

Table of Contents Section II – County Soil and Site Information Reports
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	Issue Date	Date of Last Review	Responsible Staff
<i>Use and Explanation of Soil Interpretations</i>			
<i>Explanation of Key Phrases Used in Soil Interpretations</i>			
Soils Legends	4/02	4/02	SOI
<i>*Acreage and Proportionate Extent of the Soils</i>			
Soil Descriptions - Nontechnical	4/02	4/02	SOI
<i>Use and Explanation of Nontechnical Descriptions</i>			
<i>*Nontechnical Soils Description Report</i>			
Soil Descriptions - Technical	4/02	4/02	SOI
<i>*Map Unit Description Report</i>			
Cropland Interpretations - Technical	4/02	4/02	SOI
<i>*Land Capability and Yields Per Acre of Crops</i>			
<i>*Prime Farmland Report</i>			
<i>*Soil Rating for Plant Growth Index</i>			
<i>*Soil Properties for Conservation Planning</i>			
Rangeland, Grazed Forestland, Native Pastureland Interpretations	4/02	4/02	SOI
<i>*Rangeland Productivity Report</i>			
<i>*Range Site Descriptions</i>			
Forestland Interpretations	1/93	1/93	SOI
<i>Use and Explanation of Forestland Interpretations</i>			
<i>*Woodland Management and Productivity</i>			
Nonagricultural Interpretations	4/02	4/02	SOI
<i>*Building Site Development Report</i>			
<i>*Construction Materials Report</i>			
Recreation Interpretations	4/02	4/02	SOI
<i>*Recreational Interpretations</i>			
Wildlife Interpretations	4/02	4/02	SOI
<i>*Wildlife Interpretations Report</i>			

	Issue Date	Date of Last Review	Responsible Staff
Pastureland and Hayland Interpretations <i>*Yields Per Acre of Pasture and Hayland</i>	4/02	4/02	SOI
Mined Land Interpretations <i>Use and Explanation of Mined Land Interpretations</i>	1/93	1/93	SOI
Windbreak Interpretations <i>*Conservation Tree and Shrub Management Report</i>	4/02	4/02	SOI
Engineering Interpretations <i>*Engineering Index Properties</i> <i>*Physical Properties of the Soils</i> <i>*Chemical Properties of the Soils</i> <i>*Water Features</i> <i>*Soil Features</i> <i>*Water Management Report</i>	4/02	4/02	SOI
Waste Disposal Interpretations <i>*Sanitary Facilities Report</i> <i>*Agricultural Waste Management Report</i>	4/02	4/02	SOI
Hydric Soil Interpretations <i>Use and Explanation of Hydric Soil Interpretations</i> <i>*Hydric Soils List</i>	4/02	4/02	SOI
HEL Interpretations <i>Use and Explanation of Highly Erodible Land Interpretations</i> <i>*Highly Erodible Lands Report</i> 1 <i>Highly Erodible Land</i> 2 <i>Potentially Highly Erodible Land</i> 3 <i>Nonhighly Erodible Land</i>	See Report		SOI

**County specific computer generated reports.*

ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Gage County, Nebraska: Update

Map symbol	Soil name	Acres	Percent
1849	Burchard Clay Loam, 2 To 6 Percent Slopes-----	548	*
1873	Burchard-Steinauer Clay Loams, 6 To 12 Percent Slopes, Eroded-----	8,790	1.6
1879	Burchard-Steinauer Clay Loams, 12 To 18 Percent Slopes, Eroded-----	4,058	0.7
1930	Butler Silt Loam, 0 To 1 Percent Slopes-----	1,677	0.3
2076	Chase Silty Clay Loam, 0 To 1 Percent Slopes, Rarely Flooded-----	1,793	0.3
2201	Cortland-Malmo Complex, 6 To 12 Percent Slopes-----	12,716	2.3
2418	Deroin Silty Clay Loam, 2 To 5 Percent Slopes-----	900	0.2
2420	Deroin Silty Clay Loam, 5 To 11 Percent Slopes-----	4,542	0.8
2695	Edalgo Silty Clay Loam, 8 To 20 Percent Slopes-----	482	*
2832	Filley Fine Sandy Loam, 6 To 12 Percent Slopes-----	162	*
2833	Filley Fine Sandy Loam, 12 To 18 Percent Slopes-----	93	*
2863	Fluvaquents, Silty, Frequently Flooded-----	148	*
3422	Hedville Cobbly Loam, 6 To 30 Percent Slopes-----	807	0.1
4106	Judson Silt Loam, 2 To 5 Percent Slopes-----	17,821	3.2
4210	Kennebec Silt Loam, 0 To 1 Percent Slopes, Rarely Flooded, Cool-----	8,158	1.5
4232	Kennebec Silt Loam, 0 To 1 Percent Slopes, Occasionally Flooded, Cool-----	9,592	1.7
4281	Kezan Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded-----	1,114	0.2
4287	Kezan Silt Loam, 0 To 2 Percent Slopes, Occasionally Flooded-----	1,037	0.2
4298	Kipson-Sogn Complex, 3 To 30 Percent Slopes-----	2,774	0.5
4300	Kipson-Sogn-Rock Outcrop Complex, 12 To 60 Percent Slopes-----	1,613	0.3
4428	Lancaster Loam, 2 To 6 Percent Slopes-----	245	*
4429	Lancaster Loam, 6 To 12 Percent Slopes-----	324	*
4858	Malmo Clay Loam, 2 To 6 Percent Slopes-----	6,083	1.1
4864	Malmo-Pawnee Complex, 6 To 12 Percent Slopes-----	100,204	18.2
5397	Morrill Loam, 12 To 18 Percent Slopes-----	1,749	0.3
5480	Muscotah Silty Clay Loam, 0 To 1 Percent Slopes, Occasionally Flooded-----	3,300	0.6
5540	Nodaway Silt Loam, 0 To 2 Percent Slopes, Occasionally Flooded-----	25,754	4.7
5541	Nodaway Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded-----	25,773	4.7
5970	Otoe Silty Clay Loam, 5 To 9 Percent Slopes-----	87,159	15.8
6005	Padonia Silty Clay Loam, 6 To 12 Percent Slopes-----	412	*
7069	Steinauer Clay Loam, 12 To 30 Percent Slopes-----	4,909	0.9
7078	Steinauer Clay Loam, 30 To 60 Percent Slopes-----	873	0.2
8061	Wymore Silty Clay Loam, 0 To 2 Percent Slopes-----	70,233	12.8
8063	Wymore Silty Clay Loam, 2 To 5 Percent Slopes-----	135,705	24.7
8080	Wymore Silty Clay Loam, Terrace, 0 To 2 Percent Slopes-----	2,205	0.4
9900	Arents, Earthen Dam-----	535	*
9980	Pits, Quarry-----	99	*
9985	Pits, Sand And Gravel-----	350	*
9995	Waste Water, Sewage Lagoon-----	98	*
9998	Water-----	5,353	1.0
	Total-----	550,188	100.0

* Less than 0.1 percent.

NONTECHNICAL SOIL DESCRIPTIONS
Gage County, Nebraska

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.

1849 Burchard Clay Loam, 2 To 6 Percent Slopes

Burchard 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 gently sloping to moderately sloping summit, shoulder hillslope on upland. The runoff class is medium. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 3e.

1873 Burchard-Steinauer Clay Loams, 6 To 12 Percent Slopes, Eroded

Burchard 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 strongly sloping backslope hillslope on upland. The runoff class is high. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Silty - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 4e.

Steinauer 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 moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is high. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 4e.

1879 Burchard-Steinauer Clay Loams, 12 To 18 Percent Slopes, Eroded

Burchard 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 moderately steep backslope hillslope on upland. The runoff class is high. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Silty - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6e.

Steinauer 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 steep backslope hillslope on upland. The runoff class is high. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6e.

1930 Butler Silt Loam, 0 To 1 Percent Slopes

Butler soil makes up 92 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 swale on broad interstream divide on upland. The runoff class is very low. The parent material consists of loess. This soil is somewhat poorly drained. The slowest permeability is very slow. It has a high available water capacity and a very 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 Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

2076 Chase Silty Clay Loam, 0 To 1 Percent Slopes, Rarely Flooded

Chase, RARELY FLOODED, 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 flood plain on river valley. The runoff class is low. The parent material consists of silty and clayey alluvium. This soil is somewhat poorly drained. The slowest permeability is slow. It has a high available water capacity and a high shrink swell potential. This soil is rarely flooded and is not ponded. The top of the seasonal high water table is at 36 inches. The soil contains a maximum amount of 1 percent calcium carbonate. This soil is in the Clayey Overflow - Veg. Zone 4 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Gage County, Nebraska

2201 Cortland-Malmo Complex, 6 To 12 Percent Slopes

Cortland, SEVERELY ERODED, 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 backslope hillslope on upland. The runoff class is medium. The parent material consists of outwash and/or loamy till. This soil is well drained. The slowest permeability is moderately slow. 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 Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

Malmo, SEVERELY ERODED, 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 strongly sloping backslope hillslope on upland. The runoff class is very high. The parent material consists of weathered till. 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 top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 4e.

2418 Deroiin Silty Clay Loam, 2 To 5 Percent Slopes

Deroiin, SEVERELY 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 gently sloping to moderately sloping shoulder, summit hillslope on upland. The runoff class is low. The parent material consists of 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. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

2420 Deroiin Silty Clay Loam, 5 To 11 Percent Slopes

Deroiin, SEVERELY 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 to strongly sloping backslope hillslope on upland. The runoff class is medium. The parent material consists of 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. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

2695 Edalگو Silty Clay Loam, 8 To 20 Percent Slopes

Edalگو 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 strongly sloping to moderately steep backslope hillslope on upland. The runoff class is high. The parent material consists of residuum weathered from clayey shale. The soil is 20 to 40 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is very 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 Clayey - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6e.

2832 Filley Fine Sandy Loam, 6 To 12 Percent Slopes

Filley 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 backslope hillslope on upland. The runoff class is low. The parent material consists of coarse-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately rapid. 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 Sandy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 4e.

2833 Filley Fine Sandy Loam, 12 To 18 Percent Slopes

Filley 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 steep backslope hillslope on upland. The runoff class is low. The parent material consists of coarse-loamy glaciofluvial deposits. This soil is well drained. The slowest permeability is moderately rapid. 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 Sandy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6e.

2863 Fluvaquents, Silty, Frequently Flooded

Fluvaquents 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 depression on flood plain on river valley. The runoff class is negligible. The parent material consists of silty alluvium. This soil is very poorly drained. The slowest permeability is slow. It has a high available water capacity and a moderate shrink swell potential. This soil is frequently flooded and is frequently ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 5 percent calcium carbonate. It is in the nonirrigated land capability classification 8w.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Gage County, Nebraska

3422 Hedville Cobbly Loam, 6 To 30 Percent Slopes

Hedville 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 moderately sloping to steep shoulder, backslope hillslope on upland. The runoff class is high. The parent material consists of residuum weathered from sandstone. 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 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 Shallow Sandy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6s.

4106 Judson Silt Loam, 2 To 5 Percent Slopes

Judson 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 to moderately sloping footslope hillslope on upland. The runoff class is low. The parent material consists of fine-silty colluvium. 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 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 Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 2e.

4210 Kennebec Silt Loam, 0 To 1 Percent Slopes, Rarely Flooded, Cool

Kennebec, RARELY FLOODED, 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 flood plain on river valley. The runoff class is negligible. 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 rarely flooded and is not ponded. The top of the seasonal high water table is at 48 inches. This soil is in the Silty Overflow - Veg. Zone 4 range site. This soil is in the irrigated land capability class 1. It is in the nonirrigated land capability classification 1.

4232 Kennebec Silt Loam, 0 To 1 Percent Slopes, Occasionally Flooded, Cool

Kennebec, OCCASIONALLY FLOODED, 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 negligible. 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 occasionally flooded and is not ponded. The top of the seasonal high water table is at 48 inches. This soil is in the Silty Overflow - Veg. Zone 4 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

4281 Kezan Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded

Kezan, CHANNELED, 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 drainage way on upland. The runoff class is negligible. The parent material consists of silty alluvium. This soil is poorly drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is frequently flooded and is not ponded. The top of the seasonal high water table is at 6 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Wet Subirrigated - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6w.

4287 Kezan Silt Loam, 0 To 2 Percent Slopes, Occasionally Flooded

Kezan, OCCASIONALLY FLOODED, 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 drainage way on upland. The runoff class is negligible. The parent material consists of silty alluvium. This soil is poorly 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 top of the seasonal high water table is at 6 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Wet Subirrigated - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 5w.

4298 Kipson-Sogn Complex, 3 To 30 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 backslope hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from calcareous 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 Shallow Limy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6s.

Sogn 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 moderately sloping to moderately steep shoulder hillslope on upland. The runoff class is high. The parent material consists of 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. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Shallow Limy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6s.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Gage County, Nebraska

4300 Kipson-Sogn-Rock Outcrop Complex, 12 To 60 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 steep to very steep backslope hillslope on upland. The runoff class is high. The parent material consists of silty and clayey residuum weathered from calcareous 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 Shallow Limy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 7s.

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 moderately steep to steep backslope hillslope on upland. The runoff class is high. The parent material consists of 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. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Shallow Limy - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 7s.

4428 Lancaster Loam, 2 To 6 Percent Slopes

Lancaster 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 to moderately sloping backslope, shoulder hillslope on upland. The runoff class is low. The parent material consists of sandy 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 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 Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

4429 Lancaster Loam, 6 To 12 Percent Slopes

Lancaster 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 moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is high. The parent material consists of sandy 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 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 Silty - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

4858 Malmo Clay Loam, 2 To 6 Percent Slopes

Malmo, SEVERELY 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 gently sloping to moderately sloping shoulder, summit hillslope on upland. The runoff class is very high. The parent material consists of weathered till. 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 top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 3e.

4864 Malmo-Pawnee Complex, 6 To 12 Percent Slopes

Malmo, SEVERELY ERODED, 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 moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is very high. The parent material consists of weathered till. 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 top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 4e.

Pawnee 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 moderately sloping to strongly sloping backslope hillslope on upland. The runoff class is high. The parent material consists of clayey till. 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 top of the seasonal high water table is at 24 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

5397 Morrill Loam, 12 To 18 Percent Slopes

Morrill 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 moderately steep backslope hillslope on upland. The runoff class is high. The parent material consists of loamy till or outwash. 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 Silty - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6e.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Gage County, Nebraska

5480 Muscotah Silty Clay Loam, 0 To 1 Percent Slopes, Occasionally Flooded

Muscotah, OCCASIONALLY FLOODED, 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 clayey alluvium. 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 occasionally flooded and is not ponded. The top of the seasonal high water table is at 27 inches. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Clayey Overflow Veg. Zone 4 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

5540 Nodaway Silt Loam, 0 To 2 Percent Slopes, Occasionally Flooded

Nodaway, OCCASIONALLY FLOODED, 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 negligible. 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 occasionally flooded and is not ponded. The top of the seasonal high water table is at 48 inches. This soil is in the Silty Overflow - Veg. Zone 4 range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

5541 Nodaway Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded

Nodaway, CHANNELLED, 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 drainage way on flood plain on river valley. The runoff class is negligible. 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 48 inches. This soil is in the Silty Overflow - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6w.

5970 Otoe Silty Clay Loam, 5 To 9 Percent Slopes

Otoe, SEVERELY 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 backslope hillslope on upland. The runoff class is very high. The parent material consists of loess over till. This soil is moderately well 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 24 inches. This soil is in the Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

6005 Padonia Silty Clay Loam, 6 To 12 Percent Slopes

Padonia 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 backslope hillslope on upland. The runoff class is high. The parent material consists of loess over clayey residuum weathered from calcareous 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. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 4e.

7069 Steinauer Clay Loam, 12 To 30 Percent Slopes

Steinauer 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 steep to steep backslope hillslope on upland. The runoff class is very high. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 6e.

7078 Steinauer Clay Loam, 30 To 60 Percent Slopes

Steinauer 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 steep to very steep backslope hillslope on upland. The runoff class is very high. The parent material consists of calcareous 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 15 percent calcium carbonate. This soil is in the Limy Upland - Veg. Zone 4 range site. It is in the nonirrigated land capability classification 7e.

8061 Wymore Silty Clay Loam, 0 To 2 Percent Slopes

Wymore 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 broad interstream divide on upland. The runoff class is low. The parent material consists of loess. This soil is moderately well 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 24 inches. The soil contains a maximum amount of 2 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 2s. It is in the nonirrigated land capability classification 2s.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Gage County, Nebraska

8063 Wymore Silty Clay Loam, 2 To 5 Percent Slopes

Wymore 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 to moderately sloping summit, shoulder hillslope on upland. The runoff class is medium. The parent material consists of loess. This soil is moderately well 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 24 inches. The soil contains a maximum amount of 2 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

8080 Wymore Silty Clay Loam, Terrace, 0 To 2 Percent Slopes

Wymore 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 stream terrace on river valley. The runoff class is low. The parent material consists of loess. This soil is moderately well 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 24 inches. The soil contains a maximum amount of 2 percent calcium carbonate. This soil is in the Clayey - Veg. Zone 4 range site. This soil is in the irrigated land capability class 2s. It is in the nonirrigated land capability classification 2s.

1849—Burchard clay loam, 2 to 6 percent slopes

Mapunit Information: Areas of this map unit are usually small and occur on higher positions on the landform.

Map Unit Composition

Burchard: 85 percent
Minor components: 15 percent

Component Descriptions

Burchard

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Summit, shoulder

Parent material: Calcareous till

Slope: 2 to 6 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: Medium

Ecological site: Silty - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 3e

Typical Profile:

A—0 to 13 inches; clay loam

Bt—13 to 19 inches; clay loam

Btk—19 to 29 inches; clay loam

Bk—29 to 37 inches; clay loam

C—37 to 60 inches; clay loam

Component note: Similar inclusions are soils that have a thinner surface layer; soils that have carbonates above 12 inches; and soils that have 6 to 18 inches of loess on the surface.

Minor Components

Wymore

Composition: About 10 percent

Landform: hillslope on upland

Slope: 2 to 5 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

Malmo

Phase: Severely Eroded

Composition: About 5 percent

Landform: hillslope on upland

Slope: 2 to 6 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Corn, soybeans and grain sorghum are the main crops. Water erosion is a hazard that can be controlled by contour farming, terraces and conservation tillage.

1873—Burchard-Steinauer clay loams, 6 to 12 percent slopes, Eroded

Mapunit Information: In areas of native vegetation, the Burchard soils are predominant.

Map Unit Composition

Burchard: 50 percent
Steinauer: 35 percent
Minor components: 15 percent

Component Descriptions

Burchard

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Calcareous till

Slope: 6 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: Silty - Veg. Zone 4

Land capability (nonirrigated): 4e

Typical Profile:

A—0 to 13 inches; clay loam

Bt—13 to 19 inches; clay loam

Btk—19 to 29 inches; clay loam

Bk—29 to 37 inches; clay loam

C—37 to 60 inches; clay loam

Component note: Similar inclusions are soils that have carbonates above 12 or below 30

inches in the soil profile; and soils that have more clay in the particle size control section.

Steinauer

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Calcareous loamy till

Slope: 6 to 12 percent

Drainage class: Well drained

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

Available water capacity: High (About 10.8 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: Limy Upland - Veg. Zone 4

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; clay loam

AC—6 to 15 inches; clay loam

C1—15 to 41 inches; clay loam

C2—41 to 60 inches; clay loam

Component note: Similar inclusions are soils that have carbonates lower in the profile; and soils that have more clay in the particle size control section.

Minor Components

Morrill

Composition: About 8 percent

Landform: hillslope on upland

Slope: 6 to 12 percent

Drainage class: Well drained

Ecological site: Silty - Veg. Zone 4

Malmo

Phase: Severely Eroded

Composition: About 7 percent

Landform: hillslope on upland

Slope: 6 to 12 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: More than half of the acreage of these soils is used for cultivated crops or has been reseeded back to native grasses. The remaining acreage is used for pasture or rangeland. Water erosion is a severe hazard that can be controlled by contour farming, terraces and conservation tillage.

1879—Burchard-Steinauer clay loams, 12 to 18 percent slopes, Eroded

Mapunit Information: In areas of native vegetation, the Burchard soils are predominant.

Map Unit Composition

Burchard: 45 percent

Steinauer: 40 percent

Minor components: 15 percent

Component Descriptions

Burchard

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Calcareous till

Slope: 12 to 18 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: Silty - Veg. Zone 4

Land capability (nonirrigated): 6e

Typical Profile:

A—0 to 13 inches; clay loam

Bt—13 to 19 inches; clay loam

Btk—19 to 29 inches; clay loam

Bk—29 to 37 inches; clay loam

C—37 to 60 inches; clay loam

Component note: Similar inclusions are soils that have carbonates above 12 or below 30 inches in the soil profile; and soils that have more clay in the particle size control section.

Steinauer

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Calcareous loamy till

Slope: 12 to 18 percent

Drainage class: Well drained

Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.8 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: Limy Upland - Veg. Zone 4
Land capability (nonirrigated): 6e

Typical Profile:

Ap—0 to 6 inches; clay loam
 AC—6 to 15 inches; clay loam
 C1—15 to 41 inches; clay loam
 C2—41 to 60 inches; clay loam

Component note: Similar inclusions are soils that have carbonates lower in the profile; and soils that have more clay in the particle size control section.

