	Very poor	Very poor	Poor	---	---	Poor	Very poor	Very poor	Very poor	---	Very poor	Poor
Ku: KONAWA-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
Kw: KONAWA-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
La: LABETTE-----	Fair	Good	Fair	---	---	Fair	Poor	Poor	Fair	---	Poor	Fair
Lb: LABETTE-----	Fair	Good	Fair	---	---	Fair	Poor	Poor	Fair	---	Poor	Fair
Lc: LABETTE-----	Fair	Good	Fair	---	---	Fair	Poor	Poor	Fair	---	Poor	Fair
Ld: LADYSMITH-----	Fair	Good	Good	---	---	Good	Poor	Fair	Good	---	Poor	Good
LIQ: LIMESTONE QUARRY	---	---	---	---	---	---	---	---	---	---	---	---
Lm: LADYSMITH-----	Fair	Good	Good	---	---	Good	Poor	Fair	Good	---	Poor	Good
Ls: LADYSMITH-----	Fair	Good	Good	---	---	Good	Poor	Fair	Good	---	Poor	Good
Ma: MADE LAND-----	---	---	---	---	---	---	---	---	---	---	---	---
Mb: MARTIN-----	Good	Good	Good	Fair	Fair	Good	Poor	Poor	Good	Fair	Poor	Good
Mc: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Me: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good

WILDLIFE INTERPRETATIONS--Continued
Shawnee County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
Mf: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Mh: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Mk: MARTIN-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Mm: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Mn: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Mo: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
MOO: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Mp: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
GRAVELLY LAND---	Fair	Good	Good	Fair	Fair	Fair	Poor	Very poor	Good	Fair	Very poor	Fair
Mr: MUIR-----	Good	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor	Good
MRR: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Pa: PAWNEE-----	Good	Good	Good	---	Fair	Fair	Very poor	Poor	Good	---	Poor	Fair
Pc: PAWNEE-----	Fair	Good	Good	---	Fair	Fair	Very poor	Poor	Good	---	Poor	Fair
Pe: PAWNEE-----	Fair	Good	Good	---	Fair	Fair	Very poor	Poor	Good	---	Poor	Fair
Pn: PAWNEE-----	Fair	Good	Good	---	Fair	Fair	Very poor	Poor	Good	---	Poor	Fair
RD: READING-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Re: READING-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Rv: RIVER WASH-----	---	---	---	---	---	---	---	---	---	---	---	---
Sa: SARPY-----	Poor	Poor	Fair	Poor	Poor	---	Very poor	Very poor	Poor	Poor	Very poor	---
SAP: SAND PIT-----	---	---	---	---	---	---	---	---	---	---	---	---
Se: SARPY-----	Poor	Poor	Fair	Poor	Poor	---	Very poor	Very poor	Poor	Poor	Very poor	---
EUDORA-----	Good	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	Good
Sg: SHARPSBURG-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---

WILDLIFE INTERPRETATIONS--Continued
Shawnee County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hard- wood trees	Conif- erous plants	Shrubs	Wetland plants	Shallow water areas	Open- land wild- life	Wood- land wild- life	Wetland wild- life	Range- land wild- life
Sh: SHARPSBURG-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
Sk: SHELBY-----	Good	Good	Fair	Good	Good	---	Poor	Poor	Good	Good	Poor	---
Sm: SHELBY-----	Fair	Good	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
Sn: SHELBY-----	Fair	Good	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
So: SHELBY-----	Fair	Good	Fair	Good	Good	---	Very poor	Very poor	Fair	Good	Very poor	---
Sp: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Sr: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Ss: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
St: SIBLEYVILLE-----	Fair	Good	Good	Fair	Fair	Good	Poor	Very poor	Good	Fair	Very poor	Good
Su: SIBLEYVILLE-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Sv: SOGN-----	Very poor	Very poor	Poor	---	---	Poor	Very poor	Very poor	Very poor	---	Very poor	Poor
VINLAND-----	Poor	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
Sw: STONY STEEP LAND	---	---	---	---	---	---	---	---	---	---	---	---
VINLAND-----	Poor	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
Vn: VINLAND-----	Poor	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor	Fair
W: WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
Wa: WABASH-----	Poor	Poor	Poor	Poor	Poor	---	Poor	Good	Poor	Poor	Fair	---
Wb: WABASH-----	Poor	Poor	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good	---
We: WELDA-----	Fair	Good	Good	Good	Good	Good	Very poor	Poor	Good	Good	Very poor	Good

YIELDS PER ACRE OF PASTURE AND HAYLAND
Shawnee County, Kansas

Use and Explanation of Pastureland and Hayland Interpretations

This subsection provides information concerning the suitability of soils for the production of pasture and hayland. This subsection may contain pasture and hayland suitability groupings, land capability and yield estimates, yield estimates for individual grasses or legumes, or other information pertaining to the production of forage.

Pasture and Hayland Suitability Groupings

Soils are placed in pasture and hayland groups according to their suitability for the production of forage. The soils in each group are enough alike to be suited to the same grasses or legumes, to have similar limitations and hazards, to require similar management, and to have similar productivity and other responses to management. Thus, the pasture and hayland suitability group is a convenient way of grouping the soils for their management. If used, these groupings are identified and described in other reports in the subsection.

Yield Estimates

The average yields per acre that can be expected of the principal pasture or hayland crops, under a high level of management, are presented in this subsection. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall or other climatic factors. The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation are also important management practices.

The Pasture and Hayland table show yield estimates in tons per acre and animal unit months for pasture and hayland groups. An animal unit month is the amount of forage required by one animal unit (AU) for 30 days. On animal unit (AU) is one (1000 pound) mature cow and a calf up to weaning age (usually six months of age) or their equivalent. The Natural Resources Conservation Service uses 900 pounds of air dry forage as the amount needed to meet this requirement. To maintain a healthy and vigorous plant community, the degree of use should never be greater than 50 percent. Therefore only 25 percent of the total biomass grown is considered consumed by the grazing animal. Animal Unit Months can be converted to air dry pounds per acre production by multiplying the AUM by 30 days, then by 30 pounds per day, and then by four. This figure is the amount of total forage production.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil in the Nontechnical Description section. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Brome-grass-alfalfa		Brome-grass-alfalfa hay		Smooth brome-grass	
	N	I	N	I	N	I	N	I
			AUM	AUM	Tons	Tons	AUM	AUM
045OE: Oskaloosa-----	3e	---	---	---	---	---	---	---
045SV: Sibleyville-----	6e	---	---	---	---	---	5.50	---
045SX: Rock Outcrop-----	8	---	---	---	---	---	---	---
Vinland-----	6e	---	---	---	---	---	3.00	---
045VM: Vinland-----	6e	---	---	---	---	---	3.00	---
Martin-----	4e	---	---	---	---	---	5.00	---
045WS: Woodson-----	3e	---	---	---	---	---	5.00	---
085KB: Kennebec-----	2w	---	11.30	---	6.80	---	7.10	---
085MC: Martin-----	4e	---	---	---	---	---	5.00	---
Vinland-----	e	---	---	---	---	---	3.00	---
085ZA: Zook-----	2w	---	---	---	3.00	---	5.20	---
087EC: Eudora-----	2w	---	---	---	---	---	7.50	---
Bismarckgrove-----	2w	---	---	---	---	---	6.00	---
087HC: Haig-----	2w	---	6.50	---	3.90	---	6.20	---
087KV: Konawa-----	4e	---	---	---	---	---	---	---
087RS: Rossville-----	1	---	11.40	---	6.80	---	6.60	---
087SO: Shelby-----	4e	---	8.30	---	5.00	---	5.00	---
Pawnee-----	4e	---	---	---	---	---	---	---
087WC: Wabash-----	3w	---	---	---	---	---	---	---
139ED: Elmont-----	3e	---	---	---	---	---	6.50	---
149KM: Kimo-----	2w	---	---	---	---	---	---	---
197IB: Irwin-----	3e	---	---	---	---	---	---	---
197IV: Ivan-----	2w	---	---	---	---	---	---	---
197IX: Ivan-----	5w	---	---	---	---	---	5.00	---
197MR: Morrill-----	3e	---	---	---	---	---	---	---
197MS: Morrill, very stony-----	6e	---	---	---	---	---	---	---
197SA: Sarpy-----	4s	---	---	---	---	---	---	---
197WF: Wamego-----	6e	---	---	---	---	---	3.10	---

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Brome-grass-alfalfa		Brome-grass-alfalfa hay		Smooth brome-grass	
	N	I	N	I	N	I	N	I
			AUM	AUM	Tons	Tons	AUM	AUM
197WY: Wymore-----	3e	---	---	---	---	---	---	---
2797: Morrill, stony-----	6e	---	---	---	---	---	---	---
AED: Arents, Earthen Dam-----	8	---	---	---	---	---	---	---
An: Kennebec-----	5w	---	---	---	---	---	---	---
Bk: Martin-----	6e	---	---	---	---	---	5.00	---
Kennebec-----	5w	---	---	---	---	---	---	---
BOA: Borrow Areas-----	---	---	---	---	---	---	---	---
Br: Fluvents-----	6w	---	---	---	---	---	---	---
Dm: Dwight-----	4e	---	---	---	---	---	3.50	---
Martin-----	3e	---	---	---	---	---	5.50	---
Ds: Dwight-----	4s	---	---	---	---	---	3.50	---
Dw: Dwight-----	4e	---	---	---	---	---	3.50	---
El: Elmont-----	3e	---	---	---	---	---	6.50	---
Em: Elmont, eroded-----	3e	---	---	---	---	---	5.50	---
En: Elmont-----	4e	---	---	---	---	---	5.00	---
Eo: Elmont, eroded-----	6e	---	---	---	---	---	4.50	---
Ep: Elmont, eroded-----	6e	---	---	---	---	---	5.50	---
Dwight-----	4e	---	---	---	---	---	3.50	---
Es: Eudora-----	2e	---	---	---	---	---	7.50	---
Et: Eudora-----	1	---	---	---	---	---	7.50	---
Eu: Eudora-----	3e	---	---	---	---	---	7.00	---
Ev: Eudora-----	2w	---	---	---	---	---	7.50	---
Kimo-----	2w	---	---	---	---	---	5.50	---
Ew: Eudora-----	2w	---	---	---	---	---	7.50	---
Kimo-----	2w	---	---	---	---	---	5.50	---
Gm: Gymer-----	3e	---	---	---	---	---	6.10	---
Gy: Gymer-----	3e	---	---	---	---	---	6.10	---
INL: Aquolls-----	5w	---	---	---	---	---	---	---

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Brome-grass-alfalfa		Brome-grass-alfalfa hay		Smooth brome-grass	
	N	I	N	I	N	I	N	I
			AUM	AUM	Tons	Tons	AUM	AUM
Kb: Kennebec-----	2w	---	11.30	---	6.80	---	7.10	---
Kc: Chase-----	2w	---	---	---	---	---	8.00	---
KF: Kennebec-----	5w	---	6.00	---	5.00	---	5.00	---
Km: Kimo-----	2w	---	---	---	---	---	5.50	---
Ko: Kimo-----	5w	---	---	---	---	---	---	---
Ks: Kipson-----	6e	---	---	---	---	---	---	---
Sogn-----	6e	---	---	---	---	---	---	---
Ku: Konawa-----	3e	---	---	---	---	---	5.50	---
Kw: Konawa-----	4e	---	---	---	---	---	5.50	---
La: Labette-----	2e	---	---	---	---	---	5.00	---
Lb: Labette-----	3e	---	---	---	---	---	5.00	---
Lc: Labette, eroded-----	3e	---	---	---	---	---	4.50	---
Ld: Ladysmith-----	2s	---	---	---	---	---	5.00	---
LIQ: Limestone Quarry-----	---	---	---	---	---	---	---	---
Lm: Ladysmith-----	3e	---	---	---	---	---	5.00	---
Ls: Ladysmith, eroded-----	4e	---	---	---	---	---	4.50	---
Ma: Made Land-----	---	---	---	---	---	---	---	---
Mb: Martin-----	2e	---	---	---	---	---	5.50	---
Mc: Martin-----	3e	---	---	---	---	---	5.50	---
Me: Martin, eroded-----	4e	---	---	---	---	---	4.50	---
Mf: Martin-----	4e	---	---	---	---	---	5.00	---
Mh: Martin, eroded-----	6e	---	---	---	---	---	4.00	---
Mk: Martin-----	6e	---	---	---	---	---	5.50	---
Mm: Morrill-----	3e	---	---	---	---	---	6.50	---
Mn: Morrill, eroded-----	3e	---	---	---	---	---	6.00	---
Mo: Morrill-----	4e	---	---	---	---	---	6.00	---
MOO: Morrill-----	3e	---	---	---	---	---	---	---

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Brome-grass-alfalfa		Brome-grass-alfalfa hay		Smooth brome-grass	
	N	I	N	I	N	I	N	I
			AUM	AUM	Tons	Tons	AUM	AUM
Mp: Morrill-----	4e	---	---	---	---	---	6.00	---
Gravelly Land-----	6e	---	---	---	---	---	---	---
Mr: Muir-----	1	1	---	---	---	---	6.20	11.00
MRR: Morrill-----	3e	---	---	---	---	---	6.50	---
Pa: Pawnee-----	2e	---	---	---	---	---	6.00	---
Pc: Pawnee-----	3e	---	---	---	---	---	---	---
Pe: Pawnee, eroded-----	3e	---	---	---	---	---	---	---
Pn: Pawnee-----	4e	---	---	---	---	---	5.00	---
RD: Reading-----	1	---	---	---	---	---	5.00	---
Re: Reading-----	1	---	---	---	---	---	6.50	---
Rv: River Wash-----	8s	---	---	---	---	---	---	---
Sa: Sarpy-----	6s	---	---	---	0.90	---	1.80	---
SAP: Sand Pit-----	---	---	---	---	---	---	---	---
Se: Sarpy-----	3w	---	---	---	0.90	---	1.80	---
Eudora-----	3w	---	---	---	---	---	7.50	---
Sg: Sharpsburg-----	2e	---	10.60	---	6.40	---	6.70	---
Sh: Sharpsburg-----	3e	---	10.60	---	6.40	---	6.70	---
Sk: Shelby-----	2e	---	9.20	---	5.60	---	6.00	---
Sm: Shelby-----	3e	---	8.90	---	5.40	---	5.30	---
Sn: Shelby, eroded-----	3e	---	8.90	---	5.40	---	5.30	---
So: Shelby-----	4e	---	8.30	---	5.00	---	5.00	---
Sp: Morrill-----	3e	---	---	---	---	---	6.50	---
Sr: Morrill, eroded-----	3e	---	---	---	---	---	6.50	---
Ss: Morrill-----	4e	---	---	---	---	---	5.50	---
St: Sibleyville-----	3e	---	---	---	---	---	6.00	---
Su: Sibleyville-----	4e	---	---	---	---	---	5.50	---
Sv: Sogn-----	7s	---	---	---	---	---	---	---

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)
Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Bromegrass-alfalfa		Bromegrass-alfalfa hay		Smooth bromegrass	
	N	I	N	I	N	I	N	I
			AUM	AUM	Tons	Tons	AUM	AUM
Vinland-----	6s	---	---	---	---	---	3.00	---
Sw: Stony Steep Land-----	8	---	---	---	---	---	---	---
Vinland-----	6e	---	---	---	---	---	3.00	---
Vn: Vinland-----	6e	---	---	---	---	---	3.00	---
W: Water-----	---	---	---	---	---	---	---	---
Wa: Wabash-----	3w	---	---	---	---	---	---	---
Wb: Wabash-----	3w	---	---	---	---	---	---	---
We: Welda-----	3e	---	---	---	---	---	---	---

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County, Kansas

A Conservation Tree/Shrub Suitability Group (CTSG), formerly Windbreak Suitability Group, is a physiographic unit or area having similar climatic and edaphic characteristics that control the selection and height growth of trees and shrubs.

In this table, the Conservation Tree and Shrub Grouping is expressed as a group index number. The group index for Conservation Tree and Shrub groups (CTSG) are a guide for species best suited for different kinds of soil and for prediction height, growth, and effectiveness. The groupings can be used when selection woody plants for windbreaks, wildlife plantings riparian buffers, reforestation, other environmental plantings, recreation, landscaping, wetland restoration or enhancement and critical area plantings. CTSG's are developed to assure satisfactory species selection and adaptation to specific conditions of soil, climate and physiography. CTSG's are a guide for selection species best suited for different kinds of soil and prediction height growth and effectiveness.

All soil series mapped in the state have been placed in 10 groups of similar soil characteristics. Groups 1, 2, 3, 4, 6, and 9 are further divided into subgroups. In addition, all groups provide information by Major Land Resource Areas.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters a tree or shrub may be well or poorly suited because of soil characteristics. Each tree or shrub also has definable potentials of height growth depending on the factors just mentioned. Accurate definitions of potential heights are necessary for proper windbreak planning and design.

Windbreaks protect livestock, buildings, roads and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low-growing and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not grow trees originally. Knowledge of how trees perform on such land can be gained only by observing and recording their performance where trees have been planted and survived. The problem is compounded by the fact that many favorite windbreak species are not indigenous to the areas in which they are planted.

The Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups shows the adapted species listing for each group index number. Showing the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates are based on measurements and observation of established plantings that have been given adequate care. This information should be used to determine the placement of a windbreak, the area protected and the arrangement of species.

A number of attributes are included in the CTSG species tables for each group number found in this section of the Field Office Technical Guide. These attributes were rated subjectively and assigned a relative value to further assist those unfamiliar with individual species characteristics or desirability for the intended use. Definitions and explanations can be found. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery. See part 537 of the National Forestry Manual for additional information.

In the Tree and Shrub Management table interpretive ratings are given for various aspects of forest and conservation tree and shrub management. Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. Well suited indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. Moderately well suited indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. Poorly suited indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. Unsited indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest and conservation tree and shrub management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet. Also, in the Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups.

Ratings in the columns suitability for hand planting and suitability for mechanical planting are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column suitability for mechanical site preparation (surface) are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 1-foot is considered in the ratings.

Ratings in the column suitability for mechanical site preparation (deep) are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column potential for seedling mortality are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality. See the National Forestry Manual, Subpart B for criteria used in rating management concerns. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
045OE: Oska-----	6D	Moderately suited Stickiness	Moderately suited Stickiness Slope	Well suited	Well suited	Low
045SV: Sibleyville-----	6D	Well suited	Moderately suited Slope	Well suited	Well suited	Low
045SX: Rock Outcrop-----		Not rated	Not rated	Not rated	Not rated	Not rated
Vinland-----	10	Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Low
045VM: Vinland-----	10	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Martin-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
045WS: Woodson-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
085KB: Kennebec-----	1	Well suited	Well suited	Well suited	Well suited	Low
085MC: Martin-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Vinland-----	10	Well suited	Moderately suited Slope	Well suited	Well suited	Low
085ZA: Zook-----	2	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
087EC: Eudora-----	1	Well suited	Well suited	Well suited	Well suited	Low
Bismarckgrove-----		Well suited	Well suited	Well suited	Well suited	Low
087HC: Haig-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
087KV: Konawa-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
087RS: Rossville-----	3	Well suited	Well suited	Well suited	Well suited	Low
087SO: Shelby-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Pawnee-----	4C	Well suited	Moderately suited Slope	Well suited	Well suited	High Wetness
087WC: Wabash-----	2	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
139ED: Elmont-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
149KM: Kimo-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited Stickiness	Well suited	Low
197IB: Irwin-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
197IV: Ivan-----	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
197IX: Ivan-----	1K	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Moderate Soil reaction
197MR: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
197MS: Morrill, very stony-	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
197SA: Sarpy-----	1	Well suited	Well suited	Well suited	Well suited	High Wetness
197WF: Wamego-----	6D	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
197WY: Wymore-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
2797: Morrill, stony-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
AED: Arents, Earthen Dam-		Not rated	Not rated	Not rated	Not rated	Not rated
An: Kennebec-----	1	Well suited	Well suited	Well suited	Well suited	Low
Bk: Martin-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Kennebec-----	1	Well suited	Well suited	Well suited	Well suited	Low
BOA: Borrow Areas-----		Not rated	Not rated	Not rated	Not rated	Not rated
Br: Fluvents-----		Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Dm: Dwight-----	9C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Martin-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Ds: Dwight-----	9C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Dw: Dwight-----	9C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
El: Elmont-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Em: Elmont, eroded-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
En: Elmont-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Eo: Elmont, eroded-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Ep: Elmont, eroded-----	3	Moderately suited	Moderately suited	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
Dwight-----	9C	Stickiness Poorly suited Stickiness	Slope Stickiness Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Es: Eudora-----	1	Well suited	Well suited	Well suited	Well suited	Low
Et: Eudora-----	1	Well suited	Well suited	Well suited	Well suited	Low
Eu: Eudora-----	1	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Ev: Eudora-----	1	Well suited	Well suited	Well suited	Well suited	Low
Kimo-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited Stickiness	Well suited	Low
Ew: Eudora-----	1	Well suited	Well suited	Well suited	Well suited	Low
Kimo-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited Stickiness	Well suited	Low
Gm: Gymer-----	4C	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Gy: Gymer-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
INL: Aquolls-----		Unsuited Wetness	Unsuited Wetness	Unsuited Wetness	Unsuited Wetness	High Wetness Soil reaction
Kb: Kennebec-----	1	Well suited	Well suited	Well suited	Well suited	Low
Kc: Chase-----	1	Well suited	Well suited	Well suited	Well suited	Low
KF: Kennebec-----	1	Well suited	Well suited	Well suited	Well suited	Low
Km: Kimo-----	1	Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited Stickiness	Well suited	Low
Ko: Kimo-----	1	Unsuited Wetness Stickiness	Poorly suited Wetness Stickiness	Unsuited Wetness Stickiness	Unsuited Wetness	High Wetness
Ks: Kipson-----	10	Well suited	Moderately suited Slope Rock fragments	Well suited	Well suited	High Lime Soil reaction
Sogn-----	10	Unsuited Restrictive layer	Unsuited Restrictive layer Slope	Unsuited Restrictive layer	Unsuited Restrictive layer	Available water Low
Ku: Konawa-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Kw: Konawa-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
La: Labette-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Lb: Labette-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
LC: Labette, eroded-----	4C	Moderately suited Stickiness	Moderately suited Stickiness Slope Rock fragments	Well suited	Well suited	Low
Ld: Ladysmith-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
LIQ: Limestone Quarry----		Not rated	Not rated	Not rated	Not rated	Not rated
Lm: Ladysmith-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Ls: Ladysmith, eroded---	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Ma: Made Land-----		Not rated	Not rated	Not rated	Not rated	Not rated
Mb: Martin-----	4C	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Mc: Martin-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Me: Martin, eroded-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
Mf: Martin-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Mh: Martin, eroded-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
Mk: Martin-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
Mm: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Mn: Morrill, eroded-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Mo: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
MOO: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Mp: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Gravelly Land-----	6D	Not rated	Not rated	Not rated	Not rated	Not rated
Mr: Muir-----	1	Well suited	Well suited	Well suited	Well suited	Low
MRR: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Pa: Pawnee-----	4C	Well suited	Well suited	Well suited	Well suited	High Wetness

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
PC: Pawnee-----	4C	Well suited	Moderately suited Slope	Well suited	Well suited	High Wetness
Pe: Pawnee, eroded-----	4C	Well suited	Moderately suited Slope	Well suited	Well suited	High Wetness
Pn: Pawnee-----	4C	Well suited	Moderately suited Slope	Well suited	Well suited	High Wetness
RD: Reading-----	1	Well suited	Well suited	Well suited	Well suited	Low
Re: Reading-----	1	Well suited	Well suited	Well suited	Well suited	Low
Rv: River Wash-----		Not rated	Not rated	Not rated	Not rated	Not rated
Sa: Sarpy-----	1K	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	High Wetness
SAP: Sand Pit-----		Not rated	Not rated	Not rated	Not rated	Not rated
Se: Sarpy-----	1K	Well suited	Well suited	Well suited	Well suited	Low
Eudora-----	1	Well suited	Well suited	Well suited	Well suited	Low
Sg: Sharpsburg-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Sh: Sharpsburg-----	3	Moderately suited Stickiness	Moderately suited Stickiness Slope	Well suited	Well suited	Low
Sk: Shelby-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
Sm: Shelby-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Sn: Shelby, eroded-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
So: Shelby-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
Sp: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Sr: Morrill, eroded-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Ss: Morrill-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
St: Sibleyville-----	6D	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Su: Sibleyville-----	6D	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Sv: Sogn-----	10	Unsuited	Unsuited	Unsuited	Unsuited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Shawnee County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
Vinland-----	10	Restrictive layer Well suited	Restrictive layer Slope Moderately suited Slope	Restrictive layer Well suited	Restrictive layer Well suited	Low
Sw: Stony Steep Land----		Not rated	Not rated	Not rated	Not rated	Not rated
Vinland-----	10	Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Low
Vn: Vinland-----	10	Well suited	Moderately suited Slope	Well suited	Well suited	Low
W: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated
Wa: Wabash-----	2	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
Wb: Wabash-----	2	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Wetness
We: Welda-----	3	Moderately suited Stickiness	Moderately suited Stickiness Slope	Well suited	Well suited	Low

ENGINEERING INDEX PROPERTIES
Shawnee County, Kansas

Engineering Index Properties table gives the engineering classifications and the range of index properties for the layers of each soil in the survey area. Depth to the upper and lower boundaries of each layer is indicated. Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. Loam, for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, gravelly. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998). The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection. If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in Engineering Index Properties table.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

ENGINEERING INDEX PROPERTIES--Continued
Shawnee County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
045OE: Oska-----	0-5	Silty clay loam	ML, CL	A-6, A-7	0	0	100	100	95-100	90-100	35-50	10-25
	5-38	Silty clay	CL, CH	A-7	0	0	100	100	95-100	95-100	45-60	20-35
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
045SV: Sibleyville----	0-7	Loam	CL, CL-ML	A-6, A-4	0	0	100	85-100	70-95	50-75	25-35	5-15
	7-15	Loam	CL, SC	A-6	0	0	100	85-100	70-90	30-55	30-40	11-20
	15-27	Channery loam	CL, SC, SC- SM, CL-ML	A-2, A-4, A-6	0	0-20	70-90	70-90	50-90	25-70	25-40	5-20
	27-31	Weathered bedrock			---	---	---	---	---	---	---	---
045SX: Rock Outcrop----	0-5	Unweathered bedrock			---	---	---	---	---	---	---	---
Vinland-----	0-7	Silty clay loam	CL	A-6, A-7	0	0-5	80-100	75-100	70-100	65-95	35-45	15-20
	7-17	Silty clay loam	SC, CL	A-6, A-7	0	0	90-100	75-100	50-100	35-95	25-45	10-20
	17-21	Weathered bedrock			---	---	---	---	---	---	---	---
045VM: Vinland-----	0-7	Silty clay loam	CL	A-6, A-7	0	0-5	80-100	75-100	70-100	65-95	35-45	15-20
	7-17	Silty clay loam	CL, SC	A-6, A-7	0	0	90-100	75-100	50-100	35-95	25-45	10-20
	17-21	Weathered bedrock			---	---	---	---	---	---	---	---
Martin-----	0-9	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	80-100	35-45	15-25
	9-14	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	14-60	Silty clay	CL, CH	A-7	0	0	100	100	95-100	80-100	40-70	25-40
045WS: Woodson-----	0-11	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	25-40	5-20
	11-45	Silty clay	CH	A-7-6	0	0	100	95-100	95-100	90-100	50-65	30-45
	45-78	Silty clay loam	CH, CL	A-7-6	0	0	100	95-100	95-100	90-100	45-65	20-40
085KB: Kennebec-----	0-48	Silt loam	CL, ML	A-6, A-7	0	0	100	100	95-100	90-100	25-45	10-20
	48-60	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	95-100	90-100	25-40	5-15
085MC: Martin-----	0-11	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	11-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	17-60	Silty clay	CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Vinland-----	0-11	Silty clay loam	CL	A-7, A-6	0	0-5	80-100	75-100	70-100	65-95	35-45	15-20
	11-17	Silty clay loam	SC, CL, ML	A-6, A-7	0	0	90-100	75-100	50-100	35-95	25-45	10-20
	17-21	Weathered bedrock			---	---	---	---	---	---	---	---
085ZA: Zook-----	0-18	Silty clay loam	CH, CL	A-7	0	0	100	100	95-100	95-100	45-65	20-35
	18-60	Silty clay loam	CH	A-7	0	0	100	100	95-100	95-100	60-85	35-55
087EC: Eudora-----	0-6	Fine sandy loam	CL, ML, CL-ML	A-6, A-4	0	0	100	100	85-100	60-100	20-30	2-11
	6-12	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	95-100	65-100	0-25	NP-10
	12-18	Silt loam	ML, CL, CL-ML	A-4	0	0	100	100	95-100	65-100	0-25	NP-10
	18-25	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	95-100	65-100	0-25	NP-10
	25-44	Silt loam	CL-ML, ML, CL	A-4	0	0	100	100	95-100	65-100	0-25	NP-10
	44-60	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	95-100	65-100	0-25	NP-10
Bismarckgrove--	0-7	Fine sandy loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	85-100	60-100	20-30	2-11
	7-33	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	30-44	11-22
	33-52	Silt loam	CL	A-4	0	0	100	100	85-95	50-90	21-34	4-9
	52-80	Loamy very fine sand	SM, SC	A-2-4, A-4	0	0	100	100	75-85	20-60	11-26	NP-8
087HC: Haig-----	0-9	Silty clay loam	MH, CL, CH, ML	A-7	0	0	100	100	100	95-100	40-55	15-25
	9-31	Silty clay	CH	A-7	0	0	100	100	100	95-100	50-65	30-40
	31-77	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	100	95-100	35-55	20-30
087KV: Konawa-----	0-13	Fine sandy loam	SC-SM, ML, SM, CL-ML	A-4	0	0	100	98-100	94-100	36-60	15-26	NP-7
	13-44	Sandy clay loam	ML, SM, SC- SM, CL-ML	A-4, A-2	0	0	100	90-100	90-100	15-60	20-40	2-18
	44-60	Fine sandy loam	SC, ML, CL, SM	A-6, A-4	0	0	100	100	90-100	36-65	15-37	NP-16
087RS: Rossville-----	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	10-45	5-25
	7-14	Silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	20-45	10-25
	14-21	Silt loam			0	0	100	100	100	95-100	25-45	10-25
	21-26	Silt loam			0	0	100	100	100	95-100	25-45	10-25
	26-39	Silt loam			0	0	100	100	100	95-100	20-45	10-25
	39-57	Silt loam			0	0	100	100	100	95-100	20-45	10-25
	57-80	Silt loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	100	95-100	10-45	5-25
087SO: Shelby-----	0-12	Loam	CL	A-6	0	0	95-100	85-95	75-90	55-70	30-40	10-20
	12-48	Clay loam	CL	A-6, A-7	0	0-5	90-95	85-95	75-90	55-70	30-45	15-25
	48-60	Clay loam	CL	A-7, A-6	0	0-5	90-95	85-95	75-90	55-70	30-45	15-25
Pawnee-----	0-14	Clay loam	CL	A-6	0	0	95-100	95-100	85-100	70-90	30-40	10-20
	14-60	Clay	CH	A-7	0	0	95-100	95-100	85-100	70-85	50-70	25-45
087WC: Wabash-----	0-19	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	100	95-100	35-55	15-35
	19-60	Silty clay	CH	A-7	0	0	100	100	100	95-100	52-78	30-55