Minor Components

Morrill

Composition: About 9 percent
Landform: hillslope on upland
Slope: 12 to 18 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Malmo

Phase: Severely Eroded
Composition: About 6 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of these soils have been reseeded back to native grasses, or are used for pasture or rangeland. Water erosion is a severe hazard that can be controlled by contour farming, terraces and conservation tillage.

1930—Butler silt loam, 0 to 1 percent slopes

Mapunit Information: In most years these soils are saturated from about 6 inches to a depth of about 24 inches below the surface by a seasonal water table during part of the growing season.

Map Unit Composition

Butler: 92 percent
 Minor components: 8 percent

Component Descriptions

Butler

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Swale on broad interstream divide on upland

Parent material: Loess

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained
Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: High (About 10.1 inches)

Shrink-swell potential: Very high (About 10.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 6 to 18 inches

Runoff class: Very low

Ecological site: Clayey - Veg. Zone 4

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 6 inches; silt loam
 A—6 to 10 inches; silt loam
 E—10 to 12 inches; silt loam
 Bt1—12 to 25 inches; silty clay
 Bt2—25 to 34 inches; silty clay
 BC—34 to 43 inches; silty clay loam
 C—43 to 60 inches; silty clay loam

Component note: Similar inclusions are soils that have more clay in the surface layer.

Minor Components

Fillmore

Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Ecological site: Clayey Overflow - Veg. Zone 4

Wymore

Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Major crops are corn, soybeans, and grain sorghum. Wetness is a problem in most years.

2076—Chase silty clay loam, 0 to 1 percent slopes, Rarely Flooded

Mapunit Information: This map unit occurs on slightly higher positions on the flood plain.

Map Unit Composition

Chase: 85 percent
Minor components: 15 percent

Component Descriptions

Chase

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Flood plain on river valley

Parent material: Silty and clayey alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly 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: Rare

Depth to seasonal water saturation: About 24 to 48 inches

Runoff class: Low

Ecological site: Clayey Overflow - Veg. Zone 4

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 9 inches; silty clay loam
BA—9 to 19 inches; silty clay loam
Bt1—19 to 30 inches; silty clay
Bt2—30 to 41 inches; silty clay
BC—41 to 47 inches; silty clay loam
C—47 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have a silt loam surface layer and soils that do not have an argillic horizon.

Minor Components**Kennebec**

Phase: Rarely Flooded

Composition: About 12 percent

Slope: 0 to 1 percent

Drainage class: Moderately well drained

Ecological site: Silty Overflow - Veg. Zone 4

Muscotah

Composition: About 3 percent

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Ecological site: Loamy Lowland (pe30-37)

General Considerations: Most of the acreage of this soil is used for cultivated crops. Major

crops are corn, soybeans, and grain sorghum. Wetness is a problem in the spring in some years.

2201—Cortland-Malmo complex, 6 to 12 percent slopes

Mapunit Information: Pebbles, cobblestones, and sand outcrops are common on the surface in most areas.

Map Unit Composition

Cortland: 55 percent
Malmo: 25 percent
Minor components: 20 percent

Component Descriptions

Cortland

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Outwash and/or loamy till

Slope: 6 to 12 percent

Surface fragments: About 0 to 2 percent coarse rounded gravel

Drainage class: Well drained

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

Available water capacity: Moderate (About 8.0 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: Silty - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; loam
Bt1—6 to 15 inches; clay loam
Bt2—15 to 28 inches; clay loam
BC—28 to 36 inches; sandy loam
2C1—36 to 40 inches; loamy sand
2C2—40 to 50 inches; loamy sand
2C3—50 to 80 inches; loamy sand

Component note: Similar inclusions are soils that have a dark colored surface layer more than 10 inches thick; and soils that have more sand and less clay in the particle size control section. These soils were previously mapped as Morrill, severely eroded.

Malmo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Weathered till

Slope: 6 to 12 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: Moderate (About 8.1 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 12 to 36 inches

Runoff class: Very high

Ecological site: Clayey - Veg. Zone 4

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; clay loam

Bt1—6 to 15 inches; clay

Bt2—15 to 25 inches; clay

Bt3—25 to 39 inches; clay

Bt4—39 to 43 inches; gravelly clay

BC—43 to 54 inches; clay loam

C—54 to 80 inches; loam

Component note: Similar inclusions are soils that have carbonates at shallower depths; soils that have 6 to 18 inches of loess on the surface; soils that have a dark colored surface layer more than 10 inches thick.

These soils were previously mapped as Mayberry, severely eroded.

Minor Components**Otoe**

Phase: Severely Eroded

Composition: About 20 percent

Landform: hillslope on upland

Slope: 5 to 11 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: About half of the acreage of these soils is used for cultivated crops or has been reseeded back to native grasses. The remaining acreage is used for pasture or rangeland. Water erosion is a severe hazard that can be controlled by contour farming, terraces and conservation tillage.

2418—Deroin silty clay loam, 2 to 5 percent slopes

Mapunit Information: These soils formed in Loveland age loess.

Map Unit Composition

Deroin: 85 percent

Minor components: 15 percent

Component Descriptions**Deroin**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Shoulder, summit

Parent material: Loess

Slope: 2 to 5 percent

Drainage class: Well drained

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

Available water capacity: High (About 11.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Silty - Veg. Zone 4

Land capability (irrigated): 3e

Land capability (nonirrigated): 3e

Typical Profile:

Ap—0 to 7 inches; silty clay loam

Bt1—7 to 12 inches; silty clay loam

Bt2—12 to 18 inches; silty clay loam

Bt3—18 to 40 inches; silty clay loam

BC—40 to 50 inches; silty clay loam

C—50 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have dark colored surface layers more than 10 inches thick; and soils that have more clay in the particle size control section.

Minor Components**Malmo**

Phase: Severely Eroded

Composition: About 8 percent

Landform: hillslope on upland

Slope: 2 to 6 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

Wymore

Composition: About 7 percent

Landform: hillslope on upland

Slope: 2 to 5 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops, with the rest used for pasture or rangeland. Grain sorghum, corn and soybeans are the principle crops. Water erosion is a hazard that can be controlled by contour farming, terraces and conservation tillage.

2420—Deroin silty clay loam, 5 to 11 percent slopes

Mapunit Information: These soils formed in Loveland age loess.

Map Unit Composition

Deroin: 90 percent
Minor components: 10 percent

Component Descriptions

Deroin

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Loess

Slope: 5 to 11 percent

Drainage class: Well drained

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

Available water capacity: High (About 11.2 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: Silty - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 7 inches; silty clay loam
Bt1—7 to 12 inches; silty clay loam
Bt2—12 to 18 inches; silty clay loam
Bt3—18 to 40 inches; silty clay loam
BC—40 to 50 inches; silty clay loam
C—50 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that formed in yellowish brown loess; soils that have dark surface layers more than 10 inches thick; and soils that have more clay in the particle size control section.

Minor Components

Malmo

Phase: Severely Eroded

Composition: About 10 percent

Landform: hillslope on upland

Slope: 6 to 12 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Water erosion is a severe hazard that can be controlled by contour farming, terraces and conservation tillage.

2695—Edalگو silty clay loam, 8 to 20 percent slopes

Mapunit Information: These soils formed in Fuson shale in the Dakota formation of Cretaceous age material.

Map Unit Composition

Edalگو: 80 percent
Minor components: 20 percent

Component Descriptions

Edalگو

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Residuum weathered from clayey shale

Slope: 8 to 20 percent

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

Drainage class: Well drained

Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: Low (About 4.5 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: Clayey - Veg. Zone 4

Land capability (nonirrigated): 6e

Typical Profile:

A1—0 to 4 inches; silty clay loam
A2—4 to 8 inches; silty clay loam
Bt—8 to 28 inches; clay
Cr—28 to 40 inches; weathered bedrock

Component note: Soils less than 20 inches deep to shale are included.

Minor Components

Padonia

Composition: About 15 percent
Landform: hillslope on upland
Slope: 5 to 9 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Clay Upland (pe30-37)

Hedville

Composition: About 5 percent
Landform: hillslope on upland
Slope: 3 to 30 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandy - Veg. Zone 4

General Considerations: Most all of the acreage of this soil is used for pasture or rangeland.

2832—Filley fine sandy loam, 6 to 12 percent slopes

Mapunit Information: In some areas, a few stones and boulders are on the surface.

Map Unit Composition

Filley: 95 percent
 Minor components: 5 percent

Component Descriptions

Filley

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Coarse-loamy glaciofluvial deposits
Slope: 6 to 12 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy - Veg. Zone 4

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; fine sandy loam
 AB—6 to 12 inches; fine sandy loam
 Bw—12 to 23 inches; fine sandy loam
 BC—23 to 30 inches; fine sandy loam
 C—30 to 80 inches; loamy fine sand

Component note: Similar inclusions are soils that have a sandy loam or loamy sand surface layer.

Minor Components

Cortland

Phase: Severely Eroded
Composition: About 5 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

General Considerations: Most of the acreage of this soil is in native grass, or has been reseeded back to grass, and used for pasture or mowed for hay. Water erosion is a severe hazard.

2833—Filley fine sandy loam, 12 to 18 percent slopes

Mapunit Information: In some areas, a few stones and boulders are on the surface.

Map Unit Composition

Filley: 90 percent
 Minor components: 10 percent

Component Descriptions

Filley

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Coarse-loamy glaciofluvial deposits
Slope: 12 to 18 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low

Ecological site: Sandy - Veg. Zone 4
Land capability (nonirrigated): 6e

Typical Profile:

Ap—0 to 6 inches; fine sandy loam
 AB—6 to 12 inches; fine sandy loam
 Bw—12 to 23 inches; fine sandy loam
 BC—23 to 30 inches; fine sandy loam
 C—30 to 80 inches; loamy fine sand

Component note: Similar inclusions are soils that have a sandy loam or loamy sand surface layer.

Minor Components

Morrill

Composition: About 10 percent
Landform: hillslope on upland
Slope: 12 to 18 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

General Considerations: Most of the acreage of this soil is in native grass, or has been reseeded back to grass, and used for pasture or mowed for hay.

2863—Fluvaquents, silty, Frequently Flooded

Mapunit Information: Open water more than 6 inches deep is common in some areas.

Map Unit Composition

Fluvaquents: 95 percent
 Minor components: 5 percent

Component Descriptions

Fluvaquents

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Depression on flood plain on river valley

Parent material: Silty alluvium

Slope: 0 to 1 percent

Drainage class: Very poorly drained

Slowest permeability: Slow (About 0.06 in/hr)

Available water capacity: High (About 10.8 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Frequent

Ponding hazard: Frequent

Depth to seasonal water saturation: About 0 to 0 inches

Runoff class: Negligible

Land capability (nonirrigated): 8w

Typical Profile:

A—0 to 20 inches; silty clay
 C—20 to 80 inches; stratified variable

Component note: Similar inclusions are soils that have loamy or sandy textured surface layers.

Minor Components

Kezan

Phase: Frequently Flooded

Composition: About 5 percent

Slope: 0 to 2 percent

Drainage class: Poorly drained

Ecological site: Wet Subirrigated - Veg. Zone 4

General Considerations: All of the acreage of this soil is used for wetland wildlife habitat.

3422—Hedville cobbly loam, 6 to 30 percent slopes

Mapunit Information: These soils formed in residuum weathered from noncalcareous sandstone of the Dakota formation. Sandstone fragments on the surface are common in some areas.

Map Unit Composition

Hedville: 80 percent
 Minor components: 20 percent

Component Descriptions

Hedville

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Shoulder, backslope

Parent material: Residuum weathered from sandstone

Slope: 6 to 30 percent

Surface fragments: About 1 to 5 percent subangular channers

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: Low (About 1.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Shallow Sandy - Veg. Zone 4
Land capability (nonirrigated): 6s

Typical Profile:

A—0 to 10 inches; cobbly loam
 C—10 to 16 inches; cobbly loam
 R—16 to 22 inches; bedrock

Component note: Similar inclusions are soils with a loam or fine sandy loam surface layer.

Minor Components

Lancaster

Composition: About 10 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Rock outcrop

Composition: About 10 percent
Landform: hillslope on upland
Slope: 11 to 30 percent
Depth to restrictive feature: 0 inches to bedrock (paralithic)
Ecological site: No Site - Veg. Zone 4

General Considerations: All of the acreage of this soil is used for pasture or rangeland.

4106—Judson silt loam, 2 to 5 percent slopes

Mapunit Information: Areas of this map unit are usually long and narrow.

Map Unit Composition

Judson: 90 percent
 Minor components: 10 percent

Component Descriptions

Judson
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Footslope
Parent material: Fine-silty colluvium
Slope: 2 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: Very high (About 13.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Silty - Veg. Zone 4

Land capability (irrigated): 3e

Land capability (nonirrigated): 2e

Typical Profile:

Ap1—0 to 6 inches; silt loam
 Ap2—6 to 12 inches; silty clay loam
 A1—12 to 22 inches; silty clay loam
 A2—22 to 31 inches; silty clay loam
 AB—31 to 43 inches; silty clay loam
 Bw1—43 to 54 inches; silty clay loam
 Bw2—54 to 69 inches; silty clay loam
 Bw3—69 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have more clay in the particle size control section; soils with a loam surface layer; and soils that have dark surface layers less than 24 inches thick.

Minor Components

Nodaway

Phase: Occasionally Flooded
Composition: About 10 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Corn, soybeans and grain sorghum are the principle crops.

4210—Kennebec silt loam, 0 to 1 percent slopes, Rarely Flooded, Cool

Mapunit Information: This map unit occurs on slightly higher positions on the flood plain.

Map Unit Composition

Kennebec: 85 percent
 Minor components: 15 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 1 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: Rare
Depth to seasonal water saturation: About 42 to 60 inches
Runoff class: Negligible
Ecological site: Silty Overflow - Veg. Zone 4
Land capability (irrigated): 1
Land capability (nonirrigated): 1

Typical Profile:

Ap—0 to 10 inches; silt loam
 A1—10 to 19 inches; silt loam
 A2—19 to 45 inches; silt loam
 A3—45 to 56 inches; silty clay loam
 AC—56 to 70 inches; silty clay loam
 C—70 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have a stratified surface horizon; and soils that have more clay in the particle size control section.

Minor Components

Judson

Composition: About 10 percent
Landform: hillslope on upland
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Kennebec

Phase: Occasionally Flooded
Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Major crops are corn, soybeans, and grain sorghum. Rare flooding is a slight hazard on this soil.

4232—Kennebec silt loam, 0 to 1 percent slopes, Occasionally Flooded, Cool

Mapunit Information: This map unit occurs on large, wide areas of the flood plain.

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 river valley

Parent material: Silty alluvium

Slope: 0 to 1 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: Occasional

Depth to seasonal water saturation: About 42 to 60 inches

Runoff class: Negligible

Ecological site: Silty Overflow - Veg. Zone 4

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 10 inches; silt loam
 A1—10 to 19 inches; silt loam
 A2—19 to 45 inches; silt loam
 A3—45 to 56 inches; silty clay loam
 AC—56 to 70 inches; silty clay loam
 C—70 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have a stratified surface layer and soils that are rarely flooded.

Minor Components

Muscotah

Composition: About 10 percent

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Ecological site: Loamy Lowland (pe30-37)

General Considerations: Most of the acreage of this soil is used for cultivated crops. Major crops are corn, soybeans, and grain sorghum. Occasional flooding is a hazard on this soil.

4281—Kezan silt loam, 0 to 2 percent slopes, Channeled, Frequently Flooded

Mapunit Information: This map unit is dissected by a meandering stream channel.

Map Unit Composition

Kezan: 85 percent
 Minor components: 15 percent

Component Descriptions**Kezan**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Drainageway on upland

Parent material: Silty alluvium

Slope: 0 to 2 percent

Drainage class: Poorly drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Frequent

Depth to seasonal water saturation: About 0 to 18 inches

Runoff class: Negligible

Ecological site: Wet Subirrigated - Veg. Zone 4

Land capability (nonirrigated): 6w

Typical Profile:

A—0 to 6 inches; silt loam
 C—6 to 13 inches; stratified silt loam
 Cg1—13 to 19 inches; stratified silt loam
 Cg2—19 to 32 inches; stratified silt loam
 Agb1—32 to 44 inches; stratified silt loam
 Agb2—44 to 60 inches; stratified silt loam

Minor Components**Kezan**

Phase: Occasionally Flooded

Composition: About 10 percent

Slope: 0 to 2 percent

Drainage class: Poorly drained

Ecological site: Wet Subirrigated - Veg. Zone 4

Fluvaquents

Composition: About 3 percent

Slope: 0 to 1 percent

Drainage class: Very poorly drained

Judson

Composition: About 2 percent

Landform: hillslope on upland

Slope: 0 to 2 percent

Drainage class: Well drained

Ecological site: Silty - Veg. Zone 4

General Considerations: Most of the acreage of this soil is in native grass and trees and used for pasture or wildlife habitat. Wetness and frequent flooding are hazards on this soil.

4287—Kezan silt loam, 0 to 2 percent slopes, Occasionally Flooded

Mapunit Information: Sediment from soils eroding above this map unit will collect in the vegetation, making the A horizon thicker.

Map Unit Composition

Kezan: 85 percent
 Minor components: 15 percent

Component Descriptions**Kezan**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Drainageway on upland

Parent material: Silty alluvium

Slope: 0 to 2 percent

Drainage class: Poorly drained

Slowest permeability: Moderate (About 0.60 in/hr)

Available water capacity: High (About 12.0 inches)

Shrink-swell potential: Low (About 1.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 0 to 18 inches

Runoff class: Negligible

Ecological site: Wet Subirrigated - Veg. Zone 4

Land capability (nonirrigated): 5w

Typical Profile:

A—0 to 6 inches; silt loam
 C—6 to 13 inches; stratified silt loam
 Cg1—13 to 19 inches; stratified silt loam
 Cg2—19 to 32 inches; stratified silt loam
 Agb1—32 to 44 inches; stratified silt loam
 Agb2—44 to 60 inches; stratified silt loam

Minor Components**Nodaway**

Phase: Occasionally Flooded

Composition: About 10 percent

Slope: 0 to 2 percent

Drainage class: Moderately well drained

Ecological site: Silty Overflow - Veg. Zone 4

Kezan

Phase: Channeled

Composition: About 3 percent

Slope: 0 to 2 percent

Drainage class: Poorly drained

Ecological site: Wet Subirrigated - Veg. Zone 4

Judson

Composition: About 2 percent
Landform: hillslope on upland
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for pasture or hayland. Wetness and occasional flooding are hazards on this soil.

4298—Kipson-Sogn complex, 3 to 30 percent slopes

Mapunit Information: These soils vary in composition depending on the slope and position on the hillside.

Map Unit Composition

Kipson: 50 percent
 Sogn: 45 percent
 Minor components: 5 percent

Component Descriptions

Kipson
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Silty and clayey residuum weathered from calcareous shale
Slope: 3 to 30 percent
Surface fragments: About 2 to 6 percent very angular channers
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: High
Ecological site: Shallow Limy - Veg. Zone 4
Land capability (nonirrigated): 6s

Typical Profile:

A—0 to 9 inches; channery silty clay loam
 AC—9 to 17 inches; channery silty clay loam
 Cr—17 to 36 inches; bedrock

Component note: Similar inclusions are soils that are moderately deep to shale and limestone; and soils that are not calcareous in the surface layers.

Sogn
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Landform: Hillslope on upland
Hillslope position: Shoulder
Parent material: Residuum weathered from limestone
Slope: 3 to 18 percent
Surface fragments: About 2 to 10 percent angular flagstones
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 1.4 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: Shallow Limy - Veg. Zone 4
Land capability (nonirrigated): 6s

Typical Profile:

A—0 to 4 inches; clay loam
 AC—4 to 8 inches; clay loam
 R—8 to 12 inches; unweathered bedrock
Component note: Similar inclusions are soils that are moderately deep to limestone.

Minor Components**Rock outcrop**

Composition: About 5 percent
Landform: hillslope on upland
Slope: 10 to 30 percent
Depth to restrictive feature: 0 inches to bedrock (paralithic)
Ecological site: No Site - Veg. Zone 4

General Considerations: All of the acreage of these soils is used for pasture or range. In some areas, shrubs and trees have been allowed to grow which make good areas for wildlife habitat.

4300—Kipson-Sogn-Rock outcrop complex, 12 to 60 percent slopes

Mapunit Information: These soils vary in composition depending on the slope and position on the hillside.

Map Unit Composition

Kipson: 50 percent
Sogn: 35 percent
Rock outcrop: 15 percent

Component Descriptions

Kipson
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Silty and clayey residuum weathered from calcareous shale

Slope: 12 to 60 percent

Surface fragments: About 2 to 6 percent very angular channers

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: High

Ecological site: Shallow Limy - Veg. Zone 4

Land capability (nonirrigated): 7s

Typical Profile:

A—0 to 9 inches; channery silty clay loam
AC—9 to 17 inches; channery silty clay loam
Cr—17 to 36 inches; bedrock

Component note: Similar inclusions are soils that are moderately deep to shale and limestone; and soils that are not calcareous in the surface layers.

Sogn

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Residuum weathered from limestone

Slope: 12 to 45 percent

Surface fragments: About 2 to 10 percent angular flagstones

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 1.4 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: Shallow Limy - Veg. Zone 4

Land capability (nonirrigated): 7s

Typical Profile:

A—0 to 4 inches; clay loam
AC—4 to 8 inches; clay loam
R—8 to 12 inches; unweathered bedrock

Component note: Similar inclusions are soils that are moderately deep to limestone.

Rock outcrop

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Limestone and sandstone

Slope: 12 to 150 percent

Depth to restrictive feature: 0 inches to bedrock (lithic)

Available water capacity: Very low (About 0.0 inches)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very high

Ecological site: No Site - Veg. Zone 4

Land capability (nonirrigated): 8s

General Considerations: All of the acreage of these soils is used for pasture or range. In some areas, shrubs and trees have been allowed to grow which make good wildlife habitat areas.

4428—Lancaster loam, 2 to 6 percent slopes

Mapunit Information: These soils formed in residuum weathered from noncalcareous sandstone of the Dakota formation.

Map Unit Composition

Lancaster: 80 percent
 Minor components: 20 percent

Component Descriptions

Lancaster

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope, shoulder

Parent material: Sandy residuum weathered from sandstone and shale

Slope: 2 to 6 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 6.2 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Low

Ecological site: Silty - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

A1—0 to 8 inches; loam

A2—8 to 12 inches; loam

Bt—12 to 21 inches; clay loam

C1—21 to 33 inches; loam

Cr—33 to 40 inches; weathered bedrock

Component note: Similar inclusions are soils that have sandy loam or fine sandy loam surface layers; and soils that have sandy loam or fine sandy loam C horizons.

Minor Components

Hedville

Composition: About 10 percent

Landform: hillslope on upland

Slope: 3 to 6 percent

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

Drainage class: Somewhat excessively drained

Ecological site: Shallow Sandy - Veg. Zone 4

Wymore

Composition: About 5 percent

Landform: hillslope on upland

Slope: 2 to 5 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

Kipson

Composition: About 5 percent

Landform: hillslope on upland

Slope: 5 to 17 percent

Depth to restrictive feature: 7 to 20 inches to bedrock (paralithic)

Drainage class: Somewhat excessively drained

Ecological site: Shallow Limy - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for pasture or rangeland.

4429—Lancaster loam, 6 to 12 percent slopes

Mapunit Information: These soils formed in residuum weathered from noncalcareous sandstone of the Dakota formation

Map Unit Composition

Lancaster: 80 percent
 Minor components: 20 percent

Component Descriptions

Lancaster

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Sandy residuum weathered from sandstone and shale

Slope: 6 to 12 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 6.2 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: Silty - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

A1—0 to 8 inches; loam

A2—8 to 12 inches; loam

Bt—12 to 21 inches; clay loam

C1—21 to 33 inches; loam

Cr—33 to 40 inches; weathered bedrock

Component note: Similar inclusions are soils that have sandy loam or fine sandy loam surface layers; and soils that have sandy loam or fine sandy loam C horizons.

Minor Components

Hedville

Composition: About 10 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Sandy - Veg. Zone 4

Kipson

Composition: About 5 percent
Landform: hillslope on upland
Slope: 5 to 17 percent
Depth to restrictive feature: 7 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Ecological site: Shallow Limy - Veg. Zone 4

Sogn

Composition: About 5 percent
Landform: hillslope on upland
Slope: 0 to 20 percent
Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained

General Considerations: Most of the acreage of this soil is used for pasture or rangeland.

4858—Malmo clay loam, 2 to 6 percent slopes

Mapunit Information: Some areas have pebbles or stones on the surface.

Map Unit Composition

Malmo: 85 percent
 Minor components: 15 percent

Component Descriptions

Malmo

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland
Hillslope position: Shoulder, summit
Parent material: Weathered till
Slope: 2 to 6 percent
Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: Moderate (About 8.1 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 12 to 36 inches

Runoff class: Very high

Ecological site: Clayey - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 3e

Typical Profile:

Ap—0 to 6 inches; clay loam
 Bt1—6 to 15 inches; clay
 Bt2—15 to 25 inches; clay
 Bt3—25 to 39 inches; clay
 Bt4—39 to 43 inches; gravelly clay
 BC—43 to 54 inches; clay loam
 C—54 to 80 inches; loam

Component note: Similar inclusions are soils that have carbonates above 15 inches; soils that have 6 to 18 inches of loess on the surface; soils that have a dark colored surface layer more than 10 inches thick. These soils were previously mapped as Mayberry, severely eroded.

Minor Components

Morrill

Composition: About 10 percent
Landform: hillslope on upland
Slope: 2 to 6 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Wymore

Composition: About 5 percent
Landform: hillslope on upland
Slope: 2 to 5 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

General Considerations: About half of the acreage if this soil is used for cultivated crops, with the remaining acreage used for pasture or rangeland. Water erosion is a hazard that can be controlled by contour farming, terraces and conservation tillage.

4864—Malmo-Pawnee complex, 6 to 12 percent slopes

Mapunit Information: Some areas may have pebbles or stones on the surface.

Map Unit Composition

Malmo: 60 percent
 Pawnee: 30 percent
 Minor components: 10 percent

Component Descriptions**Malmo**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Weathered till

Slope: 6 to 12 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: Moderate (About 8.1 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 12 to 36 inches

Runoff class: Very high

Ecological site: Clayey - Veg. Zone 4

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; clay loam
 Bt1—6 to 15 inches; clay
 Bt2—15 to 25 inches; clay
 Bt3—25 to 39 inches; clay
 Bt4—39 to 43 inches; gravelly clay
 BC—43 to 54 inches; clay loam
 C—54 to 80 inches; loam

Component note: Similar inclusions are soils that have carbonates at shallower depths; soils that have 6 to 18 inches of loess on the surface; soils that have a dark colored surface layer more than 10 inches thick. These soils were previously mapped as Mayberry, severely eroded.

Pawnee

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Clayey till

Slope: 6 to 12 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: Moderate (About 7.3 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: About 12 to 36 inches

Runoff class: High

Ecological site: Clayey - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; clay loam
 A—6 to 10 inches; clay loam
 BA—10 to 14 inches; clay loam
 Bt1—14 to 24 inches; clay
 Bt2—24 to 32 inches; clay
 Bt3—32 to 45 inches; clay
 BC—45 to 53 inches; clay
 C—53 to 80 inches; clay loam

Component note: Similar inclusions are soils that have thinner surface horizons; soils that have carbonates at shallower depths; and soils that have 6 to 18 inches of loess on the surface.

Minor Components**Otoe**

Phase: Severely Eroded

Composition: About 10 percent

Landform: hillslope on upland

Slope: 5 to 11 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: More than half of the acreage of these soils is used for cultivated crops. The remaining acreage has been reseeded back to native grasses and used for pasture and rangeland. Water erosion is a severe hazard that can be controlled by contour farming, terraces and conservation tillage. Wetness is a problem in the spring in most years.

5397—Morrill loam, 12 to 18 percent slopes

Mapunit Information: Pebbles, cobblestones, and sand and gravel outcrops are common on the soil surface.

Map Unit Composition

Morrill: 80 percent
 Minor components: 20 percent

Component Descriptions**Morrill**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Loamy till or outwash
Slope: 12 to 18 percent
Surface fragments: About 0 to 2 percent coarse rounded gravel
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: Silty - Veg. Zone 4
Land capability (nonirrigated): 6e

Typical Profile:

Ap—0 to 6 inches; loam
 BA—6 to 12 inches; loam
 Bt1—12 to 22 inches; loam
 Bt2—22 to 30 inches; sandy clay loam
 Bt3—30 to 35 inches; sandy clay loam
 Bt4—35 to 43 inches; sandy clay loam
 BC—43 to 52 inches; fine sandy loam
 2C1—52 to 59 inches; fine sandy loam
 2C2—59 to 73 inches; loamy fine sand
 2C3—73 to 80 inches; sand

Component note: Similar inclusions are soils with a thinner surface layer; and soils that have variable textures below 40 inches.

Minor Components**Cortland**

Phase: Severely Eroded
Composition: About 8 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Filley

Composition: About 5 percent
Landform: hillslope on upland
Slope: 12 to 18 percent
Drainage class: Somewhat excessively drained

Malmo

Phase: Severely Eroded
Composition: About 4 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

Steinauer

Composition: About 3 percent
Landform: hillslope on upland
Slope: 12 to 18 percent
Drainage class: Well drained
Ecological site: Limy Upland - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for pasture or has been reseeded to native grasses.

5480—Muscotah silty clay loam, 0 to 1 percent slopes, Occasionally Flooded

Mapunit Information: Most areas have had the drainage altered in order to reduce the hazard of wetness.

Map Unit Composition

Muscotah: 90 percent
 Minor components: 10 percent

Component Descriptions**Muscotah**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Flood plain on river valley

Parent material: Clayey alluvium

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Slowest permeability: Very slow (About 0.01 in/hr)

Available water capacity: High (About 10.8 inches)

Shrink-swell potential: High (About 7.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 18 to 36 inches

Runoff class: Low

Ecological site: Clayey Overflow Veg. Zone 4

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 9 inches; silty clay loam
 A1—9 to 16 inches; silty clay loam
 A2—16 to 23 inches; silty clay loam
 Bw1—23 to 35 inches; silty clay
 Bw2—35 to 44 inches; silty clay
 Bw3—44 to 60 inches; silty clay
 Bw4—60 to 70 inches; silty clay
 Bg—70 to 80 inches; silty clay

Component note: Similar inclusions are soils that have more clay in the particle size control section; and soils that are calcareous to the surface.

Minor Components**Nodaway**

Phase: Occasionally Flooded
Composition: About 7 percent
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

Kezan

Phase: Occasionally Flooded
Composition: About 3 percent
Slope: 0 to 1 percent
Drainage class: Poorly drained
Ecological site: Wet Subirrigated - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Corn, soybeans and grain sorghum are the main crops.

5540—Nodaway silt loam, 0 to 2 percent slopes, Occasionally Flooded

Mapunit Information: These soils are stratified with recent sediments due to flooding.

Map Unit Composition

Nodaway: 90 percent
 Minor components: 10 percent

Component Descriptions**Nodaway**

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 13.0 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: Occasional

Depth to seasonal water saturation: About 36 to 60 inches

Runoff class: Negligible

Ecological site: Silty Overflow - Veg. Zone 4

Land capability (irrigated): 2w

Land capability (nonirrigated): 2w

Typical Profile:

Ap—0 to 7 inches; silt loam
 C1—7 to 14 inches; stratified silt loam
 C2—14 to 45 inches; stratified silt loam
 C3—45 to 60 inches; stratified silt loam

Component note: Similar inclusions are soils that have thick dark surface layers; and soils that have stratified coarse textured surface layers.

Minor Components**Judson**

Composition: About 5 percent
Landform: hillslope on upland
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Nodaway

Phase: Channeled
Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

Kezan

Phase: Occasionally Flooded
Composition: About 2 percent
Slope: 0 to 2 percent
Drainage class: Poorly drained
Ecological site: Wet Subirrigated - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Corn, soybeans, and grain sorghum are the principle crops.

5541—Nodaway silt loam, 0 to 2 percent slopes, Channeled, Frequently Flooded

Mapunit Information: Most areas are dissected by a meandering stream channel. There are short, very steep or vertical slopes into the stream channel.

Map Unit Composition

Nodaway: 85 percent
 Minor components: 15 percent

Component Descriptions**Nodaway**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Drainageway on 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 13.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Frequent
Depth to seasonal water saturation: About 36 to 60 inches
Runoff class: Negligible
Ecological site: Silty Overflow - Veg. Zone 4
Land capability (nonirrigated): 6w

Typical Profile:

A—0 to 7 inches; silt loam
 C1—7 to 14 inches; stratified silt loam
 C2—14 to 45 inches; stratified silt loam
 C3—45 to 60 inches; stratified silt loam

Component note: Similar inclusions are soils that have stratified, coarse textured surface layers.

Minor Components**Nodaway**

Phase: Occasionally Flooded
Composition: About 10 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

Judson

Composition: About 3 percent
Landform: hillslope on upland
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Kezan

Phase: Occasionally Flooded
Composition: About 2 percent
Slope: 0 to 2 percent
Drainage class: Poorly drained
Ecological site: Wet Subirrigated - Veg. Zone 4

General Considerations: Most of the acreage of this soil is in native grasses and trees. The area is best suited for wildlife habitat.

5970—Otoe silty clay loam, 5 to 9 percent slopes

Mapunit Information: These soils formed in areas of clayey Peorian loess deposited over glacial drift.

Map Unit Composition

Otoe: 85 percent
 Minor components: 15 percent

Component Descriptions**Otoe**

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Loess over till

Slope: 5 to 9 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 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 12 to 36 inches

Runoff class: Very high

Ecological site: Clayey - Veg. Zone 4

Land capability (irrigated): 4e

Land capability (nonirrigated): 4e

Typical Profile:

Ap—0 to 6 inches; silty clay loam
 Bt1—6 to 15 inches; silty clay
 Bt2—15 to 22 inches; silty clay
 Bt3—22 to 32 inches; silty clay
 BC—32 to 40 inches; silty clay loam
 C1—40 to 50 inches; silty clay loam
 C2—50 to 57 inches; silty clay loam
 2C—57 to 80 inches; silty clay loam

Component note: These soils were previously mapped as Wymore, severely eroded. Similar inclusions are soils with redder hues in the subsoil.

Minor Components**Malmo**

Phase: Severely Eroded
Composition: About 10 percent
Landform: hillslope on upland
Slope: 6 to 12 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

Wymore

Composition: About 5 percent
Landform: hillslope on upland
Slope: 5 to 9 percent
Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops, with the remaining acreage reseeded to grasses and used for pasture and hayland. Water erosion is a severe hazard that can be controlled by contour farming, terraces and conservation tillage. Wetness is a problem in the spring in most years.

6005—Padonia silty clay loam, 6 to 12 percent slopes

Mapunit Information: This map unit occurs on the lower position of the backslope.

Map Unit Composition

Padonia: 85 percent
Minor components: 15 percent

Component Descriptions

Padonia

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Loess over clayey residuum weathered from calcareous shale

Slope: 6 to 12 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 5.3 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: Clayey - Veg. Zone 4

Land capability (nonirrigated): 4e

Typical Profile:

A—0 to 11 inches; silty clay loam

Bt—11 to 22 inches; silty clay

Btk—22 to 32 inches; silty clay

BCK—32 to 37 inches; silty clay loam

Cr—37 to 41 inches; weathered bedrock

Minor Components

Malmo

Phase: Severely Eroded

Composition: About 10 percent

Landform: hillslope on upland

Slope: 6 to 12 percent

Drainage class: Moderately well drained

Ecological site: Clayey - Veg. Zone 4

Kipson

Composition: About 5 percent

Landform: hillslope on upland

Slope: 5 to 12 percent

Depth to restrictive feature: 7 to 20 inches to bedrock (paralithic)

Drainage class: Somewhat excessively drained

Ecological site: Shallow Limy - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for pasture or rangeland.

7069—Steinauer clay loam, 12 to 30 percent slopes

Mapunit Information: These mapunits are usually long and narrow.

Map Unit Composition

Steinauer: 85 percent
Minor components: 15 percent

Component Descriptions

Steinauer

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Backslope

Parent material: Calcareous loamy till

Slope: 12 to 30 percent

Drainage class: Well drained

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

Available water capacity: High (About 10.8 inches)

Shrink-swell potential: Moderate (About 4.5 LEP)

Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet

Runoff class: Very high

Ecological site: Limy Upland - Veg. Zone 4

Land capability (nonirrigated): 6e

Typical Profile:

Ap—0 to 6 inches; clay loam

AC—6 to 15 inches; clay loam

C1—15 to 41 inches; clay loam

C2—41 to 60 inches; clay loam

Component note: Similar inclusions are soils that have a surface layer more than 10 inches thick.

Minor Components

Burchard

Composition: About 12 percent
Landform: hillslope on upland
Slope: 12 to 30 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Nodaway

Phase: Channeled
Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

General Considerations: All of the acreage of this soil is used for rangeland or pasture. Cedar trees and other shrubs are a problem if not properly managed.

7078—Steinauer clay loam, 30 to 60 percent slopes

Mapunit Information: This map unit is usually long and narrow. Boulders and stones are on the surface in some areas.

Map Unit Composition

Steinauer: 85 percent
Minor components: 15 percent

Component Descriptions

Steinauer

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland
Hillslope position: Backslope
Parent material: Calcareous loamy till
Slope: 30 to 60 percent
Drainage class: Well drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 10.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very high
Ecological site: Limy Upland - Veg. Zone 4

Land capability (nonirrigated): 7e

Typical Profile:

Ap—0 to 6 inches; clay loam
AC—6 to 15 inches; clay loam
C1—15 to 41 inches; clay loam
C2—41 to 60 inches; clay loam

Component note: Similar inclusions are soils that have a surface layer more than 10 inches thick.

Minor Components

Morrill

Composition: About 10 percent
Landform: hillslope on upland
Slope: 18 to 30 percent
Drainage class: Well drained
Ecological site: Silty - Veg. Zone 4

Nodaway

Phase: Channeled
Composition: About 3 percent
Slope: 0 to 2 percent
Drainage class: Moderately well drained
Ecological site: Silty Overflow - Veg. Zone 4

Rock outcrop

Composition: About 2 percent
Slope: 30 to 60 percent
Depth to restrictive feature: 0 inches to bedrock (paralithic)
Drainage class: Excessively drained
Ecological site: No Site - Veg. Zone 4

General Considerations: All of the acreage of this soil is used for range or pasture. Trees and brush are common in many areas. These areas are good for wildlife habitat.

8061—Wymore silty clay loam, 0 to 2 percent slopes

Mapunit Information: This map unit occurs on level and nearly level, high positions on the landform.

Map Unit Composition

Wymore: 90 percent
Minor components: 10 percent

Component Descriptions

Wymore

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Broad interstream divide on upland
Parent material: Loess
Slope: 0 to 2 percent

Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 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 12 to 36 inches
Runoff class: Low
Ecological site: Clayey - Veg. Zone 4
Land capability (irrigated): 2s
Land capability (nonirrigated): 2s

Typical Profile:

Ap—0 to 5 inches; silty clay loam
 BA—5 to 9 inches; silty clay
 Bt1—9 to 17 inches; silty clay
 Bt2—17 to 25 inches; silty clay
 Bt3—25 to 32 inches; silty clay
 BC—32 to 40 inches; silty clay loam
 C—40 to 53 inches; silty clay loam
 Ab—53 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have a surface layer more than 24 inches thick; soils that have a silt loam surface layer.

Minor Components**Butler**

Composition: About 10 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops, and some areas are irrigated. Major crops are corn, soybeans and grain sorghum. Wetness is a problem in years of above normal precipitation.

8063—Wymore silty clay loam, 2 to 5 percent slopes

Mapunit Information: This map unit occurs on high positions on the landform.

Map Unit Composition

Wymore: 90 percent
 Minor components: 10 percent

Component Descriptions

Wymore

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Hillslope on upland

Hillslope position: Summit, shoulder

Parent material: Loess
Slope: 2 to 5 percent
Drainage class: Moderately well drained
Slowest permeability: Very slow (About 0.01 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 12 to 36 inches
Runoff class: Medium
Ecological site: Clayey - Veg. Zone 4
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:

Ap—0 to 5 inches; silty clay loam
 BA—5 to 9 inches; silty clay
 Bt1—9 to 17 inches; silty clay
 Bt2—17 to 25 inches; silty clay
 Bt3—25 to 32 inches; silty clay
 BC—32 to 40 inches; silty clay loam
 C—40 to 53 inches; silty clay loam
 Ab—53 to 80 inches; silty clay loam

Component note: Similar inclusions are soils that have dark colored surface layers thicker than 24 inches.

Minor Components**Otoe**

Phase: Severely Eroded
Composition: About 6 percent
Landform: hillslope on upland
Slope: 2 to 5 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

Malmo

Phase: Severely Eroded
Composition: About 4 percent
Landform: hillslope on upland
Slope: 2 to 6 percent
Drainage class: Moderately well drained
Ecological site: Clayey - Veg. Zone 4

General Considerations: Most of the acreage of this soil is used for cultivated crops. Major crops are corn, soybeans, and grain sorghum. Wetness is a problem during years with above normal precipitation. Water erosion is a hazard that can be controlled by contour farming, terraces and conservation tillage.

8080—Wymore silty clay loam, Terrace, 0 to 2 percent slopes

Mapunit Information: Many areas of this map unit have been land leveled for furrow irrigation. There are coarse textured materials at depth of 12 to 18 feet below the surface.

Map Unit Composition

Wymore: 90 percent
Minor components: 10 percent

Component Descriptions

Wymore
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Landform: Stream terrace on river valley

Parent material: Loess

Slope: 0 to 2 percent

Drainage class: Moderately well drained

Slowest permeability: Very slow (About 0.01 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 12 to 36 inches

Runoff class: Low

Ecological site: Clayey - Veg. Zone 4

Land capability (irrigated): 2s

Land capability (nonirrigated): 2s

Typical Profile:

Ap—0 to 5 inches; silty clay loam
BA—5 to 9 inches; silty clay
Bt1—9 to 17 inches; silty clay
Bt2—17 to 25 inches; silty clay
Bt3—25 to 32 inches; silty clay
BC—32 to 40 inches; silty clay loam
C—40 to 80 inches; silty clay loam

Component note: Some soils have a silt loam surface layer.