ENGINEERING INDEX PROPERTIES--Continued
Shawnee County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
139ED: Elmont-----	0-8	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-100	25-40	6-15
	8-16	Loam	CL-ML, CL	A-6, A-4	0	0	100	100	90-100	75-100	25-40	6-15
	16-42	Clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	35-45	15-25
	42-52	Clay loam	CL	A-6, A-7-6	0	0	95-100	90-100	85-100	80-100	35-50	15-30
	52-60	Unweathered bedrock			---	---	---	---	---	---	---	---
149KM: Kimo-----	0-22	Silty clay	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-65	20-40
	22-60	Silt loam	ML, CL-ML	A-4	0	0	100	100	95-100	50-100	15-15	NP-4
197IB: Irwin-----	0-12	Silty clay loam	CL	A-7-6, A-6	0	0	100	95-100	90-100	80-95	35-45	15-20
	12-42	Silty clay, clay	MH, CH	A-7-6	0	0	100	95-100	95-100	85-95	50-60	25-30
	42-60	Clay	MH, CH, CL	A-7-6	0	0	100	100	95-100	80-95	40-60	20-30
197IV: Ivan-----	0-36	Silt loam	CL	A-6, A-4	0	0	95-100	95-100	90-100	70-100	25-40	7-20
	36-60	Silt loam	CL	A-6, A-4, A-7	0	0	95-100	95-100	90-100	65-100	25-45	7-25
197IX: Ivan-----	0-40	Silty clay loam	CL	A-7, A-6	0	0	95-100	95-100	90-100	70-100	35-45	15-25
	40-60	Silt loam	CL	A-4, A-7, A-6	0	0	95-100	95-100	90-100	65-100	25-45	7-25
197MR: Morrill-----	0-8	Loam	CL	A-6, A-4	0	0	95-100	75-100	65-100	50-80	25-40	7-20
	8-37	Clay loam	SC, CL	A-7-6, A-6	0	0	85-100	70-100	55-100	25-80	30-45	11-25
	37-60	Clay loam	ML, SC, SM, CL	A-6, A-4, A-2	0	0	90-100	70-100	45-100	20-80	20-35	2-15
197MS: Morrill, very stony-----	0-10	Very stony loam	SC, CL	A-6	1-6	1-5	80-100	75-100	65-95	45-75	30-35	10-15
	10-15	Loam	CL, SC	A-4, A-6	0	0-3	80-100	75-100	65-95	45-75	30-35	10-15
	15-42	Clay loam	SC, CL	A-6, A-7, A-2	0	0	80-100	70-100	55-100	25-80	35-45	15-22
	42-60	Gravelly sandy clay loam	CL, SC, GC	A-6, A-2, A-7	0	0	60-90	50-75	40-75	20-60	30-45	10-22
197SA: Sarpy-----	0-5	Loamy sand	SM	A-2-4	0	0	100	100	60-80	15-35	---	NP
	5-60	Sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	60-80	2-35	---	NP
197WF: Wamego-----	0-11	Silty clay loam	CL	A-6	0	0	100	100	90-100	60-95	30-40	10-20
	11-25	Silty clay loam	CL	A-7-6, A-6	0	0	100	85-100	80-100	75-95	35-50	15-30
	25-29	Weathered bedrock			---	---	---	---	---	---	---	---
197WY: Wymore-----	0-8	Silty clay loam	ML, MH, CH, CL	A-7, A-6	0	0	100	100	95-100	95-100	35-55	11-25
	8-40	Silty clay	CH, MH	A-7	0	0	100	100	95-100	95-100	55-70	30-42
	40-60	Silty clay loam	CH, CL	A-6, A-7	0	0	100	100	95-100	85-100	35-55	20-35
2797: Morrill, stony-	0-10	Gravelly loam	CL, SC	A-6	1-3	1-3	80-100	70-100	65-100	25-80	30-35	10-15
	10-15	Gravelly clay loam	CL, SC	A-6	0	0-3	80-100	70-100	65-100	25-80	30-35	10-15
	15-42	Gravelly clay loam	CL, SC	A-2, A-7, A-6	0	0-3	80-100	70-100	65-100	25-80	35-45	15-22
	42-60	Gravelly sandy clay loam	SC, CL, GC	A-7, A-2, A-6	0	0-3	80-100	70-100	40-75	20-60	30-45	10-22
AED: Arents, Earthen Dam-----	---	---	---	---	---	---	---	---	---	---	---	---
An: Kennebec-----	0-48	Silt loam	ML, CL	A-7, A-6	0	0	100	100	95-100	90-100	25-45	10-20
	48-80	Silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
Bk: Martin-----	0-12	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	12-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	17-72	Silty clay	MH, CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
	0-48	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	25-45	10-20
	48-80	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	95-100	90-100	25-40	5-15
BOA: Borrow Areas---	---	---	---	---	---	---	---	---	---	---	---	---
Br: Fluvents-----	0-60	Silty clay loam			---	---	---	---	---	---	---	15-30
Dm: Dwight-----	0-5	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-100	30-40	10-15
	5-22	Clay	CH	A-7	0	0	100	100	95-100	90-100	50-70	25-40
	22-50	Silty clay	CL, CH	A-7	0	0	100	100	95-100	85-100	45-60	25-40
	50-80	Silty clay	CL, CH	A-7	0	0	100	100	95-100	85-100	45-60	25-40
	0-12	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	80-100	35-45	15-25
	12-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	17-60	Silty clay	CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Ds: Dwight-----	0-5	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-100	30-40	10-15
	5-22	Clay	CH	A-7	0	0	100	100	95-100	90-100	50-70	25-40
	22-50	Silty clay	CH, CL	A-7	0	0	100	100	95-100	85-100	45-60	25-40
	50-80	Silty clay	CL, CH	A-7	0	0	100	100	95-100	85-100	45-60	25-40
Dw: Dwight-----	0-5	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-100	30-40	10-15
	5-22	Clay	CH	A-7	0	0	100	100	95-100	90-100	50-70	25-40
	22-50	Silty clay	CH, CL	A-7	0	0	100	100	95-100	85-100	45-60	25-40
	50-80	Silty clay	CH, CL	A-7	0	0	100	100	95-100	85-100	45-60	25-40

ENGINEERING INDEX PROPERTIES--Continued
Shawnee County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
El: Elmont-----	In 0-7 7-22 22-50 50-54	Silt loam Silty clay loam Silty clay loam Unweathered bedrock	CL, CL-ML CL CL	A-6, A-4 A-6, A-7-6 A-6, A-7-6	0 0 0 ---	0 0 0 ---	100 100 95-100	100 100 90-100	90-100 95-100 85-100	75-100 85-100 80-100	25-40 35-45 35-50	6-15 15-25 15-30 ---
Em: Elmont, eroded-	0-7 7-22 22-50 50-54	Silt loam Silty clay loam Silty clay loam Unweathered bedrock	CL-ML, CL CL CL	A-6, A-4 A-6, A-7-6 A-7-6, A-6	0 0 0 ---	0 0 0 ---	100 100 95-100	100 100 90-100	90-100 95-100 85-100	75-100 85-100 80-100	25-40 35-45 35-50	6-15 15-25 15-30 ---
En: Elmont-----	0-7 7-22 22-50 50-60	Silt loam Silty clay loam Silty clay loam Unweathered bedrock	CL, CL-ML CL CL	A-6, A-4 A-7-6, A-6 A-6, A-7-6	0 0 0 ---	0 0 0 ---	100 100 95-100	100 100 90-100	90-100 95-100 85-100	75-100 85-100 80-100	25-40 35-45 35-50	6-15 15-25 15-30 ---
Eo: Elmont, eroded-	0-7 7-22 22-50 50-54	Silt loam Silty clay loam Silty clay loam Unweathered bedrock	CL, CL-ML CL CL	A-4, A-6 A-6, A-7-6 A-7-6, A-6	0 0 0 ---	0 0 0 ---	100 100 95-100	100 100 90-100	90-100 95-100 85-100	75-100 85-100 80-100	25-40 35-45 35-50	6-15 15-25 15-30 ---
Ep: Elmont, eroded-	0-7 7-22 22-50 50-54	Silty clay loam Silty clay loam Silty clay loam Unweathered bedrock	CL CL CL	A-6 A-6, A-7-6 A-6, A-7-6	0 0 0 ---	0 0 0 ---	100 100 95-100	100 100 90-100	90-100 95-100 85-100	75-100 85-100 80-100	35-40 35-45 35-50	15-20 15-25 15-30 ---
Dwight-----	0-5 5-22 22-50 50-80	Silty clay loam Clay Silty clay Silty clay	CL CH CL, CH CH, CL	A-6 A-7 A-7 A-7	0 0 0 0	0 0 0 0	100 100 100 100	100 100 100 100	95-100 95-100 95-100 95-100	85-100 90-100 85-100 85-100	30-40 50-70 45-60 45-60	10-15 25-40 25-40 25-40
Es: Eudora-----	0-12 12-60	Fine sandy loam Fine sandy loam	SM, SC-SM, ML, CL-ML CL-ML, ML, CL	A-4 A-4	0 0	0 0	100 100	100 100	70-85 70-85	40-55 40-55	15-26 15-25	NP-10 NP-10
Et: Eudora-----	0-12 12-72	Silt loam Silt loam	ML, CL, CL-ML CL, CL-ML, ML	A-6, A-4 A-4	0 0	0 0	100 100	100 100	85-100 95-100	60-100 65-100	20-30 15-25	2-11 NP-10
Eu: Eudora-----	0-12 12-72	Silt loam Silt loam	CL, CL-ML, ML CL, CL-ML, ML	A-4, A-6 A-4	0 0	0 0	100 100	100 100	85-100 95-100	60-100 65-100	20-30 15-25	2-11 NP-10
Ev: Eudora-----	0-12 12-72	Silt loam Silt loam	ML, CL-ML, CL CL-ML, CL, ML	A-6, A-4 A-4	0 0	0 0	100 100	100 100	85-100 95-100	60-100 65-100	20-30 15-25	2-11 NP-10
Kimo-----	0-6 6-28 28-60	Silty clay loam Silty clay Silt loam	CL, CH CL, CH CL-ML, ML	A-7-6 A-7-6 A-4	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	90-100 90-100 50-100	45-65 45-65 15-15	20-40 20-40 NP-4
Ew: Eudora-----	0-12 12-60 0-8	Fine sandy loam Silt loam Fine sandy loam	SM, SC-SM, ML, CL-ML CL-ML, ML, CL ML, SC, CL, SM	A-4 A-4 A-4	0 0 0	0 0 0	100 100 100	100 100 100	70-85 95-100 90-100	40-55 65-100 45-70	15-26 15-25 15-25	NP-10 NP-10 NP-10
Gm: Gymer-----	8-24 24-60	Silty clay loam Silt loam	CH, CL CL-ML, ML	A-7-6 A-4	0 0	0 0	100 100	100 100	95-100 95-100	90-100 50-100	45-65 15-25	20-40 NP-4
Gy: Gymer-----	0-15 15-34 34-68	Silt loam Silty clay loam Silty clay loam	CL, ML CH, CL CH, CL	A-6, A-4 A-7, A-6 A-7, A-6	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	75-100 85-100 85-100	25-40 35-55 30-45	8-20 15-30 11-25
INL: Aquolls-----	0-60	Variable			---	---	---	---	---	---	---	---
Kb: Kennebec-----	0-48 48-60	Silt loam Silt loam	CL CL, CL-ML	A-6, A-7 A-6, A-4	0 0	0 0	100 100	100 100	95-100 95-100	90-100 90-100	25-45 25-40	10-20 5-15
Kc: Chase-----	0-30 30-48 48-60	Silt loam Silty clay loam Silty clay loam	CL CH, CL CL, CH	A-6, A-4 A-7, A-6 A-6, A-7	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	90-100 90-100 90-100	30-40 35-65 35-60	8-18 20-45 20-40
KF: Kennebec-----	0-47 47-60	Silt loam Silt loam	CL CL, CL-ML	A-7, A-6 A-4, A-6	0 0	0 0	100 100	100 100	95-100 95-100	90-100 90-100	25-45 25-40	10-20 5-15
Km: Kimo-----	0-6 6-28 28-60	Silty clay loam Silty clay Silt loam	CH, CL CL, CH ML, CL-ML	A-7-6 A-7-6 A-4	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	90-100 90-100 50-100	45-65 45-65 15-15	20-40 20-40 NP-4
Ko: Kimo-----	0-15 15-24 24-60	Silty clay loam Silty clay loam Very fine sandy loam	CH, CL CL, CH CL-ML, ML	A-7-6 A-7-6 A-4	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	90-100 90-100 50-100	45-65 45-65 15-15	20-40 20-40 NP-4

ENGINEERING INDEX PROPERTIES--Continued
Shawnee County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ks: Kipson-----	0-8	Silty clay loam	CL	A-6, A-7	0	0-25	90-100	80-100	65-100	60-95	35-45	15-22
	8-17	Silty clay loam	CL	A-7-6, A-6	0	0-25	80-100	75-100	70-100	50-95	25-45	10-22
	17-21	Weathered bedrock			---	---	---	---	---	---	---	---
Sogn-----	0-10	Silty clay loam	ML, MH, CL, CH	A-6, A-7	0	0-10	85-100	85-100	85-100	70-100	25-55	10-25
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Ku: Konawa-----	0-20	Fine sandy loam	CL, ML, SM, SC	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	20-50	Sandy clay loam	CL-ML, CL, SC, SC-SM	A-6, A-4	0	0	100	100	90-100	36-90	25-40	7-18
	50-60	Sandy clay loam	SM, SC, CL, ML	A-6, A-4	0	0	100	98-100	90-100	36-65	15-37	NP-16
Kw: Konawa-----	0-20	Fine sandy loam	SC, SM, ML, CL	A-4	0	0	100	98-100	94-100	36-60	15-30	NP-10
	20-50	Clay loam	SC, SC-SM, CL-ML, CL	A-6, A-4	0	0	100	100	90-100	36-90	25-40	7-18
	50-60	Sandy clay loam	CL, SC, SM, ML	A-6, A-4	0	0	100	98-100	90-100	36-65	15-37	NP-16
La: Labette-----	0-13	Silty clay loam	CL	A-6, A-7	0	0	85-100	85-100	75-100	68-95	35-50	15-25
	13-38	Silty clay	CH, CL, GC, SC	A-7-6	0	0-20	55-80	50-75	50-75	45-70	45-60	20-35
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
Lb: Labette-----	0-13	Silty clay loam	CL	A-6, A-7	0	0	85-100	85-100	75-100	68-95	35-50	15-25
	13-38	Silty clay	GC, CH, CL, SC	A-7-6	0	0-20	55-80	50-75	50-75	45-70	45-60	20-35
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
Lc: Labette, eroded	0-4	Silty clay loam	CL	A-7, A-6	0	0	85-100	85-100	75-100	68-95	35-50	15-25
	4-36	Silty clay	SC, GC, CH, CL	A-7-6	0	0-20	55-80	50-75	50-75	45-70	45-60	20-35
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Ld: Ladysmith-----	0-10	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	30-45	15-25
	10-48	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	50-70	30-50
	48-60	Silty clay	CH, CL	A-7-6	0	0	100	100	95-100	85-95	40-65	25-45
LIQ: Limestone Quarr	---	---	---	---	---	---	---	---	---	---	---	---
Lm: Ladysmith-----	0-10	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	85-95	30-45	15-25
	10-48	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	50-70	30-50
	48-60	Silty clay	CL, CH	A-7-6	0	0	100	100	95-100	85-95	40-65	25-45
Ls: Ladysmith, eroded-----	0-6	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-95	30-45	15-25
	6-48	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	50-70	30-50
	48-60	Silty clay	CL, CH	A-7-6	0	0	100	100	95-100	85-95	40-65	25-45
Ma: Made Land-----	---	---	---	---	---	---	---	---	---	---	---	---
Mb: Martin-----	0-12	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	80-100	35-45	15-25
	12-17	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	80-100	35-45	15-25
	17-60	Silty clay	CL, CH	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Mc: Martin-----	0-9	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	9-14	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	80-100	35-45	15-25
	14-60	Silty clay	CL, CH	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Me: Martin, eroded-	0-7	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	7-60	Silty clay	CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Mf: Martin-----	0-12	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	12-17	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	17-60	Silty clay	CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Mh: Martin, eroded-	0-7	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	80-100	35-45	15-25
	7-60	Silty clay	CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Mk: Martin-----	0-4	Silty clay	CH, CL	A-7	0	0	100	100	95-100	80-100	40-70	25-40
	4-60	Silty clay	CL, CH	A-7	0	0	100	100	95-100	80-100	40-70	25-40
Mm: Morrill-----	0-17	Clay loam	CL	A-6, A-4	0	0	95-100	75-100	65-100	50-80	25-40	7-20
	17-32	Clay loam	SC, CL	A-7-6, A-6	0	0	85-100	70-100	55-100	25-80	30-45	11-25
	32-60	Sandy clay loam	SM, SC, CL, ML	A-2, A-4, A-6	0	0	90-100	70-100	45-100	20-80	26-39	8-20

ENGINEERING INDEX PROPERTIES--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct					Pct	
Mn: Morrill, eroded	0-6 6-32 32-60	Clay loam Clay loam Sandy clay loam	CL SC, CL SM, SC, ML, CL	A-4, A-6 A-6, A-7-6 A-6, A-2, A-4	0 0 0	0 0 0	95-100 85-100 90-100	75-100 70-100 70-100	65-100 55-100 45-100	50-80 25-80 20-80	25-40 30-45 20-35	7-20 11-25 2-15
Mo: Morrill-----	0-17 17-32 32-60	Clay loam Clay loam Sandy clay loam	CL SC, CL SM, SC, CL, ML	A-6, A-4 A-7-6, A-6 A-2, A-6, A-4	0 0 0	0 0 0	95-100 85-100 90-100	75-100 70-100 70-100	65-100 55-100 45-100	50-80 25-80 20-80	25-40 30-45 20-35	7-20 11-25 2-15
MOO: Morrill-----	0-13 13-34 34-60	Loam Clay loam Clay loam	CL SC, CL SM, CL, SC, ML	A-4, A-6 A-6, A-7-6 A-6, A-4, A-2	0 0 0	0 0 0	95-100 85-100 90-100	75-100 70-100 70-100	65-100 55-100 45-100	50-80 25-80 20-80	25-40 30-45 26-41	7-20 11-25 7-20
Mp: Morrill-----	0-17 17-32 32-60	Clay loam Clay loam Sandy clay loam	CL SC, CL SM, ML, SC, CL	A-6, A-4 A-7-6, A-6 A-2, A-4, A-6	0 0 0	0 0 0	95-100 85-100 90-100	75-100 70-100 70-100	65-100 55-100 45-100	50-80 25-80 20-80	25-40 30-45 20-35	7-20 11-25 2-15
Gravelly Land--	0-15 15-54 54-60	Gravelly loam Very gravelly clay loam Silty clay	SC, GC, CL GP-GC, GC CH, CL, GC, SC	A-2, A-4, A-6 A-2, A-7 A-7	0 0 0	0 0 0	60-80 20-80 60-100	50-75 10-75 50-100	40-75 10-75 40-100	30-70 10-70 35-95	20-40 35-55 40-65	7-20 15-30 25-40
Mr: Muir-----	0-20 20-62 62-80	Silt loam Silty clay loam Silt loam	CL CL CL	A-6 A-7-6, A-6 A-7-6, A-6	0 0 0	0 0 0	100 100 100	100 100 100	90-100 85-100 85-100	70-90 65-90 65-90	30-35 30-45 30-45	10-15 10-20 10-20
MRR: Morrill-----	0-10 10-56 56-66	Clay loam Clay loam Clay loam	CL SC, CL CL, SM, SC, ML	A-6, A-4 A-7-6, A-6 A-6, A-4, A-2	0 0 0	0 0 0	95-100 85-100 90-100	75-100 70-100 70-100	65-100 55-100 45-100	50-80 25-80 20-80	25-40 30-45 20-35	7-20 11-25 8-20
Pa: Pawnee-----	0-19 19-79	Clay loam Clay	CL CH	A-6 A-7	0 0	0 0	95-100 95-100	95-100 95-100	85-100 85-100	70-90 70-85	30-40 50-70	10-20 25-45
Pc: Pawnee-----	0-14 14-34 34-72	Clay loam Clay Sandy clay loam	CL CH CH, CL	A-6 A-7 A-7, A-6	0 0 0	0 0 0	95-100 95-100 95-100	95-100 95-100 95-100	85-100 85-100 80-100	70-90 70-85 70-90	30-40 50-70 35-55	10-20 25-45 20-40
Pe: Pawnee, eroded--	0-14 14-34 34-72	Clay loam Clay Sandy clay loam	CL CH CL, CH	A-6 A-7 A-7, A-6	0 0 0	0 0 0	95-100 95-100 95-100	95-100 95-100 95-100	85-100 85-100 80-100	70-90 70-85 70-90	30-40 50-70 35-55	10-20 25-45 20-40
Pn: Pawnee-----	0-19 19-79	Clay loam Clay	CL CH	A-6 A-7	0 0	0 0	95-100 95-100	95-100 95-100	85-100 85-100	70-90 70-85	30-40 50-70	10-20 25-45
RD: Reading-----	0-15 15-41 41-60	Silt loam Silty clay loam Silty clay	CL CL CL	A-6 A-6, A-7 A-6, A-7	0 0 0	0 0 0	100 100 100	100 100 100	90-100 95-100 95-100	80-90 85-95 80-95	30-35 35-45 40-50	10-15 15-20 20-30
Re: Reading-----	0-14 14-56 56-70	Silty clay loam Silty clay loam Silty clay loam	CL CL CL	A-6 A-6, A-7 A-6, A-7	0 0 0	0 0 0	100 100 100	100 100 100	95-100 95-100 95-100	85-100 85-95 80-95	35-40 35-45 40-50	15-20 15-20 20-30
Rv: River Wash-----	---	---	---	---	---	---	---	---	---	---	---	---
Sa: Sarpy-----	0-7 7-66	Sand Fine sand	SM, SP-SM, SP SP, SP-SM, SM	A-2-4, A-3 A-2-4, A-3	0 0	0 0	100 100	100 100	60-80 60-80	2-15 2-35	---	NP NP
SAP: Sand Pit-----	---	---	---	---	---	---	---	---	---	---	---	---
Se: Sarpy-----	0-12 12-60	Loamy fine sand Fine sand	SM SM, SP, SP-SM	A-2-4 A-2-4, A-3	0 0	0 0	100 100	100 100	60-80 60-80	15-35 2-35	---	NP NP
Eudora-----	0-8 8-60	Fine sandy loam Silt loam	SM, CL-ML, ML, SC-SM ML, CL, CL-ML	A-4 A-4	0 0	0 0	100 100	100 100	70-85 95-100	40-55 65-100	15-26 15-25	NP-10 NP-10
Sg: Sharpsburg-----	0-23 23-72	Silty clay loam Silty clay loam	CH, CL CL, CH	A-7, A-6 A-7	0 0	0 0	100 100	100 100	100 100	95-100 95-100	35-55 40-60	18-32 20-35
Sh: Sharpsburg-----	0-23 23-72	Silty clay loam Silty clay loam	CH, CL CH, CL	A-7, A-6 A-7	0 0	0 0	100 100	100 100	100 100	95-100 95-100	35-55 40-60	18-32 20-35
Sk: Shelby-----	0-17 17-44 44-60	Clay loam Clay loam Clay loam	CL CL CL	A-7, A-6 A-6, A-7 A-7, A-6	0 0 0	0 0-5 0-5	90-95 90-95 90-95	85-95 85-95 85-95	75-90 75-90 75-90	55-70 55-70 55-70	35-45 30-45 30-45	15-25 15-25 15-25
Sm: Shelby-----	0-17 17-44 44-60	Clay loam Clay loam Clay loam	CL CL CL	A-7, A-6 A-6, A-7 A-7, A-6	0 0 0	0 0-5 0-5	90-95 90-95 90-95	85-95 85-95 85-95	75-90 75-90 75-90	55-70 55-70 55-70	35-45 30-45 30-45	15-25 15-25 15-25
Sn: Shelby, eroded--	0-6 6-44 44-60	Clay loam Clay loam Clay loam	CL CL CL	A-7, A-6 A-6, A-7 A-7, A-6	0 0 0	0 0-5 0-5	90-95 90-95 90-95	85-95 85-95 85-95	75-90 75-90 75-90	55-70 55-70 55-70	35-45 30-45 30-45	15-25 15-25 15-25

ENGINEERING INDEX PROPERTIES--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
So: Shelby-----	In											
	0-17	Clay loam	CL	A-6, A-7	0	0	90-95	85-95	75-90	55-70	35-45	15-25
	17-44	Clay loam	CL	A-7, A-6	0	0-5	90-95	85-95	75-90	55-70	30-45	15-25
	44-60	Clay loam	CL	A-6, A-7	0	0-5	90-95	85-95	75-90	55-70	30-45	15-25
Sp: Morrill-----	0-19	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	95-100	75-100	45-85	25-50	15-25	NP-7
	19-42	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	85-100	70-100	55-100	25-80	30-45	11-25
	42-60	Fine sandy loam	ML, SC, CL, SM	A-4, A-6, A-2	0	0	90-100	70-100	45-100	20-80	20-35	2-15
Sr: Morrill, eroded	0-6	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	95-100	75-100	45-85	25-50	15-25	NP-7
	6-42	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	85-100	70-100	55-100	25-80	30-45	11-25
	42-60	Fine sandy loam	SM, SC, ML, CL	A-6, A-4, A-2	0	0	90-100	70-100	45-100	20-80	20-35	2-15
Ss: Morrill-----	0-19	Fine sandy loam	SM, SC-SM	A-2, A-4	0	0	95-100	75-100	45-85	25-50	15-25	NP-7
	19-42	Sandy clay loam	SC, CL	A-6, A-7-6	0	0	85-100	70-100	55-100	25-80	30-45	11-25
	42-60	Fine sandy loam	SM, SC, ML, CL	A-2, A-4, A-6	0	0	90-100	70-100	45-100	20-80	20-35	2-15
St: Sibleyville----	0-14	Loam	CL-ML, CL	A-6, A-4	0	0	100	85-100	70-95	50-75	25-35	5-15
	14-38		SC, CL	A-6	0	0	100	85-100	70-90	30-55	30-40	11-20
	38-42				---	---	---	---	---	---	---	---
Su: Sibleyville----	0-14	Loam	CL-ML, CL	A-6, A-4	0	0	100	85-100	70-95	50-75	25-35	5-15
	14-38	Sandy clay loam	SC, CL	A-6	0	0	100	85-100	70-90	30-55	30-40	11-20
	38-42	Weathered bedrock			---	---	---	---	---	---	---	---
Sv: Sogn-----	0-10	Silty clay loam	CH, CL, ML, MH	A-6, A-7	0	0-10	85-100	85-100	85-100	70-100	25-55	10-25
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Vinland-----	0-6	Silty clay loam	CL	A-7, A-6	0	0-5	80-100	75-100	70-100	65-95	35-45	15-20
	6-15	Channery silty clay loam	SC, CL, ML	A-7, A-6	0	0	90-100	75-100	50-100	35-95	25-45	10-20
	15-19	Weathered bedrock			---	---	---	---	---	---	---	---
Sw: Stony Steep Lan Vinland-----	---	---	---	---	---	---	---	---	---	---	---	---
	0-11	Silty clay loam	CL	A-6, A-7	0	0-5	80-100	75-100	70-100	65-95	35-45	15-20
	11-17		SC, CL	A-7, A-6	0	0	90-100	75-100	50-100	35-95	25-45	10-20
	17-20				---	---	---	---	---	---	---	---
Vn: Vinland-----	0-6	Silty clay loam	CL	A-7, A-6	0	0-5	80-100	75-100	70-100	65-95	35-45	15-20
	6-15	Channery silty clay loam	CL, SC	A-6, A-7	0	0	90-100	75-100	50-100	35-95	25-45	10-20
	15-19	Weathered bedrock			---	---	---	---	---	---	---	---
W: Water-----	---	---	---	---	---	---	---	---	---	---	---	---
Wa: Wabash-----	0-16	Silty clay	CH	A-7	0	0	100	100	100	95-100	50-75	30-50
	16-70	Silty clay	CH	A-7	0	0	100	100	100	95-100	52-78	30-55
Wb: Wabash-----	0-16	Silty clay loam	CL, CH	A-6, A-7	0	0	100	100	100	95-100	35-55	15-35
	16-70	Silty clay	CH	A-7	0	0	100	100	100	95-100	52-78	30-55
We: Welda-----	0-12	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	25-35	5-15
	12-60	Silty clay	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	38-50	20-30
	60-72	Silty clay loam	ML, CL	A-7-6, A-4, A-6	0	0	100	100	90-100	75-100	30-45	7-20

Physical Properties table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth moving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability ($K \rightarrow \text{sat}$) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ($K \rightarrow \text{sat}$). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In Physical Properties table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the Physical Properties table as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to

wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Explanation of Wind Erodibility Groups

Soil erodibility by wind is directly related to the percentage of dry non-erodible surface soil aggregates larger than 0.84 mm in diameter. From this percentage, the wind erodibility index (I-factor) is determined. The I-factor is an expression of the stability of these soil aggregates against breakdown by tillage and abrasion from wind erosion. Soils are placed in Wind Erodibility Groups (WEG) having similar percentages of dry soil aggregates larger than 0.84 mm as shown in the following table.

WEG	Properties of Soil Surface Layer	Dry Soil Aggregates >0.84mm Percent	Wind Erodibility Index T/Ac/Yr (I)
1	Very fine sand, fine sand, sand, or coarse sand	1 2 3 5 7	310 1/ 250 220 180 160
2	Loamy very fine sand, loamy fine sand, loamy sand, loamy coarse sand, organic soil materials.	10	134
3	Very fine sandy loam, fine sandy loam, sandy loam, or coarse sandy loam.	25	86
4	Clay, silty clay, non-calcareous clay loam, or silty clay loam with >35 percent clay content.	25	86
4L	Calcareous 2/ loam, silt loam, clay loam, or silty clay loam.	25	86
5	Non-calcareous loam and silt loam with <20 percent clay content, or sandy clay loam, sandy clay, and hemic 3/ organic soil materials.	40	56
6	Non-calcareous loam and silt loam with >20 percent clay content, or non-calcareous clay loam with <35 percent clay content.	45	48
7	Silt, non-calcareous silty clay loam with >35 percent clay content and fibric 3/ organic soil material.	50	38
8	Soils not suitable for cultivation due to coarse fragments or wetness; wind erosion is not a problem.	--	0

1/ The "I" values for WEG 1 vary from 160 for coarse sands to 310 for very fine sands. Use an "I" of 220 as an average figure. For coarser sand that has gravel, use a lower figure. For a soil that has no gravel and very fine sand, use a higher figure. (Modification for coarse fragments is preparation.)

2/ Calcareous is a strongly or violently effervescent reaction to cold dilute (1N) HCL.

3/ See Soil Taxonomy for definition.