Minor Components

Butler

Composition: About 10 percent

Slope: 0 to 1 percent

Drainage class: Somewhat poorly drained

Ecological site: Clayey - Veg. Zone 4

General Considerations: Most all of the acreage of this soil is used for cultivated crops, with more than half of the acreage being irrigated by furrow or sprinkler type irrigation. Corn and soybeans are the principle crops.

9900—Arents, Earthen Dam

Map Unit Composition

Arents, Earthen Dam: 100 percent

Component Descriptions

Arents, Earthen Dam

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Depth to seasonal water saturation: More than 6 feet

Land capability (nonirrigated): 8

9980—Pits, Quarry

Map Unit Composition

Mine Or Quarry: 100 percent

Component Descriptions

Mine Or Quarry

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Available water capacity: Very low (About 0.0 inches)

Depth to seasonal water saturation: More than 6 feet

Typical Profile:

H1—0 to 60 inches; bouldery fragmental material

9985—Pits, sand And Gravel

Map Unit Composition

Pits: 100 percent

Component Descriptions

Pits

MLRA: 106 - Nebraska and Kansas Loess-Drift Hills

Slope: 0 to 30 percent

Drainage class: Excessively drained

Slowest permeability: Rapid (About 6.00 in/hr)

Available water capacity: Low (About 3.5 inches)

Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Land capability (nonirrigated): 8s

9995—Waste Water, Sewage Lagoon

Map Unit Composition
 Miscellaneous Water: 100 percent

Component Descriptions
 Miscellaneous Water
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Depth to seasonal water saturation: More than 6 feet

9998—Water

Map Unit Composition
 Water: 100 percent

Component Descriptions
 Water
MLRA: 106 - Nebraska and Kansas Loess-Drift Hills
Depth to seasonal water saturation: More than 6 feet

General Considerations: Water includes streams, lakes, ponds, and estuaries. These areas are covered with water in most years, at least during the period that is warm enough for plants to grow. Many areas are covered throughout the year.

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land-forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes. In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

(Class 1) soils have slight limitations that restrict their use.

(Class 2) soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

(Class 3) soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

(Class 4) soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

(Class 5) soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

(Class 6) soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

(Class 7) soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

(Class 8) soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example, 2e. The letter e shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of map units in this survey area is given in the section "Detailed Soil Map Units" and in the Land Capability and Component Yields table.

Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in "Land Capability and Component Yields" table. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

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 also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, animal waste manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in this table, are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service (NRCS) or the Cooperative Extension Service (CES) can provide information about the management and productivity of the soils for those crops.

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued

Gage County, Nebraska

(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)

Map symbol and soil name	Land Capability		Corn		Grain sorghum		Soybeans		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Bu		Bu		Bu		Bu	
1849: BURCHARD-----	3e	4e	85.00	135.00	85.00	135.00	30.00	45.00	38.00	---
1873: BURCHARD-----	4e	---	80.00	130.00	80.00	120.00	29.00	43.00	40.00	---
STEINAUER-----	4e	---	75.00	120.00	70.00	110.00	27.00	41.00	36.00	---
1879: BURCHARD-----	6e	---	65.00	---	70.00	---	25.00	---	30.00	---
STEINAUER-----	6e	---	60.00	---	65.00	---	23.00	---	27.00	---
1930: BUTLER-----	2w	2w	72.00	137.00	77.00	115.00	32.00	42.00	40.00	---
2076: CHASE-----	2w	2w	95.00	150.00	100.00	135.00	40.00	50.00	43.00	---
2201: CORTLAND-----	4e	4e	85.00	135.00	85.00	120.00	32.00	47.00	40.00	---
MALMO-----	4e	---	72.00	127.00	74.00	105.00	27.00	42.00	35.00	---
2418: DEROIN-----	3e	3e	85.00	135.00	85.00	120.00	35.00	50.00	40.00	---
2420: DEROIN-----	4e	4e	80.00	130.00	80.00	115.00	30.00	45.00	37.00	---
2695: EDALGO-----	6e	---	---	---	---	---	---	---	---	---
2832: FILLEY-----	4e	---	80.00	130.00	80.00	115.00	30.00	45.00	35.00	---
2833: FILLEY-----	6e	---	70.00	---	55.00	---	20.00	---	25.00	---
2863: FLUVAQUENTS----	8w	---	---	---	---	---	---	---	---	---
3422: HEDVILLE-----	6s	---	---	---	---	---	---	---	---	---
4106: JUDSON-----	2e	3e	105.00	150.00	85.00	120.00	40.00	52.00	45.00	---
4210: KENNEBEC-----	1	1	110.00	170.00	100.00	135.00	44.00	54.00	47.00	---
4232: KENNEBEC-----	2w	2w	100.00	160.00	90.00	125.00	40.00	50.00	45.00	---
4281: KEZAN-----	6w	---	---	---	---	---	---	---	---	---
4287: KEZAN-----	5w	---	---	---	---	---	---	---	---	---
4298: KIPSON-----	6s	---	---	---	---	---	---	---	---	---
SOGN-----	6s	---	---	---	---	---	---	---	---	---
4300: KIPSON-----	7s	---	---	---	---	---	---	---	---	---
SOGN-----	7s	---	---	---	---	---	---	---	---	---
ROCK OUTCROP----	8s	---	---	---	---	---	---	---	---	---
4428: LANCASTER-----	4e	4e	60.00	100.00	60.00	88.00	25.00	40.00	35.00	---
4429: LANCASTER-----	4e	4e	49.00	95.00	60.00	88.00	25.00	40.00	33.00	---
4858: MALMO-----	3e	4e	72.00	127.00	74.00	105.00	27.00	42.00	35.00	---

LAND CAPABILITY AND YIELDS PER ACRE OF CROPS--Continued
Gage County, Nebraska

(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)

Map symbol and soil name	Land Capability		Corn		Grain sorghum		Soybeans		Winter wheat	
	N	I	N	I	N	I	N	I	N	I
			Bu		Bu		Bu		Bu	
4864: MALMO-----	4e	---	72.00	127.00	74.00	105.00	27.00	42.00	35.00	---
PAWNEE-----	4e	4e	80.00	130.00	80.00	115.00	30.00	45.00	38.00	---
5397: MORRILL-----	6e	---	75.00	---	55.00	---	25.00	---	30.00	---
5480: MUSCOTAH-----	2w	2w	95.00	150.00	100.00	135.00	40.00	50.00	41.00	---
5540: NODAWAY-----	2w	2w	110.00	170.00	100.00	135.00	38.00	46.00	47.00	---
5541: NODAWAY-----	6w	---	---	---	---	---	---	---	---	---
5970: OTOE-----	4e	4e	83.00	133.00	83.00	118.00	33.00	47.00	40.00	---
6005: PADONIA-----	4e	---	70.00	---	65.00	---	25.00	---	32.00	---
7069: STEINAUER-----	6e	---	65.00	---	65.00	---	---	---	25.00	---
7078: STEINAUER-----	7e	---	---	---	---	---	---	---	---	---
8061: WYMORE-----	2s	2s	85.00	141.00	85.00	130.00	35.00	50.00	40.00	---
8063: WYMORE-----	3e	3e	85.00	141.00	85.00	130.00	35.00	50.00	40.00	---
8080: WYMORE-----	2s	2s	85.00	141.00	85.00	130.00	35.00	50.00	40.00	---
9900: ARENTS, EARTHEN DAM-----	8	---	---	---	---	---	---	---	---	---
9980: MINE OR QUARRY--	---	---	---	---	---	---	---	---	---	---
9985: PITS-----	8s	---	---	---	---	---	---	---	---	---
9995: MISCELLANEOUS WATER-----	---	---	---	---	---	---	---	---	---	---
9998: WATER-----	---	---	---	---	---	---	---	---	---	---

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
1849	Burchard clay loam, 2 to 6 percent slopes	All areas are prime farmland
2418	Deroin silty clay loam, 2 to 5 percent slopes	All areas are prime farmland
4106	Judson silt loam, 2 to 5 percent slopes	All areas are prime farmland
4210	Kennebec silt loam, 0 to 1 percent slopes, rarely flooded, cool	All areas are prime farmland
4232	Kennebec silt loam, 0 to 1 percent slopes, occasionally flooded, cool	All areas are prime farmland
5540	Nodaway silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
8061	Wymore silty clay loam, 0 to 2 percent slopes	All areas are prime farmland
8063	Wymore silty clay loam, 2 to 5 percent slopes	All areas are prime farmland
8080	Wymore silty clay loam, terrace, 0 to 2 percent slopes	All areas are prime farmland
1930	Butler silt loam, 0 to 1 percent slopes	Prime farmland if drained
2076	Chase silty clay loam, 0 to 1 percent slopes, rarely flooded	Prime farmland if drained
5480	Muscotah silty clay loam, 0 to 1 percent slopes, 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
1849	Burchard Clay Loam, 2 To 6 Percent Slopes-----	68
1873	Burchard-Steinauer Clay Loams, 6 To 12 Percent Slopes, Eroded-----	56
1879	Burchard-Steinauer Clay Loams, 12 To 18 Percent Slopes, Eroded-----	49
1930	Butler Silt Loam, 0 To 1 Percent Slopes-----	66
2076	Chase Silty Clay Loam, 0 To 1 Percent Slopes, Rarely Flooded-----	74
2201	Cortland-Malmo Complex, 6 To 12 Percent Slopes-----	56
2418	Deroin Silty Clay Loam, 2 To 5 Percent Slopes-----	74
2420	Deroin Silty Clay Loam, 5 To 11 Percent Slopes-----	69
2695	Edalgo Silty Clay Loam, 8 To 20 Percent Slopes-----	30
2832	Filley Fine Sandy Loam, 6 To 12 Percent Slopes-----	48
2833	Filley Fine Sandy Loam, 12 To 18 Percent Slopes-----	42
2863	Fluvaquents, Silty, Frequently Flooded-----	7
3422	Hedville Cobbly Loam, 6 To 30 Percent Slopes-----	6
4106	Judson Silt Loam, 2 To 5 Percent Slopes-----	79
4210	Kennebec Silt Loam, 0 To 1 Percent Slopes, Rarely Flooded, Cool-----	76
4232	Kennebec Silt Loam, 0 To 1 Percent Slopes, Occasionally Flooded, Cool-----	73
4281	Kezan Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded-----	47
4287	Kezan Silt Loam, 0 To 2 Percent Slopes, Occasionally Flooded-----	61
4298	Kipson-Sogn Complex, 3 To 30 Percent Slopes-----	4
4300	Kipson-Sogn-Rock Outcrop Complex, 12 To 60 Percent Slopes-----	1
4428	Lancaster Loam, 2 To 6 Percent Slopes-----	49
4429	Lancaster Loam, 6 To 12 Percent Slopes-----	43
4858	Malmo Clay Loam, 2 To 6 Percent Slopes-----	59
4864	Malmo-Pawnee Complex, 6 To 12 Percent Slopes-----	54
5397	Morrill Loam, 12 To 18 Percent Slopes-----	48
5480	Muscotah Silty Clay Loam, 0 To 1 Percent Slopes, Occasionally Flooded-----	69
5540	Nodaway Silt Loam, 0 To 2 Percent Slopes, Occasionally Flooded-----	73
5541	Nodaway Silt Loam, 0 To 2 Percent Slopes, Channeled, Frequently Flooded-----	60
5970	Otoe Silty Clay Loam, 5 To 9 Percent Slopes-----	64
6005	Padonia Silty Clay Loam, 6 To 12 Percent Slopes-----	38
7069	Steinauer Clay Loam, 12 To 30 Percent Slopes-----	34
7078	Steinauer Clay Loam, 30 To 60 Percent Slopes-----	7
8061	Wymore Silty Clay Loam, 0 To 2 Percent Slopes-----	70
8063	Wymore Silty Clay Loam, 2 To 5 Percent Slopes-----	68
8080	Wymore Silty Clay Loam, Terrace, 0 To 2 Percent Slopes-----	70
9900	Arents, Earthen Dam-----	0
9980	Pits, Quarry-----	0
9985	Pits, Sand And Gravel-----	18
9995	Waste Water, Sewage Lagoon-----	0
9998	Water-----	0

Gage County, Nebraska: Update
 Field Office Thunderbook: Soils Properties for Conservation Planning

(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 erodibility group	Wind erodibility index
								K	Kf	T		
1849:BURCHARD---	85	4e-	3e	All areas are prime farmland	B	Silty - Veg. Zone 4	3	.28	.28	5	6	48
1849:SHELBY----	50	N/A	2e	All areas are prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
1849:BURCHARD---	50	3e-	3e	All areas are prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
1873:SHELBY----	50	N/A	3e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
1873:BURCHARD---	50	4e-	3e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
1873:SHELBY----	50	N/A	3e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
1873:BURCHARD---	50	4e-	3e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
1873:SHELBY----	50	N/A	4e	Not prime farmland	B	Unspecified		.37	.37	4	6	48
1873:BURCHARD---	50	N/A	4e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
	50	N/A	4e	Not prime farmland	B	Silty - Veg. Zone 4	3	.28	.28	5	6	48
1873:STEINAUER--	35	N/A	4e	Not prime farmland	B	Limy Upland - Veg. Zone 4	8	.32	.32	5	4L	86
1879:SHELBY----	50	N/A	4e	Not prime farmland	B	Unspecified		.37	.37	4	6	48
1879:BURCHARD---	50	N/A	4e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
	45	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 4	3	.28	.28	5	6	48
1879:STEINAUER--	40	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 4	8	.32	.32	5	4L	86
1930:FILLMORE---	100	4w-	3w	Not prime farmland	D	Clayey Overflow - Veg. Zone 4		.37	.37	3	6	48
1930:BUTLER----	92	2w-	2w	Prime farmland if drained	D	Clayey - Veg. Zone 4	2	.37	.37	3	6	48
2076:GAYVILLE VARIANT-----	100	4s-	4s	Not prime farmland	D	Saline Subirrigated - Veg. Zone 4		.37	.37	2	7	38
2076:CRETE-----	100	2s-	2s	All areas are prime farmland	C	Clayey - Veg. Zone 4		.37	.37	5	7	38

Gage County, Nebraska: Update
 Field Office Thunderbook: Soils Properties for Conservation Planning

(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 erodibility group	Wind erodibility index
								K	Kf	T		
2076:CHASE-----	85	2w-	2w	Prime farmland if drained	C	Clayey Overflow - Veg. Zone 4	2	.37	.37	5	7	38
2201:MORRILL VARIANT-----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4		.32	.32	5	6	48
2201:MORRILL----	100	4e-	3e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
	100	N/A	4e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
2201:JANSEN----	100	3e-	3e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	4	5	56
	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	4	5	56
	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	4	5	56
	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	4	5	56
2201:CORTLAND---	55	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4	3	.28	.28	4	6	48
2201:MALMO-----	25	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	4	4	86
2418:GEARY-----	100	3e-	3e	All areas are prime farmland	B	Silty - Veg. Zone 4		.32	.32	5	7	38
2418:DEROIN-----	85	3e-	3e	All areas are prime farmland	B	Silty - Veg. Zone 4	3	.37	.37	4	7	38
2420:GEARY-----	100	3e-	3e	Not prime farmland	B	Silty - Veg. Zone 4		.32	.32	5	7	38
2420:DEROIN-----	100	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4		.37	.37	4	7	38
	90	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4	3	.37	.37	4	7	38
2695:EDALGO----	100	N/A	6e	Not prime farmland	C	Clayey - Veg. Zone 4		.37	.37	3	7	38
	80	N/A	6e	Not prime farmland	C	Clayey - Veg. Zone 4	4C	.37	---	3	7	38
2832:FILLEY-----	95	N/A	4e	Not prime farmland	B	Sandy - Veg. Zone 4	5	.20	.20	4	3	86
2833:FILLEY-----	90	N/A	6e	Not prime farmland	B	Sandy - Veg. Zone 4	5	.20	.20	4	3	86
2863:FLUVAQUENTS	95	N/A	8w	Not prime farmland	D	Unspecified	10	.32	.32	5	8	0
3422:HEDVILLE VARIANT-----	100	N/A	6s	Not prime farmland	D	Shallow Sandy - Veg. Zone 4		.17	.28	2	8	0

Gage County, Nebraska: Update
 Field Office Thunderbook: Soils Properties for Conservation Planning

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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 erodibility group	Wind erodibility index
								K	Kf	T		
3422:HEDVILLE---	80	N/A	6s	Not prime farmland	D	Shallow Sandy - Veg. Zone 4	10	.20	.20	2	5	56
4106:JUDSON VARIANT-----	100	2e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 4		.20	.20	5	3	86
4106:JUDSON-----	100	1-	1	All areas are prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
	100	3e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
	90	3e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 4	3	.28	.28	5	6	48
4210:MUIR-----	100	1-	1	All areas are prime farmland	B	Silty Lowland - Veg. Zone 4		.32	.32	5	6	48
4210:KENNEBEC---	85	1-	1	All areas are prime farmland	B	Silty Overflow - Veg. Zone 4	1	.28	.28	5	6	48
4232:KENNEBEC---	90	2w-	2w	All areas are prime farmland	B	Silty Overflow - Veg. Zone 4	1	.28	.28	5	6	48
4281:KEZAN-----	85	N/A	6w	Not prime farmland	D	Wet Subirrigated - Veg. Zone 4	10	.32	.32	5	6	48
4287:KEZAN-----	85	N/A	5w	Not prime farmland	D	Wet Subirrigated - Veg. Zone 4	10	.32	.32	5	6	48
4298:SOGN-----	100	N/A	7s	Not prime farmland	D	Shallow Limy - Veg. Zone 4		.28	.28	1	4L	86
4298:KIPSON-----	50	N/A	6s	Not prime farmland	D	Shallow Limy - Veg. Zone 4	10	.32	.49	2	4L	86
4298:SOGN-----	45	N/A	6s	Not prime farmland	D	Shallow Limy - Veg. Zone 4	10	.28	.28	1	4L	86
4300:ROCK OUTCROP-----	60	N/A	8s	Not prime farmland	D	No Site - Veg. Zone 4		---	---	-	8	0
4300:KIPSON-----	50	N/A	7s	Not prime farmland	D	Shallow Limy - Veg. Zone 4	10	.32	.49	2	4L	86
4300:SOGN-----	40	N/A	7s	Not prime farmland	D	Shallow Limy - Veg. Zone 4		.28	.28	1	4L	86
	35	N/A	7s	Not prime farmland	D	Shallow Limy - Veg. Zone 4	10	.28	.28	1	4L	86
4300:ROCK OUTCROP-----	15	N/A	8s	Not prime farmland	D	No Site - Veg. Zone 4	10	---	---	-	8	0
4428:LANCASTER--	80	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4	6D	.28	.28	3	6	48

Gage County, Nebraska: Update
 Field Office Thunderbook: Soils Properties for Conservation Planning

(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 erodibility group	Wind erodibility index
								K	Kf	T		
4429:LANCASTER--	80	4e-	4e	Not prime farmland	B	Silty - Veg. Zone 4	6D	.28	.28	3	6	48
4858:MAYBERRY---	100	4e-	3e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	6	48
4858:MORRILL----	100	3e-	2e	All areas are prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
4858:PAWNEE-----	100	4e-	3e	All areas are prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	4	86
4858:MALMO-----	85	4e-	3e	Not prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	4	4	86
4864:MAYBERRY---	100	4e-	3e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	6	48
	100	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	6	48
4864:PAWNEE-----	100	4e-	3e	Not prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	4	86
	100	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	4	86
4864:MALMO-----	60	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	4	4	86
	50	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	4	4	86
4864:PAWNEE-----	50	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	4	86
4864:MALMO-----	50	N/A	6e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	4	4	86
4864:PAWNEE-----	50	N/A	6e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	4	86
	30	4e-	4e	Not prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	5	6	48
5397:MORRILL VARIANT-----	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 4		.32	.32	5	6	48
5397:MORRILL----	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	5	6	48
5397:JANSEN-----	100	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 4		.28	.28	4	5	56
5397:MORRILL----	80	N/A	6e	Not prime farmland	B	Silty - Veg. Zone 4	3	.28	.28	5	6	48
5480:COLERIDGE--	100	2w-	2w	Prime farmland if drained	C	Subirrigated - Veg. Zone 4		.32	.32	5	7	38

Gage County, Nebraska: Update
 Field Office Thunderbook: Soils Properties for Conservation Planning

(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 erodibility group	Wind erodibility index
								K	Kf	T		
5480:ZOOK-----	100	N/A	3w	Not prime farmland	C/D	Clayey Overflow - Veg. Zone 4		.28	.28	5	4	86
5480:MUSCOTAH---	90	2w-	2w	Prime farmland if drained	D	Clayey Overflow Veg. Zone 4	2	.37	.37	5	7	38
5540:HOBBS-----	100	2w-	2w	All areas are prime farmland	B	Silty Overflow - Veg. Zone 4		.32	.32	5	6	48
5540:CASS-----	100	1-	1	All areas are prime farmland	B	Sandy Lowland - Veg. Zone 4		.28	.28	5	5	56
5540:NODAWAY----	90	2w-	2w	All areas are prime farmland	B	Silty Overflow - Veg. Zone 4	1	.32	.32	5	6	48
5541:KEZAN-----	100	N/A	6w	Not prime farmland	D	Wet Land - Veg. Zone 4		.32	.32	5	6	48
5541:NODAWAY----	85	N/A	6w	Not prime farmland	B	Silty Overflow - Veg. Zone 4	10	.32	.32	5	6	48
5970:WYMORE-----	100	3e-	3e	Not prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	7	38
	100	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	4	86
	100	N/A	4e	Not prime farmland	D	Clayey - Veg. Zone 4		.32	.32	5	4	86
5970:OTOE-----	85	4e-	4e	Not prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	4	7	48
6005:PADONIA----	85	N/A	4e	Not prime farmland	C	Clayey - Veg. Zone 4	4C	.37	---	3	7	38
7069:STEINAUER--	100	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 4		.32	.32	5	4L	86
	100	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 4		.32	.32	5	4L	86
	85	N/A	6e	Not prime farmland	B	Limy Upland - Veg. Zone 4	10	.32	.32	5	4L	86
7078:STEINAUER--	100	N/A	7e	Not prime farmland	B	Limy Upland - Veg. Zone 4		.32	.32	5	4L	86
	85	N/A	7e	Not prime farmland	B	Limy Upland - Veg. Zone 4	10	.32	.32	5	4L	86
8061:CRETE-----	100	2s-	2s	All areas are prime farmland	C	Clayey - Veg. Zone 4		.37	.37	5	7	38
8061:WYMORE-----	100	2s-	2s	All areas are prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	7	38
	90	2s-	2s	All areas are prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	5	7	38

Gage County, Nebraska: Update
 Field Office Thunderbook: Soils Properties for Conservation Planning

(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 erodibility group	Wind erodibility index
								K	Kf	T		
8063:CRETE-----	100	3e-	3e	All areas are prime farmland	C	Clayey - Veg. Zone 4		.37	.37	5	7	38
	100	3e-	3e	All areas are prime farmland	C	Clayey - Veg. Zone 4		.37	.37	5	7	38
8063:WYMORE-----	100	3e-	3e	All areas are prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	7	38
	100	3e-	3e	All areas are prime farmland	D	Clayey - Veg. Zone 4		.37	.37	5	7	38
	90	3e-	3e	All areas are prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	5	7	38
8080:WYMORE-----	90	2s-	2s	All areas are prime farmland	D	Clayey - Veg. Zone 4	4C	.37	.37	5	7	38
9900:ARENTS, EARTHEN DAM----	100	N/A	8	Not prime farmland		Unspecified		---	---	-	---	---
9980:MINE OR QUARRY-----	100	N/A	N/A	Not prime farmland		Unspecified	10	---	---	-	---	0
9985:PITS-----	100	N/A	8s	Not prime farmland	A	Unspecified		.10	.17	2	8	0
9995:MISCELLANEOUS WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---
9998:WATER-----	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	0

RANGELAND PRODUCTIVITY
Gage County, Nebraska

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
Gage County, Nebraska

(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
1849: Burchard-----	Silty - Veg. Zone 4	4,750	4,000	3,000
1873: Burchard-----	Silty - Veg. Zone 4	4,750	4,000	3,000
Steinauer-----	Limy Upland - Veg. Zone 4	4,000	3,000	2,500
1879: Burchard-----	Silty - Veg. Zone 4	4,750	4,000	3,000
Steinauer-----	Limy Upland - Veg. Zone 4	4,000	3,000	2,500
1930: Butler-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
2076: Chase, RARELY FLOODED-----	Clayey Overflow - Veg. Zone 4	4,000	3,000	2,500
2201: Cortland, SEVERELY ERODED-----	Silty - Veg. Zone 4	4,750	4,000	3,000
Malmo, SEVERELY ERODED-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
2418: Deroin, SEVERELY ERODED-----	Silty - Veg. Zone 4	4,750	4,000	3,000
2420: Deroin, SEVERELY ERODED-----	Silty - Veg. Zone 4	4,750	4,000	3,000
2695: Edalgo-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
2832: Filley-----	Sandy - Veg. Zone 4	4,000	3,300	2,750
2833: Filley-----	Sandy - Veg. Zone 4	4,000	3,300	2,750
2863: Fluvaquents-----	---	---	---	---
3422: Hedville-----	Shallow Sandy - Veg. Zone 4	2,500	2,000	1,500
4106: Judson-----	Silty - Veg. Zone 4	4,750	4,000	3,000
4210: Kennebec, RARELY FLOODED-----	Silty Overflow - Veg. Zone 4	5,000	4,000	3,000
4232: Kennebec, OCCASIONALLY FLOODED----	Silty Overflow - Veg. Zone 4	5,000	4,000	3,000
4281: Kezan, CHANNELED-----	Wet Subirrigated - Veg. Zone 4	6,250	5,500	5,250
4287: Kezan, OCCASIONALLY FLOODED-----	Wet Subirrigated - Veg. Zone 4	6,250	5,500	5,250
4298: Kipson-----	Shallow Limy - Veg. Zone 4	4,000	3,000	2,500
Sogn-----	Shallow Limy - Veg. Zone 4	4,000	3,000	2,500
4300: Kipson-----	Shallow Limy - Veg. Zone 4	3,500	2,500	2,000
Sogn-----	Shallow Limy - Veg. Zone 4	3,500	2,500	2,000
Rock Outcrop-----	No Site - Veg. Zone 4	0	0	0
4428: Lancaster-----	Silty - Veg. Zone 4	4,750	4,000	3,000
4429: Lancaster-----	Silty - Veg. Zone 4	4,750	4,000	3,000
4858: Malmo, SEVERELY ERODED-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
4864: Malmo, SEVERELY ERODED-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
Pawnee-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
5397: Morrill-----	Silty - Veg. Zone 4	4,750	4,000	3,000
5480: Muscotah, OCCASIONALLY FLOODED----	Clayey Overflow Veg. Zone 4	4,000	3,000	2,500
5540: Nodaway, OCCASIONALLY FLOODED----	Silty Overflow - Veg. Zone 4	4,000	3,300	2,750
5541: Nodaway, CHANNELED-----	Silty Overflow - Veg. Zone 4	4,000	3,300	2,750
5970: Otoe, SEVERELY ERODED-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
6005: Padonia-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
7069: Steinauer-----	Limy Upland - Veg. Zone 4	4,000	3,000	2,500
7078: Steinauer-----	Limy Upland - Veg. Zone 4	3,500	2,500	2,000
8061: Wymore-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
8063: Wymore-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
8080: Wymore-----	Clayey - Veg. Zone 4	4,500	3,750	2,750
9900: Arents, Earthen Dam-----	---	---	---	---
9980: Mine Or Quarry-----	---	---	---	---
9985: Pits-----	---	---	---	---
9995: Miscellaneous Water-----	---	---	---	---

RANGELAND PRODUCTIVITY--Continued
 Gage County, Nebraska

(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
9998: Water-----	---	---	---	---

BUILDING SITE DEVELOPMENT
Gage County, Nebraska

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. These 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
Gage County, Nebraska

(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
1849: Burchard-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Slope	0.50 0.00
1873: Burchard-----	50	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
Steinauer-----	35	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
1879: Burchard-----	45	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
Steinauer-----	40	Somewhat limited Slope Shrink-swell	0.96 0.50	Somewhat limited Slope Shrink-swell	0.96 0.50	Very limited Slope Shrink-swell	1.00 0.50
1930: Butler-----	92	Very limited Shrink-swell Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Shrink-swell	1.00 0.50	Very limited Shrink-swell Depth to saturated zone	1.00 1.00
2076: Chase, RARELY FLOODED-----	85	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 0.95 0.50	Very limited Flooding Shrink-swell	1.00 1.00
2201: Cortland, SEVERELY ERODED-----	55	Somewhat limited Shrink-swell Slope	0.50 0.04	Somewhat limited Slope	0.04	Very limited Slope Shrink-swell	1.00 0.50
Malmo, SEVERELY ERODED-----	25	Very limited Shrink-swell Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Depth to saturated zone Shrink-swell Slope	1.00 0.50 0.04	Very limited Shrink-swell Slope Depth to saturated zone	1.00 1.00 0.39
2418: Deroin, SEVERELY ERODED-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
2420: Deroin, SEVERELY ERODED-----	90	Somewhat limited Shrink-swell Slope	0.50 0.00	Somewhat limited Shrink-swell Slope	0.50 0.00	Very limited Slope Shrink-swell	1.00 0.50
2695: Edalgo-----	80	Very limited Shrink-swell Slope	1.00 0.96	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 0.96 0.64	Very limited Shrink-swell Slope	1.00 1.00
2832: Filley-----	95	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
2833: Filley-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
2863: Fluvaquents-----	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
3422: Hedville-----	80	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
4106: Judson-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
4210: Kennebec, RARELY FLOODED-----	85	Very limited Flooding Shrink-swell	 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	 1.00 0.61 0.50	Very limited Flooding Shrink-swell	 1.00 0.50
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Very limited Flooding Shrink-swell	 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	 1.00 0.61 0.50	Very limited Flooding Shrink-swell	 1.00 0.50
4281: Kezan, CHANNELED----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
4287: Kezan, OCCASIONALLY FLOODED-----	85	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00
4298: Kipson-----	50	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 Depth to soft bedrock Slope Shrink-swell	1.00 1.00 0.50
Sogn-----	45	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
4300: Kipson-----	50	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Slope	1.00
Sogn-----	35	Shrink-swell Very limited Depth to hard bedrock Slope	0.50 1.00 1.00	Shrink-swell Very limited Depth to hard bedrock Slope	0.50 1.00 1.00	Shrink-swell Very limited Slope	0.50 1.00
Rock Outcrop-----	15	Shrink-swell Not rated	0.50	Shrink-swell Not rated	0.50	Shrink-swell Not rated	0.50
4428: Lancaster-----	80	Not limited		Somewhat limited Depth to soft bedrock	0.20	Somewhat limited Slope	0.12
4429: Lancaster-----	80	Somewhat limited Slope	0.04	Somewhat limited Depth to soft bedrock Slope	0.20 0.04	Very limited Slope	1.00
4858: Malmo, SEVERELY ERODED-----	85	Very limited Shrink-swell Depth to saturated zone	 1.00 0.39	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Shrink-swell Depth to saturated zone Slope	 1.00 0.39 0.00

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
4864: Malmo, SEVERELY ERODED-----	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone Slope	0.39 0.04	Shrink-swell Slope	0.50 0.04	Slope Depth to saturated zone	1.00 0.39
Pawnee-----	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to saturated zone Slope	0.39 0.04	Depth to saturated zone Slope	1.00 0.04	Slope Depth to saturated zone	1.00 0.39
5397: Morrill-----	80	Very limited		Very limited		Very limited	
		Slope Shrink-swell	1.00 0.50	Slope	1.00	Slope Shrink-swell	1.00 0.50
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell Depth to saturated zone	1.00 0.07	Shrink-swell Depth to saturated zone	1.00 1.00	Shrink-swell Depth to saturated zone	1.00 0.07
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Very limited		Very limited		Very limited	
		Flooding Shrink-swell	1.00 0.50	Flooding Depth to saturated zone Shrink-swell	1.00 0.61 0.50	Flooding Shrink-swell	1.00 0.50
5541: Nodaway, CHANNELED--	85	Very limited		Very limited		Very limited	
		Flooding Shrink-swell	1.00 0.50	Flooding Depth to saturated zone Shrink-swell	1.00 0.61 0.50	Flooding Shrink-swell	1.00 0.50
5970: Otoe, SEVERELY ERODED-----	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.39	Shrink-swell	0.50	Slope Depth to saturated zone	0.86 0.39
6005: Padonia-----	85	Very limited		Very limited		Very limited	
		Shrink-swell Slope	1.00 0.04	Shrink-swell Depth to soft bedrock Slope	1.00 0.42 0.04	Shrink-swell Slope	1.00 1.00
7069: Steinauer-----	85	Very limited		Very limited		Very limited	
		Slope Shrink-swell	1.00 0.50	Slope Shrink-swell	1.00 0.50	Slope Shrink-swell	1.00 0.50
7078: Steinauer-----	85	Very limited		Very limited		Very limited	
		Slope Shrink-swell	1.00 0.50	Slope Shrink-swell	1.00 0.50	Slope Shrink-swell	1.00 0.50
8061: Wymore-----	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone Shrink-swell	1.00 0.50	Shrink-swell	1.00
8063: Wymore-----	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone Shrink-swell	1.00 0.50	Shrink-swell	1.00
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone Slope	0.39 0.00

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
8080: Wymore-----	90	Very limited Shrink-swell	1.00	Very limited Depth to saturated zone	1.00	Very limited Shrink-swell	1.00
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
9900: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
9980: Mine Or Quarry-----	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
9985: Pits-----	100	Not rated		Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated		Not rated	

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
1849: Burchard-----	85	Very limited Low strength Shrink-swell Frost action	1.00 0.50 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
1873: Burchard-----	50	Very limited Low strength Shrink-swell Frost action Slope	1.00 0.50 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
Steinauer-----	35	Very limited Low strength Shrink-swell Frost action Slope	1.00 0.50 0.50 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
1879: Burchard-----	45	Very limited Low strength Slope Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Steinauer-----	40	Very limited Low strength Slope Shrink-swell Frost action	1.00 0.96 0.50 0.50	Somewhat limited Slope Cutbanks cave	0.96 0.10	Somewhat limited Slope	0.96
1930: Butler-----	92	Very limited Shrink-swell Frost action Low strength Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Too clayey Cutbanks cave	1.00 0.50 0.10	Very limited Depth to saturated zone	1.00
2076: Chase, RARELY FLOODED-----	85	Very limited Frost action Low strength Shrink-swell Flooding	1.00 1.00 1.00 0.40	Somewhat limited Depth to saturated zone Cutbanks cave Too clayey	0.95 0.10 0.02	Not limited	
2201: Cortland, SEVERELY ERODED-----	55	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	0.04
Malmo, SEVERELY ERODED-----	25	Very limited Frost action Low strength Shrink-swell Depth to saturated zone Slope	1.00 1.00 1.00 0.19 0.04	Very limited Cutbanks cave Depth to saturated zone Too clayey Slope	1.00 1.00 0.18 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04
2418: Deroin, SEVERELY ERODED-----	85	Very limited Frost action Low strength Shrink-swell	1.00 1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
2420: Deroin, SEVERELY ERODED-----	90	Very limited Frost action Low strength Shrink-swell Slope	1.00 1.00 0.50 0.00	Somewhat limited Cutbanks cave Slope	0.10 0.00	Somewhat limited Slope	0.00

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
2695: Edalgo-----	80	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Slope Depth to soft bedrock	0.96 0.64	Somewhat limited Slope Depth to bedrock	0.96 0.65
		Slope Frost action	0.96 0.50	Too clayey Cutbanks cave	0.50 0.10		
2832: Filley-----	95	Somewhat limited Frost action Slope	0.50 0.04	Very limited Cutbanks cave Slope	1.00 0.04	Somewhat limited Slope	0.04
2833: Filley-----	90	Very limited Slope Frost action	1.00 0.50	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope	1.00
2863: Fluvaquents-----	95	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Flooding	1.00 1.00 0.80	Very limited Ponding Flooding Depth to saturated zone Too clayey	1.00 1.00 1.00 1.00
		Frost action	0.50	Cutbanks cave Too clayey	0.10 0.02		
3422: Hedville-----	80	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 1.00 0.68
4106: Judson-----	90	Very limited Frost action Low strength Shrink-swell	1.00 1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
4210: Kennebec, RARELY FLOODED-----	85	Very limited Frost action Low strength Shrink-swell Flooding	1.00 1.00 0.50 0.40	Somewhat limited Depth to saturated zone Cutbanks cave	0.61 0.10	Not limited	
4232: Kennebec, OCCASIONALLY FLOODED-----	90	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	0.61 0.60 0.10	Somewhat limited Flooding	0.60
4281: Kezan, CHANNELED----	85	Very limited Frost action Flooding Low strength Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.80 0.10	Very limited Flooding Depth to saturated zone	1.00 1.00
4287: Kezan, OCCASIONALLY FLOODED-----	85	Very limited Frost action Flooding Low strength Depth to saturated zone	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Very limited Depth to saturated zone Flooding	1.00 0.60

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
4298: Kipson-----	50	Very limited Depth to soft bedrock Low strength Slope Shrink-swell Frost action	1.00 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 Carbonate content Slope Droughty Content of large stones	1.00 1.00 0.35 0.20
Sogn-----	45	Very limited Depth to hard bedrock Low strength Shrink-swell Frost action Slope	1.00 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
4300: Kipson-----	50	Very limited Depth to soft bedrock Slope Low strength Shrink-swell Frost action	1.00 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 Carbonate content Droughty Content of large stones	1.00 1.00 1.00 0.35 0.20
Sogn-----	35	Very limited Depth to hard bedrock Low strength Slope Shrink-swell Frost action	1.00 1.00 1.00 0.50 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 1.00 0.00
Rock Outcrop-----	15	Not rated		Not rated		Not rated	
4428: Lancaster-----	80	Somewhat limited Frost action	0.50	Somewhat limited Depth to soft bedrock Cutbanks cave	0.20 0.10	Somewhat limited Depth to bedrock	0.20
4429: Lancaster-----	80	Somewhat limited Frost action Slope	0.50 0.04	Somewhat limited Depth to soft bedrock Cutbanks cave Slope	0.20 0.10 0.04	Somewhat limited Depth to bedrock Slope	0.20 0.04
4858: Malmo, SEVERELY ERODED-----	85	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 0.19	Very limited Cutbanks cave Depth to saturated zone Too clayey	1.00 1.00 0.18	Somewhat limited Depth to saturated zone	0.19
4864: Malmo, SEVERELY ERODED-----	60	Very limited Frost action Low strength Shrink-swell Depth to saturated zone Slope	1.00 1.00 1.00 0.19 0.04	Very limited Cutbanks cave Depth to saturated zone Too clayey Slope	1.00 1.00 0.18 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04
Pawnee-----	30	Very limited Frost action Low strength Shrink-swell Depth to saturated zone Slope	1.00 1.00 1.00 0.19 0.04	Very limited Depth to saturated zone Too clayey Cutbanks cave Slope	1.00 0.18 0.10 0.04	Somewhat limited Depth to saturated zone Slope	0.19 0.04

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
5397: Morrill-----	80	Very limited Slope Shrink-swell Frost action	1.00 0.50 0.50	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope	1.00
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Very limited Flooding Low strength Shrink-swell Frost action Depth to saturated zone	1.00 1.00 1.00 0.50 0.03	Very limited Depth to saturated zone Flooding Cutbanks cave Too clayey	1.00 0.60 0.10 0.02	Somewhat limited Flooding Depth to saturated zone	0.60 0.03
5540: Nodaway, OCCASIONALLY FLOODED-----	90	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	0.61 0.60 0.10	Somewhat limited Flooding	0.60
5541: Nodaway, CHANNELED--	85	Very limited Frost action Flooding Low strength Shrink-swell	1.00 1.00 1.00 0.50	Somewhat limited Flooding Depth to saturated zone Cutbanks cave	0.80 0.61 0.10	Very limited Flooding	1.00
5970: Otoe, SEVERELY ERODED-----	85	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 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
6005: Padonia-----	85	Very limited Low strength Shrink-swell Frost action Slope	1.00 1.00 0.50 0.04	Somewhat limited Depth to soft bedrock Cutbanks cave Slope Too clayey	0.42 0.10 0.04 0.03	Somewhat limited Depth to bedrock Slope	0.42 0.04
7069: Steinauer-----	85	Very limited Slope Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
7078: Steinauer-----	85	Very limited Slope Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
8061: Wymore-----	90	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 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
8063: Wymore-----	90	Very limited Frost action Low strength Shrink-swell Depth to saturated zone	1.00 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

BUILDING SITE DEVELOPMENT--Continued
Gage County, Nebraska

(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
8080: Wymore-----	90	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.19
		Low strength	1.00	Too clayey	0.32		
		Shrink-swell	1.00	Cutbanks cave	0.10		
		Depth to saturated zone	0.19				
9900: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
9980: Mine Or Quarry-----	100	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope Droughty	1.00 1.00
9985: Pits-----	100	Not rated		Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated		Not rated	

CONSTRUCTION MATERIALS
Gage County, Nebraska

Construction Materials

These 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 the first table, 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
Gage County, Nebraska