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
045OE: Oska-----	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
	0-5	1-10	50-75	27-40	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-3.0	.37	.37	2	7	38
	5-38	1-10	30-60	35-60	1.35-1.45	0.06-0.20	0.14-0.18	6.0-8.9	0.5-2.0	.37	.37			
	38-42													
045SV: Sibleyville--	0-7	30-55	20-50	14-27	1.30-1.40	0.60-2.00	0.18-0.21	0.0-2.9	1.0-4.0	.28	.28	3	6	48
	7-15	25-52	20-50	20-35	1.35-1.45	0.60-2.00	0.16-0.19	0.0-2.9	1.0-2.0	.28	.28			
	15-27	25-60	15-50	14-29	1.35-1.50	0.60-2.00	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
	27-31													
045SX: Rock Outcrop- Vinland-----	0-5					0.00-0.00								0
	0-7	1-20	50-75	27-35	1.20-1.40	0.60-2.00	0.21-0.24	3.0-5.9	2.0-4.0	.32	.32	2	7	38
	7-17	1-55	20-70	18-35	1.30-1.60	0.60-2.00	0.15-0.22	3.0-5.9	0.5-1.0	.43	.43			
	17-21													
045VM: Vinland-----	0-7	1-20	50-75	27-35	1.20-1.40	0.60-2.00	0.21-0.24	3.0-5.9	2.0-4.0	.32	.32	2	7	38
	7-17	1-55	20-70	18-35	1.30-1.60	0.60-2.00	0.15-0.22	3.0-5.9	0.5-1.0	.43	.43			
	17-21													
Martin-----	0-9	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	9-14	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.37	.37			
	14-60	1-10	30-60	40-55	1.40-1.50	0.06-0.20	0.12-0.18	6.0-8.9	0.5-1.5	.37	.37			
045WS: Woodson-----	0-11	1-10	50-75	18-27	1.25-1.45	0.20-0.60	0.22-0.24	0.0-2.9	2.0-4.0	.43	.43	4	6	48
	11-45	1-10	30-60	40-60	1.30-1.45	0.00-0.06	0.12-0.15	6.0-8.9	0.5-2.0	.32	.32			
	45-78	1-10	30-60	30-50	1.35-1.45	0.06-0.20	0.10-0.15	6.0-8.9	0.2-0.8	.32	.32			
085KB: Kennebec-----	0-48	1-10	50-75	22-30	1.25-1.35	0.60-2.00	0.22-0.24	3.0-5.9	2.0-6.0	.28	.28	5	6	48
	48-60	1-10	50-75	24-30	1.35-1.40	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
085MC: Martin-----	0-11	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	11-17	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.37	.37			
	17-60	1-10	30-60	40-55	1.40-1.50	0.06-0.20	0.12-0.18	6.0-8.9	0.5-1.5	.37	.37			
Vinland-----	0-11	1-20	50-75	27-35	1.20-1.40	0.60-2.00	0.21-0.24	3.0-5.9	2.0-4.0	.32	.32	2	7	38
	11-17	1-55	20-70	18-35	1.30-1.60	0.60-2.00	0.15-0.22	3.0-5.9	0.5-1.0	.43	.43			
	17-21													
085ZA: Zook-----	0-18	1-10	50-70	35-40	1.30-1.35	0.20-0.60	0.21-0.23	6.0-8.9	2.5-4.0	.37	.37	5	7	38
	18-60	1-10	40-60	36-45	1.30-1.45	0.06-0.20	0.11-0.13	6.0-8.9	0.5-2.0	.28	.28			
087EC: Eudora-----	0-6	40-60	40-80	5-18	1.30-1.50	2.00-6.00	0.20-0.24	0.0-2.9	0.5-1.0	.32	.32	5	5	56
	6-12	10-50	40-80	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	1.0-2.0	.43	.43			
	12-18	10-50	40-80	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-1.5	.43	.43			
	18-25	10-50	40-80	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.5-0.9	.43	.43			
	25-44	10-50	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.6	.43	.43			
	44-60	10-75	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-0.3	.43	.43			
Bismarckgrove	0-7	40-60	40-80	5-18	1.30-1.50	2.00-6.00	0.20-0.24	0.0-2.9	0.5-1.0	.32	.32	5	7	38
	7-33	1-20	50-70	18-35	1.35-1.45	0.60-2.00	0.18-0.21	3.0-5.9	2.0-4.0	.32	.32			
	33-52	20-60	10-60	7-18	1.35-1.40	0.60-2.00	0.17-0.19	0.0-2.9	1.0-2.0	.43	.43			
	52-80	55-90	5-15	5-15	1.55-1.60	0.60-2.00	0.01-0.05	0.0-2.9	0.2-0.8	.17	.17			
087HC: Haig-----	0-9	1-10	50-70	32-40	1.35-1.40	0.60-2.00	0.21-0.23	6.0-8.9	2.0-4.0	.37	.37	5	7	38
	9-31	1-10	40-60	40-50	1.30-1.45	0.06-0.20	0.12-0.14	6.0-8.9	0.5-2.0	.37	.37			
	31-77	1-10	50-70	28-40	1.40-1.50	0.20-0.60	0.18-0.20	6.0-8.9	0.2-0.5	.37	.37			
087KV: Konawa-----	0-13	45-80	10-50	8-18	1.30-1.60	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	13-44	45-70	10-35	18-30	1.50-1.70	0.60-2.00	0.11-0.17	3.0-5.9	0.3-0.5	.32	.32			
	44-60	45-80	10-50	10-30	1.50-1.70	0.57-5.95	0.07-0.17	0.0-2.9	0.1-0.3	.24	.24			
087RS: Rossville----	0-7	5-25	60-70	15-28	1.20-1.40	0.60-2.00	0.20-0.23	1.0-5.9	2.0-3.0	.28	.28	5	6	48
	7-14	5-25	60-70	18-30	1.20-1.30	0.60-2.00	0.21-0.23	3.0-5.9	1.8-2.5	.28	.28			
	14-21	5-25	60-70	18-30	1.20-1.30	0.60-2.00	0.21-0.23	3.0-5.9	1.5-2.0	.28	.28			
	21-26	5-25	60-70	18-35	1.35-1.45	0.60-2.00	0.21-0.23	3.0-5.9	1.2-1.8	.43	.43			
	26-39	5-25	60-70	18-35	1.35-1.45	0.60-2.00	0.21-0.23	3.0-5.9	0.6-1.0	.43	.43			
	39-57	5-25	60-70	10-35	1.35-1.45	0.60-2.00	0.21-0.23	3.0-5.9	0.4-0.8	.43	.43			
	57-80	5-25	60-70	10-30	1.30-1.60	0.60-2.00	0.17-0.22	1.0-5.9	0.2-0.6	.43	.43			
087SO: Shelby-----	0-12	25-45	25-45	24-27	1.35-1.45	0.60-2.00	0.20-0.22	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	12-48	25-50	20-35	30-35	1.40-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.5-1.0	.28	.28			
	48-60	25-45	15-30	27-35	1.50-1.70	0.20-0.60	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
Pawnee-----	0-14	20-45	20-50	30-38	1.40-1.50	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.37	.37	5	6	48
	14-60	15-40	15-40	40-50	1.50-1.70	0.06-0.20	0.09-0.11	6.0-8.9	0.5-1.5	.37	.37			
087WC: Wabash-----	0-19	1-10	50-70	27-35	1.35-1.50	0.06-0.20	0.21-0.24	6.0-8.9	2.5-4.0	.37	.37	5	7	38
	19-60	1-10	30-60	40-60	1.20-1.45	0.00-0.06	0.08-0.12	9.0-25.0	0.5-2.0	.28	.28			
139ED: Elmont-----	0-8	15-52	28-50	15-27	1.30-1.40	0.60-2.00	0.22-0.24	1.5-4.5	2.0-4.0	.32	.32	5	6	48
	8-16	15-52	28-50	15-27	1.30-1.40	0.60-2.00	0.22-0.24	1.5-4.5	2.0-4.0	.32	.32			
	16-42	15-45	30-60	27-35	1.30-1.45	0.20-0.60	0.18-0.20	3.0-5.9	0.5-2.0	.43	.43			
	42-52	15-45	30-60	27-42	1.40-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.2-0.8	.43	.43			
	52-60													
149KM: Kimo-----	0-22	1-10	40-60	35-50	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	2.0-4.0	.37	.37	5	4	86
	22-60	10-70	20-85	5-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.1-0.3	.43	.43			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas: Published

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
197IB: Irwin-----	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
	0-12	3-10	40-65	28-35	1.35-1.45	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	12-42	2-10	35-50	40-60	1.40-1.50	0.00-0.06	0.10-0.13	6.0-8.9	1.0-3.0	.28	.28			
	42-60	2-8	35-50	35-55	1.40-1.50	0.06-0.20	0.09-0.19	6.0-8.9	0.5-2.0	.32	.32			
197IV: Ivan-----	0-36	1-10	50-75	16-27	1.30-1.45	0.60-2.00	0.22-0.24	1.5-4.5	2.0-4.0	.32	.32	5	4L	86
	36-60	1-10	45-75	18-35	1.35-1.55	0.60-2.00	0.19-0.22	3.0-5.9	1.0-2.0	.32	.32			
197IX: Ivan-----	0-40	1-10	50-75	28-35	1.30-1.45	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	4L	86
	40-60	1-10	45-75	18-35	1.35-1.55	0.60-2.00	0.19-0.22	3.0-5.9	1.0-2.0	.32	.32			
197MR: Morrill-----	0-8	25-50	30-50	15-29	1.30-1.40	0.60-2.00	0.14-0.21	0.0-2.9	2.0-4.0	.28	.32	5	6	48
	8-37	20-50	20-50	25-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.28	.32			
	37-60	20-50	20-50	10-30	1.40-1.55	0.20-2.00	0.15-0.18	0.0-2.9	0.2-0.8	.37	.43			
197MS: Morrill, very stony-----	0-10	25-50	30-50	18-27	1.30-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-4.0	.20	.24	5	8	0
	10-15	20-50	20-50	18-27	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.32			
	15-42	20-50	20-50	27-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-2.0	.32	.37			
	42-60	20-50	20-50	18-35	1.35-1.50	0.60-2.00	0.10-0.13	0.0-2.9	0.5-2.0	.24	.43			
197SA: Sarpy-----	0-5	70-95	1-20	1-10	1.20-1.50	5.95-19.98	0.05-0.09	0.0-2.9	0.1-1.0	.17	.17	5	2	134
	5-60	70-95	1-20	1-10	1.20-1.50	5.95-19.98	0.05-0.09	0.0-2.9	0.1-0.5	.15	.15			
197WF: Wamego-----	0-11	1-15	50-70	27-32	1.30-1.50	0.60-2.00	0.21-0.24	1.5-4.5	2.0-4.0	.32	.32	3	7	38
	11-25	1-15	30-60	35-42	1.50-1.70	0.06-0.20	0.12-0.20	6.0-8.9	0.5-2.0	.43	.37			
	25-29			---	---	---	---	---	---	---	---			
197WY: Wymore-----	0-8	1-10	50-75	30-40	1.15-1.20	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	8-40	1-10	40-60	42-55	1.10-1.20	0.06-0.20	0.11-0.14	6.0-8.9	0.8-2.0	.37	.37			
	40-60	1-10	50-70	27-40	1.15-1.25	0.20-0.60	0.18-0.20	6.0-8.9	0.2-0.8	.37	.37			
2797: Morrill, stony-----	0-10	25-50	30-50	22-27	1.30-1.40	0.60-2.00	0.18-0.22	0.0-2.9	2.0-4.0	.20	.24	5	8	0
	10-15	20-50	20-50	25-32	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.32	.37			
	15-42	20-50	20-50	27-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.32	.37			
	42-60	20-60	15-50	20-30	1.35-1.50	0.60-2.00	0.10-0.13	0.0-2.9	0.2-0.8	.24	.43			
AED: Arents, Earthen Dam- An:	---			---	---	---	---	---	---	---	---	-	---	---
Kennebec-----	0-48	1-10	50-75	22-30	1.25-1.35	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28	5	6	48
	48-80	1-10	50-75	24-30	1.35-1.40	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
Bk: Martin-----	0-12	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	12-17	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.37	.37			
	17-72	1-10	30-60	40-55	1.40-1.50	0.06-0.20	0.12-0.18	6.0-8.9	0.5-1.5	.37	.37			
Kennebec-----	0-48	1-10	50-75	22-27	1.25-1.35	0.60-2.00	0.22-0.24	3.0-5.9	2.0-6.0	.28	.28	5	6	48
	48-80	1-10	50-75	24-28	1.35-1.40	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
BOA: Borrow Areas- Br:	---			---	---	---	---	---	---	---	---	-	---	---
Fluvents-----	0-60			20-35	1.45-1.65	0.60-2.00	0.12-0.18	3.0-5.9	0.5-3.0	.32	.32	5	7	38
Dm: Dwight-----	0-5	1-10	50-70	27-30	1.20-1.35	0.60-2.00	0.21-0.24	0.0-2.9	2.0-4.0	.43	.43	5	7	38
	5-22	1-10	30-50	45-60	1.30-1.40	0.00-0.06	0.10-0.14	6.0-8.9	0.5-1.5	.32	.32			
	22-50	1-10	35-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.2-0.5	.32	.32			
	50-80	1-10	35-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.1-0.5	.32	.32			
Martin-----	0-12	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	12-17	1-10	50-70	27-40	1.35-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.37	.37			
	17-60	1-10	30-60	40-55	1.40-1.50	0.06-0.20	0.12-0.18	6.0-8.9	0.5-1.5	.37	.37			
Ds: Dwight-----	0-5	1-10	50-70	27-30	1.20-1.35	0.60-2.00	0.21-0.24	0.0-2.9	2.0-4.0	.43	.43	5	7	38
	5-22	1-10	30-50	45-60	1.30-1.40	0.00-0.06	0.10-0.14	6.0-8.9	0.5-1.5	.32	.32			
	22-50	1-10	35-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.2-0.5	.32	.32			
	50-80	1-10	35-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.1-0.5	.32	.32			
Dw: Dwight-----	0-5	1-10	50-70	27-30	1.20-1.35	0.60-2.00	0.21-0.24	0.0-2.9	2.0-4.0	.43	.43	5	7	38
	5-22	1-10	30-50	45-60	1.30-1.40	0.00-0.06	0.10-0.14	6.0-8.9	0.5-1.5	.32	.32			
	22-50	1-10	35-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.2-0.5	.32	.32			
	50-80	1-10	35-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.1-0.5	.32	.32			
El: Elmont-----	0-7	1-15	50-75	15-27	1.30-1.40	0.60-2.00	0.22-0.24	1.5-4.5	2.0-4.0	.32	.32	5	6	48
	7-22	1-10	45-70	27-35	1.30-1.45	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	22-50	1-10	45-70	27-42	1.40-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.5	.43	.43			
	50-54			---	---	---	---	---	---	---	---			
Em: Elmont, eroded-----	0-7	1-15	50-75	15-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	7-22	1-10	45-70	27-35	1.30-1.45	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	22-50	1-10	45-70	27-42	1.40-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.5	.43	.43			
	50-54			---	---	---	---	---	---	---	---			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas: Published

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
En: Elmont-----	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
	0-7	1-15	50-75	15-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	7-22	1-10	45-70	27-35	1.30-1.45	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	22-50	1-10	45-70	27-42	1.40-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.5	.43	.43			
	50-60	---	---	---	---	---	---	---	---	---	---			
Eo: Elmont, eroded-----	0-7	1-15	50-75	15-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	7-22	1-10	45-70	27-35	1.30-1.45	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	22-50	1-10	45-70	27-42	1.40-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.5	.43	.43			
	50-54	---	---	---	---	---	---	---	---	---	---			
Ep: Elmont, eroded-----	0-7	1-15	50-75	27-33	1.30-1.40	0.20-0.60	0.18-0.23	3.0-5.9	1.0-3.0	.32	.32	5	7	38
	7-22	1-10	45-70	27-35	1.30-1.45	0.20-0.60	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	22-50	1-10	45-70	27-42	1.40-1.55	0.20-0.60	0.14-0.20	3.0-5.9	0.5-1.5	.43	.43			
	50-54	---	---	---	---	---	---	---	---	---	---			
Dwight-----	0-5	1-10	50-70	27-30	1.20-1.35	0.60-2.00	0.21-0.24	0.0-2.9	1.0-3.0	.43	.43	5	7	38
	5-22	1-10	30-60	45-60	1.30-1.40	0.00-0.06	0.10-0.14	6.0-8.9	0.5-1.5	.32	.32			
	22-50	1-10	30-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.2-0.5	.32	.32			
	50-80	1-10	30-60	35-50	1.30-1.40	0.06-0.20	0.09-0.16	6.0-8.9	0.1-0.5	.32	.32			
Es: Eudora-----	0-12	55-75	15-30	7-15	1.35-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.5	.20	.20	5	3	86
	12-60	55-80	15-30	7-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.3-1.5	.43	.43			
Et: Eudora-----	0-12	10-50	50-80	5-18	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.32	.32	5	5	56
	12-72	10-75	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-0.3	.43	.43			
Eu: Eudora-----	0-12	10-50	40-80	5-18	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-2.0	.32	.32	5	5	56
	12-72	10-75	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-0.3	.43	.43			
Ev: Eudora-----	0-12	1-20	50-80	5-18	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	5	56
	12-72	1-55	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-2.0	.43	.43			
Kimo-----	0-6	1-10	40-60	35-40	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	2.0-4.0	.37	.37	5	4	86
	6-28	1-10	40-60	35-50	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	0.5-1.5	.37	.37			
	28-60	10-70	25-85	7-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.8	.37	.37			
Ew: Eudora-----	0-12	55-75	10-45	5-15	1.35-1.50	2.00-6.00	0.16-0.18	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	12-60	10-75	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-0.3	.43	.43			
Kimo-----	0-8	55-75	10-45	5-15	1.40-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.2-1.0	.24	.24	5	3	86
	8-24	1-30	40-60	35-50	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	2.0-4.0	.37	.37			
	24-60	10-75	10-70	7-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.2-1.5	.43	.43			
Gm: Gymer-----	0-15	1-20	50-75	20-27	1.30-1.40	0.60-2.00	0.22-0.24	1.5-4.5	2.0-4.0	.32	.32	5	6	48
	15-34	1-20	50-70	35-42	1.40-1.50	0.20-0.60	0.12-0.20	3.0-5.9	1.0-2.0	.43	.43			
	34-68	1-20	50-70	27-35	1.30-1.40	0.60-2.00	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
Gy: Gymer-----	0-4	1-10	50-75	20-27	1.30-1.40	0.60-2.00	0.22-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	4-42	1-10	45-65	27-42	1.40-1.50	0.20-0.60	0.12-0.20	3.0-5.9	1.0-2.0	.43	.43			
	42-60	1-15	50-60	27-35	1.30-1.40	0.60-2.00	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
INL: Aquolls-----	0-60			---	---	---	---	---	---	---	---	-	---	0
Kb: Kennebec-----	0-48	1-10	50-75	22-27	1.25-1.35	0.60-2.00	0.22-0.24	3.0-5.9	2.0-6.0	.28	.28	5	6	48
	48-60	1-10	50-75	24-28	1.35-1.40	0.60-2.00	0.20-0.22	3.0-5.9	0.5-2.0	.43	.43			
Kc: Chase-----	0-30	1-10	50-75	18-27	1.30-1.40	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	30-48	1-10	35-65	35-55	1.35-1.45	0.06-0.20	0.11-0.19	6.0-8.9	1.0-3.0	.28	.28			
	48-60	1-10	40-60	27-50	1.35-1.45	0.06-0.20	0.11-0.18	6.0-8.9	0.5-2.0	.28	.28			
KF: Kennebec-----	0-47	1-10	50-75	22-27	1.25-1.35	0.60-2.00	0.22-0.24	3.0-5.9	2.0-6.0	.28	.28	5	6	48
	47-60	1-10	50-75	24-30	1.35-1.40	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
Km: Kimo-----	0-6	1-20	50-70	35-40	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	2.0-4.0	.37	.37	5	4	86
	6-28	1-20	40-60	35-50	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	0.5-1.5	.37	.37			
	28-60	20-75	25-75	7-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.8	.37	.37			
Ko: Kimo-----	0-15	1-20	50-70	35-40	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	2.0-4.0	.37	.37	5	4	86
	15-24	1-20	40-70	35-50	1.20-1.30	0.06-0.20	0.13-0.22	6.0-8.9	0.5-1.5	.37	.37			
	24-60	10-75	10-60	7-18	1.30-1.40	0.60-2.00	0.17-0.22	0.0-2.9	0.2-0.8	.37	.37			
Ks: Kipson-----	0-8	1-20	50-75	27-35	1.30-1.40	0.60-2.00	0.17-0.20	3.0-5.9	1.0-3.0	.32	.32	2	4L	86
	8-17	1-20	40-65	18-35	1.35-1.50	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.43			
	17-21	---	---	---	---	---	---	---	---	---	---			
Sogn-----	0-10	1-15	50-70	27-35	1.15-1.20	0.60-2.00	0.17-0.22	3.0-5.9	1.0-3.0	.32	.32	1	4L	86
	10-14	---	---	---	---	---	---	---	---	---	---			
Ku: Konawa-----	0-20	55-75	10-45	10-18	1.30-1.60	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	20-50	20-45	10-50	20-35	1.35-1.65	0.60-2.00	0.12-0.20	0.0-2.9	0.3-0.5	.32	.32			
	50-60	45-65	10-45	18-32	1.35-1.65	0.60-2.00	0.11-0.17	0.0-2.9	0.1-0.3	.32	.32			
Kw: Konawa-----	0-20	55-75	10-45	10-18	1.30-1.60	2.00-6.00	0.11-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	20-50	20-45	10-50	20-35	1.35-1.65	0.60-2.00	0.12-0.20	0.0-2.9	0.3-0.5	.32	.32			
	50-60	45-65	10-40	18-32	1.35-1.65	0.60-2.00	0.11-0.17	0.0-2.9	0.1-0.3	.32	.32			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas: Published

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
La: Labette-----	0-13 13-38 38-42	1-10 1-10	50-70 40-60	28-40 35-55	1.35-1.45 1.40-1.50	0.20-0.60 0.06-0.20	0.17-0.23 0.12-0.19	3.0-5.9 6.0-8.9	2.0-4.0 1.0-2.0	.37 .37	.37 .64	2	7	38
Lb: Labette-----	0-13 13-38 38-42	1-10 1-10	50-70 40-60	28-40 35-55	1.35-1.45 1.40-1.50	0.20-0.60 0.06-0.20	0.17-0.23 0.12-0.19	3.0-5.9 6.0-8.9	2.0-4.0 1.0-2.0	.37 .37	.37 .64	2	7	38
Lc: Labette, eroded-----	0-4 4-36 36-40	1-10 1-10	50-70 40-60	28-40 35-55	1.35-1.45 1.40-1.50	0.20-0.60 0.06-0.20	0.17-0.23 0.12-0.19	3.0-5.9 6.0-8.9	1.0-3.0 1.0-2.0	.37 .37	.37 .64	2	7	38
Ld: Ladysmith----	0-10 10-48 48-60	1-10 1-10 1-10	50-70 30-60 30-65	28-35 40-60 35-55	1.35-1.45 1.35-1.50 1.40-1.60	0.20-0.60 0.00-0.06 0.00-0.60	0.21-0.23 0.10-0.15 0.10-0.19	3.0-5.9 6.0-8.9 6.0-8.9	2.0-4.0 1.0-3.0 0.5-1.0	.37 .37 .37	.37 .37 .37	5	7	38
LIQ: Limestone Quarry-----	---			---	---	---	---	---	---	---	---	-	---	0
Lm: Ladysmith----	0-10 10-48 48-60	1-10 1-10 1-10	50-70 30-60 30-65	28-35 40-60 35-55	1.35-1.45 1.35-1.50 1.40-1.60	0.20-0.60 0.00-0.06 0.00-0.60	0.21-0.23 0.10-0.15 0.10-0.19	3.0-5.9 6.0-8.9 3.0-5.9	2.0-4.0 1.0-3.0 0.5-1.0	.37 .37 .37	.37 .37 .37	5	7	38
Ls: Ladysmith, eroded-----	0-6 6-48 48-60	1-10 1-10 1-10	50-70 30-60 30-65	28-35 40-60 35-55	1.35-1.45 1.35-1.50 1.40-1.60	0.20-0.60 0.00-0.06 0.00-0.60	0.21-0.23 0.10-0.15 0.10-0.19	3.0-5.9 6.0-8.9 3.0-5.9	1.5-3.5 1.0-3.0 0.5-1.0	.37 .37 .37	.37 .37 .37	5	7	38
Ma: Made Land----	---			---	---	---	---	---	---	---	---	-	---	---
Mb: Martin-----	0-12 12-17 17-60	1-10 1-10 1-10	50-70 50-70 30-60	27-40 27-40 40-55	1.35-1.40 1.35-1.40 1.40-1.50	0.20-0.60 0.20-0.60 0.06-0.20	0.21-0.23 0.18-0.20 0.12-0.18	3.0-5.9 3.0-5.9 6.0-8.9	2.0-4.0 2.0-4.0 0.5-1.5	.37 .37 .37	.37 .37 .37	5	7	38
Mc: Martin-----	0-9 9-14 14-60	1-10 1-10 1-10	50-70 50-70 30-60	27-40 27-40 40-55	1.35-1.40 1.35-1.40 1.40-1.50	0.20-0.60 0.20-0.60 0.06-0.20	0.21-0.23 0.18-0.20 0.12-0.18	3.0-5.9 3.0-5.9 6.0-8.9	2.0-4.0 1.0-3.0 0.5-1.5	.37 .37 .37	.37 .37 .37	5	7	38
Me: Martin, eroded-----	0-7 7-60	1-10 1-10	50-70 30-60	27-40 40-55	1.35-1.40 1.40-1.50	0.20-0.60 0.06-0.20	0.21-0.23 0.12-0.18	3.0-5.9 6.0-8.9	1.0-3.0 0.5-1.5	.37 .37	.37 .37	5	7	38
Mf: Martin-----	0-12 12-17 17-60	1-10 1-10 1-10	50-70 50-70 30-60	27-40 27-40 40-55	1.35-1.40 1.35-1.40 1.40-1.50	0.20-0.60 0.20-0.60 0.06-0.20	0.21-0.23 0.18-0.20 0.12-0.18	3.0-5.9 3.0-5.9 6.0-8.9	2.0-4.0 1.0-3.0 0.5-1.5	.37 .37 .37	.37 .37 .37	5	7	38
Mh: Martin, eroded-----	0-7 7-60	1-10 1-10	50-70 30-60	27-40 40-55	1.35-1.40 1.40-1.50	0.20-0.60 0.06-0.20	0.21-0.23 0.12-0.18	3.0-5.9 6.0-8.9	1.0-3.0 0.5-1.5	.37 .37	.37 .37	5	7	38
Mk: Martin-----	0-4 4-60	1-10 1-10	40-55 30-60	40-50 40-55	1.35-1.45 1.40-1.50	0.06-0.20 0.06-0.20	0.12-0.18 0.12-0.18	6.0-8.9 6.0-8.9	1.0-2.0 0.2-1.5	.28 .37	.28 .37	5	4	86
Mm: Morrill-----	0-17 17-32 32-60	25-50 20-50 20-50	30-50 20-50 20-50	15-29 25-35 10-30	1.30-1.40 1.35-1.45 1.40-1.55	0.60-2.00 0.20-0.60 0.20-2.00	0.14-0.21 0.15-0.19 0.15-0.18	0.0-2.9 3.0-5.9 3.0-5.9	2.0-4.0 0.5-1.0 0.2-0.8	.32 .28 .37	.32 .32 .43	5	6	48
Mn: Morrill, eroded-----	0-6 6-32 32-60	25-50 20-50 20-50	30-50 20-50 20-50	15-29 25-35 10-30	1.30-1.40 1.35-1.45 1.40-1.55	0.60-2.00 0.20-0.60 0.20-2.00	0.14-0.21 0.15-0.19 0.15-0.18	0.0-2.9 3.0-5.9 0.0-2.9	1.0-3.0 0.5-1.0 0.2-0.8	.32 .28 .37	.32 .32 .43	5	6	48
Mo: Morrill-----	0-17 17-32 32-60	25-50 20-50 20-50	30-50 20-50 20-50	15-29 25-35 10-30	1.30-1.40 1.35-1.45 1.40-1.55	0.60-2.00 0.20-0.60 0.20-2.00	0.14-0.21 0.15-0.19 0.15-0.18	0.0-2.9 3.0-5.9 0.0-2.9	2.0-4.0 0.5-1.0 0.2-0.8	.32 .32 .37	.32 .32 .43	5	6	48
MOO: Morrill-----	0-13 13-34 34-60	20-45 20-50 20-50	15-52 15-52 15-50	15-29 25-35 10-30	1.30-1.40 1.35-1.45 1.40-1.55	0.60-2.00 0.20-0.60 0.20-0.60	0.14-0.21 0.15-0.19 0.15-0.18	0.0-2.9 3.0-5.9 3.0-5.9	2.0-4.0 0.5-1.0 0.2-0.8	.28 .32 .37	.32 .32 .43	5	6	48
Mp: Morrill-----	0-17 17-32 32-60	25-50 20-50 20-50	30-50 20-50 20-50	15-29 25-35 10-30	1.30-1.40 1.35-1.45 1.40-1.55	0.60-2.00 0.20-0.60 0.20-2.00	0.14-0.21 0.15-0.19 0.15-0.18	0.0-2.9 3.0-5.9 0.0-2.9	2.0-4.0 0.5-1.0 0.2-0.8	.32 .32 .37	.32 .32 .43	5	6	48
Gravelly Land	0-15 15-54 54-60	20-50 10-45 5-45	28-50 30-60 30-60	15-27 35-45 40-50	1.20-1.30 1.35-1.45 1.40-1.55	0.60-2.00 0.20-0.60 0.06-0.20	0.03-0.06 0.01-0.03 0.05-0.08	0.0-2.9 3.0-5.9 6.0-8.9	1.0-2.0 0.5-1.0 0.0-0.5	.24 .24 .24	.43 .64 .32	5	8	0
Mr: Muir-----	0-20 20-62 62-80	1-20 1-20 1-20	50-75 40-70 40-70	18-27 18-35 18-35	1.30-1.45 1.30-1.50 1.30-1.50	0.60-2.00 0.60-2.00 0.60-2.00	0.22-0.24 0.18-0.22 0.18-0.22	3.0-5.9 3.0-5.9 3.0-5.9	2.0-4.0 0.5-1.8 0.1-0.5	.32 .32 .32	.32 .32 .32	5	6	48

PHYSICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas: Published

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
MRR:	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
Morrill-----	0-10	20-45	15-52	15-30	1.30-1.40	0.60-2.00	0.14-0.21	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	10-56	20-50	15-52	25-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.28	.28			
	56-66	20-50	15-50	10-29	1.40-1.55	0.20-2.00	0.15-0.18	3.0-5.9	0.2-0.8	.37	.37			
Pa:														
Pawnee-----	0-19	20-45	20-50	30-38	1.40-1.50	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.37	.37	5	6	48
	19-79	15-40	15-40	40-50	1.50-1.70	0.06-0.20	0.09-0.11	6.0-8.9	0.1-1.5	.37	.37			
Pc:														
Pawnee-----	0-14	20-45	20-50	30-38	1.40-1.50	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.37	.37	5	6	48
	14-34	20-40	20-40	40-50	1.50-1.70	0.06-0.20	0.09-0.11	6.0-8.9	0.5-1.5	.37	.37			
	34-72	20-55	20-40	25-35	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.1-0.5	.37	.37			
Pe:														
Pawnee, eroded-----	0-14	20-45	20-50	30-38	1.40-1.50	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.37	.37	5	6	48
	14-34	20-40	20-40	40-50	1.50-1.70	0.06-0.20	0.09-0.11	6.0-8.9	0.5-1.5	.37	.37			
	34-72	20-55	20-40	25-35	1.40-1.50	0.06-0.20	0.14-0.16	6.0-8.9	0.1-0.5	.37	.37			
Pn:														
Pawnee-----	0-19	20-45	20-50	30-38	1.40-1.50	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.37	.37	5	6	48
	19-79	15-40	15-40	40-50	1.50-1.70	0.06-0.20	0.09-0.11	6.0-8.9	0.1-1.5	.37	.37			
RD:														
Reading-----	0-15	1-10	50-75	18-27	1.35-1.40	0.60-2.00	0.22-0.24	1.5-4.5	2.0-4.0	.32	.32	5	6	48
	15-41	1-10	45-70	27-35	1.40-1.50	0.20-2.00	0.18-0.20	3.0-5.9	0.5-3.0	.43	.43			
	41-60	1-30	40-60	30-45	1.40-1.50	0.20-2.00	0.13-0.20	3.0-5.9	0.5-1.0	.43	.43			
Re:														
Reading-----	0-14	1-10	50-75	27-30	1.35-1.40	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	14-56	1-10	50-70	27-35	1.40-1.50	0.20-2.00	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
	56-70	1-25	40-70	30-42	1.40-1.50	0.20-2.00	0.13-0.20	3.0-5.9	0.5-1.0	.43	.43			
Rv:														
River Wash---	---			---	---	---	---	---	---	---	---	---	---	0
Sa:														
Sarpy-----	0-7	70-95	1-20	2-5	1.20-1.50	5.95-19.98	0.05-0.09	0.0-2.9	0.1-1.0	.15	.15	5	1	220
	7-66	70-95	1-20	2-5	1.20-1.50	5.95-19.98	0.05-0.09	0.0-2.9	0.1-0.5	.15	.15			
SAP:														
Sand Pit-----	---			---	---	---	---	---	---	---	---	---	---	---
Se:														
Sarpy-----	0-12	70-95	1-10	2-5	1.20-1.50	5.95-19.98	0.05-0.09	0.0-2.9	0.2-1.0	.17	.17	5	2	134
	12-60	70-95	1-10	2-5	1.20-1.50	5.95-19.98	0.05-0.09	0.0-2.9	0.1-0.5	.15	.15			
	0-8	55-75	10-40	5-15	1.35-1.50	2.00-6.00	0.16-0.18	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	8-60	10-75	40-75	5-18	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	0.1-2.0	.43	.43			
Sg:														
Sharpsburg---	0-23	1-10	50-75	27-36	1.30-1.35	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	23-72	1-10	40-65	36-42	1.35-1.40	0.20-0.60	0.18-0.20	6.0-8.9	0.2-2.0	.43	.43			
Sh:														
Sharpsburg---	0-23	1-10	50-75	27-36	1.30-1.35	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	23-72	1-10	40-65	36-42	1.35-1.40	0.20-0.60	0.18-0.20	6.0-8.9	0.2-2.0	.43	.43			
Sk:														
Shelby-----	0-17	25-45	25-45	27-35	1.50-1.55	0.20-0.60	0.16-0.18	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	17-44	25-50	20-35	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.5-1.0	.28	.28			
	44-60	25-50	15-30	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
Sm:														
Shelby-----	0-17	25-45	25-45	27-35	1.50-1.55	0.20-0.60	0.16-0.18	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	17-44	25-50	20-35	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.5-1.0	.28	.28			
	44-60	25-50	15-30	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
Sn:														
Shelby, eroded-----	0-6	25-45	25-45	27-35	1.50-1.55	0.20-0.60	0.16-0.18	3.0-5.9	1.0-3.0	.28	.28	5	6	48
	6-44	25-50	20-35	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.5-1.0	.28	.28			
	44-60	25-50	15-30	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
So:														
Shelby-----	0-17	25-45	25-45	27-35	1.50-1.55	0.20-0.60	0.16-0.18	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	17-44	25-50	20-35	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.5-1.0	.28	.28			
	44-60	25-50	15-30	30-35	1.55-1.65	0.20-0.60	0.16-0.18	3.0-5.9	0.1-0.5	.37	.37			
Sp:														
Morrill-----	0-19	55-80	10-30	8-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.28	.32	5	3	86
	19-42	45-70	10-25	25-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.28	.32			
	42-60	55-80	10-30	10-29	1.40-1.55	0.20-2.00	0.15-0.18	0.0-2.9	0.2-0.8	.37	.43			
Sr:														
Morrill, eroded-----	0-6	55-80	10-30	8-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	1.0-3.0	.28	.32	5	3	86
	6-42	45-70	10-25	25-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.28	.32			
	42-60	55-80	10-30	10-29	1.40-1.55	0.20-2.00	0.15-0.18	0.0-2.9	0.2-0.8	.37	.43			
Ss:														
Morrill-----	0-19	55-80	10-30	8-15	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	2.0-4.0	.28	.32	5	3	86
	19-42	45-70	10-25	25-35	1.35-1.45	0.20-0.60	0.15-0.19	3.0-5.9	0.5-1.0	.28	.32			
	42-60	55-80	10-30	10-29	1.40-1.55	0.20-2.00	0.15-0.18	0.0-2.9	0.2-0.8	.37	.43			
St:														
Sibleyville--	0-14	30-55	20-50	14-27	1.30-1.40	0.60-2.00	0.18-0.21	0.0-2.9	1.0-4.0	.32	.32	3	6	48
	14-38	25-52	20-50	20-35	1.35-1.45	0.60-2.00	0.16-0.19	0.0-2.9	1.0-2.0	.28	.32			
	38-42	---	---	---	---	---	---	---	---	---	---			
Su:														
Sibleyville--	0-14	30-55	20-50	14-27	1.30-1.40	0.60-2.00	0.18-0.21	0.0-2.9	1.0-4.0	.32	.32	3	6	48
	14-38	25-52	20-50	20-35	1.35-1.45	0.60-2.00	0.16-0.19	0.0-2.9	0.5-2.0	.28	.32			
	38-42	---	---	---	---	---	---	---	---	---	---			

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
Sv:														
Sogn-----	0-10	1-15	50-70	27-35	1.15-1.20	0.60-2.00	0.17-0.22	3.0-5.9	1.0-3.0	.32	.32	1	4L	86
	10-14													
Vinland-----	0-6	1-20	50-75	27-35	1.20-1.40	0.60-2.00	0.21-0.24	3.0-5.9	2.0-4.0	.32	.32	2	7	38
	6-15	1-55	20-70	18-35	1.30-1.60	0.60-2.00	0.15-0.22	3.0-5.9	0.5-1.0	.43	.49			
	15-19													
Sw:														
Stony Steep	---			---	---	---	---	---	---	---	---	-	---	---
Land-----														
Vinland-----	0-11			27-35	1.20-1.40	0.60-2.00	0.21-0.24	3.0-5.9	2.0-4.0	.32	.32	2	7	38
	11-17			18-35	1.30-1.60	0.60-2.00	0.15-0.22	3.0-5.9	0.5-1.0	.43	.49			
	17-20													
Vn:														
Vinland-----	0-6	1-20	50-75	27-35	1.20-1.40	0.60-2.00	0.21-0.24	3.0-5.9	2.0-4.0	.32	.32	2	7	38
	6-15	1-55	20-70	18-35	1.30-1.60	0.60-2.00	0.15-0.22	3.0-5.9	0.5-1.0	.43	.49			
	15-19													
W:														
Water-----	---			---	---	---	---	---	---	---	---	-	---	---
Wa:														
Wabash-----	0-16	1-10	40-60	40-50	1.25-1.45	0.00-0.06	0.12-0.14	9.0-25.0	2.5-4.0	.28	.28	5	4	86
	16-70	1-10	30-60	40-60	1.20-1.45	0.00-0.06	0.08-0.12	9.0-25.0	0.5-2.0	.28	.28			
Wb:														
Wabash-----	0-16	1-10	50-70	27-35	1.35-1.50	0.06-0.20	0.21-0.24	6.0-8.9	2.5-4.0	.28	.28	5	7	38
	16-70	1-10	30-60	40-60	1.20-1.45	0.00-0.06	0.08-0.12	9.0-25.0	0.5-2.0	.28	.28			
We:														
Welda-----	0-12	1-10	50-75	12-27	1.25-1.35	0.60-2.00	0.22-0.24	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	12-60	1-10	40-65	35-42	1.35-1.40	0.20-0.60	0.14-0.20	3.0-5.9	0.2-0.5	.32	.32			
	60-72	1-10	50-70	18-35	1.40-1.45	0.60-2.00	0.18-0.22	3.0-5.9	0.1-0.3	.32	.32			

CHEMICAL PROPERTIES OF THE SOILS
Shawnee County, Kansas

The Chemical Properties table shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils. Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

CHEMICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Effective Cation Exchange Capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
045OE: Oska-----	0-5	11-26	---	5.6-6.5	0	0	0	0
	5-38	14-36	---	5.6-7.8	0	0	0	0
	38-42	---	---	---	---	---	---	---
045SV: Sibleyville----	0-7	6.0-19	---	5.6-7.3	0	0	0	0
	7-15	8.0-22	---	5.1-7.3	0	0	0	0
	15-27	5.0-18	---	5.1-7.3	0	0	0	0
	27-31	---	0.0-0.0	---	---	---	---	---
045SX: Rock Outcrop----	0-5	---	0.0-0.0	---	---	---	---	---
Vinland-----	0-7	11-24	---	5.6-7.8	0	0	0	0
	7-17	6.0-22	---	5.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---	---
045VM: Vinland-----	0-7	11-24	---	5.6-7.8	0	0	0	0
	7-17	6.0-22	---	5.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---	---
Martin-----	0-9	11-27	---	5.6-6.5	0	0	0	0
	9-14	10-24	---	5.6-7.3	0	0	0	0
	14-60	16-33	---	5.6-7.8	0-1	0	0	0
045WS: Woodson-----	0-11	7.0-19	---	5.6-6.5	0	0	0	0
	11-45	16-36	---	5.6-7.3	0	0	0	0
	45-78	12-30	---	5.6-7.8	0	0	0	0
085KB: Kennebec-----	0-48	10-20	---	5.6-7.3	0	0	0	0
	48-60	10-18	---	6.1-7.3	0	0	0	0
085MC: Martin-----	0-11	11-27	---	5.6-6.5	0	0	0	0
	11-17	10-24	---	5.6-7.3	0	0	0	0
	17-60	16-33	---	5.6-7.8	0-1	0	0	0
Vinland-----	0-11	11-24	---	5.6-7.8	0	0	0	0
	11-17	6.0-22	---	5.6-7.8	0	0	0	0
	17-21	---	---	---	---	---	---	---
085ZA: Zook-----	0-18	16-28	---	5.6-7.3	0	0	0	0
	18-60	15-36	---	5.6-7.8	0	0	0	0
087EC: Eudora-----	0-6	5.0-20	---	6.1-7.3	0	0	0	0
	6-12	5.0-15	---	6.6-7.3	0	0	0	0
	12-18	5.0-15	---	6.6-7.3	0	0	0	0
	18-25	5.0-15	---	6.6-7.8	0	0	0	0
	25-44	5.0-15	---	6.6-8.4	0	0	0	0
	44-60	5.0-15	---	6.6-8.4	0	0	0	0
Bismarckgrove---	0-7	5.0-20	---	6.1-7.3	0	0	0	0
	7-33	10-25	---	6.1-7.8	0	0	0	0
	33-52	10-15	---	6.6-7.8	0	0	0	0
	52-80	0.0-5.0	---	6.6-7.8	0-5	0	0	0
087HC: Haig-----	0-9	14-27	---	5.6-7.3	0	0	0	0
	9-31	16-30	---	5.1-6.0	0	0	0	0
	31-77	11-24	---	6.1-7.3	0	0	0	0
087KV: Konawa-----	0-13	3.0-11	---	5.1-6.5	0	0	0	0
	13-44	7.0-19	---	5.1-6.5	0	0	0	0
	44-60	5.0-15	---	5.1-7.3	0	0	0	0
087RS: Rossville-----	0-7	15-30	---	5.3-7.3	0	0	0	0
	7-14	20-30	---	5.7-7.3	0	0	0	0
	14-21	20-30	---	5.6-7.3	0	0	0	0
	21-26	20-30	---	5.9-7.3	0	0	0	0
	26-39	20-30	---	6.0-7.3	0	0	0	0
	39-57	20-30	---	6.3-7.3	0	0	0	0
	57-80	10-20	---	7.0-7.8	0-15	0	0	0
087SO: Shelby-----	0-12	10-19	---	5.1-7.3	0	0	0	0
	12-48	12-22	---	5.1-7.3	0	0	0	0
	48-60	12-22	---	6.6-8.4	0-30	0	0	0
Pawnee-----	0-14	13-25	---	5.6-7.3	0	0	0	0
	14-60	16-30	---	6.1-8.4	0-5	0	0	0
087WC: Wabash-----	0-19	11-24	---	5.6-7.3	0	0	0	0
	19-60	16-36	---	5.6-7.8	0	0	0	0
139ED: Elmont-----	0-8	6.0-19	---	5.1-7.3	0	0	0	0
	8-16	6.0-19	---	5.1-7.3	0	0	0	0
	16-42	10-21	---	5.1-7.3	0	0	0	0
	42-52	10-25	---	5.1-7.3	0	0	0	0
	52-60	---	---	---	---	---	---	---
149KM: Kimo-----	0-22	16-33	---	6.1-8.4	0	0	0	0
	22-60	2.0-11	---	6.1-8.4	0	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Effective Cation Exchange Capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
197IB: Irwin-----	0-12	12-24	---	5.6-7.3	0	0	0	0
	12-42	16-38	---	5.6-8.4	0	0	0	0
	42-60	14-34	---	6.6-8.4	0	0	0	0
197IV: Ivan-----	0-36	7.0-19	---	7.4-8.4	1-5	0	0	0
	36-60	7.0-21	---	7.9-8.4	5-10	0	0	0
197IX: Ivan-----	0-40	12-24	---	7.4-8.4	1-5	0	0	0
	40-60	7.0-21	---	7.9-8.4	5-10	0	0	0
197MR: Morrill-----	0-8	6.0-20	---	5.1-7.3	0	0	0	0
	8-37	10-21	---	5.1-7.3	0	0	0	0
	37-60	4.0-18	---	5.1-7.3	0	0	0	0
197MS: Morrill, very stony-----	0-10	7.0-19	---	5.1-7.3	0	0	0.0-2.0	0
	10-15	7.0-18	---	5.1-7.3	0	0	0.0-2.0	0
	15-42	11-22	---	5.1-7.3	0	0	0.0-2.0	0
	42-60	7.0-22	---	5.1-7.3	0	0	0.0-2.0	0
197SA: Sarpy-----	0-5	0.0-4.0	---	6.6-8.4	0	0	0	0
	5-60	1.0-3.0	---	7.4-8.4	0	0	0	0
197WF: Wamego-----	0-11	11-22	---	5.6-6.5	0	0	0	0
	11-25	14-25	---	5.6-7.3	0	0	0	0
	25-29	---	---	---	---	---	---	---
197WY: Wymore-----	0-8	12-27	---	5.6-6.5	0	0	0	0
	8-40	16-33	---	5.6-7.3	0	0	0	0
	40-60	10-24	---	6.6-7.3	0	0	0	0
2797: Morrill, stony--	0-10	10-15	---	5.1-7.3	0	0	0.0-2.0	0
	10-15	10-15	---	5.1-7.3	0	0	0.0-2.0	0
	15-42	10-15	---	5.1-7.3	0	0	0.0-2.0	0
	42-60	5.0-10	---	5.1-7.3	0	0	0.0-2.0	0
AED: Arents, Earthen Dam-----	---	---	---	---	---	---	---	---
An: Kennebec-----	0-48	10-20	---	5.6-7.3	---	---	---	---
	48-80	10-18	---	6.1-7.3	---	---	---	---
Bk: Martin-----	0-12	11-27	---	5.6-6.5	0	0	0	0
	12-17	10-24	---	5.6-7.3	0	0	0	0
	17-72	16-33	---	5.6-7.8	0-1	0	0	0
	0-48	10-20	---	5.6-7.3	---	---	---	---
	48-80	10-18	---	6.1-7.3	---	---	---	---
BOA: Borrow Areas----	---	---	---	---	---	---	---	---
Br: Fluvents-----	0-60	---	8.0-21	5.6-7.3	---	---	---	---
Dm: Dwight-----	0-5	11-21	---	5.6-7.3	0	0	0.0-2.0	0-2
	5-22	18-36	---	6.1-8.4	0	0	0.0-4.0	0-4
	22-50	14-30	---	6.6-8.4	0	0	0.0-8.0	4-10
	50-80	14-30	---	6.6-8.4	0	0	0.0-8.0	8-15
	0-12	11-27	---	5.6-6.5	0	0	0	0
	12-17	10-24	---	5.6-7.3	0	0	0	0
	17-60	16-33	---	5.6-7.8	0-1	0	0	0
Ds: Dwight-----	0-5	11-21	---	5.6-7.3	0	0	0.0-2.0	0-2
	5-22	18-36	---	6.1-8.4	0	0	0.0-4.0	0-4
	22-50	14-30	---	6.6-8.4	0	0	0.0-8.0	4-10
	50-80	14-30	---	6.6-8.4	0	0	0.0-8.0	8-15
Dw: Dwight-----	0-5	11-21	---	5.6-7.3	---	---	0.0-2.0	0-2
	5-22	18-36	---	6.1-8.4	---	---	0.0-4.0	0-4
	22-50	14-30	---	6.6-8.4	---	---	0.0-8.0	4-10
	50-80	14-30	---	6.6-8.4	---	---	0.0-8.0	8-15
El: Elmont-----	0-7	6.0-19	---	5.1-7.3	0	0	0	0
	7-22	10-21	---	5.1-7.3	0	0	0	0
	22-50	10-25	---	5.1-7.3	0	0	0	0
	50-54	---	---	---	---	---	---	---
Em: Elmont, eroded--	0-7	6.0-19	---	5.1-7.3	0	0	0	0
	7-22	10-21	---	5.1-7.3	0	0	0	0
	22-50	10-25	---	5.1-7.3	0	0	0	0
	50-54	---	---	---	---	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Effective Cation Exchange Capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
En:								
Elmont-----	0-7	6.0-19	---	5.1-7.3	0	0	0	0
	7-22	10-21	---	5.1-7.3	0	0	0	0
	22-50	10-25	---	5.1-7.3	0	0	0	0
	50-60	---	---	---	---	---	---	---
Eo:								
Elmont, eroded--	0-7	6.0-19	---	5.1-7.3	0	0	0	0
	7-22	10-21	---	5.1-7.3	0	0	0	0
	22-50	10-25	---	5.1-7.3	0	0	0	0
	50-54	---	---	---	---	---	---	---
Ep:								
Elmont, eroded--	0-7	11-22	---	5.1-7.3	0	0	0	0
	7-22	10-21	---	5.1-7.3	0	0	0	0
	22-50	10-25	---	5.1-7.3	0	0	0	0
	50-54	---	---	---	---	---	---	---
Dwight-----	0-5	11-21	---	5.6-7.3	---	---	0.0-2.0	0-2
	5-22	18-36	---	6.1-8.4	---	---	0.0-4.0	0-4
	22-50	14-30	---	6.6-8.4	---	---	0.0-8.0	4-10
	50-80	14-30	---	6.6-8.4	---	---	0.0-8.0	8-15
Es:								
Eudora-----	0-12	2.0-12	---	6.1-7.8	0	0	0	0
	12-60	2.0-12	---	6.6-8.4	0	0	0	0
Et:								
Eudora-----	0-12	2.0-13	---	6.1-7.8	0	0	0	0
	12-72	2.0-12	---	6.6-8.4	0	0	0	0
Eu:								
Eudora-----	0-12	2.0-13	---	6.1-7.8	0	0	0	0
	12-72	2.0-12	---	6.6-8.4	---	0	0	0
Ev:								
Eudora-----	0-12	2.0-13	---	6.1-7.8	0	0	0	0
	12-72	2.0-12	---	6.6-8.4	---	0	0	0
Kimo-----	0-6	14-27	---	6.1-8.4	0	0	0	0
	6-28	14-30	---	6.1-8.4	0	0	0	0
	28-60	2.0-11	---	6.1-8.4	0	0	0	0
Ew:								
Eudora-----	0-12	2.0-12	---	6.1-7.8	0	0	0	0
	12-60	2.0-12	---	6.6-8.4	0	0	0	0
Kimo-----	0-8	4.0-13	---	6.1-8.4	0	0	0	0
	8-24	14-30	---	6.1-8.4	0	0	0	0
	24-60	2.0-11	---	6.1-8.4	0	0	0	0
Gm:								
Gymer-----	0-15	8.0-19	---	5.1-6.5	0	0	0	0
	15-34	14-25	---	5.6-6.5	0	0	0	0
	34-68	10-21	---	5.6-6.5	0	0	0	0
Gy:								
Gymer-----	0-4	8.0-19	---	5.1-6.5	0	0	0	0
	4-42	14-25	---	5.6-6.5	0	0	0	0
	42-60	10-21	---	5.6-6.5	0	0	0	0
INL:								
Aguolls-----	0-60	---	---	---	---	---	---	---
Kb:								
Kennebec-----	0-48	10-20	---	5.6-7.3	0	0	0	0
	48-60	10-18	---	6.1-7.3	0	0	0	0
Kc:								
Chase-----	0-30	8.0-19	---	5.6-7.3	0	0	0	0
	30-48	14-33	---	5.6-7.8	0	0	0	0
	48-60	10-30	---	6.1-8.4	0	0	0	0
KF:								
Kennebec-----	0-47	10-20	---	5.6-7.3	0	0	0	0
	47-60	10-18	---	6.1-7.3	0	0	0	0
Km:								
Kimo-----	0-6	14-27	---	6.1-8.4	---	---	---	---
	6-28	14-30	---	6.1-8.4	---	---	---	---
	28-60	2.0-11	---	6.1-8.4	---	---	---	---
Ko:								
Kimo-----	0-15	14-27	---	6.1-8.4	---	---	---	---
	15-24	14-30	---	6.1-8.4	---	---	---	---
	24-60	2.0-11	---	6.1-8.4	---	---	---	---
Ks:								
Kipson-----	0-8	11-23	---	7.4-8.4	10-20	0	0	0
	8-17	7.0-22	---	7.9-9.0	30-60	0	0	0
	17-21	---	---	---	---	---	---	---
Sogn-----	0-10	11-23	---	6.1-8.4	0	0	0	0
	10-14	---	---	---	---	---	---	---
Ku:								
Konawa-----	0-20	4.0-11	---	5.6-7.3	0	0	0	0
	20-50	---	8.0-21	4.5-6.0	0	0	0	0
	50-60	---	7.0-19	4.5-6.0	0	0	0	0
Kw:								
Konawa-----	0-20	4.0-11	---	5.6-7.3	0	0	0	0
	20-50	---	8.0-21	4.5-6.0	0	0	0	0
	50-60	---	7.0-19	4.5-6.0	0	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Effective Cation Exchange Capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
La: Labette-----	0-13 13-38 38-42	12-27 14-34 ---	--- --- ---	5.6-6.5 5.6-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Lb: Labette-----	0-13 13-38 38-42	12-27 14-34 ---	--- --- ---	5.6-6.5 5.6-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Lc: Labette, eroded--	0-4 4-36 36-40	12-27 14-34 ---	--- --- ---	5.6-6.5 5.6-8.4 ---	0 0 ---	0 0 ---	0 0 ---	0 0 ---
Ld: Ladysmith-----	0-10 10-48 48-60	12-24 16-36 14-33	--- --- ---	5.6-7.3 5.6-7.8 7.4-8.4	0 0 0	0 0 0	0 0 0	0 0 0
LIQ: Limestone Quarry	---	---	---	---	---	---	---	---
Lm: Ladysmith-----	0-10 10-48 48-60	12-24 16-36 14-33	--- --- ---	5.6-7.3 5.6-7.8 7.4-8.4	0 0 0	0 0 0	0 0 0	0 0 0
Ls: Ladysmith, eroded-----	0-6 6-48 48-60	12-24 16-36 14-33	--- --- ---	5.6-7.3 5.6-7.8 7.4-8.4	0 0 0	0 0 0	0 0 0	0 0 0
Ma: Made Land-----	---	---	---	---	---	---	---	---
Mb: Martin-----	0-12 12-17 17-60	11-27 10-24 16-33	--- --- ---	5.6-6.5 5.6-7.3 5.6-7.8	0 0 0-1	0 0 0	0 0 0	0 0 0
Mc: Martin-----	0-9 9-14 14-60	11-27 10-24 16-33	--- --- ---	5.6-6.5 5.6-7.3 5.6-7.8	0 0 0-1	0 0 0	0 0 0	0 0 0
Me: Martin, eroded--	0-7 7-60	11-27 16-33	--- ---	5.6-6.5 5.6-7.8	0 0-1	0 0	0 0	0 0
Mf: Martin-----	0-12 12-17 17-60	11-27 10-24 16-33	--- --- ---	5.6-6.5 5.6-7.3 5.6-7.8	0 0 0-1	0 0 0	0 0 0	0 0 0
Mh: Martin, eroded--	0-7 7-60	11-27 16-33	--- ---	5.6-6.5 5.6-7.8	0 0-1	0 0	0 0	0 0
Mk: Martin-----	0-4 4-60	16-31 16-33	--- ---	5.6-6.5 5.6-7.8	0 0-1	0 0	0 0	0 0
Mm: Morrill-----	0-17 17-32 32-60	6.0-20 10-21 8.0-18	--- --- ---	5.1-7.3 5.1-7.3 5.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0
Mn: Morrill, eroded--	0-6 6-32 32-60	6.0-20 10-21 4.0-18	--- --- ---	5.1-7.3 5.1-7.3 5.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0
Mo: Morrill-----	0-17 17-32 32-60	6.0-20 10-21 4.0-18	--- --- ---	5.1-7.3 5.1-7.3 5.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0
MOO: Morrill-----	0-13 13-34 34-60	6.0-20 10-21 8.0-18	--- --- ---	5.1-7.3 5.1-7.3 5.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0
Mp: Morrill-----	0-17 17-32 32-60	6.0-20 10-21 4.0-18	--- --- ---	5.1-7.3 5.1-7.3 5.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0
Gravelly Land---	0-15 15-54 54-60	10-20 10-25 15-30	--- --- ---	5.1-6.5 5.6-7.3 5.6-7.8	0 0 0	0 0 0	0 0 0	0 0 0
Mr: Muir-----	0-20 20-62 62-80	8.0-19 7.0-23 7.0-21	--- --- ---	5.6-7.3 6.1-7.3 6.1-8.4	0 0 0	0 0 0	0 0 0	0 0 0
MRR: Morrill-----	0-10 10-56 56-66	6.0-20 10-21 4.0-18	--- --- ---	5.1-7.3 5.1-7.3 5.1-7.3	0 0 0	0 0 0	0 0 0	0 0 0
Pa: Pawnee-----	0-19 19-79	13-25 16-30	--- ---	5.6-7.3 6.1-8.4	0 0-5	0 0	0 0	0 0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Effective Cation Exchange Capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
Pc:								
Pawnee-----	0-14	13-25	---	5.6-7.3	0	0	0	0
	14-34	16-30	---	6.1-8.4	0	0	0	0
	34-72	10-21	---	7.4-8.4	0-5	0	0	0
Pe:								
Pawnee, eroded--	0-14	13-25	---	5.6-7.3	0	0	0	0
	14-34	16-30	---	6.1-8.4	0	0	0	0
	34-72	10-21	---	7.4-8.4	0-5	0	0	0
Pn:								
Pawnee-----	0-19	13-25	---	5.6-7.3	0	0	0	0
	19-79	16-30	---	6.1-8.4	0-5	0	0	0
RD:								
Reading-----	0-15	8.0-19	---	5.6-6.5	0	0	0	0
	15-41	11-23	---	5.6-6.5	0	0	0	0
	41-60	12-26	---	6.1-8.4	0	0	0	0
Re:								
Reading-----	0-14	11-21	---	5.6-6.5	0	0	0	0
	14-56	11-23	---	5.6-6.5	0	0	0	0
	56-70	12-26	---	6.1-8.4	0	0	0	0
Rv:								
River Wash-----	---	---	---	---	---	---	---	---
Sa:								
Sarpy-----	0-7	0.0-4.0	---	6.6-8.4	0	0	0	0
	7-66	0.0-3.0	---	6.6-8.4	0	0	0	0
SAP:								
Sand Pit-----	---	---	---	---	---	---	---	---
Se:								
Sarpy-----	0-12	0.0-4.0	---	6.6-8.4	0	0	0	0
	12-60	0.0-3.0	---	6.6-8.4	0	0	0	0
Eudora-----	0-8	2.0-12	---	6.1-7.8	0	0	0	0
	8-60	2.0-11	---	6.6-8.4	0	0	0	0
Sg:								
Sharpsburg-----	0-23	12-24	---	5.1-7.3	---	---	---	---
	23-72	14-27	---	5.1-6.0	---	---	---	---
Sh:								
Sharpsburg-----	0-23	12-24	---	5.1-7.3	---	---	---	---
	23-72	14-27	---	5.1-6.0	---	---	---	---
Sk:								
Shelby-----	0-17	11-23	---	5.1-7.3	0	0	0	0
	17-44	12-22	---	5.1-7.3	0	0	0	0
	44-60	12-22	---	6.6-8.4	0-30	0	0	0
Sm:								
Shelby-----	0-17	11-23	---	5.1-7.3	0	0	0	0
	17-44	12-22	---	5.1-7.3	0	0	0	0
	44-60	12-22	---	6.6-8.4	0-30	0	0	0
Sn:								
Shelby, eroded--	0-6	11-23	---	5.1-7.3	0	0	0	0
	6-44	12-22	---	5.1-7.3	0	0	0	0
	44-60	12-22	---	6.6-8.4	0-30	0	0	0
So:								
Shelby-----	0-17	11-23	---	5.1-7.3	0	0	0	0
	17-44	12-22	---	5.1-7.3	0	0	0	0
	44-60	12-22	---	6.6-8.4	0-30	0	0	0
Sp:								
Morrill-----	0-19	3.0-10	---	5.1-7.3	0	0	0	0
	19-42	10-21	---	5.1-7.3	0	0	0	0
	42-60	4.0-18	---	5.1-7.3	0	0	0	0
Sr:								
Morrill, eroded--	0-6	3.0-10	---	5.1-7.3	0	0	0	0
	6-42	10-21	---	5.1-7.3	0	0	0	0
	42-60	4.0-18	---	5.1-7.3	0	0	0	0
Ss:								
Morrill-----	0-19	3.0-10	---	5.1-7.3	0	0	0	0
	19-42	10-21	---	5.1-7.3	0	0	0	0
	42-60	4.0-18	---	5.1-7.3	0	0	0	0
St:								
Sibleyville-----	0-14	6.0-19	---	5.6-7.3	0	0	0	0
	14-38	8.0-22	---	5.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---	---
Su:								
Sibleyville-----	0-14	6.0-19	---	5.6-7.3	0	0	0	0
	14-38	8.0-22	---	5.1-7.3	0	0	0	0
	38-42	---	---	---	---	---	---	---
Sv:								
Sogn-----	0-10	11-23	---	6.1-8.4	---	0	0	0
	10-14	---	0.0-0.0	---	---	---	---	---
Vinland-----	0-6	11-24	---	5.6-7.8	0	0	0	0
	6-15	6.0-22	---	5.6-7.8	0	0	0	0
	15-19	---	---	---	---	---	---	---
Sw:								
Stony Steep Land	---	---	---	---	---	---	---	---
Vinland-----	0-11	11-24	---	5.6-7.8	0	0	0	0
	11-17	6.0-22	---	5.6-7.8	0	0	0	0
	17-20	---	---	---	---	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Shawnee County, Kansas