(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
1849: Burchard-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1873: Burchard-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Steinauer-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1879: Burchard-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Steinauer-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
1930: Butler-----	92	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2076: Chase, RARELY FLOODED-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2201: Cortland, SEVERELY ERODED-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.20
Malmo, SEVERELY ERODED-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2418: Deroin, SEVERELY ERODED-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2420: Deroin, SEVERELY ERODED-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2695: Edalgo-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
2832: Filley-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.62
2833: Filley-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.09 0.62
2863: Fluvaquents-----	95	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
3422: Hedville-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4106: Judson-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4210: Kennebec, RARELY FLOODED-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4281: Kezan, CHANNELED----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4287: Kezan, OCCASIONALLY FLOODED-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4298: Kipson-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sogn-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4300: 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
Rock Outcrop-----	15	Not rated		Not rated	
4428: Lancaster-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4429: Lancaster-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4858: Malmo, SEVERELY ERODED-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
4864: Malmo, SEVERELY ERODED-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
5397: Morrill-----	80	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.06 0.07
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
5541: Nodaway, CHanneled--	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
5970: Otoe, SEVERELY ERODED-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
6005: Padonia-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
7069: Steinauer-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
7078: Steinauer-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
8061: Wymore-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
8063: Wymore-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
8080: Wymore-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
9900: Arents, Earthen Dam-	100	Not rated		Not rated	
9980: Mine Or Quarry-----	100	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
9985: Pits-----	100	Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
9995: Miscellaneous Water-	100	Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
1849: Burchard-----	85	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.87	Good	
1873: Burchard-----	50	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.87	Fair Slope	0.96
Steinauer-----	35	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.87	Fair Slope	0.96
1879: Burchard-----	45	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.87	Poor Slope	0.00
Steinauer-----	40	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength Shrink-swell	0.00 0.87	Fair Slope	0.04
1930: Butler-----	92	Poor Too clayey Low content of organic matter Too acid Water erosion	0.00 0.12 0.84 0.99	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.00 0.09	Poor Too Clayey Depth to saturated zone	0.00 0.00
2076: Chase, RARELY FLOODED-----	85	Poor Too clayey Water erosion	0.00 0.99	Poor Low strength Shrink-swell	0.00 0.55	Poor Too Clayey	0.00
2201: Cortland, SEVERELY ERODED-----	55	Fair Low content of organic matter Too acid Water erosion	0.12 0.32 0.99	Good		Fair Slope	0.96
Malmo, SEVERELY ERODED-----	25	Poor Too clayey Low content of organic matter Too acid Water erosion	0.00 0.18 0.95 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.34 0.53	Poor Too Clayey Depth to saturated zone Slope	0.00 0.53 0.96
2418: Deroin, SEVERELY ERODED-----	85	Fair Low content of organic matter Too clayey Too acid Water erosion	0.50 0.68 0.88 0.90	Poor Low strength Shrink-swell	0.00 0.87	Fair Too Clayey	0.44
2420: Deroin, SEVERELY ERODED-----	90	Fair Low content of organic matter Too clayey Too acid Water erosion	0.50 0.68 0.88 0.90	Poor Low strength Shrink-swell	0.00 0.87	Fair Too Clayey	0.44

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
2695: Edalgo-----	80	Poor Too clayey Depth to bedrock Droughty Water erosion	0.00 0.35 0.57 0.99	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Too Clayey Slope Depth to bedrock	0.00 0.04 0.35
2832: Filley-----	95	Fair Low content of organic matter Too acid	0.12 0.84	Good		Fair Slope	0.96
2833: Filley-----	90	Fair Low content of organic matter Too acid	0.12 0.84	Good		Poor Slope	0.00
2863: Fluvaquents-----	95	Poor Low content of organic matter Too clayey	0.00 0.00	Poor Depth to saturated zone	0.00	Poor Depth to saturated zone Too Clayey	0.00 0.00
3422: Hedville-----	80	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.82	Poor Depth to bedrock Slope Rock fragments	0.00 0.00 0.12
4106: Judson-----	90	Fair Water erosion	0.90	Poor Low strength Shrink-swell	0.00 0.87	Good	
4210: Kennebec, RARELY FLOODED-----	85	Good		Poor Low strength Shrink-swell	0.00 0.87	Good	
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Good		Poor Low strength Shrink-swell	0.00 0.87	Good	
4281: Kezan, CHANNELED---	85	Fair Water erosion	0.90	Poor Low strength Depth to saturated zone	0.00 0.00	Poor Depth to saturated zone	0.00
4287: Kezan, OCCASIONALLY FLOODED-----	85	Fair Water erosion	0.90	Poor Low strength Depth to saturated zone	0.00 0.00	Poor Depth to saturated zone	0.00
4298: Kipson-----	50	Poor Depth to bedrock Carbonate content Droughty Too clayey	0.00 0.00 0.01 0.92	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.87	Poor Depth to bedrock Slope Rock fragments Too Clayey	0.00 0.00 0.68 0.87
Sogn-----	45	Poor Droughty Depth to bedrock Too clayey	0.00 0.00 0.92	Poor Depth to bedrock Low strength	0.00 0.00	Poor Depth to bedrock Slope Too Clayey	0.00 0.84 0.87

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
4300: Kipson-----	50	Poor Depth to bedrock Carbonate content Droughty Too clayey	0.00 0.00 0.01 0.92	Poor Depth to bedrock Slope Low strength Shrink-swell	0.00 0.00 0.00 0.87	Poor Depth to bedrock Slope Rock fragments Too Clayey	0.00 0.00 0.68 0.87
Sogn-----	35	Poor Droughty Depth to bedrock Too clayey	0.00 0.00 0.92	Poor Depth to bedrock Low strength Slope	0.00 0.00 0.00	Poor Depth to bedrock Slope Too Clayey	0.00 0.00 0.87
Rock Outcrop-----	15	Not rated		Not rated		Not rated	
4428: Lancaster-----	80	Fair Depth to bedrock Low content of organic matter Too acid	0.79 0.88 0.95	Poor Depth to bedrock	0.00	Fair Depth to bedrock	0.79
4429: Lancaster-----	80	Fair Depth to bedrock Low content of organic matter Too acid	0.79 0.88 0.95	Poor Depth to bedrock	0.00	Fair Depth to bedrock Slope	0.79 0.96
4858: Malmo, SEVERELY ERODED-----	85	Poor Too clayey Low content of organic matter Too acid Water erosion	0.00 0.18 0.95 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.34 0.53	Poor Too Clayey Depth to saturated zone	0.00 0.53
4864: Malmo, SEVERELY ERODED-----	60	Poor Too clayey Low content of organic matter Too acid Water erosion	0.00 0.18 0.95 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.34 0.53	Poor Too Clayey Depth to saturated zone Slope	0.00 0.53 0.96
Pawnee-----	30	Poor Too clayey Low content of organic matter Water erosion	0.00 0.12 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.17 0.53	Poor Too Clayey Depth to saturated zone Slope	0.00 0.53 0.96
5397: Morrill-----	80	Fair Low content of organic matter Too acid	0.12 0.32	Fair Shrink-swell	0.99	Poor Slope Rock fragments	0.00 0.88
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Poor Too clayey Water erosion	0.00 0.99	Poor Low strength Shrink-swell Depth to saturated zone	0.00 0.29 0.76	Poor Too Clayey Depth to saturated zone	0.00 0.76
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Fair Low content of organic matter Water erosion	0.12 0.90	Poor Low strength Shrink-swell	0.00 0.87	Good	

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
5541: Nodaway, CHANNELED--	85	Fair Low content of organic matter Water erosion	0.12 0.90	Poor Low strength Shrink-swell	0.00 0.87	Good	
5970: Otoe, SEVERELY ERODED-----	85	Poor Too clayey Low content of organic matter Too acid Water erosion	0.00 0.12 0.88 0.90	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.53 0.55	Poor Too Clayey Depth to saturated zone	0.00 0.53
6005: Padonia-----	85	Poor Too clayey Depth to bedrock Water erosion Droughty	0.00 0.58 0.90 0.92	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.15	Poor Too Clayey Depth to bedrock Slope	0.00 0.58 0.96
7069: Steinauer-----	85	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Low strength Slope Shrink-swell	0.00 0.50 0.87	Poor Slope	0.00
7078: Steinauer-----	85	Fair Low content of organic matter Water erosion	0.12 0.99	Poor Slope Low strength Shrink-swell	0.00 0.00 0.87	Poor Slope	0.00
8061: Wymore-----	90	Poor Too clayey Low content of organic matter Water erosion Too acid	0.00 0.12 0.90 0.95	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.53 0.55	Poor Too Clayey Depth to saturated zone	0.00 0.53
8063: Wymore-----	90	Poor Too clayey Low content of organic matter Water erosion Too acid	0.00 0.12 0.90 0.95	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.53 0.55	Poor Too Clayey Depth to saturated zone	0.00 0.53
8080: Wymore-----	90	Poor Too clayey Low content of organic matter Water erosion Too acid	0.00 0.12 0.90 0.95	Poor Low strength Depth to saturated zone Shrink-swell	0.00 0.53 0.55	Poor Too Clayey Depth to saturated zone	0.00 0.53
9900: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
9980: Mine Or Quarry-----	100	Poor Droughty Low content of organic matter	0.00 0.00	Poor Slope	0.00	Poor Slope	0.00
9985: Pits-----	100	Not rated		Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	

CONSTRUCTION MATERIALS--Continued
Gage County, Nebraska

(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
9998: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS
Gage County, Nebraska

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
 Gage County, Nebraska

(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
1849: Burchard-----	85	Somewhat limited Restricted permeability	0.15	Somewhat limited Restricted permeability	0.15	Somewhat limited Slope	0.50
						Restricted permeability	0.15
1873: Burchard-----	50	Somewhat limited Restricted permeability Slope	0.15 0.04	Somewhat limited Restricted permeability Slope	0.15 0.04	Very limited Slope	1.00
						Restricted permeability	0.15
Steinauer-----	35	Somewhat limited Restricted permeability Slope	0.15 0.04	Somewhat limited Restricted permeability Slope	0.15 0.04	Very limited Slope	1.00
						Restricted permeability	0.15
1879: Burchard-----	45	Very limited Slope Restricted permeability	1.00 0.15	Very limited Slope Restricted permeability	1.00 0.15	Very limited Slope Restricted permeability	1.00 0.15
Steinauer-----	40	Somewhat limited Slope Restricted permeability	0.96 0.15	Somewhat limited Slope Restricted permeability	0.96 0.15	Very limited Slope Restricted permeability	1.00 0.15
1930: Butler-----	92	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone	1.00 1.00
2076: Chase, RARELY FLOODED-----	85	Very limited Flooding Restricted permeability	1.00 0.94	Somewhat limited Restricted permeability	0.94	Somewhat limited Restricted permeability	0.94
2201: Cortland, SEVERELY ERODED-----	55	Somewhat limited Restricted permeability Slope	0.69 0.04	Somewhat limited Restricted permeability Slope	0.69 0.04	Very limited Slope Restricted permeability	1.00 0.69
Malmo, SEVERELY ERODED-----	25	Very limited Restricted permeability Depth to saturated zone Slope	1.00 0.39 0.04	Very limited Restricted permeability Depth to saturated zone Slope	1.00 0.19 0.04	Very limited Slope Restricted permeability Depth to saturated zone	1.00 1.00 0.39
2418: Deroin, SEVERELY ERODED-----	85	Somewhat limited Restricted permeability	0.21	Somewhat limited Restricted permeability	0.21	Somewhat limited Restricted permeability Slope	0.21 0.13
2420: Deroin, SEVERELY ERODED-----	90	Somewhat limited Restricted permeability Slope	0.21 0.00	Somewhat limited Restricted permeability Slope	0.21 0.00	Very limited Slope Restricted permeability	1.00 0.21
2695: Edalgo-----	80	Somewhat limited Slope Restricted permeability	0.96 0.45	Somewhat limited Slope Restricted permeability	0.96 0.45	Very limited Slope Depth to bedrock Restricted permeability	1.00 0.65 0.45
2832: Filley-----	95	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
2833: Filley-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
2863: Fluvaquents-----	95	Very limited		Very limited		Very limited	

RECREATIONAL INTERPRETATIONS--Continued
Gage County, Nebraska

(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
4864: Malmo, SEVERELY ERODED-----	60	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
Pawnee-----	30	Very limited		Very limited		Depth to saturated zone	0.39
		Restricted permeability	1.00	Restricted permeability	1.00	Very limited	
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	1.00
		Slope	0.04	Slope	0.04	Restricted permeability	1.00
5397: Morrill-----	80	Very limited	1.00	Very limited	1.00	Depth to saturated zone	0.39
		Slope	0.26	Restricted permeability	0.19	Very limited Slope	1.00
		Restricted permeability	0.04	Depth to saturated zone	0.04	Restricted permeability	1.00
				Slope	0.04	Depth to saturated zone	0.39
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Very limited		Somewhat limited		Very limited Slope	1.00
		Flooding	1.00	Restricted permeability	0.94	Restricted permeability	1.00
		Restricted permeability	0.94	Depth to saturated zone	0.03	Gravel content	0.06
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Very limited		Not limited		Depth to saturated zone	0.07
		Flooding	1.00			Somewhat limited	
5541: Nodaway, CHANNELED--	85	Very limited		Somewhat limited		Flooding	0.60
5970: Otoe, SEVERELY ERODED-----	85	Flooding	1.00	Flooding	0.40	Very limited Flooding	1.00
		Very limited		Very limited		Very limited	
6005: Padonia-----	85	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	1.00
		Somewhat limited	0.94	Somewhat limited	0.94	Depth to saturated zone	0.39
		Restricted permeability	0.04	Restricted permeability	0.04	Very limited Slope	1.00
7069: Steinauer-----	85	Slope	1.00	Very limited Slope	1.00	Restricted permeability	0.94
		Restricted permeability	0.15	Restricted permeability	0.15	Depth to bedrock	0.42
7078: Steinauer-----	85	Very limited		Very limited		Very limited Slope	1.00
		Slope	1.00	Slope	1.00	Restricted permeability	0.15
8061: Wymore-----	90	Restricted permeability	1.00	Restricted permeability	1.00	Very limited Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Restricted permeability	0.15
8063: Wymore-----	90	Very limited		Very limited		Very limited Slope	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00

RECREATIONAL INTERPRETATIONS--Continued
Gage County, Nebraska

(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
8080: Wymore-----	90	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
		Very limited Restricted permeability	1.00	Very limited Restricted permeability	1.00	Depth to saturated zone	0.39
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Very limited Restricted permeability	1.00
9900: Arents, Earthen Dam-	100	Not rated		Not rated		Depth to saturated zone	0.39
9980: Mine Or Quarry-----	100	Very limited Slope Restricted permeability	1.00 1.00	Very limited Slope Restricted permeability	1.00 1.00	Not rated	
9985: Pits-----	100	Not rated		Not rated		Very limited Slope Restricted permeability	1.00 1.00
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated		Not rated	

RECREATIONAL INTERPRETATIONS--Continued
Gage County, Nebraska

(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
1849: Burchard-----	85	Not limited		Not limited	
1873: Burchard-----	50	Not limited		Somewhat limited Slope	0.04
Steinauer-----	35	Not limited		Somewhat limited Slope	0.04
1879: Burchard-----	45	Somewhat limited Slope	0.00	Very limited Slope	1.00
Steinauer-----	40	Not limited		Somewhat limited Slope	0.96
1930: Butler-----	92	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
2076: Chase, RARELY FLOODED-----	85	Not limited		Not limited	
2201: Cortland, SEVERELY ERODED-----	55	Not limited		Somewhat limited Slope	0.04
Malmo, SEVERELY ERODED-----	25	Not limited		Somewhat limited Depth to saturated zone	0.19
				Slope	0.04
2418: Deroin, SEVERELY ERODED-----	85	Not limited		Not limited	
2420: Deroin, SEVERELY ERODED-----	90	Not limited		Somewhat limited Slope	0.00
2695: Edalgo-----	80	Not limited		Somewhat limited Slope Depth to bedrock	0.96 0.65
2832: Filley-----	95	Not limited		Somewhat limited Slope	0.04
2833: Filley-----	90	Somewhat limited Slope	0.00	Very limited Slope	1.00
2863: Fluvaquents-----	95	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Too clayey	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Too clayey	1.00
3422: Hedville-----	80	Somewhat limited Slope	0.18	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 1.00 0.68
4106: Judson-----	90	Not limited		Not limited	
4210: Kennebec, RARELY FLOODED-----	85	Not limited		Not limited	
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Not limited		Somewhat limited Flooding	0.60
4281: Kezan, CHanneled---	85	Very limited Depth to saturated zone	1.00	Very limited Flooding	1.00
		Flooding	0.40	Depth to saturated zone	1.00
4287: Kezan, OCCASIONALLY FLOODED-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00

RECREATIONAL INTERPRETATIONS--Continued
Gage County, Nebraska

(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
4298: Kipson-----	50	Somewhat limited Slope	0.00	Flooding Very limited Depth to bedrock Carbonate content Slope Droughty Content of large stones	0.60 1.00 1.00 1.00 0.35 0.20
Sogn-----	45	Very limited Too Stony	1.00	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 0.16 0.00
4300: Kipson-----	50	Very limited Slope	1.00	Very limited Depth to bedrock Slope Carbonate content Droughty Content of large stones	1.00 1.00 1.00 0.35 0.20
Sogn-----	35	Very limited Too Stony Slope	1.00 1.00	Very limited Depth to bedrock Droughty Slope Content of large stones	1.00 1.00 1.00 0.00
Rock Outcrop-----	15	Not rated		Not rated	
4428: Lancaster-----	80	Not limited		Somewhat limited Depth to bedrock	0.20
4429: Lancaster-----	80	Not limited		Somewhat limited Depth to bedrock Slope	0.20 0.04
4858: Malmo, SEVERELY ERODED-----	85	Not limited		Somewhat limited Depth to saturated zone	0.19
4864: Malmo, SEVERELY ERODED-----	60	Not limited		Somewhat limited Depth to saturated zone Slope	0.19 0.04
Pawnee-----	30	Not limited		Somewhat limited Depth to saturated zone Slope	0.19 0.04
5397: Morrill-----	80	Somewhat limited Slope	0.00	Very limited Slope	1.00
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.03
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Not limited		Somewhat limited Flooding	0.60
5541: Nodaway, CHANNELED--	85	Somewhat limited Flooding	0.40	Very limited Flooding	1.00
5970: Otoe, SEVERELY ERODED-----	85	Not limited		Somewhat limited Depth to saturated zone	0.19
6005: Padonia-----	85	Not limited		Somewhat limited Depth to bedrock	0.42

RECREATIONAL INTERPRETATIONS--Continued
Gage County, Nebraska

(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
7069: Steinauer-----	85	Somewhat limited Slope	0.50	Slope	0.04
7078: Steinauer-----	85	Very limited Slope	1.00	Very limited Slope	1.00
8061: Wymore-----	90	Not limited		Somewhat limited Depth to saturated zone	0.19
8063: Wymore-----	90	Not limited		Somewhat limited Depth to saturated zone	0.19
8080: Wymore-----	90	Not limited		Somewhat limited Depth to saturated zone	0.19
9900: Arents, Earthen Dam-	100	Not rated		Not rated	
9980: Mine Or Quarry-----	100	Very limited Slope Water erosion	1.00 1.00	Very limited Slope Droughty	1.00 1.00
9985: Pits-----	100	Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated	

WILDLIFE INTERPRETATIONS
Gage County, Nebraska

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 garden 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
Gage County, Nebraska

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
1849: BURCHARD-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
1873: BURCHARD-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
STEINAUER-----	Poor	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
1879: BURCHARD-----	Fair	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor	Good
STEINAUER-----	Poor	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
1930: BUTLER-----	Good	Good	Good	---	Good	Good	Fair	Fair	Good	---	Fair	Good
2076: CHASE-----	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	---
2201: CORTLAND-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
MALMO-----	Fair	Good	Good	Good	Good	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
2418: DEROIN-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
2420: DEROIN-----	Fair	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
2695: EDALGO-----	Fair	Fair	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
2832: FILLEY-----	Poor	Fair	Good	Good	Good	---	Very poor	Very poor	Fair	Fair	Very poor	---
2833: FILLEY-----	Fair	Good	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor	---
2863: FLUVAQUENTS----	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Good	Good	Very poor	Very poor	Good	Very poor
3422: HEDVILLE-----	Very poor	Poor	Poor	---	---	Poor	Very poor	Very poor	Poor	---	Very poor	Poor
4106: JUDSON-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
4210: KENNEBEC-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
4232: KENNEBEC-----	Good	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor	---
4281: KEZAN-----	Very poor	Fair	Fair	Poor	Poor	Fair	Good	Good	Fair	Fair	Good	Fair
4287: KEZAN-----	Very poor	Fair	Fair	Poor	Poor	Fair	Good	Good	Fair	Fair	Good	Fair
4298: 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
4300: KIPSON-----	Poor	Fair	Fair	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Poor

WILDLIFE INTERPRETATIONS--Continued
Gage County, Nebraska

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
SOGN-----	Very poor	Very poor	Poor	---	---	Poor	Very poor	Very poor	Very poor	---	Very poor	Poor
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
4428: LANCASTER-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
4429: LANCASTER-----	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
4858: MALMO-----	Fair	Good	Good	Good	Good	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
4864: MALMO-----	Fair	Good	Good	Good	Good	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
PAWNEE-----	Fair	Good	Good	---	Fair	Fair	Very poor	Very poor	Good	Good	Very poor	Fair
5397: MORRILL-----	Fair	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
5480: MUSCOTAH-----	Fair	Good	Good	Poor	Good	Good	Fair	Fair	Good	Good	Fair	---
5540: NODAWAY-----	Good	Good	Good	Good	Fair	---	Fair	Poor	Fair	Good	Fair	---
5541: NODAWAY-----	Poor	Fair	Fair	Fair	Poor	---	Fair	Fair	Fair	Fair	Poor	---
5970: OTOE-----	Fair	Good	Fair	Good	Good	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
6005: PADONIA-----	Fair	Good	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor	Fair
7069: STEINAUER-----	Poor	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor	Good
7078: STEINAUER-----	Very poor	Poor	Good	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor	Good
8061: WYMORE-----	Good	Good	Fair	Good	Good	Fair	Poor	Very poor	Good	Good	Very poor	Fair
8063: WYMORE-----	Fair	Good	Fair	Good	Good	Fair	Very poor	Very poor	Fair	Good	Very poor	Fair
8080: WYMORE-----	Good	Good	Fair	Good	Good	Fair	Poor	Very poor	Good	Good	Very poor	Fair
9900: ARENTS, EARTHEN DAM-----	---	---	---	---	---	---	---	---	---	---	---	---
9980: MINE OR QUARRY--	---	---	---	---	---	---	---	---	---	---	---	---
9985: PITS-----	Very poor	Very poor	Poor	Poor	Poor	Poor	Very poor	Fair	Very poor	Very poor	Poor	Poor
9995: MISCELLANEOUS WATER-----	---	---	---	---	---	---	---	---	---	---	---	---
9998: WATER-----	---	---	---	---	---	---	---	---	---	---	---	---

CONSERVATION TREE AND SHRUB MANAGEMENT
Gage County, Nebraska

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. Unsuited 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 unsuited 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 unsuited 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 unsuited 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
Gage County,
Nebraska

(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
1849: Burchard-----	3	Well suited	Well suited	Well suited	Well suited	Low
1873: Burchard-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Steinauer-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
1879: Burchard-----	3	Well suited	Moderately suited Slope	Poorly suited Slope	Poorly suited Slope	Low
Steinauer-----	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
1930: Butler-----	2	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
2076: Chase, RARELY FLOODED-----	2	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
2201: Cortland, SEVERELY ERODED-----	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Malmo, SEVERELY ERODED-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
2418: Deroin, SEVERELY ERODED-----	3	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
2420: Deroin, SEVERELY ERODED-----	3	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
2695: Edalgo-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
2832: Filley-----	5	Well suited	Moderately suited Slope	Well suited	Well suited	Low
2833: Filley-----	5	Well suited	Moderately suited Slope	Poorly suited Slope	Poorly suited Slope	Low
2863: Fluvaquents-----	10	Unsuited Wetness Stickiness	Unsuited Wetness Stickiness	Unsuited Wetness	Unsuited Wetness	High Wetness
3422: Hedville-----	10	Moderately suited Rock fragments	Poorly suited Slope Rock fragments	Poorly suited Slope	Poorly suited Slope	Low
4106: Judson-----	3	Well suited	Well suited	Well suited	Well suited	Low
4210: Kennebec, RARELY FLOODED-----	1	Well suited	Well suited	Well suited	Well suited	Low
4232: Kennebec, OCCASIONALLY FLOODED-----	1	Well suited	Well suited	Well suited	Well suited	Low
4281: Kezan, CHANNELED----	10	Unsuited Wetness	Moderately suited Wetness	Unsuited Wetness	Unsuited Wetness	High Wetness
4287: Kezan, OCCASIONALLY FLOODED-----	10	Unsuited Wetness	Moderately suited Wetness	Unsuited Wetness	Unsuited Wetness	High Wetness

CONSERVATION TREE AND SHRUB MANAGEMENT
Gage County,
Nebraska

(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
4298: Kipson-----	10	Moderately suited Rock fragments	Poorly suited Rock fragments Slope	Poorly suited Slope	Poorly suited Slope	High Lime Soil reaction
Sogn-----	10	Unsuited Restrictive layer Stickiness Rock fragments	Unsuited Restrictive layer Rock fragments Slope Stickiness	Unsuited Restrictive layer Rock fragments	Unsuited Restrictive layer Rock fragments	Low
4300: Kipson-----	10	Moderately suited Rock fragments	Unsuited Slope Rock fragments	Poorly suited Slope	Poorly suited Slope	High Lime Soil reaction
Sogn-----	10	Unsuited Restrictive layer Stickiness Rock fragments	Unsuited Slope Restrictive layer Rock fragments Stickiness	Unsuited Restrictive layer Slope Rock fragments	Unsuited Restrictive layer Slope Rock fragments	Low
Rock Outcrop-----	10	Not rated	Not rated	Not rated	Not rated	Not rated
4428: Lancaster-----	6D	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
4429: Lancaster-----	6D	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low
4858: Malmo, SEVERELY ERODED-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
4864: Malmo, SEVERELY ERODED-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
Pawnee-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
5397: Morrill-----	3	Well suited	Moderately suited Slope	Poorly suited Slope	Poorly suited Slope	Low
5480: Muscotah, OCCASIONALLY FLOODED-----	2	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	Low
5540: Nodaway, OCCASIONALLY FLOODED-----	1	Well suited	Well suited	Well suited	Well suited	Low
5541: Nodaway, CHANNELED--	10	Well suited	Well suited	Well suited	Well suited	Low
5970: Otoe, SEVERELY ERODED-----	4C	Poorly suited Stickiness	Poorly suited Stickiness Slope	Poorly suited Stickiness	Well suited	Low
6005: Padonia-----	4C	Moderately suited Stickiness	Moderately suited Slope Stickiness	Well suited	Well suited	Low

CONSERVATION TREE AND SHRUB MANAGEMENT
Gage County,
Nebraska

(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
7069: Steinauer-----	10	Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Moderate Soil reaction
7078: Steinauer-----	10	Moderately suited Slope	Unsuited Slope	Unsuited Slope	Unsuited Slope	Moderate Soil reaction
8061: Wymore-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
8063: Wymore-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
8080: Wymore-----	4C	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
9900: Arents, Earthen Dam-		Not rated	Not rated	Not rated	Not rated	Not rated
9980: Mine Or Quarry-----	10	Well suited	Moderately suited Rock fragments	Well suited	Well suited	High Soil reaction
9985: Pits-----		Not rated	Not rated	Not rated	Not rated	Not rated
9995: Miscellaneous Water-		Not rated	Not rated	Not rated	Not rated	Not rated
9998: Water-----		Not rated	Not rated	Not rated	Not rated	Not rated

ENGINEERING INDEX PROPERTIES
Gage County, Nebraska

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
Gage County, Nebraska

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit Pct	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
1849: Burchard-----	0-13	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-95	60-80	36-39	15-18
	13-19	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	36-44	15-22
	19-29	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	34-39	14-18
	29-37	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	34-39	14-18
	37-60	Clay loam	CL	A-6	0	0-5	95-100	85-100	75-95	60-80	34-39	14-18
1873: Burchard-----	0-13	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-95	60-80	36-39	15-18
	13-19	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	36-44	15-22
	19-29	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	34-38	14-18
	29-37	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	34-39	14-18
	37-60	Clay loam	CL	A-6	0	0-5	95-100	85-100	75-95	60-80	34-39	14-18
Steinauer-----	0-6	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	55-90	36-41	16-20
	6-15	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	70-90	36-41	16-20
	15-41	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
	41-60	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
1879: Burchard-----	0-13	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-95	60-80	36-39	15-18
	13-19	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	36-44	15-22
	19-29	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	34-39	9-22
	29-37	Clay loam	CL	A-7-6	0	0-5	95-100	85-100	75-95	60-80	24-39	14-18
	37-60	Clay loam	CL	A-6	0	0-5	95-100	85-100	75-95	60-80	34-39	14-18
Steinauer-----	0-6	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	55-90	36-41	16-20
	6-15	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	70-90	36-41	16-20
	15-41	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
	41-60	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
1930: Butler-----	0-6	Silt loam	CL	A-6	0	0	100	100	100	95-100	28-43	9-22
	6-10	Silt loam	CL	A-6	0	0	100	100	100	95-100	28-43	9-22
	10-12	Silt loam	CL	A-6	0	0	100	100	100	95-100	28-43	9-22
	12-25	Silty clay	CH	A-7-6	0	0	100	100	100	95-100	61-71	37-45
	25-34	Silty clay	CH	A-7-6	0	0	100	100	100	95-100	61-71	37-45
	34-43	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	39-61	27-37
	43-60	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	36-51	17-30
2076: Chase, RARELY FLOODED-----	0-9	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	43-51	22-29
	9-19	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	43-56	22-33
	19-30	Silty clay	CH	A-7-6	0	0	100	100	90-100	75-95	51-71	29-45
	30-41	Silty clay	CH	A-7-6	0	0	100	100	90-100	75-95	51-71	29-45
	41-47	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	43-56	22-33
	47-80	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	43-56	22-33
2201: Cortland, SEVERELY ERODE	0-6	Loam	CL	A-6	0	0	95-100	75-100	65-95	50-75	25-36	8-16
	6-15	Clay loam	CL	A-6	0	0	85-100	65-98	50-95	25-80	28-44	9-22
	15-28	Clay loam	CL	A-6	0	0	85-100	65-98	50-95	25-80	28-44	9-22
	28-36	Sandy loam	SC	A-2-4	0	0	85-100	65-98	35-85	15-80	15-44	NP-22
	36-40	Loamy sand	SC	A-1-b	0	0	85-100	65-98	35-95	15-80	14-39	NP-18
	40-50	Loamy sand	SC	A-1-b	0	0	85-100	65-98	35-95	15-80	13-39	NP-18
	50-80	Loamy sand	SC	A-1-b	0	0	85-100	65-98	35-95	15-80	13-39	NP-18
Malmo, SEVERELY ERODED-----	0-6	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	44-56	22-33
	6-15	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	15-25	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	25-39	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	39-43	Gravelly clay	CH	A-7-6	0	0	95-100	75-85	65-75	60-70	51-66	29-41
	43-54	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	34-63	15-39
	54-80	Loam	CL	A-7-6	0	0	95-100	90-100	65-95	60-95	34-63	15-39
2418: Derooin, SEVEREL ERODED-----	0-7	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	85-95	36-48	16-25
	7-12	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	70-95	36-44	16-22
	12-18	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	70-95	36-44	16-22
	18-40	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	70-95	36-44	16-22
	40-50	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-95	34-41	14-20
	50-80	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	34-41	14-20
2420: Derooin, SEVEREL ERODED-----	0-7	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	85-95	36-48	16-25
	7-12	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	70-95	36-44	16-22
	12-18	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	70-95	36-44	16-22
	18-40	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	70-95	36-44	16-22
	40-50	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-95	34-41	14-20
	50-80	Silty clay loam	CL	A-6	0	0	100	100	90-100	70-95	34-41	14-20
2695: Edalgo-----	0-4	Silty clay loam	CL	A-6	0	0	100	100	90-100	80-95	35-45	15-20
	4-8	Silty clay loam	CL	A-6	0	0	100	100	90-100	80-95	35-45	15-20
	8-28	Clay	CL	A-7-6	0	0	95-100	85-100	75-100	70-90	44-68	22-45
	28-40	Weathered bedrock			---	---	---	---	---	---	---	---
2832: Filly-----	0-6	Fine sandy loam	SC	A-4	0	0	100	100	85-95	30-50	21-28	4-9
	6-12	Fine sandy loam	SC	A-4	0	0	100	100	85-95	30-50	21-28	4-9
	12-23	Fine sandy loam	SC	A-4	0	0	100	100	85-95	35-50	21-26	4-8
	23-30	Fine sandy loam	SC	A-4	0	0	100	100	85-95	35-50	21-26	4-8
	30-80	Loamy fine sand	SC-SM	A-2-4	0	0	100	100	80-95	5-20	15-21	NP-4

ENGINEERING INDEX PROPERTIES--Continued
Gage County, Nebraska

(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	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
2833: Filley-----	0-6	Fine sandy loam	SC	A-4	0	0	100	100	85-95	30-50	21-28	4-9
	6-12	Fine sandy loam	SC	A-4	0	0	100	100	85-95	30-50	21-28	4-9
	12-23	Fine sandy loam	SC	A-4	0	0	100	100	85-95	35-50	21-26	4-8
	23-30	Fine sandy loam	SC	A-4	0	0	100	100	85-95	35-50	21-26	4-8
	30-80	Loamy fine sand	SC-SM	A-2-4	0	0	100	100	80-95	5-20	15-21	NP-4
2863: Fluvaquents----	0-20	Silty clay	CL	A-7-6	0	0	100	100	85-100	45-95	35-66	15-40
	20-80	Stratified variable	GP	A-1-a	0	0	---	---	---	---	---	---
3422: Hedville-----	0-10	Cobbly loam	SC	A-4	0	15-25	80-100	75-100	40-100	10-70	20-30	3-11
	10-16	Cobbly loam	ML	A-4	0	2-15	80-100	75-100	30-90	15-90	18-30	2-11
	16-22	Bedrock			---	---	---	---	---	---	---	---
4106: Judson-----	0-6	Silt loam	CL	A-6	0	0	100	100	100	95-100	34-36	14-16
	6-12	Silty clay loam	CL	A-6	0	0	100	100	100	95-100	36-41	16-20
	12-22	Silty clay loam	CL	A-6	0	0	100	100	100	95-100	36-41	16-20
	22-31	Silty clay loam	CL	A-6	0	0	100	100	100	95-100	36-41	16-20
	31-43	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	36-44	16-22
	43-54	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	36-44	16-22
	54-69	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	36-44	16-22
	69-80	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	36-44	16-22
4210: Kennebec, RARELY FLOODED-----	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	27-36	9-17
	10-19	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	27-36	9-17
	19-45	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	27-36	9-17
	45-56	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	34-40	14-19
	56-70	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	34-40	14-19
	70-80	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	34-40	14-19
4232: Kennebec, OCCASIONALLY FLOODED-----	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	27-36	9-17
	10-19	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	27-36	9-17
	19-45	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	27-36	9-17
	45-56	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	34-40	14-19
	56-70	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	34-40	14-19
	70-80	Silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	34-40	14-19
4281: Kezan, CHANNELE	0-6	Silt loam	CL	A-6	0	0	100	100	95-100	70-90	30-36	11-16
	6-13	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	13-19	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	19-32	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	32-44	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	44-60	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
4287: Kezan, OCCASIONALLY FLOODED-----	0-6	Silt loam	CL	A-6	0	0	100	100	95-100	70-90	30-36	11-16
	6-13	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	13-19	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	19-32	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	32-44	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
	44-60	Stratified silt loam	CL	A-6	0	0	100	100	95-100	80-95	34-44	14-22
4298: Kipson-----	0-9	Channery silty clay loam	CL	A-6	0	0-25	80-100	70-100	65-100	60-95	36-44	16-22
	9-17	Channery silty clay loam	CL	A-6	0	0-25	80-100	75-100	70-100	50-95	28-44	9-22
	17-36	Bedrock			---	---	---	---	---	---	---	---
Sogn-----	0-4	Clay loam	CL	A-7-6	0	0-10	85-100	85-100	80-100	65-80	36-43	16-21
	4-8	Clay loam	CL	A-7-6	0	0-10	85-100	85-100	80-100	65-80	36-43	16-21
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
4300: Kipson-----	0-9	Channery silty clay loam	CL	A-6	0	0-25	80-100	70-100	65-100	60-95	36-44	16-22
	9-17	Channery silty clay loam	CL	A-6	0	0-25	80-100	75-100	70-100	50-95	28-44	9-22
	17-36	Bedrock			---	---	---	---	---	---	---	---
Sogn-----	0-4	Clay loam	CL	A-7-6	0	0-10	85-100	85-100	80-100	65-80	36-43	16-21
	4-8	Clay loam	CL	A-7-6	0	0-10	85-100	85-100	80-100	65-80	36-43	16-21
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock Outcrop---	0-60	Unweathered bedrock			---	---	---	---	---	0-0	---	---

ENGINEERING INDEX PROPERTIES--Continued
Gage County, Nebraska

(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	Plasticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
4428: Lancaster-----	0-8	Loam	CL	A-6	0	0-5	90-100	85-100	85-100	60-90	23-36	6-16
	8-12	Loam	CL, CL-ML	A-6	0	0-5	90-100	85-100	85-100	60-90	23-36	6-16
	12-21	Clay loam	CL	A-7-6	0	0-5	90-100	85-100	80-95	40-90	28-44	9-22
	21-33	Loam	CL	A-6	0	0-5	90-100	85-100	80-95	40-90	23-39	6-18
	33-40	Weathered bedrock			---	---	---	---	---	---	---	---
4429: Lancaster-----	0-8	Loam	CL	A-6	0	0-5	90-100	85-100	85-100	60-90	23-36	6-16
	8-12	Loam	CL	A-6	0	0-5	90-100	85-100	85-100	60-90	23-36	6-16
	12-21	Clay loam	CL	A-7-6	0	0-5	90-100	85-100	80-95	40-90	28-44	9-22
	21-33	Loam	CL	A-6	0	0-5	90-100	85-100	80-95	40-90	23-39	6-18
	33-40	Weathered bedrock			---	---	---	---	---	---	---	---
4858: Malmo, SEVERELY ERODED-----	0-6	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	44-56	22-33
	6-15	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	15-25	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	25-39	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	39-43	Gravelly clay	CH	A-7-6	0	0	95-100	75-85	65-75	60-70	51-66	29-41
	43-54	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	34-63	15-39
	54-80	Loam	CL	A-7-6	0	0	95-100	90-100	65-95	60-95	34-63	15-39
4864: Malmo, SEVERELY ERODED-----	0-6	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	44-56	22-33
	6-15	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	15-25	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	25-39	Clay	CH	A-7-6	0	0	100	95-100	85-100	80-95	51-66	29-41
	39-43	Gravelly clay	CH	A-7-6	0	0	95-100	75-85	65-75	60-70	51-66	29-41
	43-54	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	34-63	15-39
	54-80	Loam	CL	A-7-6	0	0	95-100	90-100	65-95	60-95	34-63	15-39
Pawnee-----	0-6	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	36-56	15-33
	6-10	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	36-56	16-33
	10-14	Clay loam	CL	A-7-6	0	0	95-100	95-100	85-100	70-90	36-56	16-33
	14-24	Clay	CH	A-7-6	0	0	95-100	95-100	85-100	70-85	56-66	33-41
	24-32	Clay	CH	A-7-6	0	0	95-100	95-100	85-100	70-85	56-66	33-41
	32-45	Clay	CH	A-7-6	0	0	95-100	95-100	85-100	70-85	56-66	33-41
	45-53	Clay	CH	A-7-6	0	0	95-100	95-100	85-100	70-85	56-66	33-41
	53-80	Clay loam	CL	A-7-6	0	0	95-100	95-100	80-100	70-90	31-56	14-33
5397: Morrill-----	0-6	Loam	CL	A-6	0	0	95-100	75-100	65-100	50-80	25-36	8-16
	6-12	Loam	CL	A-6	0	0	95-100	75-100	65-100	50-80	28-44	9-22
	12-22	Loam	CL	A-6	0	0	85-100	70-100	55-100	25-80	28-44	9-22
	22-30	Sandy clay loam	CL	A-6	0	0	85-100	70-100	55-100	25-80	28-44	9-22
	30-35	Sandy clay loam	CL	A-6	0	0	85-100	70-100	55-100	25-80	28-44	9-22
	35-43	Sandy clay loam	CL	A-6	0	0	85-100	70-100	55-100	25-80	28-44	9-22
	43-52	Fine sandy loam	SC	A-4	0	0	90-100	70-100	45-85	25-50	15-39	NP-18
	52-59	Fine sandy loam	SC	A-2-4	0	0	90-100	70-100	45-95	10-40	10-39	NP-18
	59-73	Loamy fine sand	SC	A-2-4	0	0	90-100	70-100	45-95	10-40	10-39	NP-18
	73-80	Sand	SC	A-2-4	0	0	90-100	70-100	45-95	10-40	10-39	NP-18
5480: Muscotah, OCCASIONALLY FLOODED-----	0-9	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	36-56	16-33
	9-16	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	36-56	16-33
	16-23	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-95	36-56	16-33
	23-35	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	51-66	29-41
	35-44	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	51-66	29-41
	44-60	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	51-66	29-41
	60-70	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	51-66	29-41
	70-80	Silty clay	CH	A-7-6	0	0	100	100	95-100	85-95	51-66	29-41
5540: Nodaway, OCCASIONALLY FLOODED-----	0-7	Silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-36	9-16
	7-14	Stratified silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-39	9-18
	14-45	Stratified silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-39	9-18
	45-60	Stratified silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-39	9-18
5541: Nodaway, CHANNELED-----	0-7	Silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-36	9-16
	7-14	Stratified silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-39	9-18
	14-45	Stratified silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-39	9-18
	45-60	Stratified silt loam	CL	A-6	0	0	100	95-100	95-100	90-100	28-39	9-18

ENGINEERING INDEX PROPERTIES--Continued
Gage County, Nebraska

(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	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
					Pct	Pct						
5970: Otoe, SEVERELY ERODED-----	0-6	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	46-56	25-33
	6-15	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	51-71	29-45
	15-22	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	51-71	29-45
	22-32	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	51-71	29-45
	32-40	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	41-56	21-33
	40-50	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	41-56	21-33
	50-57	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	41-56	21-33
	57-80	Silty clay loam	CL	A-7-6	0	0	100	95-100	80-95	70-95	43-56	22-33
6005: Padonia-----	0-11	Silty clay loam	CL	A-6	0	0	100	100	90-100	80-95	35-45	15-20
	11-22	Silty clay	CL	A-7-6	0	0	100	100	95-100	90-95	45-60	20-30
	22-32	Silty clay	CL	A-7	0	0	100	100	95-100	90-95	45-60	20-30
	32-37	Silty clay loam	CL	A-7-6	0	0	100	100	90-100	80-95	45-50	20-25
	37-41	Weathered bedrock			---	---	---	---	---	---	---	---
7069: Steinauer-----	0-6	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	55-90	36-41	16-20
	6-15	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	70-90	36-41	16-20
	15-41	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
	41-60	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
7078: Steinauer-----	0-6	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	55-90	36-41	16-20
	6-15	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	70-90	36-41	16-20
	15-41	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
	41-60	Clay loam	CL	A-6	0	0-5	95-100	95-100	85-100	60-75	34-44	14-22
8061: Wymore-----	0-5	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	36-56	16-33
	5-9	Silty clay	CL	A-7-6	0	0	100	100	95-100	95-100	39-61	18-37
	9-17	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	17-25	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	25-32	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	32-40	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
	40-53	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
	53-80	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
8063: Wymore-----	0-5	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	36-56	16-33
	5-9	Silty clay	CL	A-7-6	0	0	100	100	95-100	95-100	39-61	18-37
	9-17	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	17-25	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	25-32	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	32-40	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
	40-53	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
	53-80	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
8080: Wymore-----	0-5	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	95-100	36-56	16-33
	5-9	Silty clay	CL	A-7-6	0	0	100	100	95-100	95-100	39-61	18-37
	9-17	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	17-25	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	25-32	Silty clay	CH	A-7-6	0	0	100	100	95-100	95-100	58-71	35-45
	32-40	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
	40-80	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-100	43-56	23-33
9900: Arents, Earthen Dam-----	---	---	---	---	---	---	---	---	---	---	---	---
9980: Mine Or Quarry-	0-60	Bouldery fragmental material	GP	A-1-a	---	---	---	---	---	---	0-0	---
9985: Pits-----	0-60	Gravelly sand	GP-GM, SM, SP, SP-SM	A-1, A-2, A-3	---	0-5	45-100	40-100	0-80	0-40	0-14	NP
9995: Miscellaneous Water-----	---	---	---	---	---	---	---	---	---	---	---	---
9998: Water-----	---	---	---	---	---	---	---	---	---	---	---	---

Physical Properties

This 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 earthmoving 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.