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Map symbol and soil name	Depth	Cation- exchange capacity	Effective Cation Exchange Capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
Vn: Vinland-----	0-6	11-24	---	5.6-7.8	0	0	0	0
	6-15	6.0-22	---	5.6-7.8	0	0	0	0
W: Water-----	15-19	---	---	---	---	---	---	---
Wa: Wabash-----	0-16	16-30	---	5.6-7.3	0	0	0	0
	16-70	16-36	---	5.6-7.8	0	0	0	0
Wb: Wabash-----	0-16	11-24	---	5.6-7.3	0	0	0	0
	16-70	16-36	---	5.6-7.8	0	0	0	0
We: Welda-----	0-12	5.0-17	---	5.1-7.3	0	0	0	0
	12-60	14-25	---	5.1-6.5	0	0	0	0
	60-72	7.0-21	---	5.1-6.5	0	0	0	0

WATER FEATURES Shawnee County, Kansas

The Water Features table gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The months in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The Water Features table indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The Water Features table indicates surface water depth and the duration and frequency of ponding. Duration is expressed as very brief if less than 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. None means that ponding is not probable; rare that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); occasional that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and frequent that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
045OE: Oska-----	C		Ft	Ft	Ft				
045SV: Sibleyville-----	B		---	---	---	---	---	---	---
045SX: Rock Outcrop-----	---		---	---	---	---	---	---	---
Vinland-----	D		---	---	---	---	---	---	---
045VM: Vinland-----	D		---	---	---	---	---	---	---
Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
045WS: Woodson-----	D		---	---	---	---	---	---	---
		February	0.3-0.7	1.8-2.2	---	---	---	---	None
		March	0.3-0.7	1.8-2.2	---	---	---	---	None
		April	0.3-0.7	1.8-2.2	---	---	---	---	None
085KB: Kennebec-----	B		---	---	---	---	---	---	---
		January	3.3-3.7	>6.0	---	---	---	---	Rare
		February	3.3-3.7	>6.0	---	---	---	---	Rare
		March	3.3-3.7	>6.0	---	---	---	Very brief	Occasional
		April	3.3-3.7	>6.0	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	---	---	---	---	---	Very brief	Occasional
		November	---	---	---	---	---	Very brief	Occasional
		December	---	---	---	---	---	---	Rare
085MC: Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Vinland-----	D		---	---	---	---	---	---	---
085ZA: Zook-----	C/D		---	---	---	---	---	---	---
		January	0.2-0.8	>6.0	---	---	---	---	Rare
		February	0.2-0.8	>6.0	---	---	---	---	Rare
		March	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		April	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		May	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		June	0.8-1.2	>6.0	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	0.8-1.2	>6.0	---	---	---	---	Rare
		December	0.8-1.2	>6.0	---	---	---	---	Rare
087EC: Eudora-----	B		---	---	---	---	---	---	---
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Bismarckgrove-----	B		Ft	Ft	Ft				
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
087HC: Haig-----	C/D								
		January	0.2-0.8	1.8-2.2	---	---	---	---	None
		February	0.2-0.8	1.8-2.2	---	---	---	---	None
		March	0.2-0.8	1.8-2.2	---	---	---	---	None
		April	0.2-0.8	1.8-2.2	---	---	---	---	None
		May	0.8-1.2	1.8-2.2	---	---	---	---	None
		December	0.8-1.2	1.8-2.2	---	---	---	---	None
087KV: Konawa-----	B								
			---	---	---	---	---	---	---
087RS: Rossville-----	B								
		January	---	---	---	---	---	---	Very rare
		February	---	---	---	---	---	---	Very rare
		March	---	---	---	---	---	---	Very rare
		April	---	---	---	---	---	---	Very rare
		May	---	---	---	---	---	---	Very rare
		June	---	---	---	---	---	---	Very rare
		July	---	---	---	---	---	---	Very rare
		August	---	---	---	---	---	---	Very rare
		September	---	---	---	---	---	---	Very rare
		October	---	---	---	---	---	---	Very rare
		November	---	---	---	---	---	---	Very rare
		December	---	---	---	---	---	---	Very rare
087SO: Shelby-----	B								
			---	---	---	---	---	---	---
Pawnee-----	D								
		February	0.8-1.2	2.8-3.2	---	---	---	---	None
		March	0.8-1.2	2.8-3.2	---	---	---	---	None
		April	0.8-1.2	2.8-3.2	---	---	---	---	None
087WC: Wabash-----	D								
		January	0.2-0.8	>6.0	---	---	---	---	Very rare
		February	0.2-0.8	>6.0	---	---	---	---	Very rare
		March	0.2-0.8	>6.0	---	---	---	---	Very rare
		April	0.2-0.8	>6.0	---	---	---	---	Very rare
		May	0.2-0.8	>6.0	---	---	---	---	Very rare
		June	0.8-1.2	>6.0	---	---	---	---	Very rare
		July	---	---	---	---	---	---	Very rare
		August	---	---	---	---	---	---	Very rare
		September	---	---	---	---	---	---	Very rare
		October	---	---	---	---	---	---	Very rare
		November	0.8-1.2	>6.0	---	---	---	---	Very rare
		December	0.8-1.2	>6.0	---	---	---	---	Very rare
139ED: Elmont-----	B								
			---	---	---	---	---	---	---
149KM: Kimo-----	C								
		January	1.8-2.2	>6.0	---	---	---	---	Rare
		February	1.8-2.2	>6.0	---	---	---	---	Rare
		March	1.8-2.2	>6.0	---	---	---	---	Rare
		April	1.8-2.2	>6.0	---	---	---	---	Rare
		May	2.8-3.2	>6.0	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	2.8-3.2	>6.0	---	---	---	---	Rare
197IB: Irwin-----	D								
			---	---	---	---	---	---	---
197IV:									
			---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Ivan-----	B		Ft	Ft	Ft				
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Very brief	Occasional
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	---	---	---	---	---	Very brief	Occasional
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
197IX: Ivan-----	B								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Very brief	Frequent
		April	---	---	---	---	---	Very brief	Frequent
		May	---	---	---	---	---	Very brief	Frequent
		June	---	---	---	---	---	Very brief	Frequent
		July	---	---	---	---	---	Very brief	Frequent
		August	---	---	---	---	---	Very brief	Frequent
		September	---	---	---	---	---	Very brief	Frequent
		October	---	---	---	---	---	Very brief	Frequent
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
197MR: Morrill-----	B								
			---	---	---	---	---	---	---
197MS: Morrill, very stony-----	B								
			---	---	---	---	---	---	---
197SA: Sarpy-----	A								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Long	Frequent
		April	---	---	---	---	---	Long	Frequent
		May	---	---	---	---	---	Long	Frequent
		June	---	---	---	---	---	Long	Frequent
		July	---	---	---	---	---	Long	Frequent
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
197WF: Wamego-----	C								
			---	---	---	---	---	---	---
197WY: Wymore-----	D								
		February	0.8-1.2	2.8-3.2	---	---	---	---	None
		March	0.8-1.2	2.8-3.2	---	---	---	---	None
		April	0.8-1.2	2.8-3.2	---	---	---	---	None
2797: Morrill, stony-----	B								
			---	---	---	---	---	---	---
An: Kennebec-----	B								
		January	3.3-3.7	>6.0	---	---	---	---	Rare
		February	3.3-3.7	>6.0	---	---	---	---	Rare
		March	3.3-3.7	>6.0	---	---	---	Brief	Frequent
		April	3.3-3.7	>6.0	---	---	---	Brief	Frequent
		May	---	---	---	---	---	Brief	Frequent
		June	---	---	---	---	---	Brief	Frequent
		July	---	---	---	---	---	Brief	Frequent
		August	---	---	---	---	---	Brief	Frequent
		September	---	---	---	---	---	Brief	Frequent
		October	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Rare
Bk: Martin-----	C								
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Kennebec-----	B		Ft	Ft	Ft				
		January	3.3-3.7	>6.0	---	---	---	---	Rare
		February	3.3-3.7	>6.0	---	---	---	---	Rare
		March	3.3-3.7	>6.0	---	---	---	Brief	Frequent
		April	3.3-3.7	>6.0	---	---	---	Brief	Frequent
		May	---	---	---	---	---	Brief	Frequent
		June	---	---	---	---	---	Brief	Frequent
		July	---	---	---	---	---	Brief	Frequent
		August	---	---	---	---	---	Brief	Frequent
		September	---	---	---	---	---	Brief	Frequent
		October	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Rare
BOA: Borrow Areas-----	---		---	---	---	---	---	---	---
Br: Fluvents-----	---		---	---	---	---	---	---	---
		January	2.8-3.2	>6.0	---	---	---	---	Rare
		February	2.8-3.2	>6.0	---	---	---	---	Rare
		March	2.8-3.2	>6.0	---	---	---	Brief	Frequent
		April	2.8-3.2	>6.0	---	---	---	Brief	Frequent
		May	---	---	---	---	---	Brief	Frequent
		June	---	---	---	---	---	Brief	Frequent
		July	---	---	---	---	---	Brief	Frequent
		August	---	---	---	---	---	Brief	Frequent
		September	---	---	---	---	---	Brief	Frequent
		October	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Rare
Dm: Dwight-----	D		---	---	---	---	---	---	---
Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Ds: Dwight-----	D		---	---	---	---	---	---	---
Dw: Dwight-----	D		---	---	---	---	---	---	---
El: Elmont-----	B		---	---	---	---	---	---	---
Em: Elmont, eroded-----	B		---	---	---	---	---	---	---
En: Elmont-----	B		---	---	---	---	---	---	---
Eo: Elmont, eroded-----	B		---	---	---	---	---	---	---
Ep: Elmont, eroded-----	B		---	---	---	---	---	---	---
Dwight-----	D		---	---	---	---	---	---	---
Es: Eudora-----	B		---	---	---	---	---	---	---
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
Et: Eudora-----	B		---	---	---	---	---	---	---
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Eu:			---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Eudora-----	B	January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Ev: Eudora-----	B	January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Kimo-----	C	January	1.8-2.2	>6.0	---	---	---	---	Rare
		February	1.8-2.2	>6.0	---	---	---	---	Rare
		March	1.8-2.2	>6.0	---	---	---	---	Rare
		April	1.8-2.2	>6.0	---	---	---	---	Rare
		May	2.8-3.2	>6.0	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	2.8-3.2	>6.0	---	---	---	---	Rare
Ew: Eudora-----	B	January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Kimo-----	C	January	1.8-2.2	>6.0	---	---	---	---	Rare
		February	1.8-2.2	>6.0	---	---	---	---	Rare
		March	1.8-2.2	>6.0	---	---	---	---	Rare
		April	1.8-2.2	>6.0	---	---	---	---	Rare
		May	2.8-3.2	>6.0	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	2.8-3.2	>6.0	---	---	---	---	Rare
Gm: Gymer-----	C	January	---	---	---	---	---	---	---
Gy: Gymer-----	C	January	---	---	---	---	---	---	---
INL:			---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Aquolls-----	C		Ft	Ft	Ft				
		January	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
		February	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
		March	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		April	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
		May	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
		June	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
		July	0.0-0.2	>6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		August	0.0-0.2	>6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		September	0.0-0.2	>6.0	0.0-0.5	Brief	Occasional	Brief	Occasional
		October	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		November	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		December	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	---	Rare
Kb: Kennebec-----	B								
		January	3.3-3.7	>6.0	---	---	---	---	Rare
		February	3.3-3.7	>6.0	---	---	---	---	Rare
		March	3.3-3.7	>6.0	---	---	---	Brief	Occasional
		April	3.3-3.7	>6.0	---	---	---	Brief	Occasional
		May	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Kc: Chase-----	C								
		January	1.8-2.2	3.8-4.2	---	---	---	---	Rare
		February	1.8-2.2	3.8-4.2	---	---	---	---	Rare
		March	1.8-2.2	3.8-4.2	---	---	---	Very brief	Occasional
		April	1.8-2.2	3.8-4.2	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
		October	---	---	---	---	---	Very brief	Occasional
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
KF: Kennebec-----	B								
		January	3.3-3.7	>6.0	---	---	---	---	Rare
		February	3.3-3.7	>6.0	---	---	---	---	Rare
		March	3.3-3.7	>6.0	---	---	---	Brief	Frequent
		April	3.3-3.7	>6.0	---	---	---	Brief	Frequent
		May	---	---	---	---	---	Brief	Frequent
		June	---	---	---	---	---	Brief	Frequent
		July	---	---	---	---	---	Brief	Frequent
		August	---	---	---	---	---	Brief	Frequent
		September	---	---	---	---	---	Brief	Frequent
		October	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Rare
Km: Kimo-----	C								
		January	1.8-2.2	>6.0	---	---	---	---	Rare
		February	1.8-2.2	>6.0	---	---	---	---	Rare
		March	1.8-2.2	>6.0	---	---	---	---	Rare
		April	1.8-2.2	>6.0	---	---	---	---	Rare
		May	2.8-3.2	>6.0	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	2.8-3.2	>6.0	---	---	---	---	Rare
Ko: Kimo-----	C								
		January	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
		February	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
		March	0.0-0.2	>6.0	0.0-0.5	Long	Occasional	Brief	Occasional
		April	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
		May	0.0-0.2	>6.0	0.0-0.5	Long	Frequent	Brief	Occasional
		June	0.0-0.2	>6.0	0.0-0.5	Brief	Frequent	---	Rare
		July	0.0-0.2	>6.0	0.0-0.5	Brief	Occasional	---	Rare
		August	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
		September	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
		October	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
		November	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
		December	0.0-0.2	>6.0	0.0-0.5	---	Rare	---	Rare
Ks:									

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Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Kipson-----	D		Ft	Ft	Ft				
Sogn-----	D		---	---	---	---	---	---	---
Ku: Konawa-----	B		---	---	---	---	---	---	---
Kw: Konawa-----	B		---	---	---	---	---	---	---
La: Labette-----	C		---	---	---	---	---	---	---
Lb: Labette-----	C		---	---	---	---	---	---	---
Lc: Labette, eroded-----	C		---	---	---	---	---	---	---
Ld: Ladysmith-----	D		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
LIQ: Limestone Quarry-----	---		---	---	---	---	---	---	---
Lm: Ladysmith-----	D		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Ls: Ladysmith, eroded-----	D		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Ma: Made Land-----	---		---	---	---	---	---	---	---
Mb: Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Mc: Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Me: Martin, eroded-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Mf: Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Mh: Martin, eroded-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Mk: Martin-----	C		---	---	---	---	---	---	---
		February	1.8-2.2	2.8-3.2	---	---	---	---	None
		March	1.8-2.2	2.8-3.2	---	---	---	---	None
		April	1.8-2.2	2.8-3.2	---	---	---	---	None
Mm: Morrill-----	B		---	---	---	---	---	---	---
Mn: Morrill, eroded-----	B		---	---	---	---	---	---	---
Mo: Morrill-----	B		---	---	---	---	---	---	---
MOO: Morrill-----	B		---	---	---	---	---	---	---
Mp: Morrill-----	B		---	---	---	---	---	---	---

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Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Gravelly Land-----	C		Ft ---	Ft ---	Ft ---	---	---	---	---
Mr: Muir-----	B		---	---	---	---	---	---	---
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
MRR: Morrill-----	B		---	---	---	---	---	---	---
Pa: Pawnee-----	D		---	---	---	---	---	---	---
		February	0.8-1.2	2.8-3.2	---	---	---	---	None
		March	0.8-1.2	2.8-3.2	---	---	---	---	None
		April	0.8-1.2	2.8-3.2	---	---	---	---	None
Pc: Pawnee-----	D		---	---	---	---	---	---	---
		February	0.8-1.2	2.8-3.2	---	---	---	---	None
		March	0.8-1.2	2.8-3.2	---	---	---	---	None
		April	0.8-1.2	2.8-3.2	---	---	---	---	None
Pe: Pawnee, eroded-----	D		---	---	---	---	---	---	---
		February	0.8-1.2	2.8-3.2	---	---	---	---	None
		March	0.8-1.2	2.8-3.2	---	---	---	---	None
		April	0.8-1.2	2.8-3.2	---	---	---	---	None
Pn: Pawnee-----	D		---	---	---	---	---	---	---
		February	0.8-1.2	2.8-3.2	---	---	---	---	None
		March	0.8-1.2	2.8-3.2	---	---	---	---	None
		April	0.8-1.2	2.8-3.2	---	---	---	---	None
RD: Reading-----	B		---	---	---	---	---	---	---
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Re: Reading-----	B		---	---	---	---	---	---	---
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	---	Rare
		May	---	---	---	---	---	---	Rare
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Rv: River Wash-----	---		---	---	---	---	---	---	---
Sa:			---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Sarpy-----	A	January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Long	Occasional
		April	---	---	---	---	---	Long	Frequent
		May	---	---	---	---	---	Long	Frequent
		June	---	---	---	---	---	Long	Frequent
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
SAP: Sand Pit-----	---		---	---	---	---	---	---	---
Se: Sarpy-----	A	January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Eudora-----	B	January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	---	Rare
		July	---	---	---	---	---	---	Rare
		August	---	---	---	---	---	---	Rare
		September	---	---	---	---	---	---	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Sg: Sharpsburg-----	B		---	---	---	---	---	---	---
Sh: Sharpsburg-----	B		---	---	---	---	---	---	---
Sk: Shelby-----	B		---	---	---	---	---	---	---
Sm: Shelby-----	B		---	---	---	---	---	---	---
Sn: Shelby, eroded-----	B		---	---	---	---	---	---	---
So: Shelby-----	B		---	---	---	---	---	---	---
Sp: Morrill-----	B		---	---	---	---	---	---	---
Sr: Morrill, eroded-----	B		---	---	---	---	---	---	---
Ss: Morrill-----	B		---	---	---	---	---	---	---
St: Sibleyville-----	B		---	---	---	---	---	---	---
Su: Sibleyville-----	B		---	---	---	---	---	---	---
Sv: Sogn-----	D		---	---	---	---	---	---	---
Vinland-----	D		---	---	---	---	---	---	---
Sw: Stony Steep Land-----	---		---	---	---	---	---	---	---

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
Vinland-----	D		Ft	Ft	Ft				
Vn:			---	---	---	---	---	---	---
Vinland-----	D		---	---	---	---	---	---	---
W:			---	---	---	---	---	---	---
Water-----	---		---	---	---	---	---	---	---
Wa:			---	---	---	---	---	---	---
Wabash-----	D		---	---	---	---	---	---	---
		January	0.2-0.8	>6.0	---	---	---	---	Rare
		February	0.2-0.8	>6.0	---	---	---	---	Rare
		March	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		April	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		May	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		June	0.8-1.2	>6.0	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	0.8-1.2	>6.0	---	---	---	Brief	Occasional
		December	0.8-1.2	>6.0	---	---	---	---	Rare
Wb:			---	---	---	---	---	---	---
Wabash-----	D		---	---	---	---	---	---	---
		January	0.2-0.8	>6.0	---	---	---	---	Rare
		February	0.2-0.8	>6.0	---	---	---	---	Rare
		March	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		April	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		May	0.2-0.8	>6.0	---	---	---	Brief	Occasional
		June	0.8-1.2	>6.0	---	---	---	Brief	Occasional
		July	---	---	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	0.8-1.2	>6.0	---	---	---	---	Rare
		December	0.8-1.2	>6.0	---	---	---	---	Rare
We:			---	---	---	---	---	---	---
Welda-----	C		---	---	---	---	---	---	---

The following table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as low, moderate, or high, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as low, moderate, or high. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
045OE:		In	In				
Oska-----	20-40	Bedrock (lithic)	---	Indurated	Moderate	Moderate	Moderate
045SV:							
Sibleyville----	20-40	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Moderate
045SX:							
Rock Outcrop----	0-0	Bedrock (lithic)	---	---	---	---	---
Vinland-----	10-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Moderate
045VM:							
Vinland-----	10-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Moderate
Martin-----	---	---	---	---	High	High	Low
045WS:							
Woodson-----	---	---	---	---	High	High	Moderate
085KB:							
Kennebec-----	---	---	---	---	High	Moderate	Low
085MC:							
Martin-----	---	---	---	---	High	High	Low
Vinland-----	10-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Moderate
085ZA:							
Zook-----	---	---	---	---	High	High	Moderate
087EC:							
Eudora-----	---	---	---	---	High	Low	Low
Bismarckgrove---	---	---	---	---	High	Low	Low
087HC:							
Haig-----	---	---	---	---	High	High	Moderate
087KV:							
Konawa-----	---	---	---	---	---	Moderate	Moderate
087RS:							
Rossville-----	---	---	---	---	High	Moderate	Low
087SO:							
Shelby-----	---	---	---	---	Moderate	Moderate	Moderate
Pawnee-----	---	---	---	---	High	High	Low
087WC:							
Wabash-----	---	---	---	---	Moderate	High	Moderate
139ED:							
Elmont-----	40-60	Bedrock (paralithic)	---	Weakly cemented	High	Moderate	Low
149KM:							
Kimo-----	---	---	---	---	High	High	Low
197IB:							
Irwin-----	---	---	---	---	Moderate	High	Low
197IV:							
Ivan-----	---	---	---	---	Moderate	Low	Low
197IX:							
Ivan-----	---	---	---	---	Moderate	Low	Low
197MR:							
Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
197MS:							
Morrill, very stony-----	---	---	---	---	Moderate	Moderate	Moderate
197SA:							
Sarpy-----	---	---	---	---	Low	Low	Low
197WF:							
Wamego-----	20-40	Bedrock (paralithic)	---	Weakly cemented	Moderate	Moderate	Moderate
197WY:							
Wymore-----	---	---	---	---	High	High	Moderate
2797:							
Morrill, stony--	---	---	---	---	Moderate	Moderate	Moderate
AED:							
Arents, Earthen Dam-----	---	---	---	---	---	---	---
An:							
Kennebec-----	---	---	---	---	High	Moderate	Low
Bk:							
Martin-----	---	---	---	---	High	High	Low
Kennebec-----	---	---	---	---	High	Moderate	Low
BOA:							
Borrow Areas----	---	---	---	---	---	---	---
Br:							
Fluents-----	---	---	---	---	---	---	---
Dm:							
Dwight-----	---	---	---	---	Moderate	High	Moderate
Martin-----	---	---	---	---	High	High	Low
Ds:							
Dwight-----	---	---	---	---	Moderate	High	Moderate
Dw:							
Dwight-----	---	---	---	---	Moderate	High	Moderate
El:							
Elmont-----	40-60	Bedrock (paralithic)	---	Weakly cemented	High	Moderate	Low
Em:							
Elmont, eroded--	40-60	Bedrock (paralithic)	---	Weakly cemented	High	Moderate	Low

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
En: Elmont-----	40-60	In Bedrock (paralithic)	In ---	Weakly cemented	High	Moderate	Low
Es: Elmont, eroded--	40-60	Bedrock (paralithic)	---	Weakly cemented	High	Moderate	Low
Ep: Elmont, eroded--	40-60	Bedrock (paralithic)	---	Weakly cemented	High	Moderate	Low
Dwight-----	---	---	---	---	Moderate	High	Moderate
Es: Eudora-----	---	---	---	---	High	Low	Low
Et: Eudora-----	---	---	---	---	High	Low	Low
Eu: Eudora-----	---	---	---	---	High	Low	Low
Ev: Eudora-----	---	---	---	---	High	Low	Low
Kimo-----	---	---	---	---	High	Low	Low
Kimo-----	---	---	---	---	High	High	Low
Ew: Eudora-----	---	---	---	---	High	Low	Low
Kimo-----	---	---	---	---	High	High	Low
Gm: Gymer-----	---	---	---	---	Moderate	Moderate	Moderate
Gy: Gymer-----	---	---	---	---	Moderate	Moderate	Moderate
INL: Aquolls-----	---	---	---	---	Moderate	---	---
Kb: Kennebec-----	---	---	---	---	High	Moderate	Low
Kc: Chase-----	---	---	---	---	High	High	Low
KF: Kennebec-----	---	---	---	---	High	Moderate	Low
Km: Kimo-----	---	---	---	---	High	High	Low
Ko: Kimo-----	---	---	---	---	High	High	Low
Ks: Kipson-----	7-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Low
Sogn-----	4-20	Bedrock (lithic)	---	Indurated	Moderate	Low	Low
Ku: Konawa-----	---	---	---	---	Moderate	Moderate	Moderate
Kw: Konawa-----	---	---	---	---	Moderate	Moderate	Moderate
La: Ladette-----	20-40	Bedrock (lithic)	---	Indurated	Moderate	High	Low
Lb: Ladette-----	20-40	Bedrock (lithic)	---	Indurated	Moderate	High	Low
Lc: Ladette, eroded--	20-40	Bedrock (lithic)	---	Indurated	Moderate	High	Low
Ld: Ladysmith-----	---	---	---	---	Moderate	High	Low
LIQ: Limestone Quarry	---	---	---	---	---	---	---
Lm: Ladysmith-----	---	---	---	---	Moderate	High	Low
Ls: Ladysmith, eroded-----	---	---	---	---	Moderate	High	Low
Ma: Made Land-----	---	---	---	---	---	---	---
Mb: Martin-----	---	---	---	---	High	High	Low
Mc: Martin-----	---	---	---	---	High	High	Low
Me: Martin, eroded--	---	---	---	---	High	High	Low
Mf: Martin-----	---	---	---	---	High	High	Low
Mh: Martin, eroded--	---	---	---	---	High	High	Low
Mk: Martin-----	---	---	---	---	High	High	Low
Mm: Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
Mn: Morrill, eroded--	---	---	---	---	Moderate	Moderate	Moderate
Mo: Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
MOO: Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
Mp: Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
Gravelly Land--	---	---	---	---	Moderate	High	Moderate

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top In	Thickness In	Hardness		Uncoated Steel	Concrete
Mr:							
Muir-----	---	---	---	---	Moderate	Low	Moderate
MRR:							
Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
Pa:							
Pawnee-----	---	---	---	---	High	High	Low
Pc:							
Pawnee-----	---	---	---	---	High	High	Low
Pe:							
Pawnee, eroded--	---	---	---	---	High	High	Low
Pn:							
Pawnee-----	---	---	---	---	High	High	Low
RD:							
Reading-----	---	---	---	---	High	Moderate	Low
Re:							
Reading-----	---	---	---	---	High	Moderate	Low
Rv:							
River Wash-----	---	---	---	---	---	---	---
Sa:							
Sarpy-----	---	---	---	---	Low	Low	Low
SAP:							
Sand Pit-----	---	---	---	---	---	---	---
Se:							
Sarpy-----	---	---	---	---	Low	Low	Low
Eudora-----	---	---	---	---	High	Low	Low
Sg:							
Sharpsburg-----	---	---	---	---	High	Moderate	Moderate
Sh:							
Sharpsburg-----	---	---	---	---	High	Moderate	Moderate
Sk:							
Shelby-----	---	---	---	---	Moderate	Moderate	Moderate
Sm:							
Shelby-----	---	---	---	---	Moderate	Moderate	Moderate
Sn:							
Shelby, eroded--	---	---	---	---	Moderate	Moderate	Moderate
So:							
Shelby-----	---	---	---	---	Moderate	Moderate	Moderate
Sp:							
Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
Sr:							
Morrill, eroded--	---	---	---	---	Moderate	Moderate	Moderate
Ss:							
Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
St:							
Sibleyville-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Moderate
Su:							
Sibleyville-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Moderate
Sv:							
Sogn-----	4-20	Bedrock (lithic)	---	Indurated	Moderate	Low	Low
Vinland-----	10-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Moderate
Sw:							
Stony Steep Land	---	---	---	---	---	---	---
Vinland-----	10-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Moderate
Vn:							
Vinland-----	10-20	Bedrock (paralithic)	---	Weakly cemented	Moderate	Low	Moderate
W:							
Water-----	---	---	---	---	Low	---	---
Wa:							
Wabash-----	---	---	---	---	Moderate	High	Moderate
Wb:							
Wabash-----	---	---	---	---	Moderate	High	Moderate
We:							
Welda-----	---	---	---	---	Moderate	Moderate	Moderate

WATER MANAGEMENT
Shawnee County, Kansas

The soils of the survey area are rated in the Water Management table according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use is also provided in the table.

The ratings in the table 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 the specified use. 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. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Moderately 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. Limited indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high 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.

Limitation class terms, such as very limited or limited, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects traffic ability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditch banks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a very limited hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, which conduct surface water to outlets at a non-erosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
045OE: Oska-----	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: erodes easily percs slowly depth to rock	Limitation: erodes easily percs slowly depth to rock
045SV: Sibleyville----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
045SX: Rock Outcrop----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Vinland-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
045VM: Vinland-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Martin-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
045WS: Woodson-----	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
085KB: Kennebec-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
085MC: Martin-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Vinland-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily depth to rock
085ZA: Zook-----	Limitation: flooding frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
087EC: Eudora-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
Bismarckgrove---	Limitation: flooding frost action	Limitation: flooding percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily
087HC: Haig-----	Limitation: frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily percs slowly wetness
087KV: Konawa-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: too sandy soil blowing	Favorable
087RS: Rossville-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
087SO: Shelby-----	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Pawnee-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
087WC: Wabash-----	Limitation: flooding percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
139ED: Elmont-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
149KM: Kimo-----	Limitation: frost action percs slowly	Limitation: percs slowly slow intake wetness	Limitation: erodes easily wetness	Limitation: erodes easily percs slowly

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
197IB: Irwin-----	Limitation: deep to water	Limitation: percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily percs slowly
197IV: Ivan-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
197IX: Ivan-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
197MR: Morrill-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
197MS: Morrill, very stony-----	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
197SA: Sarpy-----	Limitation: deep to water	Limitation: fast intake droughty	Limitation: too sandy soil blowing	Limitation: droughty
197WF: Wamego-----	Limitation: deep to water	Limitation: percs slowly slope thin layer	Limitation: area reclaim erodes easily slope	Limitation: area reclaim erodes easily slope
197WY: Wymore-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
2797: Morrill, stony--	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
AED: Arents, Earthen Dam-----	---	---	---	---
An: Kennebec-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
Bk: Martin-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Kennebec-----	Limitation: deep to water	Limitation: flooding slope	Favorable	Favorable
BOA: Borrow Areas----	---	---	---	---
Br: Fluvents-----	Limitation: deep to water	Limitation: flooding percs slowly	Favorable	Limitation: percs slowly
Dm: Dwight-----	Limitation: deep to water	Limitation: erodes easily excess sodium percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily excess sodium percs slowly
Martin-----	Limitation: frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Ds: Dwight-----	Limitation: deep to water	Limitation: erodes easily excess sodium percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily excess sodium percs slowly
Dw: Dwight-----	Limitation: deep to water	Limitation: erodes easily excess sodium percs slowly	Limitation: erodes easily percs slowly	Limitation: erodes easily excess sodium percs slowly
El: Elmont-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Em: Elmont, eroded--	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
En: Elmont-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Eo: Elmont, eroded--	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Ep: Elmont, eroded-- Dwight-----	Limitation: deep to water Limitation: deep to water	Limitation: slope Limitation: erodes easily excess sodium percs slowly	Limitation: erodes easily Limitation: erodes easily percs slowly	Limitation: erodes easily Limitation: erodes easily excess sodium percs slowly
Es: Eudora-----	Limitation: deep to water	Limitation: soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily
Et: Eudora-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Eu: Eudora-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Ev: Eudora----- Kimo-----	Limitation: deep to water Limitation: frost action percs slowly cutbanks cave	Favorable Limitation: erodes easily percs slowly wetness	Limitation: erodes easily Limitation: erodes easily wetness	Limitation: erodes easily Limitation: erodes easily percs slowly
Ew: Eudora----- Kimo-----	Limitation: deep to water Limitation: frost action percs slowly cutbanks cave	Limitation: soil blowing Limitation: percs slowly wetness soil blowing	Limitation: erodes easily soil blowing Limitation: erodes easily wetness soil blowing	Limitation: erodes easily Limitation: erodes easily percs slowly
Gm: Gymer-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Gy: Gymer-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
INL: Aquolls-----	---	---	---	---
Kb: Kennebec-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
Kc: Chase-----	Limitation: flooding frost action percs slowly	Limitation: flooding percs slowly wetness	Limitation: wetness	Limitation: percs slowly
KF: Kennebec-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
Km: Kimo-----	Limitation: frost action percs slowly cutbanks cave	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily percs slowly
Ko: Kimo-----	Limitation: flooding frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily percs slowly
Ks: Kipson----- Sogn-----	Limitation: deep to water Limitation: deep to water	Limitation: slope depth to rock Limitation: depth to rock	Limitation: large stones slope depth to rock Limitation: depth to rock	Limitation: large stones slope depth to rock Limitation: depth to rock
Ku: Konawa-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
Kw: Konawa-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
La: Labette-----	Limitation: deep to water	Limitation: erodes easily percs slowly depth to rock	Limitation: erodes easily percs slowly depth to rock	Limitation: erodes easily percs slowly depth to rock
Lb: Labette-----	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: erodes easily percs slowly depth to rock	Limitation: erodes easily percs slowly depth to rock
Lc: Labette, eroded--	Limitation: deep to water	Limitation: percs slowly slope depth to rock	Limitation: erodes easily large stones depth to rock	Limitation: erodes easily large stones depth to rock
Ld: Ladysmith-----	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
LIQ: Limestone Quarry	---	---	---	---
Lm: Ladysmith-----	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Ls: Ladysmith, eroded-----	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Ma: Made Land-----	---	---	---	---
Mb: Martin-----	Limitation: frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Mc: Martin-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Me: Martin, eroded--	Limitation: frost action percs slowly slope	Limitation: erodes easily percs slowly slope wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Mf: Martin-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
Mh: Martin, eroded--	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
Mk: Martin-----	Limitation: frost action percs slowly slope	Limitation: slope slow intake wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Mm: Morrill-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Mn: Morrill, eroded--	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Mo: Morrill-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
MOO: Morrill-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Mp: Morrill-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Gravelly Land---	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: percs slowly slope	Limitation: percs slowly slope droughty

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Mr: Muir-----	Limitation: deep to water	Favorable	Favorable	Favorable
MRR: Morrill-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Pa: Pawnee-----	Limitation: frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Pc: Pawnee-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Pe: Pawnee, eroded--	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness
Pn: Pawnee-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
RD: Reading-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Re: Reading-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Rv: River Wash-----	---	---	---	---
Sa: Sарpy-----	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
SAP: Sand Pit-----	---	---	---	---
Se: Sарpy-----	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
Eudora-----	Limitation: deep to water	Limitation: flooding soil blowing	Limitation: erodes easily soil blowing	Limitation: erodes easily
Sg: Sharpsburg-----	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Sh: Sharpsburg-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Sk: Shelby-----	Limitation: deep to water	Favorable	Favorable	Favorable
Sm: Shelby-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Sn: Shelby, eroded--	Limitation: deep to water	Limitation: slope	Favorable	Favorable
So: Shelby-----	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Sp: Morrill-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
Sr: Morrill, eroded--	Limitation: deep to water	Limitation: slope soil blowing	Limitation: soil blowing	Favorable
Ss: Morrill-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope soil blowing	Limitation: slope
St: Sibleyville-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: depth to rock

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Su: Sibleyville-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Sv: Sogn-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: depth to rock	Limitation: depth to rock
Vinland-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope depth to rock
Sw: Stony Steep Land Vinland-----	--- Limitation: deep to water	--- Limitation: slope depth to rock	--- Limitation: erodes easily slope depth to rock	--- Limitation: erodes easily slope depth to rock
Vn: Vinland-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily depth to rock
W: Water-----	---	---	---	---
Wa: Wabash-----	Limitation: flooding percs slowly	Limitation: slow intake wetness droughty	Limitation: percs slowly wetness	Limitation: percs slowly wetness droughty
Wb: Wabash-----	Limitation: flooding percs slowly	Limitation: flooding percs slowly wetness	Limitation: percs slowly wetness	Limitation: percs slowly wetness
We: Welda-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Somewhat limited Depth to bedrock	0.56	Somewhat limited Thin layer Hard to pack	0.56 0.28	Very limited Deep to water	1.00
045SV: Sibleyville-----	50	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.19 0.00	Somewhat limited Thin layer Seepage	0.93 0.04	Very limited Deep to water	1.00
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Seepage Depth to bedrock Slope	1.00 0.58 0.28	Very limited Thin layer Piping	1.00 0.50	Very limited Deep to water	1.00
045VM: Vinland-----	40	Very limited Seepage Depth to bedrock Slope	1.00 0.58 0.00	Very limited Thin layer Piping	1.00 0.50	Very limited Deep to water	1.00
Martin-----	25	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.63	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.00
045WS: Woodson-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.78	Very limited Deep to water	1.00
085KB: Kennebec-----	86	Somewhat limited Seepage	0.70	Somewhat limited Piping Depth to saturated zone	0.71 0.09	Somewhat limited Deep to water Slow refill Cutbanks cave	0.54 0.30 0.10
085MC: Martin-----	48	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.57	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.00
Vinland-----	40	Very limited Seepage Depth to bedrock	1.00 0.58	Very limited Thin layer Piping	1.00 0.42	Very limited Deep to water	1.00
085ZA: Zook-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.95 0.10
087EC: Eudora-----	65	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Bismarckgrove-----	20	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.22	Very limited Deep to water	1.00
087HC: Haig-----	85	Somewhat limited Seepage	0.05	Very limited Depth to saturated zone	1.00	Very limited Deep to water	1.00
087KV: Konawa-----	91	Very limited		Somewhat limited		Very limited	

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
087RS: Rossville-----	85	Seepage	1.00	Seepage	0.08	Deep to water	1.00
087SO: Shelby-----	65	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.40	Very limited Deep to water	1.00
Pawnee-----	25	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.00	Very limited Deep to water	1.00
087WC: Wabash-----	94	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.77	Very limited Deep to water	1.00
139ED: Elmont-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 1.00	Very limited Slow refill Cutbanks cave	1.00 0.10
149KM: Kimo-----	90	Somewhat limited Seepage	0.05 0.00	Somewhat limited Thin layer Piping	0.06 0.01	Very limited Deep to water	1.00
197IB: Irwin-----	80	Somewhat limited Seepage	0.70	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.00
197IV: Ivan-----	90	Not limited		Somewhat limited Hard to pack	0.19	Very limited Deep to water	1.00
197IX: Ivan-----	80	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.56	Very limited Deep to water	1.00
197MR: Morrill-----	75	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.05	Very limited Deep to water	1.00
197MS: Morrill, very stony-	75	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.73	Very limited Deep to water	1.00
197SA: Sarpy-----	85	Somewhat limited Seepage	0.70	Not limited		Very limited Deep to water	1.00
197WF: Wamego-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.50	Very limited Deep to water	1.00
197WY: Wymore-----	75	Somewhat limited Depth to bedrock Slope	0.26 0.00	Somewhat limited Thin layer	0.96	Very limited Deep to water	1.00
2797: Morrill, stony-----	100	Somewhat limited Seepage	0.05	Very limited Depth to saturated zone Hard to pack	1.00 0.73	Very limited Deep to water	1.00
AED: Arents, Earthen Dam-	85	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.04	Very limited Deep to water	1.00
An: Kennebec-----	100	Not rated		Not rated		Not rated	
	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.85	Somewhat limited Deep to water	0.54

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bk: Martin-----	54	Not limited		Depth to saturated zone	0.09	Slow refill	0.30
						Cutbanks cave	0.10
				Very limited Depth to saturated zone	1.00	Very limited Slow refill	1.00
Kennebec-----	43	Somewhat limited Seepage	0.70	Hard to pack	0.60	Cutbanks cave	0.10
				Somewhat limited Piping	0.85	Somewhat limited Deep to water	0.54
				Depth to saturated zone	0.09	Slow refill	0.30
						Cutbanks cave	0.10
BOA: Borrow Areas-----	100	Not rated		Not rated		Not rated	
Br: Fluvents-----	97	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone	0.46	Somewhat limited Slow refill	0.30
						Deep to water	0.24
						Cutbanks cave	0.10
Dm: Dwight-----	60	Not limited		Very limited Hard to pack	1.00	Very limited Deep to water	1.00
Martin-----	30	Not limited		Very limited Depth to saturated zone	1.00	Very limited Slow refill	1.00
				Hard to pack	0.57	Cutbanks cave	0.10
Ds: Dwight-----	97	Not limited		Very limited Hard to pack	1.00	Very limited Deep to water	1.00
Dw: Dwight-----	85	Not limited		Very limited Hard to pack	1.00	Very limited Deep to water	1.00
El: Elmont-----	90	Somewhat limited Seepage Depth to bedrock	0.05 0.00	Somewhat limited Thin layer	0.11	Very limited Deep to water	1.00
Em: Elmont, eroded-----	90	Somewhat limited Seepage Depth to bedrock	0.05 0.00	Somewhat limited Thin layer	0.11	Very limited Deep to water	1.00
En: Elmont-----	90	Somewhat limited Seepage Depth to bedrock	0.05 0.00	Somewhat limited Thin layer	0.11	Very limited Deep to water	1.00
Eo: Elmont, eroded-----	90	Somewhat limited Seepage Depth to bedrock	0.05 0.00	Somewhat limited Thin layer	0.11	Very limited Deep to water	1.00
Ep: Elmont, eroded-----	75	Somewhat limited Seepage Depth to bedrock	0.05 0.00	Somewhat limited Thin layer	0.11	Very limited Deep to water	1.00
Dwight-----	25	Not limited		Very limited Hard to pack	1.00	Very limited Deep to water	1.00
Es: Eudora-----	95	Somewhat limited Seepage	0.70	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
Et: Eudora-----	90	Somewhat limited		Very limited		Very limited	

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Seepage	0.70	Piping	1.00	Deep to water	1.00
Eu: Eudora-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Ev: Eudora-----	60	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Kimo-----	30	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.91	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.00
Ew: Eudora-----	60	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.08	Very limited Deep to water	1.00
Kimo-----	30	Somewhat limited Seepage	0.70	Very limited Piping Depth to saturated zone	1.00 1.00	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.00
Gm: Gymer-----	88	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.02	Very limited Deep to water	1.00
Gy: Gymer-----	100	Somewhat limited Seepage	0.70	Not limited		Very limited Deep to water	1.00
INL: Aquolls-----	100	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Cutbanks cave	0.10
Kb: Kennebec-----	95	Somewhat limited Seepage	0.70	Somewhat limited Piping Depth to saturated zone	0.71 0.09	Somewhat limited Deep to water Slow refill Cutbanks cave	0.54 0.30 0.10
Kc: Chase-----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone	1.00	Very limited Deep to water	1.00
KF: Kennebec-----	98	Somewhat limited Seepage	0.70	Somewhat limited Piping Depth to saturated zone	0.73 0.09	Somewhat limited Deep to water Slow refill Cutbanks cave	0.54 0.30 0.10
Km: Kimo-----	90	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.91	Somewhat limited Slow refill Cutbanks cave Deep to water	0.30 0.10 0.00
Ko: Kimo-----	95	Somewhat limited Seepage	0.70	Very limited Ponding Depth to saturated zone Piping Seepage	1.00 1.00 1.00 0.07	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Ks: Kipson-----	50	Very limited Seepage Depth to bedrock	1.00 0.58	Very limited Thin layer Piping	1.00 0.32	Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Slope	0.02				
Sogn-----	35	Very limited Seepage Depth to bedrock	1.00 1.00	Very limited Thin layer	1.00	Very limited Deep to water	1.00
Ku: Konawa-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.00	Very limited Deep to water	1.00
Kw: Konawa-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.00	Very limited Deep to water	1.00
La: Labette-----	88	Somewhat limited Depth to bedrock	0.56	Somewhat limited Thin layer Hard to pack	0.56 0.22	Very limited Deep to water	1.00
Lb: Labette-----	85	Somewhat limited Depth to bedrock	0.56	Somewhat limited Thin layer Hard to pack	0.56 0.22	Very limited Deep to water	1.00
Lc: Labette, eroded----	95	Somewhat limited Depth to bedrock	0.66	Somewhat limited Thin layer Hard to pack	0.66 0.28	Very limited Deep to water	1.00
Ld: Ladysmith-----	90	Somewhat limited Seepage	0.01	Very limited Depth to saturated zone Hard to pack	1.00 0.99	Somewhat limited Slow refill Cutbanks cave	0.99 0.10
LIQ: Limestone Quarry----	100	Not rated		Not rated		Not rated	
Lm: Ladysmith-----	85	Somewhat limited Seepage	0.01	Very limited Depth to saturated zone Hard to pack	1.00 0.99	Somewhat limited Slow refill Cutbanks cave Deep to water	0.99 0.10 0.00
Ls: Ladysmith, eroded---	100	Somewhat limited Seepage	0.01	Very limited Depth to saturated zone Hard to pack	1.00 0.99	Somewhat limited Slow refill Cutbanks cave	0.99 0.10
Ma: Made Land-----	100	Not rated		Not rated		Not rated	
Mb: Martin-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.57	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.00
Mc: Martin-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.63	Very limited Slow refill Cutbanks cave Deep to water	1.00 0.10 0.00
Me: Martin, eroded-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.72	Very limited Slow refill Cutbanks cave	1.00 0.10

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mf: Martin-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.57	Very limited Slow refill Cutbanks cave	1.00 0.10
Mh: Martin, eroded-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.72	Very limited Slow refill Cutbanks cave	1.00 0.10
Mk: Martin-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.72	Very limited Slow refill Cutbanks cave	1.00 0.10
Mm: Morrill-----	91	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.58	Very limited Deep to water	1.00
Mn: Morrill, eroded-----	91	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.86	Very limited Deep to water	1.00
Mo: Morrill-----	91	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.92	Very limited Deep to water	1.00
MOO: Morrill-----	90	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.58	Very limited Deep to water	1.00
Mp: Morrill-----	55	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.95	Very limited Deep to water	1.00
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.57	Very limited Deep to water	1.00
MRR: Morrill-----	90	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.13	Very limited Deep to water	1.00
Pa: Pawnee-----	100	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.71	Very limited Deep to water	1.00
Pc: Pawnee-----	85	Not limited		Very limited Depth to saturated zone	1.00	Very limited Deep to water	1.00
Pe: Pawnee, eroded-----	90	Not limited		Very limited Depth to saturated zone	1.00	Very limited Deep to water	1.00
Pn: Pawnee-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.71	Very limited Deep to water	1.00
RD: Reading-----	90	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.00	Very limited Deep to water	1.00
Re: Reading-----	85	Somewhat limited Seepage	0.57	Somewhat limited Piping	0.01	Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rv: River Wash-----	100	Not rated		Not rated		Not rated	
Sa: Sarpy-----	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.50	Very limited Deep to water	1.00
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Very limited Seepage	1.00	Somewhat limited Seepage	0.50	Very limited Deep to water	1.00
Eudora-----	45	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.08	Very limited Deep to water	1.00
Sg: Sharpsburg-----	88	Somewhat limited Seepage	0.70	Not limited		Very limited Deep to water	1.00
Sh: Sharpsburg-----	85	Somewhat limited Seepage	0.70	Not limited		Very limited Deep to water	1.00
Sk: Shelby-----	95	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00
Sm: Shelby-----	88	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00
Sn: Shelby, eroded-----	100	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00
So: Shelby-----	85	Somewhat limited Seepage	0.05	Not limited		Very limited Deep to water	1.00
Sp: Morrill-----	85	Somewhat limited Seepage	0.57	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
Sr: Morrill, eroded-----	85	Somewhat limited Seepage	0.57	Somewhat limited Piping Seepage	0.57 0.08	Very limited Deep to water	1.00
Ss: Morrill-----	85	Somewhat limited Seepage	0.57	Somewhat limited Seepage	0.08	Very limited Deep to water	1.00
St: Sibleyville-----	90	Somewhat limited Seepage Depth to bedrock	0.70 0.02	Somewhat limited Thin layer	0.56	Very limited Deep to water	1.00
Su: Sibleyville-----	90	Somewhat limited Seepage Depth to bedrock	0.70 0.02	Somewhat limited Thin layer	0.56	Very limited Deep to water	1.00
Sv: Sogn-----	55	Very limited Seepage Depth to bedrock	1.00 1.00	Very limited Thin layer	1.00	Very limited Deep to water	1.00
Vinland-----	25	Very limited Seepage Depth to bedrock Slope	1.00 0.66 0.02	Very limited Thin layer Piping	1.00 0.50	Very limited Deep to water	1.00
Sw: Stony Steep Land----	60	Not rated		Not rated		Not rated	

WATER MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer- fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Vinland-----	26	Very limited Seepage Depth to bedrock Slope	1.00 0.58 0.28	Very limited Thin layer Piping	1.00 0.42	Very limited Deep to water	1.00
Vn: Vinland-----	100	Very limited Seepage Depth to bedrock	1.00 0.66	Very limited Thin layer Piping	1.00 0.50	Very limited Deep to water	1.00
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wabash-----	90	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 1.00	Very limited Slow refill Cutbanks cave	1.00 0.10
Wb: Wabash-----	88	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 1.00	Very limited Slow refill Cutbanks cave	1.00 0.10
We: Welda-----	95	Somewhat limited Seepage	0.70	Not limited		Very limited Deep to water	1.00

SANITARY FACILITIES
Shawnee County, Kansas

Sanitary Facilities

The following tables show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. 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. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 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 60 inches 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. Permeability, 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, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability 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 permeability rate of more than 2 inches per hour 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.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

SANITARY FACILITIES
Shawnee County, Kansas

In an area sanitary landfill, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

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
045OE: Oskola-----	88	Very limited Restricted permeability Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 0.67
045SV: Sibleyville-----	50	Very limited Depth to bedrock Restricted permeability Slope	1.00 0.50 0.37	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.50
045SX: Rock Outcrop-----	60	Not rated		Not rated	
Vinland-----	26	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.50
045VM: Vinland-----	40	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.50
Martin-----	25	Very limited Restricted permeability Depth to saturated zone Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 1.00
045WS: Woodson-----	90	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Somewhat limited Slope	0.00
085KB: Kennebec-----	86	Very limited Flooding Depth to saturated zone Restricted permeability	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
085MC: Martin-----	48	Very limited Restricted permeability Depth to saturated zone Slope	1.00 1.00 0.00	Very limited Depth to saturated zone Slope	1.00 1.00
Vinland-----	40	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.50
085ZA: Zook-----	90	Very limited Flooding Restricted permeability Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
087EC: Eudora-----	65	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
Bismarckgrove-----	20	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
087HC: Haig-----	85	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Not limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

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
087KV: Konawa-----	91	Somewhat limited Restricted permeability	0.50	Very limited Seepage Slope	1.00 1.00
087RS: Rossville-----	85	Somewhat limited Restricted permeability Flooding	0.50 0.20	Somewhat limited Seepage Flooding	0.50 0.20
087SO: Shelby-----	65	Very limited Restricted permeability Slope	1.00 0.16	Very limited Slope	1.00
Pawnee-----	25	Very limited Restricted permeability Depth to saturated zone Slope	1.00 1.00 0.16	Very limited Slope	1.00
087WC: Wabash-----	94	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 0.20	Very limited Depth to saturated zone Flooding	1.00 0.20
139ED: Elmont-----	85	Very limited Restricted permeability Depth to bedrock	1.00 0.69	Somewhat limited Slope Seepage Depth to soft bedrock	0.67 0.50 0.26
149KM: Kimo-----	90	Very limited Depth to saturated zone Restricted permeability Flooding	1.00 0.50 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 0.50 0.40
197IB: Irwin-----	80	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
197IV: Ivan-----	90	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
197IX: Ivan-----	80	Very limited Flooding Restricted permeability	1.00 0.50	Very limited Flooding Seepage	1.00 0.50
197MR: Morrill-----	75	Very limited Restricted permeability	1.00	Somewhat limited Slope Seepage	0.91 0.32
197MS: Morrill, very stony-	75	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope Seepage	1.00 0.50
197SA: Sarpy-----	85	Very limited Flooding Filtering capacity	1.00 1.00	Very limited Flooding Seepage Slope	1.00 1.00 0.00
197WF: Wamego-----	75	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 0.37	Very limited Depth to soft bedrock Slope	1.00 1.00
197WY: Wymore-----	100	Very limited		Somewhat limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

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
2797: Morrill, stony-----	85	Restricted permeability	1.00	Slope	0.33
		Depth to saturated zone	1.00		
		Very limited Restricted permeability	1.00	Very limited Slope	1.00
		Slope	0.04	Seepage	0.50
AED: Arents, Earthen Dam-	100	Not rated		Not rated	
An: Kennebec-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
Bk: Martin-----	54	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
Kennebec-----	43	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50	Seepage	0.50
BOA: Borrow Areas-----	100	Not rated		Not rated	
Br: Fluvents-----	97	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.50		
Dm: Dwight-----	60	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
Martin-----	30	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.00
Ds: Dwight-----	97	Very limited Restricted permeability	1.00	Not limited	
Dw: Dwight-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
El: Elmont-----	90	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
Em: Elmont, eroded-----	90	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
En: Elmont-----	90	Very limited Restricted permeability	1.00	Very limited Slope	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
		Slope	0.16		
Eo: Elmont, eroded-----	90	Very limited		Very limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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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
Ep: Elmont, eroded-----	75	Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
		Slope	0.16		
Dwight-----	25	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
		Depth to bedrock	0.78	Depth to soft bedrock	0.42
Es: Eudora-----	95	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.09
Et: Eudora-----	90	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
		Flooding	0.40	Flooding Slope	0.40 0.00
Eu: Eudora-----	85	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
		Flooding	0.40	Flooding	0.40
Ev: Eudora-----	60	Somewhat limited Restricted permeability	0.50	Very limited Slope	1.00
		Flooding	0.40	Seepage	0.50
Kimo-----	30	Slope	0.04	Flooding	0.40
Ew: Eudora-----	60	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
		Flooding	0.40	Flooding	0.40
Kimo-----	30	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
Gm: Gymer-----	88	Flooding	0.40	Flooding	0.40
Gy: Gymer-----	100	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
		Flooding	0.40	Flooding	0.40
INL: Aquolls-----	100	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
Kb: Kennebec-----	95	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
Kc: Chase-----	85	Restricted permeability	0.50	Seepage	0.50
		Very limited Flooding	1.00	Very limited Flooding	1.00

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

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
KF: Kennebec-----	98	Restricted permeability	1.00	Depth to saturated zone	0.25
		Depth to saturated zone	1.00		
		Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
Km: Kimo-----	90	Restricted permeability	0.50	Seepage	0.50
		Depth to saturated zone	1.00		
		Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
Ko: Kimo-----	95	Flooding	0.40	Flooding	0.40
		Restricted permeability	1.00		
		Depth to saturated zone	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Flooding	1.00
Ks: Kipson-----	50	Ponding	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Seepage	0.50
		Depth to saturated zone	1.00		
		Depth to saturated zone	1.00		
Sogn-----	35	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Slope	0.96	Slope	1.00
		Very limited Depth to bedrock	1.00	Seepage	0.50
		Slope	0.16	Very limited Depth to hard bedrock	1.00
Ku: Konawa-----	85	Depth to saturated zone	1.00	Slope	1.00
		Somewhat limited Restricted permeability	0.50	Seepage	0.50
		Depth to saturated zone	1.00		
		Depth to saturated zone	1.00		
Kw: Konawa-----	85	Somewhat limited Restricted permeability	0.50	Very limited Slope	1.00
		Slope	0.16	Seepage	0.50
		Depth to saturated zone	1.00		
		Depth to saturated zone	1.00		
La: Labette-----	88	Very limited Restricted permeability	1.00	Very limited Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	0.00
Lb: Labette-----	85	Very limited Restricted permeability	1.00	Very limited Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	0.67
Lc: Labette, eroded----	95	Very limited Restricted permeability	1.00	Very limited Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	0.67
Ld: Ladysmith-----	90	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
LIQ: Limestone Quarry----	100	Not rated		Not rated	
Lm: Ladysmith-----	85	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.00
Ls: Ladysmith, eroded----	100	Very limited		Very limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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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
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.00
Ma: Made Land-----	100	Not rated		Not rated	
Mb: Martin-----	90	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.00
Mc: Martin-----	85	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.67
Me: Martin, eroded-----	90	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.67
Mf: Martin-----	90	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04		
Mh: Martin, eroded-----	85	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04		
Mk: Martin-----	90	Very limited Restricted permeability	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.67
Mm: Morrill-----	91	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.91
				Seepage	0.32
Mn: Morrill, eroded-----	91	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.91
				Seepage	0.32
Mo: Morrill-----	91	Very limited Restricted permeability	1.00	Very limited Slope	1.00
		Slope	0.16	Seepage	0.32
MOO: Morrill-----	90	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
Mp: Morrill-----	55	Very limited Restricted permeability	1.00	Very limited Slope	1.00
		Slope	0.00	Seepage	0.32
Gravelly Land-----	30	Not rated		Not rated	
Mr: Muir-----	85	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
		Flooding	0.40	Flooding	0.40
MRR: Morrill-----	90	Very limited		Somewhat limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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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
Pa: Pawnee-----	100	Restricted permeability	1.00	Slope	0.67
				Seepage	0.32
		Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
Pc: Pawnee-----	85	Depth to saturated zone	1.00		
		Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
		Depth to saturated zone	1.00		
Pe: Pawnee, eroded----	90	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
		Depth to saturated zone	1.00		
		Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
Pn: Pawnee-----	85	Depth to saturated zone	1.00		
		Very limited Restricted permeability	1.00	Very limited Slope	1.00
		Depth to saturated zone	1.00		
RD: Reading-----	90	Slope	0.04		
		Somewhat limited Restricted permeability	0.68	Somewhat limited Flooding	0.40
		Flooding	0.40	Seepage	0.32
Re: Reading-----	85	Somewhat limited Restricted permeability	0.68	Somewhat limited Flooding	0.40
		Flooding	0.40	Seepage	0.32
Rv: River Wash-----	100	Not rated		Not rated	
Sa: Sarpy-----	100	Very limited Flooding	1.00	Very limited Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
SAP: Sand Pit-----	100	Not rated		Not rated	
Se: Sarpy-----	55	Very limited Flooding	1.00	Very limited Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
Eudora-----	45	Very limited Flooding	1.00	Very limited Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
Sg: Sharpsburg-----	88	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
Sh: Sharpsburg-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.67
Sk: Shelby-----	95	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.00
Sm: Shelby-----	88	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.91
Sn: Shelby, eroded-----	100	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.91
So: Shelby-----	85	Very limited		Very limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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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
Sp: Morrill-----	85	Restricted permeability	1.00	Slope	1.00
		Slope	0.16		
Sr: Morrill, eroded----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.91
				Seepage	0.32
Ss: Morrill-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.91
				Seepage	0.32
St: Sibleyville-----	85	Very limited Restricted permeability	1.00	Very limited Slope	1.00
		Slope	0.16	Seepage	0.32
Su: Sibleyville-----	90	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Restricted permeability	0.50	Slope	0.67
Sv: Sogn-----	55	Seepage		Seepage	0.50
Vinland-----	25	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Slope	0.96	Slope	1.00
Sw: Stony Steep Land----	60	Seepage		Seepage	0.50
Vinland-----	26	Not rated		Not rated	
Vn: Vinland-----	100	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
				Slope	1.00
W: Water-----	100	Slope	1.00	Seepage	0.50
Wa: Wabash-----	90	Not rated		Not rated	
Wb: Wabash-----	88	Very limited Flooding	1.00	Very limited Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
We: Welda-----	95	Depth to saturated zone	1.00		
We: Welda-----	95	Very limited Restricted permeability	1.00	Very limited Slope	1.00

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Very limited Depth to bedrock Too clayey Seepage	1.00 1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Hard to compact	1.00 1.00 1.00
045SV: Sibleyville-----	50	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.37	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to bedrock Slope	1.00 0.37
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Slope Depth to bedrock Seepage Too clayey	1.00 1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
045VM: Vinland-----	40	Very limited Depth to bedrock Seepage Too clayey Slope	1.00 1.00 0.50 0.37	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.37
Martin-----	25	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 0.04	Very limited Too clayey Hard to compact Depth to saturated zone Slope	1.00 1.00 0.86 0.04
045WS: Woodson-----	90	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
085KB: Kennebec-----	86	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Not limited	
085MC: Martin-----	48	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.00	Very limited Depth to saturated zone Slope	1.00 0.00	Very limited Too clayey Hard to compact Depth to saturated zone Slope	1.00 1.00 0.86 0.00
Vinland-----	40	Very limited Depth to bedrock Seepage Too clayey Slope	1.00 1.00 0.50 0.00	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.00
085ZA: Zook-----	90	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Hard to compact Too clayey	1.00 1.00 1.00 0.50
087EC: Eudora-----	65	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
Bismarckgrove-----	20	Very limited Flooding Too clayey	1.00 0.50	Very limited Flooding	1.00	Somewhat limited Too clayey	0.50
087HC: Haig-----	85	Very limited Depth to saturated zone Too clayey	1.00 0.50	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Hard to compact Too clayey	1.00 1.00 0.50
087KV: Konawa-----	91	Very limited Seepage	1.00	Not limited		Not limited	
087RS: Rossville-----	85	Somewhat limited Flooding	0.20	Somewhat limited Flooding	0.20	Not limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
087SO: Shelby-----	65	Somewhat limited Too clayey Slope	0.50 0.16	Somewhat limited Slope	0.16	Somewhat limited Too clayey Slope	0.50 0.16
Pawnee-----	25	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.16	Very limited Depth to saturated zone Slope	1.00 0.16	Very limited Depth to saturated zone Too clayey Hard to compact Slope	1.00 1.00 1.00 0.16
087WC: Wabash-----	94	Very limited Depth to saturated zone Too clayey Flooding	1.00 1.00 0.20	Very limited Depth to saturated zone Flooding	1.00 0.20	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
139ED: Elmont-----	85	Very limited Depth to bedrock Seepage Too clayey	1.00 1.00 0.50	Somewhat limited Depth to bedrock	0.26	Somewhat limited Too clayey Depth to bedrock	0.50 0.26
149KM: Kimo-----	90	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Somewhat limited Depth to saturated zone	0.86
197IB: Irwin-----	80	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
197IV: Ivan-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
197IX: Ivan-----	80	Very limited Flooding Too clayey	1.00 0.50	Very limited Flooding	1.00	Somewhat limited Too clayey	0.50
197MR: Morrill-----	75	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
197MS: Morrill, very stony-	75	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
197SA: Sarpy-----	85	Very limited Flooding Seepage Too Sandy	1.00 1.00 1.00	Very limited Flooding Seepage	1.00 1.00	Very limited Too Sandy Seepage	1.00 1.00
197WF: Wamego-----	75	Very limited Depth to bedrock Seepage Too clayey Slope	1.00 1.00 0.50 0.37	Very limited Depth to bedrock Slope	1.00 0.37	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.37
197WY: Wymore-----	100	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00
2797: Morrill, stony-----	85	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
AED: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
An: Kennebec-----	90	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Not limited	
Bk: Martin-----	54	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.87
Kennebec-----	43	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BOA: Borrow Areas-----	100	Depth to saturated zone Not rated	1.00	Depth to saturated zone Not rated	1.00	Not rated	
Br: Fluvents-----	97	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Somewhat limited Too clayey Depth to saturated zone	0.50 0.11
Dm: Dwight-----	60	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Martin-----	30	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey Hard to compact Depth to saturated zone	1.00 1.00 0.87
Ds: Dwight-----	97	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Dw: Dwight-----	85	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
El: Elmont-----	90	Very limited Depth to bedrock Seepage Too clayey	1.00 1.00 0.50	Somewhat limited Depth to bedrock	0.42	Somewhat limited Too clayey Depth to bedrock	0.50 0.42
Em: Elmont, eroded-----	90	Very limited Depth to bedrock Seepage Too clayey	1.00 1.00 0.50	Somewhat limited Depth to bedrock	0.42	Somewhat limited Too clayey Depth to bedrock	0.50 0.42
En: Elmont-----	90	Very limited Depth to bedrock Seepage Too clayey Slope	1.00 1.00 0.50 0.16	Somewhat limited Depth to bedrock Slope	0.42 0.16	Somewhat limited Too clayey Depth to bedrock Slope	0.50 0.42 0.16
Eo: Elmont, eroded-----	90	Very limited Depth to bedrock Seepage Too clayey Slope	1.00 1.00 0.50 0.16	Somewhat limited Depth to bedrock Slope	0.42 0.16	Somewhat limited Too clayey Depth to bedrock Slope	0.50 0.42 0.16
Ep: Elmont, eroded-----	75	Very limited Depth to bedrock Seepage Too clayey	1.00 1.00 0.50	Somewhat limited Depth to bedrock	0.42	Somewhat limited Too clayey Depth to bedrock	0.50 0.42
Dwight-----	25	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Es: Eudora-----	95	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
Et: Eudora-----	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
Eu: Eudora-----	85	Somewhat limited Flooding Slope	0.40 0.04	Somewhat limited Flooding Slope	0.40 0.04	Somewhat limited Slope	0.04
Ev: Eudora-----	60	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
Kimo-----	30	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Somewhat limited Depth to saturated zone	0.86
Ew: Eudora-----	60	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
Kimo-----	30	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.86

SANITARY FACILITIES--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gm: Gymer-----	88	Flooding	0.40	Flooding	0.40		
Gy: Gymer-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
INL: Aquolls-----	100	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
		Very limited Flooding Depth to saturated zone Ponding Seepage	1.00 1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Kb: Kennebec-----	95	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Not limited	
Kc: Chase-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.75	Somewhat limited Depth to saturated zone	0.86
KF: Kennebec-----	98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Not limited	
Km: Kimo-----	90	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Somewhat limited Depth to saturated zone	0.86
Ko: Kimo-----	95	Very limited Flooding Depth to saturated zone Ponding	1.00 1.00 1.00	Very limited Flooding Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Ks: Kipson-----	50	Very limited Depth to bedrock Seepage Slope Too clayey	1.00 1.00 0.96 0.50	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Carbonate content Slope Too clayey	1.00 1.00 0.96 0.50
Sogn-----	35	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.16	Very limited Depth to bedrock Slope	1.00 0.16	Very limited Depth to bedrock Hard to compact Too acid Seepage Slope	1.00 1.00 1.00 1.00 0.16
Ku: Konawa-----	85	Not limited		Very limited Seepage	1.00	Not limited	
Kw: Konawa-----	85	Somewhat limited Too clayey Slope	0.50 0.16	Very limited Seepage Slope	1.00 0.16	Somewhat limited Too clayey Slope	0.50 0.16
La: Labette-----	88	Very limited Depth to bedrock Too clayey Seepage	1.00 1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Hard to compact	1.00 1.00 1.00
Lb: Labette-----	85	Very limited Depth to bedrock Too clayey Seepage	1.00 1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Hard to compact	1.00 1.00 1.00
Lc: Labette, eroded----	95	Very limited Depth to bedrock Too clayey Seepage	1.00 1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Hard to compact Gravel content	1.00 1.00 1.00 0.11
Ld: Ladysmith-----	90	Very limited		Very limited		Very limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LIQ: Limestone Quarry----	100	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.87
Lm: Ladysmith-----	85	Not rated		Not rated		Not rated	
Ls: Ladysmith, eroded---	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.86
Ma: Made Land-----	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.87
Mb: Martin-----	90	Not rated		Not rated		Not rated	
Mc: Martin-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.86
Me: Martin, eroded-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.86
Mf: Martin-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.87
Mh: Martin, eroded-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
		Slope	0.04	Slope	0.04	Depth to saturated zone	0.87
Mk: Martin-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to saturated zone	0.87
Mm: Morrill-----	91	Not limited		Not limited		Not limited	
Mn: Morrill, eroded----	91	Not limited		Not limited		Not limited	
Mo: Morrill-----	91	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
MOO: Morrill-----	90	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Mp: Morrill-----	55	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00	Somewhat limited Slope	0.00

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
MRR: Morrill-----	90	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Pa: Pawnee-----	100	Very limited Depth to saturated zone Too clayey	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00
Pc: Pawnee-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Hard to compact	1.00
Pe: Pawnee, eroded-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Hard to compact	1.00
Pn: Pawnee-----	85	Very limited Depth to saturated zone Too clayey Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Slope	1.00 0.04	Very limited Depth to saturated zone Too clayey Hard to compact Slope	1.00 1.00 0.04
RD: Reading-----	90	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
Re: Reading-----	85	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
Rv: River Wash-----	100	Not rated		Not rated		Not rated	
Sa: Sarpy-----	100	Very limited Flooding Seepage Too Sandy	1.00 1.00 1.00	Very limited Flooding Seepage	1.00 1.00	Very limited Too Sandy Seepage	1.00 1.00
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Very limited Flooding Seepage Too Sandy	1.00 1.00 1.00	Very limited Flooding Seepage	1.00 1.00	Very limited Too Sandy Seepage	1.00 1.00
Eudora-----	45	Very limited Flooding	1.00	Very limited Flooding	1.00	Not limited	
Sg: Sharpsburg-----	88	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
Sh: Sharpsburg-----	85	Somewhat limited Too clayey	0.50	Not limited		Very limited Hard to compact Too clayey	1.00 0.50
Sk: Shelby-----	95	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Sm: Shelby-----	88	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
Sn: Shelby, eroded-----	100	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
So: Shelby-----	85	Somewhat limited Too clayey Slope	0.50 0.16	Somewhat limited Slope	0.16	Somewhat limited Too clayey Slope	0.50 0.16
Sp: Morrill-----	85	Not limited		Not limited		Not limited	

SANITARY FACILITIES--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sr: Morrill, eroded-----	85	Not limited		Not limited		Not limited	
Ss: Morrill-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16
St: Sibleyville-----	90	Very limited Depth to bedrock Seepage	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
Su: Sibleyville-----	90	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Sv: Sogn-----	55	Very limited Depth to bedrock Seepage Slope	1.00 1.00 0.00	Very limited Depth to bedrock Slope	1.00 0.00	Very limited Depth to bedrock Hard to compact Too acid Seepage Slope	1.00 1.00 1.00 1.00 0.00
Vinland-----	25	Very limited Depth to bedrock Seepage Slope Too clayey	1.00 1.00 0.96 0.50	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope Too clayey	1.00 0.96 0.50
Sw: Stony Steep Land----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Depth to bedrock Slope Seepage Too clayey	1.00 1.00 1.00 0.50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50
Vn: Vinland-----	100	Very limited Depth to bedrock Seepage Too clayey	1.00 1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wabash-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
Wb: Wabash-----	88	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
We: Welda-----	95	Very limited Too clayey	1.00	Not limited		Very limited Too clayey	1.00

AGRICULTURAL WASTE MANAGEMENT
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The nature of the soil is also important in the application of organic wastes and wastewater to land as fertilizers and irrigation; it is also important when the soil is used as a medium for treatment and disposal of these wastes. Favorable soil properties are required to prevent environmental damage.

The use of organic wastes and wastewater as production resources will result in energy conservation, prevent the waste of these important resources, and prevent problems associated with their disposal. Where disposal is the goal, and a maximum amount is disposed in a minimum area to hold costs to a minimum, risk of environmental damage is the principal constraint. Where the reuse goal is pursued, and a minimum amount is applied to a maximum area to obtain the greatest benefit, environmental damage is unlikely.

Interpretations developed for waste management may include ratings for (1) manure and food processing wastes; (2) municipal sewage sludge; (3) irrigation use of wastewater; or (4) treatment of wastewater by the slow rate process, overland flow process, or rapid infiltration process. If available, these should be located in this subsection.

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

The Ag-Waste tables show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, phosphorus, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

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 agricultural waste management. 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. Slightly limited indicates that the soil has features that are generally favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and 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 tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 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).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

AGRICULTURAL WASTE MANAGEMENT
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The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding.

The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

See the National Soil Handbook, September 1992, Part 620, for criteria used in rating soils for sanitary facilities and waste management.

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
045OE: Oska-----	88	Very limited Restricted permeability Too acid Depth to bedrock	1.00 0.03 0.01	Very limited Restricted permeability Too acid Depth to bedrock	1.00 0.14 0.01	Very limited Restricted permeability Too steep for surface application Too acid Depth to bedrock	1.00 0.31 0.14 0.01
045SV: Sibleyville-----	50	Somewhat limited Depth to bedrock Droughty Slope	0.71 0.43 0.37	Somewhat limited Depth to bedrock Droughty Slope	0.71 0.43 0.37	Very limited Too steep for surface application Depth to bedrock Too steep for sprinkler application Droughty	1.00 0.71 0.59 0.43
045SX: Rock Outcrop-----	60	Not rated		Not rated		Not rated	
Vinland-----	26	Very limited Slope Depth to bedrock Droughty Runoff limitation	1.00 1.00 0.93 0.40	Very limited Depth to bedrock Slope Droughty Runoff limitation	1.00 1.00 0.93 0.37	Very limited Depth to bedrock Too steep for surface application Too steep for sprinkler application Droughty	1.00 1.00 1.00 0.93
045VM: Vinland-----	40	Very limited Depth to bedrock Droughty Runoff limitation Slope	1.00 0.93 0.40 0.37	Very limited Depth to bedrock Droughty Slope	1.00 0.93 0.37	Very limited Depth to bedrock Too steep for surface application Droughty Too steep for sprinkler application	1.00 1.00 0.93 0.59
Martin-----	25	Very limited Restricted permeability Depth to saturated zone Slope Too acid	1.00 1.00 0.04 0.03	Very limited Restricted permeability Depth to saturated zone Too acid Slope	1.00 1.00 0.14 0.04	Very limited Restricted permeability Too steep for surface application Depth to saturated zone Too steep for sprinkler application Too acid	1.00 1.00 1.00 0.22 0.14
045WS: Woodson-----	90	Very limited Restricted permeability Depth to saturated zone Runoff limitation Too acid	1.00 1.00 0.40 0.03	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14
085KB: Kennebec-----	86	Somewhat limited Flooding Depth to saturated zone	0.60 0.09	Very limited Flooding Depth to saturated zone	1.00 0.09	Somewhat limited Flooding Depth to saturated zone	0.60 0.09
085MC: Martin-----	48	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.03	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14	Very limited Restricted permeability Depth to saturated zone Too steep for surface application	1.00 1.00 1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Vinland-----	40	Slope	0.00	Slope	0.00	Too acid Too steep for sprinkler application	0.14 0.10
		Very limited Depth to bedrock Droughty	1.00 0.89	Very limited Depth to bedrock Droughty	1.00 0.89	Very limited Depth to bedrock Too steep for surface application	1.00 1.00
		Runoff limitation Slope	0.40 0.00	Slope	0.00	Droughty Too steep for sprinkler application	0.89 0.10
085ZA: Zook-----	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	1.00	Flooding	1.00	Restricted permeability	1.00
		Flooding	0.60	Restricted permeability	1.00	Flooding	0.60
087EC: Eudora-----	65	Leaching limitation	0.50				
		Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
Bismarckgrove-----	20	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity	0.00
087HC: Haig-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Leaching limitation	0.50				
087KV: Konawa-----	91	Somewhat limited Too acid	0.11	Somewhat limited Too acid	0.42	Somewhat limited Too steep for surface application	0.91
		Filtering capacity	0.00	Filtering capacity	0.00	Too acid	0.42
						Too steep for sprinkler application	0.02
087RS: Rossville-----	85					Filtering capacity	0.00
		Somewhat limited Too acid	0.01	Somewhat limited Flooding Too acid	0.20 0.03	Somewhat limited Too acid	0.03
087SO: Shelby-----	65	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.39
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
Pawnee-----	25	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Slope	0.16	Restricted permeability Too steep for sprinkler application	1.00 0.39
		Slope	0.16				

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
087WC: Wabash-----	94	Very limited Restricted permeability Depth to saturated zone Runoff limitation	1.00 1.00 0.40	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 0.20	Very limited Restricted permeability Depth to saturated zone	1.00 1.00
139ED: Elmont-----	85	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability Too acid	0.31 0.22 0.07
149KM: Kimo-----	90	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 0.40	Very limited Restricted permeability Depth to saturated zone	1.00 1.00
197IB: Irwin-----	80	Very limited Restricted permeability Runoff limitation	1.00 0.40	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
197IV: Ivan-----	90	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
197IX: Ivan-----	80	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
197MR: Morrill-----	75	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability Too acid Too steep for sprinkler application	0.66 0.22 0.07 0.00
197MS: Morrill, very stony-	75	Somewhat limited Restricted permeability Slope Too acid	0.30 0.04 0.02	Somewhat limited Restricted permeability Too acid Slope	0.22 0.07 0.04	Very limited Too steep for surface application Restricted permeability Too steep for sprinkler application Too acid	1.00 0.22 0.22 0.07
197SA: Sarpy-----	85	Very limited Flooding Filtering capacity Droughty Leaching limitation	1.00 1.00 0.65 0.45	Very limited Flooding Filtering capacity Droughty	1.00 1.00 0.65	Very limited Flooding Filtering capacity Droughty	1.00 1.00 0.65
197WF: Wamego-----	75	Very limited Restricted permeability Depth to bedrock Slope Droughty Too acid	1.00 0.84 0.37 0.28 0.03	Very limited Restricted permeability Depth to bedrock Slope Droughty Too acid	1.00 0.84 0.37 0.28 0.14	Very limited Restricted permeability Too steep for surface application Depth to bedrock Too steep for sprinkler application Droughty	1.00 1.00 0.84 0.59 0.28
197WY: Wymore-----	100	Very limited		Very limited		Very limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2797: Morrill, stony-----	85	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40	Too acid	0.14	Too acid	0.14
		Too acid	0.03			Too steep for surface application	0.08
AED: Arents, Earthen Dam-	100	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
		Slope	0.04	Too acid	0.07	Restricted permeability	0.22
		Too acid	0.02	Slope	0.04	Too steep for sprinkler application	0.22
						Too acid	0.07
An: Kennebec-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Bk: Martin-----	54	Depth to saturated zone	0.09	Depth to saturated zone	0.09	Depth to saturated zone	0.09
Kennebec-----	43	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.03	Too acid	0.14	Too steep for surface application	0.91
						Too acid	0.14
BOA: Borrow Areas-----	100	Too steep for sprinkler application	0.02			Too steep for sprinkler application	0.02
		Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	0.09	Depth to saturated zone	0.09	Depth to saturated zone	0.09
		Not rated		Not rated		Not rated	
Br: Fluvents-----	97	Not rated		Not rated		Not rated	
Dm: Dwight-----	60	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	0.46	Low adsorption	1.00	Depth to saturated zone	0.46
		Too acid	0.00	Depth to saturated zone	0.46	Too acid	0.01
				Too acid	0.01		
Martin-----	30	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Runoff limitation	0.40				
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ds: Dwight-----	97	Too acid	0.03	Too acid	0.14	Too acid	0.14
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Runoff limitation	0.40				
Dw: Dwight-----	85	Very limited		Very limited		Very limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
El: Elmont-----	90	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40				
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.31
Em: Elmont, eroded-----	90	Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22
							0.07
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.31
En: Elmont-----	90	Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22
							0.07
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.31
Eo: Elmont, eroded-----	90	Slope	0.16	Slope	0.16	Restricted permeability Too acid	0.22
		Too acid	0.02	Too acid	0.07		0.07
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
Ep: Elmont, eroded-----	75	Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.39
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22		0.07
Dwight-----	25	Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22
							0.07
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Es: Eudora-----	95	Runoff limitation	0.40			Too steep for surface application	0.00
		Somewhat limited Filtering capacity	0.00	Somewhat limited Flooding	0.40	Somewhat limited Filtering capacity	0.00
				Filtering capacity	0.00		
Et: Eudora-----	90	Not limited		Somewhat limited Flooding	0.40	Not limited	
Eu: Eudora-----	85	Somewhat limited Slope	0.04	Somewhat limited Flooding	0.40	Very limited Too steep for surface application	1.00
				Slope	0.04	Too steep for sprinkler application	0.22
Ev: Eudora-----	60	Not limited		Somewhat limited Flooding	0.40	Not limited	
Kimo-----	30	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ew: Eudora-----	60	Depth to saturated zone	1.00	Depth to saturated zone Flooding	1.00 0.40	Depth to saturated zone	1.00
		Somewhat limited Filtering capacity	0.00	Somewhat limited Flooding Filtering capacity	0.40 0.00	Somewhat limited Filtering capacity	0.00
Kimo-----	30	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	0.00	Flooding	0.40	Filtering capacity	0.00
				Filtering capacity	0.00		
Gm: Gymer-----	88	Somewhat limited Restricted permeability	0.30	Somewhat limited Too acid	0.42	Somewhat limited Too steep for surface application	0.66
		Too acid	0.11	Restricted permeability	0.22	Too acid	0.42
						Restricted permeability	0.22
						Too steep for sprinkler application	0.00
Gy: Gymer-----	100	Somewhat limited Restricted permeability	0.30	Somewhat limited Too acid	0.42	Somewhat limited Too steep for surface application	0.66
		Too acid	0.11	Restricted permeability	0.22	Too acid	0.42
						Restricted permeability	0.22
						Too steep for sprinkler application	0.00
INL: Aquolls-----	100	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low adsorption	1.00	Flooding	1.00	Low adsorption	1.00
		Flooding	0.60	Low adsorption	1.00	Flooding	0.60
Kb: Kennebec-----	95	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
		Depth to saturated zone	0.09	Depth to saturated zone	0.09	Depth to saturated zone	0.09
Kc: Chase-----	85	Very limited Restricted permeability	1.00	Very limited Flooding	1.00	Very limited Restricted permeability	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Depth to saturated zone	1.00	Flooding	0.60
KF: Kennebec-----	98	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	0.09	Depth to saturated zone	0.09	Depth to saturated zone	0.09
Km: Kimo-----	90	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ko: Kimo-----	95	Very limited Ponding	1.00	Very limited Ponding	1.00	Very limited Ponding	1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ks: Kipson-----	50	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Flooding	1.00	Restricted permeability	1.00
		Flooding	0.60	Restricted permeability	1.00	Flooding	0.60
		Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
		Droughty	0.99	Droughty	0.99	Too steep for surface application	1.00
		Slope	0.96	Slope	0.96	Droughty	0.99
Sogn-----	35	Runoff limitation	0.40			Too steep for sprinkler application	0.97
		Very limited Depth to bedrock	1.00	Very limited Droughty	1.00	Very limited Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Ku: Konawa-----	85	Runoff limitation	0.40	Slope	0.16	Too steep for surface application	1.00
		Slope	0.16			Too steep for sprinkler application	0.39
		Somewhat limited Filtering capacity	0.00	Somewhat limited Filtering capacity	0.00	Somewhat limited Too steep for surface application	0.66
Kw: Konawa-----	85					Filtering capacity	0.00
						Too steep for sprinkler application	0.00
		Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Too steep for surface application	1.00
La: Labette-----	88	Filtering capacity	0.00	Filtering capacity	0.00	Too steep for sprinkler application	0.39
						Filtering capacity	0.00
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Lb: Labette-----	85	Too acid	0.03	Too acid	0.14	Too acid	0.14
		Depth to bedrock	0.01	Depth to bedrock	0.01	Depth to bedrock	0.01
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
Lc: Labette, eroded----	95	Too acid	0.03	Too acid	0.14	Too steep for surface application	0.31
		Droughty	0.00	Depth to bedrock Droughty	0.06	Too acid	0.14
		Depth to bedrock	0.01			Depth to bedrock	0.06
Ld: Ladysmith-----	90	Depth to bedrock	0.01	Depth to bedrock	0.01	Droughty	0.00
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40				

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LIQ: Limestone Quarry----	100	Not rated		Not rated		Not rated	
Lm: Ladysmith-----	85	Very limited Restricted permeability Depth to saturated zone Runoff limitation	1.00 1.00 0.40	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone	1.00 1.00
Ls: Ladysmith, eroded---	100	Very limited Restricted permeability Depth to saturated zone Runoff limitation	1.00 1.00 0.40	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone	1.00 1.00
Ma: Made Land-----	100	Not rated		Not rated		Not rated	
Mb: Martin-----	90	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.03	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14
Mc: Martin-----	85	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.03	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14	Very limited Restricted permeability Depth to saturated zone Too steep for surface application Too acid	1.00 1.00 0.31 0.14
Me: Martin, eroded-----	90	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.03	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14	Very limited Restricted permeability Depth to saturated zone Too steep for surface application Too acid	1.00 1.00 0.31 0.14
Mf: Martin-----	90	Very limited Restricted permeability Depth to saturated zone Slope Too acid	1.00 1.00 0.04 0.03	Very limited Restricted permeability Depth to saturated zone Too acid Slope	1.00 1.00 0.14 0.04	Very limited Restricted permeability Too steep for surface application Depth to saturated zone Too steep for sprinkler application Too acid	1.00 1.00 1.00 0.22 0.14
Mh: Martin, eroded-----	85	Very limited Restricted permeability Depth to saturated zone Slope Too acid	1.00 1.00 0.04 0.03	Very limited Restricted permeability Depth to saturated zone Too acid Slope	1.00 1.00 0.14 0.04	Very limited Restricted permeability Too steep for surface application Depth to saturated zone Too steep for sprinkler application Too acid	1.00 1.00 1.00 0.22 0.14

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mk: Martin-----	90	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.03	Very limited Restricted permeability Depth to saturated zone Too acid	1.00 1.00 0.14	Very limited Restricted permeability Depth to saturated zone Too steep for surface application Too acid	1.00 1.00 0.31 0.14
Mm: Morrill-----	91	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability Too acid Too steep for sprinkler application	0.66 0.22 0.07 0.00
Mn: Morrill, eroded----	91	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability Too acid Too steep for sprinkler application	0.66 0.22 0.07 0.00
Mo: Morrill-----	91	Somewhat limited Restricted permeability Slope Too acid	0.30 0.16 0.02	Somewhat limited Restricted permeability Slope Too acid	0.22 0.16 0.07	Very limited Too steep for surface application Too steep for sprinkler application Restricted permeability Too acid	1.00 0.39 0.22 0.07
MOO: Morrill-----	90	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability Too acid	0.31 0.22 0.07
Mp: Morrill-----	55	Somewhat limited Restricted permeability Too acid Slope	0.30 0.02 0.00	Somewhat limited Restricted permeability Too acid Slope	0.22 0.07 0.00	Very limited Too steep for surface application Restricted permeability Too steep for sprinkler application Too acid	1.00 0.22 0.10 0.07
Gravelly Land-----	30	Not rated		Not rated		Not rated	
Mr: Muir-----	85	Not limited		Somewhat limited Flooding	0.40	Not limited	
MRR: Morrill-----	90	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability	0.31 0.22

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pa: Pawnee-----	100	Very limited Depth to saturated zone Restricted permeability Runoff limitation	1.00 1.00 0.40	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Too acid Very limited Depth to saturated zone Restricted permeability	0.07 1.00 1.00
Pc: Pawnee-----	85	Very limited Depth to saturated zone Restricted permeability Runoff limitation	1.00 1.00 0.40	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Very limited Depth to saturated zone Restricted permeability Too steep for surface application	1.00 1.00 0.31
Pe: Pawnee, eroded-----	90	Very limited Depth to saturated zone Restricted permeability Runoff limitation	1.00 1.00 0.40	Very limited Depth to saturated zone Restricted permeability	1.00 1.00	Very limited Depth to saturated zone Restricted permeability Too steep for surface application	1.00 1.00 0.31
Pn: Pawnee-----	85	Very limited Depth to saturated zone Restricted permeability Runoff limitation Slope	1.00 1.00 0.40 0.04	Very limited Depth to saturated zone Restricted permeability Slope	1.00 1.00 0.04	Very limited Depth to saturated zone Restricted permeability Too steep for surface application Too steep for sprinkler application	1.00 1.00 1.00 0.22
RD: Reading-----	90	Somewhat limited Too acid	0.03	Somewhat limited Flooding Too acid	0.40 0.14	Somewhat limited Too acid	0.14
Re: Reading-----	85	Somewhat limited Too acid	0.03	Somewhat limited Flooding Too acid	0.40 0.14	Somewhat limited Too acid	0.14
Rv: River Wash-----	100	Not rated		Not rated		Not rated	
Sa: Sarpy-----	100	Very limited Flooding Filtering capacity Leaching limitation Droughty	1.00 1.00 0.45 0.37	Very limited Flooding Filtering capacity Droughty	1.00 1.00 0.37	Very limited Flooding Filtering capacity Droughty	1.00 1.00 0.37
SAP: Sand Pit-----	100	Not rated		Not rated		Not rated	
Se: Sarpy-----	55	Very limited Filtering capacity Droughty Flooding Leaching limitation	1.00 0.65 0.60 0.45	Very limited Flooding Filtering capacity Droughty	1.00 1.00 0.65	Very limited Filtering capacity Droughty Flooding	1.00 0.65 0.60
Eudora-----	45	Somewhat limited Flooding Filtering capacity	0.60 0.00	Very limited Flooding Filtering capacity	1.00 0.00	Somewhat limited Flooding Filtering capacity	0.60 0.00
Sg: Sharpsburg-----	88	Somewhat limited		Somewhat limited		Somewhat limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sh: Sharpsburg-----	85	Restricted permeability	0.30	Restricted permeability	0.22	Restricted permeability	0.22
		Too acid	0.02	Too acid	0.07	Too acid	0.07
		Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.31
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
Sk: Shelby-----	95	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability	0.22
		Too acid	0.02	Too acid	0.07	Too acid	0.07
Sm: Shelby-----	88	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.66
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
						Too steep for sprinkler application	0.00
Sn: Shelby, eroded-----	100	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.66
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
						Too steep for sprinkler application	0.00
So: Shelby-----	85	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.39
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
Sp: Morrill-----	85	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.66
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity Too steep for sprinkler application	0.00 0.00
Sr: Morrill, eroded-----	85	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Too steep for surface application	0.66
		Too acid	0.02	Too acid	0.07	Restricted permeability Too acid	0.22 0.07
		Filtering capacity	0.00	Filtering capacity	0.00	Filtering capacity Too steep for sprinkler application	0.00 0.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

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Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ss: Morrill-----	85	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
		Slope	0.16	Slope	0.16	Too steep for sprinkler application	0.39
		Too acid	0.02	Too acid	0.07	Restricted permeability	0.22
		Filtering capacity	0.00	Filtering capacity	0.00	Too acid	0.07
						Filtering capacity	0.00
St: Sibleyville-----	90	Somewhat limited Depth to bedrock	0.01	Somewhat limited Depth to bedrock	0.01	Somewhat limited Too steep for surface application Depth to bedrock	0.31 0.01
Su: Sibleyville-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Too steep for surface application	1.00
		Depth to bedrock	0.01	Depth to bedrock	0.01	Too steep for sprinkler application Depth to bedrock	0.22 0.01
Sv: Sogn-----	55	Very limited Depth to bedrock	1.00	Very limited Droughty Depth to bedrock	1.00	Very limited Droughty Depth to bedrock	1.00
		Droughty	1.00	Slope	0.00	Too steep for surface application	1.00
		Runoff limitation	0.40			Too steep for sprinkler application	0.10
Vinland-----	25	Slope	0.00			Very limited Depth to bedrock	1.00
		Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	0.96	Droughty Too steep for sprinkler application	1.00 0.97
Sw: Stony Steep Land----	60	Runoff limitation	0.40				
		Not rated		Not rated		Not rated	
Vinland-----	26	Slope	0.00			Very limited Depth to bedrock	1.00
		Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Too steep for surface application	1.00
		Slope	1.00	Slope	0.89	Too steep for sprinkler application	1.00
Vn: Vinland-----	100	Droughty	0.89	Droughty	0.89	Droughty	0.89
		Runoff limitation	0.40			Very limited Depth to bedrock	1.00
		Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Droughty	1.00
W: Water-----	100	Droughty	1.00	Droughty	1.00	Too steep for surface application	0.91
		Runoff limitation	0.40			Too steep for sprinkler application	0.02
		Not rated		Not rated		Not rated	

AGRICULTURAL WASTE MANAGEMENT--Continued
Shawnee County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food- processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wa: Wabash-----	90	Very limited Restricted permeability Depth to saturated zone Flooding Runoff limitation	1.00 1.00 0.60 0.40	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 1.00	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 0.60
Wb: Wabash-----	88	Very limited Restricted permeability Depth to saturated zone Flooding Runoff limitation	1.00 1.00 0.60 0.40	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 1.00	Very limited Restricted permeability Depth to saturated zone Flooding	1.00 1.00 0.60
We: Welda-----	95	Somewhat limited Restricted permeability Too acid	0.30 0.02	Somewhat limited Restricted permeability Too acid	0.22 0.07	Somewhat limited Too steep for surface application Restricted permeability Too acid Too steep for sprinkler application	0.91 0.22 0.07 0.02

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Shawnee County, Kansas: KS177

						SPISP II Ratings		
						Leaching	Solution	Adsorbed
MUSYM/SEQ#	COMPONENT/TEXTURE/MU%	HYD	KFACT	SURFACE DEPTH	% OM	(SLP)	Runoff (SSRP)	Runoff (SARP)
045OE 1	OSKA SICL 88%	C	0.37	5"	2.5%	L	H	H
045SV 1	SIBLEYVILLE L 50%	B	0.28	7"	2.5%	I	I	I
045SX 1	ROCK OUTCROP UWB 60%		0.00	5"	0.0%	?	?	?
045SX 2	VINLAND SICL 26%	D	0.32	7"	3.0%	V	H	H (s)
045VM 1	VINLAND SICL 40%	D	0.32	7"	3.0%	V	H	H
045VM 2	MARTIN SICL 25%	C	0.37	9"	3.0%	H (w)	H	H
045WS 1	WOODSON SIL 90%	D	0.43	11"	3.0%	H (w)	H	H
085KB 1	KENNEBEC SIL 86%	B	0.28	48"	5.5%	L	I	I
085MC 1	MARTIN SICL 48%	C	0.37	11"	3.0%	H (w)	H	H
085MC 2	VINLAND SICL 40%	D	0.32	11"	3.0%	V	H	H
085ZA 1	ZOOK SICL 90%	C	0.37	18"	3.3%	H (w)	H	H
085ZA 1	ZOOK SICL 90%	D	0.37	18"	3.3%	H (w)	H	H
087EC 1	EUDORA FSL 65%	B	0.32	6"	0.8%	H	I	I
087EC 2	BISMARCKGROVE FSL 20%	B	0.32	7"	0.8%	H	I	I
087HC 1	HAIG SICL 85%	C	0.37	9"	3.5%	H (w)	H	H
087HC 1	HAIG SICL 85%	D	0.37	9"	3.5%	H (w)	H	H
087KV 1	KONAWA FSL 35%	B	0.24	13"	0.8%	H	I	I
087RS 1	ROSSVILLE SIL 85%	B	0.28	7"	2.5%	I	I	I
087SO 1	SHELBY L 65%	B	0.28	12"	3.0%	I	I	I
087SO 2	PAWNEE CL 25%	D	0.37	14"	3.0%	H (w)	H	H
087WC 1	WABASH SICL 94%	D	0.37	19"	3.3%	H (w)	H	H
139ED 1	ELMONT L 85%	B	0.32	8"	3.0%	I	I	I
149KM 1	KIMO SIC 94%	C	0.37	22"	3.0%	H (w)	H	H
197IB 1	IRWIN SICL 80%	D	0.32	12"	3.0%	V	H	H
197IV 1	IVAN SIL 90%	B	0.32	36"	3.0%	L	I	I
197IX 1	IVAN SICL 80%	B	0.32	40"	3.0%	L	I	I
197MR 1	MORRILL L 75%	B	0.28	8"	3.0%	I	I	I
197SA 1	SARPY LS 90%	A	0.17	5"	0.6%	H	L	L

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Shawnee County, Kansas: KS177

197WF 1	WAMEGO SICL 75%	C	0.32	11"	3.0% L	H	H
197WY 1	WYMORE SICL 100%	D	0.37	8"	3.0% H (w)	H	H
2797 1	MORRILL GR-L 86%	B	0.20	10"	3.0% I	I	H (s)
AED 1	ARENTS, EARTHEN DAM 100%		0.00	0"	0.0% ?	?	?
An 1	KENNEBEC SIL 97%	B	0.28	48"	5.5% L	I	I
Bk 1	MARTIN SICL 54%	C	0.37	12"	3.0% H (w)	H	H
Bk 2	KENNEBEC SIL 43%	B	0.28	48"	5.5% L	I	I
BOA 1	BORROW AREAS 100%		0.00	0"	0.0% ?	?	?
Br 1	FLUVENTS SICL 97%		0.32	60"	1.8% ?	?	?
Dm 1	DWIGHT SICL 63%	D	0.43	5"	3.0% V	H	H
Dm 2	MARTIN SICL 33%	C	0.37	12"	3.0% H (w)	H	H
Ds 1	DWIGHT SICL 97%	D	0.43	5"	3.0% V	H	H
Dw 1	DWIGHT SICL 91%	D	0.43	5"	3.0% V	H	H
El 1	ELMONT SIL 94%	B	0.32	7"	3.0% I	I	I
Em 1	ELMONT SIL 94%	B	0.32	7"	2.0% I	I	I
En 1	ELMONT SIL 94%	B	0.32	7"	3.0% I	I	I
Eo 1	ELMONT SIL 94%	B	0.32	7"	2.0% I	I	I
Ep 1	ELMONT SICL 75%	B	0.32	7"	2.0% I	I	I
Ep 2	DWIGHT SICL 25%	D	0.43	5"	2.0% V	H	H
Es 1	EUDORA FSL 97%	B	0.20	12"	2.5% I	I	I
Et 1	EUDORA SIL 90%	B	0.32	12"	1.5% I	I	I
Eu 1	EUDORA SIL 91%	B	0.32	12"	1.5% I	I	I
Ev 1	EUDORA SIL 60%	B	0.32	12"	2.5% I	I	I
Ev 2	KIMO SICL 30%	C	0.37	6"	3.0% H (w)	H	H
Ew 1	EUDORA FSL 63%	B	0.20	12"	0.7% H	I	I
Ew 2	KIMO FSL 31%	C	0.24	8"	0.7% H (w)	H	H
Gm 1	GYMER SIL 88%	C	0.32	15"	3.0% L	H	H
Gy 1	GYMER SIL 100%	C	0.32	4"	2.0% L	H	H
INL 1	AQUOLLS VAR 100%	C	0.00	60"	0.0% ?	H	?
Kb 1	KENNEBEC SIL 97%	B	0.28	48"	4.0% L	I	I

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Shawnee County, Kansas: KS177

Kc 1	CHASE SIL 91%	C	0.28	30"	3.0% H (w)	H	H
KF 1	KENNEBEC SIL 98%	B	0.28	47"	5.5% L	I	I
Km 1	KIMO SICL 90%	C	0.37	6"	3.0% H (w)	H	H
Ko 1	KIMO SICL 97%	C	0.37	15"	3.0% H (w)	H	H
Ks 1	KIPSON SICL 50%	D	0.32	8"	2.0% V	H	H (s)
Ks 2	SOGN SICL 41%	D	0.32	10"	2.0% V	H	H (s)
KU 1	KONAWA FSL 91%	B	0.24	20"	0.8% I	I	I
KW 1	KONAWA FSL 91%	B	0.24	20"	0.8% I	I	I
La 1	LABETTE SICL 88%	C	0.37	13"	3.0% L	H	H
Lb 1	LABETTE SICL 91%	C	0.37	13"	3.0% L	H	H
Lc 1	LABETTE SICL 97%	C	0.37	4"	2.0% L	H	H
Ld 1	LADYSMITH SICL 94%	D	0.37	10"	3.0% H (w)	H	H
LIQ 1	LIMESTONE QUARRY 100%		0.00	0"	0.0% ?	?	?
Lm 1	LADYSMITH SICL 91%	D	0.37	10"	3.0% H (w)	H	H
Ls 1	LADYSMITH SICL 100%	D	0.37	6"	2.5% H (w)	H	H
Ma 1	MADE LAND 100%		0.00	0"	0.0% ?	?	?
Mb 1	MARTIN SICL 94%	C	0.37	12"	3.0% H (w)	H	H
Mc 1	MARTIN SICL 85%	C	0.37	9"	3.0% H (w)	H	H
Me 1	MARTIN SICL 97%	C	0.37	7"	2.5% H (w)	H	H
Mf 1	MARTIN SICL 90%	C	0.37	12"	3.0% H (w)	H	H
Mh 1	MARTIN SICL 91%	C	0.37	7"	2.5% H (w)	H	H
Mk 1	MARTIN SIC 94%	C	0.28	4"	1.5% H (w)	H	H
Mm 1	MORRILL CL 91%	B	0.32	17"	3.0% L	I	I
Mn 1	MORRILL CL 91%	B	0.32	6"	2.0% I	I	I
Mo 1	MORRILL CL 91%	B	0.32	17"	3.0% L	I	I
MOO 1	MORRILL L 90%	B	0.28	13"	3.0% I	I	I
Mp 1	MORRILL CL 67%	B	0.32	17"	3.0% L	I	I
Mp 2	GRAVELLY LAND GR-L 30%	C	0.24	15"	1.5% L	H	H
Mr 1	MUIR SIL 91%	B	0.32	20"	3.0% L	I	I
MRR 1	MORRILL CL 90%	B	0.28	10"	3.0% I	I	I

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Shawnee County, Kansas: KS177

Pa 1	PAWNEE CL 85%	D	0.37	19"	3.0% H (w)	H	H
Pc 1	PAWNEE CL 85%	D	0.37	14"	3.0% H (w)	H	H
Pe 1	PAWNEE CL 90%	D	0.37	14"	3.0% H (w)	H	H
Pn 1	PAWNEE CL 91%	D	0.37	19"	3.0% H (w)	H	H
RD 1	READING SIL 90%	B	0.32	15"	3.0% L	I	I
Re 1	READING SICL 91%	B	0.32	14"	3.0% I	I	I
Rv 1	RIVER WASH 100%		0.00	0"	0.0% ?	?	?
Sa 1	SARPY S 100%	A	0.15	7"	0.6% H	L	L
SAP 1	SAND PIT 100%		0.00	0"	0.0% ?	?	?
Se 1	SARPY LFS 55%	A	0.17	12"	0.7% H	L	L
Se 2	EUDORA FSL 45%	B	0.20	8"	0.8% H	I	I
Sg 1	SHARPSBURG SICL 88%	B	0.32	23"	3.5% L	I	I
Sh 1	SHARPSBURG SICL 91%	B	0.32	23"	3.5% L	I	I
Sk 1	SHELBY CL 97%	B	0.28	17"	3.0% L	I	I
Sm 1	SHELBY CL 88%	B	0.28	17"	3.0% L	I	I
Sn 1	SHELBY CL 100%	B	0.28	6"	2.0% I	I	I
So 1	SHELBY CL 91%	B	0.28	17"	3.0% L	I	I
Sp 1	MORRILL FSL 91%	B	0.28	19"	3.0% L	I	I
Sr 1	MORRILL FSL 91%	B	0.28	6"	2.0% I	I	I
Ss 1	MORRILL FSL 91%	B	0.28	19"	3.0% L	I	I
St 1	SIBLEYVILLE L 94%	B	0.32	14"	2.5% I	I	I
Su 1	SIBLEYVILLE L 94%	B	0.32	14"	2.5% I	I	I
Sv 1	SOGN SICL 60%	D	0.32	10"	2.0% V	H	H (s)
Sv 2	VINLAND SICL 28%	D	0.32	6"	3.0% V	H	H (s)
Sw 1	STONY STEEP LAND 60%		0.00	0"	0.0% ?	?	?
Sw 2	VINLAND SICL 26%	D	0.32	11"	3.0% V	H	H (s)
Vn 1	VINLAND SICL 100%	D	0.32	6"	3.0% V	H	H
W 1	WATER 100%		0.00	0"	0.0% ?	?	?
Wa 1	WABASH SIC 90%	D	0.28	16"	3.3% H (w)	H	H
Wb 1	WABASH SICL 88%	D	0.28	16"	3.3% H (w)	H	H

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

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Soils Data Table: SOIL_KS Sort Order: MUSYM

Shawnee County, Kansas: KS177

We 1	WELDA SIL 97%	C	0.37	12"	0.8% L	H	H
------	---------------	---	------	-----	--------	---	---

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H -- High
I -- Intermediate
L -- Low
V -- Very Low

Conditions that affect ratings:

- m -- There are macropores in the surface horizon deeper than 24"
- w -- The high water table comes within 24" of the surface during the growing season
- s -- The field slope is greater than 15%

SPISP II S-Ratings:

- SLP -- Soil Leaching Potential
- SSRP -- Soil Solution Runoff Potential
- SARP -- Soil Adsorbed Runoff Potential

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy" (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Shawnee County, Kansas

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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
045OE: OSKA SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES	OSKA	No	hillslope	---	---	---	---
	GYMER	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
045SV: SIBLEYVILLE COMPLEX, 7 TO 15 PERCENT SLOPES	SIBLEYVILLE	No	hillslope	---	---	---	---
	Unnamed series 1 - shallow	No	hillslope	---	---	---	---
	Unnamed series 2 - deep	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
	GYMER	No	hillslope	---	---	---	---
045SX: VINLAND-ROCK OUTCROP COMPLEX, 20 TO 40 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	ROCK OUTCROP	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
045VM: VINLAND-MARTIN COMPLEX, 7 TO 15 PERCENT SLOPES	OSKA	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	Unnamed soil	No	hillslope	---	---	---	---
	SIBLEYVILLE	No	hillslope	---	---	---	---
045WS: WOODSON SILT LOAM, 1 TO 3 PERCENT SLOPES	SOGN	No	hillslope	---	---	---	---
	WOODSON	No	divide	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
085KB: KENNEBEC SOILS, 0 TO 3 PERCENT SLOPES, OCCASIONALLY FLOODED	BURCHARD	No	hillslope	---	---	---	---
	CHASE	No	flood-plain step	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
	SHELBY	No	hillslope	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
085MC: MARTIN-VINLAND SILTY CLAY LOAMS, 5 TO 10 PERCENT SLOPES	ZOOK	Yes	flood plain	2B3	YES	NO	NO
	MARTIN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
085ZA: ZOOK SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES, OCCASIONALLY FLOODED	ROCK OUTCROP	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	ZOOK	Yes	flood plain	2B3	YES	NO	NO
	CHASE	No	flood-plain step	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
087EC: EUDORA-BISMARCKGROVE FINE SANDY LOAMS, 0 TO 3 PERCENT SLOPES, OVERWASH, OCCASIONALLY FLOODED	OLMITZ	No	fan terrace	---	---	---	---
	READING	No	flood plain	---	---	---	---
	EUDORA	No	flood-plain step	---	---	---	---
	BISMARCKGROVE	No	flood-plain step	---	---	---	---
	BOURBONNAIS	No	flood-plain step	---	---	---	---
	KIMO	No	meander scar	---	---	---	---
	STONEHOUSE	No	flood-plain step	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Shawnee County, Kansas

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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
087HC: HAIG SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	HAIG	Yes	hillslope	2B3	YES	NO	NO
	GRUNDY	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
087KV: KONAWA COMPLEX, 4 TO 10 PERCENT SLOPES	KONAWA	No	hillslope	---	---	---	---
	GYMER	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
087RS: ROSSVILLE SILT LOAM, 0 TO 2 PERCENT SLOPES, VERY RARELY FLOODED	ROSSVILLE	No	terrace	---	---	---	---
	READING MUSCOTAH	No No	terrace terrace	---	---	---	---
087SO: SHELBY-PAWNEE COMPLEX, 8 TO 12 PERCENT SLOPES	SHELBY	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	OSKA	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
087WC: WABASH SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES, VERY RARELY FLOODED	WABASH	Yes	terrace	2B3	YES	NO	NO
	KENNEBEC	No	flood plain	---	---	---	---
139ED: ELMONT LOAM, 3 TO 7 PERCENT SLOPES	READING	No	terrace	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	ERAM KENOMA	No No	hillslope hillslope	---	---	---	---
149KM: KIMO SILTY CLAY, RARELY FLOODED	KIMO	No	flood-plain step	---	---	---	---
	EUDORA	No	flood plain	---	---	---	---
	HAYNIE	No	flood-plain step	---	---	---	---
	SARPY	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL	Yes	ephemeral oxbow lake, flood plain	3,2B3	YES	NO	YES
197IB: IRWIN SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	IRWIN	No	hillslope	---	---	---	---
	DWIGHT	No	hillslope	---	---	---	---
	LADYSMITH	No	divide	---	---	---	---
197IV: IVAN SILT LOAM, OCCASIONALLY FLOODED	IVAN	No	flood plain	---	---	---	---
	CHASE	No	stream terrace	---	---	---	---
	READING	No	stream terrace	---	---	---	---
	UNNAMED HYDRIC SOIL (saturation)	Yes	flood plain, marsh	2B3	YES	NO	NO
197IX: IVAN SILTY CLAY LOAM, CHANNELED	IVAN	No	flood plain	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	READING	No	stream terrace	---	---	---	---
	UNNAMED HYDRIC SOIL	Yes	flood plain, marsh	2B3	YES	NO	NO
197MR: MORRILL LOAM, 4 TO 7 PERCENT SLOPES	MORRILL	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	WYMORE	No	hillslope	---	---	---	---
197MS: MORRILL LOAM, 5 TO 12 PERCENT SLOPES, VERY STONY	MORRILL	No	hillslope	---	---	---	---
	CLIME PAWNEE	No No	hillslope hillslope	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
197SA: SARPY LOAMY SAND, FREQUENTLY FLOODED	SARPY	Yes	flood plain	4	NO	YES	NO
	EUDORA	No	flood plain	---	---	---	---
	HAYNIE	No	flood plain	---	---	---	---
	PAXICO	Yes	flood plain	4	NO	YES	NO
197WF: WAMEGO SILTY CLAY LOAM, 7 TO 15 PERCENT SLOPES	WAMEGO	No	hillslope	---	---	---	---
	CLIME	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
197WY: WYMORE SILTY CLAY LOAM, 2 TO 6 PERCENT SLOPES	WYMORE	No	hillslope	---	---	---	---
2797: MORRILL GRAVELLY LOAM, 4 TO 20 PERCENT SLOPES, STONY	MORRILL	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
AED: ARENTS, EARTHEN DAM	ARENTS, EARTHEN DAM	Unranked	---	---	---	---	---
An: KENNEBEC SILT LOAM, CHANNELED	KENNEBEC	No	flood plain	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
Bk: MARTIN-KENNEBEC COMPLEX, 0 TO 12 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
BOA: BORROW AREAS	BORROW AREAS	Unranked	---	---	---	---	---
Br: FLUVENTS, CHANNELED, FREQUENTLY FLOODED	FLUVENTS	Unranked	flood plain	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
Dm: DWIGHT-MARTIN SILTY CLAY LOAMS, 1 TO 3 PERCENT SLOPES	DWIGHT	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
Ds: DWIGHT SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	DWIGHT	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
Dw: DWIGHT SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	DWIGHT	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
El: ELMONT SILT LOAM, 3 TO 7 PERCENT SLOPES	ELMONT	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SIBLEYVILLE	Unranked	hillslope	---	---	---	---
Em: ELMONT SILT LOAM, 3 TO 7 PERCENT SLOPES, ERODED	ELMONT	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SIBLEYVILLE	Unranked	hillslope	---	---	---	---
En: ELMONT SILT LOAM, 7 TO 12 PERCENT SLOPES	ELMONT	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SIBLEYVILLE	No	hillslope	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Eo: ELMONT SILT LOAM, 7 TO 12 PERCENT SLOPES, ERODED	ELMONT	No	hillslope	---	---	---	---
	MARTIN SIBLEYVILLE	No No	hillslope hillslope	---	---	---	---
Ep: ELMONT-DWIGHT SILTY CLAY LOAMS, 3 TO 7 PERCENT SLOPES, ERODED	ELMONT	No	hillslope	---	---	---	---
	DWIGHT	No	hillslope	---	---	---	---
Es: EUDORA FINE SANDY LOAM, 1 TO 3 PERCENT SLOPES	EUDORA	No	fan terrace	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
Et: EUDORA SILT LOAM, RARELY FLOODED	EUDORA	No	flood plain	---	---	---	---
	KIMO	No	flood plain	---	---	---	---
	SARPY	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOIL	Yes	depression, flood plain	2B3	YES	NO	NO
Eu: EUDORA SOILS, 6 TO 12 PERCENT SLOPES, ERODED	EUDORA	No	flood plain	---	---	---	---
	KIMO	No	flood plain	---	---	---	---
	MUIR READING	No No	terrace terrace	---	---	---	---
Ev: EUDORA-KIMO COMPLEX, RARELY FLOODED	EUDORA	No	flood plain	---	---	---	---
	KIMO	No	flood plain	---	---	---	---
	SARPY WABASH	No Yes	flood plain flood plain	---	---	---	---
Ew: EUDORA-KIMO COMPLEX, OVERWASH, RARELY FLOODED	EUDORA	No	flood plain	2B3	YES	NO	NO
	EUDORA	No	flood plain	---	---	---	---
	KIMO SARPY	No No	flood plain flood plain	---	---	---	---
Gm: GYMER SILT LOAM, 3 TO 8 PERCENT SLOPES	GYMER	No	terrace	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	SHARPSBURG	No	hillslope	---	---	---	---
	THURMAN	No	hillslope	---	---	---	---
Gy: GYMER SILT LOAM, 3 TO 8 PERCENT SLOPES, ERODED	GYMER	No	hillslope	---	---	---	---
INL: AQUOLLS	AQUOLLS	Yes	flood plain	3, 2B3	YES	NO	YES
Kb: KENNEBEC SILT LOAM, OCCASIONALLY FLOODED	KENNEBEC	No	flood plain	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
	UNNAMED HYDRIC SOIL	Yes	flood plain, marsh	2B3	YES	NO	NO
Kc: CHASE SILT LOAM, OCCASIONALLY FLOODED	CHASE	No	terrace	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
	READING	No	terrace	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
KF: KENNEBEC SILT LOAM, 0 TO 2 PERCENT SLOPES, CHANNELED, FREQUENTLY FLOODED	KENNEBEC	No	flood plain	---	---	---	---
Km: KIMO SILTY CLAY LOAM, RARELY FLOODED	COLO	Yes	flood plain	3, 2B3	YES	NO	YES
	KIMO	No	flood plain	---	---	---	---
	EUDORA WABASH	No Yes	flood plain flood plain	---	---	---	---
Ko: KIMO SOILS, DEPRESSIONAL, OCCASIONALLY FLOODED	KIMO	No	flood plain	2B3	YES	NO	NO
	WABASH	Yes	flood plain	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Ks: KIPSON-SOGN COMPLEX, 3 TO 25 PERCENT SLOPES	KIPSON	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
Ku: KONAWA FINE SANDY LOAM, 4 TO 8 PERCENT SLOPES	KONAWA	No	hillslope	---	---	---	---
	GYMER	---	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
Kw: KONAWA FINE SANDY LOAM, 8 TO 12 PERCENT SLOPES	KONAWA	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	SHELBY	No	hillslope	---	---	---	---
La: LABETTE SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	DWIGHT	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
Lb: LABETTE SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
Lc: LABETTE SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES, ERODED	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
Ld: LADYSMITH SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	LADYSMITH	No	paleoterrace	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
LIQ: LIMESTONE QUARRIES AND GRAVEL PITS	LIMESTONE QUARRY	Unranked	---	---	---	---	---
Lm: LADYSMITH SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	LADYSMITH	No	paleoterrace	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
Ls: LADYSMITH SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES, ERODED	LADYSMITH	No	paleoterrace	---	---	---	---
Ma: MADE LAND	MADE LAND	Unranked	---	---	---	---	---
Mb: MARTIN SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	LADYSMITH	No	paleoterrace	---	---	---	---
Mc: MARTIN SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	GYMER	No	hillslope	---	---	---	---
	OSKA	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
	SIBLEYVILLE	No	hillslope	---	---	---	---
Me: MARTIN SILTY CLAY LOAM, 3 TO 7 PERCENT SLOPES, ERODED	MARTIN	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---

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				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Mf: MARTIN SILTY CLAY LOAM, 7 TO 11 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
Mh: MARTIN SILTY CLAY LOAM, 7 TO 11 PERCENT SLOPES, ERODED	ELMONT	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
Mk: MARTIN SOILS, 3 TO 7 PERCENT SLOPES, SEVERELY ERODED	MARTIN	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	MARTIN VINLAND	No No	hillslope hillslope	---	---	---	---
Mm: MORRILL CLAY LOAM, 3 TO 8 PERCENT SLOPES	MARTIN	No	hillslope	---	---	---	---
	MARTIN VINLAND	No No	hillslope hillslope	---	---	---	---
Mn: MORRILL CLAY LOAM, 3 TO 8 PERCENT SLOPES, ERODED	MORRILL	No	hillslope	---	---	---	---
	GYMER	No	hillslope	---	---	---	---
	PAWNEE SHELBY	No No	hillslope hillslope	---	---	---	---
Mo: MORRILL CLAY LOAM, 8 TO 12 PERCENT SLOPES	MORRILL	No	hillslope	---	---	---	---
	MARTIN PAWNEE SHELBY	No No No	hillslope hillslope ---	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
MOO: MORRILL LOAM, 3 TO 7 PERCENT SLOPES	MARTIN PAWNEE SHELBY	No No No	hillslope hillslope hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
Mp: MORRILL-GRAVELLY LAND COMPLEX, 4 TO 12 PERCENT SLOPES	ORTELO PAWNEE	No No	hillslope hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	GRAVELLY LAND LIMESTONE OUTCROPS	No ---	hillslope hillslope	---	---	---	---
Mr: MUIR SILT LOAM, RARELY FLOODED	PAWNEE SHELBY	No No	hillslope hillslope	---	---	---	---
	MUIR	No	terrace	---	---	---	---
MRR: MORRILL CLAY LOAM, 3 TO 7 PERCENT SLOPES	EUDORA READING WABASH	No No Yes	flood plain terrace flood plain	---	---	---	---
	MORRILL	No	hillslope	2B3	YES	NO	NO
	OSKA PAWNEE	No No	hillslope hillslope	---	---	---	---
Pa: PAWNEE CLAY LOAM, 0 TO 3 PERCENT SLOPES	PAWNEE	No	hillslope	---	---	---	---
Pc: PAWNEE CLAY LOAM, 3 TO 7 PERCENT SLOPES	PAWNEE	No	hillslope	---	---	---	---
Pe: PAWNEE CLAY LOAM, 3 TO 7 PERCENT SLOPES, ERODED	MARTIN MORRILL OSKA	No No No	hillslope hillslope hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
	MARTIN MORRILL	No No	hillslope hillslope	---	---	---	---
Pn: PAWNEE CLAY LOAM, 7 TO 11 PERCENT SLOPES	PAWNEE	No	hillslope	---	---	---	---
	MARTIN MORRILL SHELBY	No No No	hillslope hillslope hillslope	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
RD: READING SILT LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED	READING	No	terrace	---	---	---	---
Re: READING SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED	CHASE WABASH	No Yes	terrace terrace	---	---	---	---
	READING	No	stream terrace	2B3	YES	NO	NO
	KENNEBEC MUIR WABASH	No No Yes	flood plain terrace flood plain	---	---	---	---
Rv: RIVERWASH	RIVER WASH	Unranked	---	2B3	YES	NO	NO
Sa: SARPY SAND, FREQUENTLY FLOODED	SARPY	Yes	flood plain	---	---	---	---
SAP: SAND PIT	SAND PIT	Unranked	---	4	NO	YES	NO
Se: SARPY-EUDORA COMPLEX, OVERWASH, OCCASIONALLY FLOODED	SARPY	No	flood plain	---	---	---	---
Sg: SHARPSBURG SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	EUDORA	No	flood plain	---	---	---	---
	SHARPSBURG	No	hillslope	---	---	---	---
	GYMER LADYSMITH PAWNEE SHELBY	No No No No	hillslope paleoterrace hillslope hillslope	---	---	---	---
	SHARPSBURG	No	hillslope	---	---	---	---
Sh: SHARPSBURG SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES	MARTIN PAWNEE SHELBY	No No No	hillslope hillslope hillslope	---	---	---	---
Sk: SHELBY CLAY LOAM, 1 TO 3 PERCENT SLOPES	SHELBY	No	hillslope	---	---	---	---
Sm: SHELBY CLAY LOAM, 3 TO 8 PERCENT SLOPES	PAWNEE	No	hillslope	---	---	---	---
	SHELBY	No	hillslope	---	---	---	---
	ELMONT MARTIN MORRILL PAWNEE	No No No No	hillslope hillslope hillslope hillslope	---	---	---	---
	SHELBY	No	hillslope	---	---	---	---
Sn: SHELBY CLAY LOAM, 3 TO 8 PERCENT SLOPES, ERODED	SHELBY	No	hillslope	---	---	---	---
So: SHELBY CLAY LOAM, 8 TO 12 PERCENT SLOPES	SHELBY	No	hillslope	---	---	---	---
Sp: MORRILL FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	ELMONT MARTIN MORRILL	No No No	hillslope hillslope hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	GYMER MORRILL SHELBY	No No No	hillslope hillslope hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
Sr: MORRILL FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES, ERODED	MORRILL	No	hillslope	---	---	---	---
Ss: MORRILL FINE SANDY LOAM, 8 TO 12 PERCENT SLOPES	GYMER MORRILL SHELBY	No No No	hillslope hillslope hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	GYMER MORRILL SHELBY	No No No	hillslope hillslope hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
St: SIBLEYVILLE LOAM, 3 TO 7 PERCENT SLOPES	SIBLEYVILLE	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
Su: SIBLEYVILLE LOAM, 7 TO 11 PERCENT SLOPES	SIBLEYVILLE	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
Sv: SOGN-VINLAND COMPLEX, 3 TO 25 PERCENT SLOPES	SOGN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
	ELMONT	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	ROCK OUTCROP	---	hillslope	---	---	---	---
	STONY STEEP LAND	Unranked	hillslope	---	---	---	---
Sw: VINLAND-ROCK OUTCROP COMPLEX, 15 TO 45 PERCENT SLOPES	VINLAND	No	hillslope	---	---	---	---
	SOGN	No	hillslope	---	---	---	---
	LABETTE	No	hillslope	---	---	---	---
	MARTIN	No	hillslope	---	---	---	---
	VINLAND	No	hillslope	---	---	---	---
Vn: VINLAND SILTY CLAY LOAM, 4 TO 10 PERCENT SLOPES	VINLAND	No	hillslope	---	---	---	---
W: WATER	WATER	Yes	---	3,4	NO	YES	YES
Wa: WABASH SILTY CLAY, OCCASIONALLY FLOODED	WABASH	Yes	terrace	2B3	YES	NO	NO
	READING	No	terrace	---	---	---	---
	WABASH	Yes	flood plain	3	NO	NO	YES
Wb: WABASH SILTY CLAY LOAM, OCCASIONALLY FLOODED	WABASH	Yes	terrace	3	NO	NO	YES
	KENNEBEC	No	flood plain	---	---	---	---
	LEANNA	Unranked	flood plain	---	---	---	---
	READING	No	terrace	---	---	---	---
	WABASH	Yes	flood plain	2B3	YES	NO	NO
We: WELDA SILT LOAM, 4 TO 10 PERCENT SLOPES	WELDA	No	hillslope	---	---	---	---
	GYMER	No	hillslope	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
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All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II.

Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
 - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
 - b. poorly drained or very poorly drained and have either:
 - (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils
 - (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
 - (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.