Saturated hydraulic conductivity 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_{sat}). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), 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 this 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 this 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.

PHYSICAL PROPERTIES OF THE SOILS
Gage County, Nebraska: Update

(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 In	Sand Pct	Silt Pct	Clay Pct	Moist bulk density g/cc	Permea- bility (Ksat) in/hr	Available water capacity In/in	Linear extensi- bility Pct	Organic matter Pct	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										K	KF	T		

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.

PHYSICAL PROPERTIES OF THE SOILS
Gage County, Nebraska: Update

(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	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
1849: Burchard-----	0-13	20-45		27-30	1.25-1.45	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	13-19	20-45		27-35	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	19-29	20-45		24-30	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	29-37	20-45		24-30	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	37-60	20-45		24-30	1.55-1.65	0.20-0.60	0.14-0.16	3.0-5.9	0.0-0.5	.37	.37			
1873: Burchard-----	0-13	20-45	38	27-30	1.25-1.45	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	13-19	20-45	33	27-35	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	19-29	20-45	38	24-30	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	29-37	20-45	38	24-30	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	37-60	20-45	38	24-30	1.55-1.65	0.20-0.60	0.14-0.16	3.0-5.9	0.0-0.5	.37	.37			
Steinauer----	0-6	20-45	36	27-32	1.20-1.35	0.20-0.60	0.19-0.22	3.0-5.9	0.5-2.0	.32	.32	5	4L	86
	6-15	20-45	36	27-32	1.30-1.50	0.20-0.60	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	15-41	20-52	36	24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	41-60	20-52	36	24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
1879: Burchard-----	0-13	20-45	38	27-30	1.25-1.45	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.28	.28	5	6	48
	13-19	20-45	33	27-35	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	19-29	20-45	38	24-30	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	29-37	20-45	38	24-30	1.40-1.60	0.20-0.60	0.15-0.17	3.0-5.9	0.5-1.0	.37	.37			
	37-60	20-45	38	24-30	1.55-1.65	0.20-0.60	0.14-0.16	3.0-5.9	0.0-0.5	.37	.37			
Steinauer----	0-6	20-45	36	27-32	1.20-1.35	0.20-0.60	0.19-0.22	3.0-5.9	0.5-2.0	.32	.32	5	4L	86
	6-15	20-45	36	27-32	1.30-1.50	0.20-0.60	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	15-41	20-52	36	24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	41-60	20-52	36	24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
1930: Butler-----	0-6	2-12		18-27	1.10-1.40	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.37	.37	3	6	48
	6-10	2-12		18-27	1.20-1.60	0.60-2.00	0.22-0.24	3.0-5.9	2.0-4.0	.37	.37			
	10-12	2-12		18-27	1.20-1.60	0.60-2.00	0.22-0.24	3.0-5.9	1.0-2.0	.37	.37			
	12-25	2-12		45-55	1.25-1.45	0.01-0.06	0.11-0.13	9.0-11.9	1.0-2.0	.37	.37			
	25-34	2-12		45-55	1.25-1.45	0.01-0.06	0.11-0.13	9.0-11.9	1.0-2.0	.37	.37			
	34-43	2-10		32-45	1.25-1.45	0.06-0.20	0.14-0.20	6.0-8.9	0.5-1.0	.37	.37			
	43-60	2-10		20-35	1.25-1.45	0.20-0.60	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
2076: Chase, RARELY FLOODED-----	0-9	1-4		27-35	1.30-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	9-19	1-4		27-40	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	2.0-4.0	.37	.37			
	19-30	1-4		35-55	1.35-1.50	0.06-0.20	0.11-0.19	6.0-8.9	1.0-3.0	.28	.28			
	30-41	1-4		35-55	1.35-1.50	0.06-0.20	0.11-0.19	6.0-8.9	1.0-3.0	.28	.28			
	41-47	1-4		27-40	1.35-1.50	0.20-0.60	0.11-0.18	3.0-5.9	0.5-2.0	.37	.37			
	47-80	1-4		27-40	1.35-1.50	0.20-0.60	0.11-0.18	3.0-5.9	0.5-2.0	.37	.37			
2201: Cortland, SEVERELY ERODED-----	0-6	26-52		15-27	1.30-1.65	0.60-2.00	0.16-0.19	0.0-2.9	1.0-2.0	.28	.28	4	6	48
	6-15	20-75		18-35	1.40-1.60	0.20-2.00	0.15-0.19	3.0-6.0	0.5-1.0	.37	.37			
	15-28	20-75		18-35	1.40-1.60	0.20-2.00	0.15-0.19	3.0-6.0	0.5-1.0	.37	.37			
	28-36	30-90		2-35	1.50-1.70	0.20-6.00	0.08-0.18	0.0-2.9	0.0-0.5	.28	.28			
	36-40	30-90		2-30	1.55-1.75	0.20-20.00	0.05-0.16	0.0-2.9	0.0-0.5	.17	.17			
	40-50	30-95		1-30	1.55-1.75	0.20-20.00	0.05-0.16	0.0-2.9	0.0-0.5	.17	.17			
	50-80	30-95		1-30	1.55-1.75	0.20-20.00	0.05-0.16	0.0-2.9	0.0-0.5	.17	.17			
Malmo, SEVERELY ERODED-----	0-6	20-45		35-40	1.35-1.45	0.06-0.20	0.17-0.19	6.0-8.9	1.0-3.0	.37	.37	4	4	86
	6-15	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	15-25	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	25-39	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	39-43	20-50		35-50	1.30-1.50	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.28	.32			
	43-54	20-45		20-45	1.40-1.60	0.06-0.20	0.09-0.17	3.0-5.9	0.5-1.0	.32	.32			
	54-80	20-50		20-45	1.45-1.65	0.06-0.20	0.09-0.19	3.0-5.9	0.1-0.5	.32	.32			
2418: Deroin, SEVERELY ERODED-----	0-7	5-20		27-40	1.20-1.40	0.20-0.60	0.21-0.23	3.0-5.9	1.0-3.0	.37	.37	4	7	38
	7-12	5-30		27-35	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	0.0-1.0	.43	.43			
	12-18	5-30		27-35	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	0.0-1.0	.43	.43			
	18-40	5-30		27-35	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	0.0-1.0	.43	.43			
	40-50	10-45		24-32	1.30-1.50	0.20-0.60	0.16-0.20	3.0-5.9	0.0-0.5	.43	.43			
	50-80	10-45		24-32	1.30-1.50	0.20-0.60	0.16-0.20	3.0-5.9	0.0-0.5	.43	.43			
2420: Deroin, SEVERELY ERODED-----	0-7	5-20	59	27-40	1.20-1.40	0.20-0.60	0.21-0.23	3.0-5.9	1.0-3.0	.37	.37	4	7	38
	7-12	5-30	59	27-35	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	0.0-1.0	.43	.43			
	12-18	5-30	59	27-35	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	0.0-1.0	.43	.43			
	18-40	5-30	59	27-35	1.35-1.45	0.20-0.60	0.17-0.20	3.0-5.9	0.0-1.0	.43	.43			
	40-50	10-45	63	24-32	1.30-1.50	0.20-0.60	0.16-0.20	3.0-5.9	0.0-0.5	.43	.43			
	50-80	10-45	63	24-32	1.30-1.50	0.20-0.60	0.16-0.20	3.0-5.9	0.0-0.5	.43	.43			
2695: Edalgo-----	0-4	20		27-35	1.30-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	---	3	7	38
	4-8	20		27-35	1.30-1.40	0.20-0.60	0.21-0.23	3.0-5.9	1.0-2.0	.37	---			
	8-28	5-40		35-65	1.40-1.60	0.01-0.06	0.10-0.18	6.0-8.9	1.0-2.0	.37	.37			
	28-40			---	---	0.00-0.01	0.00-0.00	---	---	---	---			

PHYSICAL PROPERTIES OF THE SOILS
Gage County, Nebraska: Update

(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 In	Sand Pct	Silt Pct	Clay Pct	Moist bulk density g/cc	Permeability (Ksat) in/hr	Available water capacity In/in	Linear extensibility Pct	Organic matter Pct	Erosion factors			Wind erodibility group	Wind erodibility index
										K	Kf	T		
2832: Filley-----	0-6	52-80		10-18	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	6-12	52-80		10-18	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
	12-23	52-80		10-15	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.17	.17			
	23-30	52-80		10-15	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.17	.17			
	30-80	72-88		4-10	1.50-1.70	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.20	.20			
2833: Filley-----	0-6	52-80		10-18	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20	4	3	86
	6-12	52-80		10-18	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
	12-23	52-80		10-15	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.17	.17			
	23-30	52-80		10-15	1.45-1.65	2.00-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.17	.17			
	30-80	72-88		4-10	1.50-1.70	6.00-20.00	0.08-0.10	0.0-2.9	0.0-0.5	.20	.20			
2863: Fluvaquents--	0-20	2-12	50	35-60	1.00-1.40	0.06-0.20	0.13-0.17	3.0-5.9	2.0-8.0	.32	.32	5	8	0
	20-80			---	---	0.01-20.00	0.16-0.22	---	---	---	---			
3422: Hedville-----	0-10	40-80	43	8-20	1.30-1.50	0.60-2.00	0.14-0.18	0.0-2.9	1.0-4.0	.20	.20	2	5	56
	10-16	26-88	39	6-20	1.45-1.65	0.60-2.00	0.14-0.18	0.0-2.9	1.0-4.0	.28	.28			
	16-22			---	---	0.06-0.20	---	---	---	---	---			
4106: Judson-----	0-6	2-10	65	24-27	1.20-1.40	0.60-2.00	0.21-0.23	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	6-12	2-10	63	27-32	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.28	.28			
	12-22	2-10	63	27-32	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.28	.28			
	22-31	2-10	63	27-32	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.28	.28			
	31-43	2-10	61	27-35	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	1.0-3.0	.43	.43			
	43-54	2-10	61	27-35	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	0.5-2.0	.43	.43			
	54-69	2-10	61	27-35	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	0.5-2.0	.43	.43			
	69-80	2-10	61	27-35	1.25-1.45	0.60-2.00	0.21-0.23	3.0-5.9	0.5-2.0	.43	.43			
4210: Kennebec, RARELY FLOODED-----	0-10	2-10		22-27	1.25-1.45	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28	5	6	48
	10-19	2-10		22-27	1.25-1.45	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28			
	19-45	2-10		22-27	1.25-1.45	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28			
	45-56	2-10		24-30	1.25-1.35	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
	56-70	2-10		24-30	1.25-1.35	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
	70-80	2-10		24-30	1.25-1.35	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
4232: Kennebec, OCCASIONALLY FLOODED-----	0-10	2-10		22-27	1.25-1.45	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28	5	6	48
	10-19	2-10		22-27	1.25-1.45	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28			
	19-45	2-10		22-27	1.25-1.45	0.60-2.00	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28			
	45-56	2-10		24-30	1.25-1.35	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
	56-70	2-10		24-30	1.25-1.35	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
	70-80	2-10		24-30	1.25-1.35	0.60-2.00	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
4281: Kezan, CHANNELED---	0-6	2-12	60-80	20-27	1.20-1.40	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	6-13	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32			
	13-19	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	19-32	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	32-44	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43			
	44-60	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43			
4287: Kezan, OCCASIONALLY FLOODED-----	0-6	2-12	60-80	20-27	1.20-1.40	0.60-2.00	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	6-13	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.32	.32			
	13-19	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	19-32	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	32-44	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43			
	44-60	2-12	50-80	24-35	1.20-1.40	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43			
4298: Kipson-----	0-9	4-10		27-35	1.20-1.40	0.60-2.00	0.17-0.20	3.0-5.9	1.0-3.0	.32	.49	2	4L	86
	9-17	4-10		18-35	1.25-1.45	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.43			
	17-36			---	---	0.00-0.00	---	---	---	---	---			
Sogn-----	0-4	20-45		27-35	1.10-1.30	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	1	4L	86
	4-8	20-45		27-35	1.10-1.30	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28			
	8-12			---	---	0.00-0.00	---	---	---	---	---			
4300: Kipson-----	0-9	4-10		27-35	1.20-1.40	0.60-2.00	0.17-0.20	3.0-5.9	1.0-3.0	.32	.49	2	4L	86
	9-17	4-10		18-35	1.25-1.45	0.60-2.00	0.15-0.20	3.0-5.9	0.5-1.0	.32	.43			
	17-36			---	---	0.00-0.00	---	---	---	---	---			
Sogn-----	0-4	20-45		27-35	1.10-1.30	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28	1	4L	86
	4-8	20-45		27-35	1.10-1.30	0.60-2.00	0.17-0.19	3.0-5.9	1.0-3.0	.28	.28			
	8-12			---	---	0.00-0.00	---	---	---	---	---			
Rock Outcrop- 4428: Lancaster----	0-60			0-0	---	0.00-0.00	0.00-0.00	---	---	---	---		8	0
	0-8	26-52		12-27	1.35-1.45	0.60-2.00	0.20-0.22	0.0-3.0	1.0-3.0	.28	.28	3	6	48
	8-12	26-52		12-27	1.35-1.45	0.60-2.00	0.20-0.22	0.0-3.0	1.0-3.0	.28	.28			
	12-21	20-75		18-35	1.35-1.55	0.60-2.00	0.17-0.19	3.0-6.0	0.5-2.0	.28	.28			
	21-33	20-75		12-30	1.35-1.45	0.60-2.00	0.17-0.19	0.0-3.0	0.5-1.0	.28	.28			
	33-40			---	---	0.20-0.60	---	---	---	---	---			

PHYSICAL PROPERTIES OF THE SOILS
Gage County, Nebraska: Update

(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 In	Sand Pct	Silt Pct	Clay Pct	Moist bulk density g/cc	Permeability (Ksat) in/hr	Available water capacity In/in	Linear extensibility Pct	Organic matter Pct	Erosion factors			Wind erodibility group	Wind erodibility index
										K	Kf	T		
4429: Lancaster----	0-8	26-52		12-27	1.35-1.45	0.60-2.00	0.20-0.22	0.0-3.0	1.0-3.0	.28	.28	3	6	48
	8-12	26-52		12-27	1.35-1.45	0.60-2.00	0.20-0.22	0.0-3.0	1.0-3.0	.28	.28			
	12-21	20-75		18-35	1.35-1.55	0.60-2.00	0.17-0.19	3.0-6.0	0.5-2.0	.28	.28			
	21-33	20-75		12-30	1.35-1.45	0.60-2.00	0.17-0.19	0.0-3.0	0.5-1.0	.28	.28			
	33-40			---	---	0.20-0.60	---	---	---	---	---			
4858: Malmo, SEVERELY ERODED-----	0-6	20-45		35-40	1.35-1.45	0.06-0.20	0.17-0.19	6.0-8.9	1.0-3.0	.37	.37	4	4	86
	6-15	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	15-25	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	25-39	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	39-43	20-50		35-50	1.30-1.50	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.28	.32			
	43-54	20-45		20-45	1.40-1.60	0.06-0.20	0.09-0.17	3.0-5.9	0.5-1.0	.32	.32			
	54-80	20-50		20-45	1.45-1.65	0.06-0.20	0.09-0.19	3.0-5.9	0.1-0.5	.32	.32			
4864: Malmo, SEVERELY ERODED-----	0-6	20-45		35-40	1.35-1.45	0.06-0.20	0.17-0.19	6.0-8.9	1.0-3.0	.37	.37	4	4	86
	6-15	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	15-25	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	25-39	20-50		35-50	1.20-1.40	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.32	.32			
	39-43	20-50		35-50	1.30-1.50	0.01-0.06	0.10-0.14	6.0-8.9	0.5-1.0	.28	.32			
	43-54	20-45		20-45	1.40-1.60	0.06-0.20	0.09-0.17	3.0-5.9	0.5-1.0	.32	.32			
	54-80	20-50		20-45	1.45-1.65	0.06-0.20	0.09-0.19	3.0-5.9	0.1-0.5	.32	.32			
Pawnee-----	0-6	20-45		27-40	1.30-1.60	0.20-0.60	0.17-0.19	3.0-5.9	2.0-4.0	.37	.37	5	6	48
	6-10	20-45		27-40	1.30-1.60	0.20-0.60	0.17-0.19	3.0-5.9	2.0-3.0	.37	.37			
	10-14	20-45		27-40	1.30-1.60	0.06-0.20	0.17-0.19	3.0-5.9	2.0-3.0	.37	.37			
	14-24	15-45		40-48	1.30-1.60	0.01-0.06	0.09-0.11	6.0-8.9	1.0-2.0	.37	.37			
	24-32	15-45		40-48	1.30-1.60	0.01-0.06	0.09-0.11	6.0-8.9	1.0-2.0	.37	.37			
	32-45	15-45		40-48	1.30-1.60	0.01-0.06	0.09-0.11	6.0-8.9	1.0-2.0	.37	.37			
	45-53	15-45		40-48	1.40-1.70	0.01-0.06	0.09-0.11	6.0-8.9	0.5-1.0	.37	.37			
	53-80	20-75		15-40	1.40-1.70	0.06-0.20	0.14-0.16	6.0-8.9	0.0-0.5	.37	.37			
5397: Morrill-----	0-6	26-52		15-27	1.30-1.65	0.60-2.00	0.15-0.22	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	6-12	20-52		18-35	1.30-1.40	0.60-2.00	0.14-0.21	0.0-2.9	1.0-2.0	.28	.28			
	12-22	20-75		18-35	1.40-1.60	0.60-2.00	0.15-0.19	3.0-6.0	0.5-1.0	.32	.32			
	22-30	20-75		18-35	1.40-1.60	0.20-0.60	0.15-0.19	3.0-6.0	0.5-1.0	.32	.32			
	30-35	20-75		18-35	1.40-1.60	0.20-0.60	0.15-0.19	3.0-6.0	0.5-1.0	.32	.32			
	35-43	20-75		18-35	1.40-1.60	0.20-0.60	0.15-0.19	3.0-6.0	0.5-1.0	.32	.32			
	43-52	20-80		2-35	1.35-1.45	2.00-6.00	0.13-0.15	0.0-2.9	0.0-0.5	.24	.24			
	52-59	25-98		1-30	1.50-1.70	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.5	.15	.17			
	59-73	25-98		1-30	1.50-1.70	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.5	.15	.17			
	73-80	25-98		1-30	1.50-1.70	2.00-6.00	0.05-0.16	0.0-2.9	0.0-0.5	.15	.17			
5480: Muscotah, OCCASIONALLY FLOODED-----	0-9	2-8	48	27-40	1.30-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	9-16	2-8	48	27-40	1.30-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37			
	16-23	2-8	48	27-40	1.30-1.40	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37			
	23-35	2-8	50	35-50	1.20-1.30	0.06-0.20	0.11-0.20	6.0-8.9	1.0-2.0	.28	.28			
	35-44	2-8	50	35-50	1.20-1.30	0.06-0.20	0.11-0.20	6.0-8.9	1.0-2.0	.28	.28			
	44-60	2-8	50	35-50	1.20-1.30	0.06-0.20	0.11-0.20	6.0-8.9	1.0-2.0	.28	.28			
	60-70	2-8	50	35-50	1.20-1.30	0.01-0.06	0.10-0.20	6.0-8.9	0.5-1.0	.28	.28			
	70-80	2-8	50	35-50	1.20-1.30	0.01-0.06	0.10-0.20	6.0-8.9	0.5-1.0	.28	.28			
5540: Nodaway, OCCASIONALLY FLOODED-----	0-7	2-10	67	18-27	1.25-1.35	0.60-2.00	0.20-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
	7-14	2-10		18-28	1.25-1.35	0.60-2.00	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
	14-45	2-10		18-28	1.25-1.35	0.60-2.00	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
	45-60	2-10		18-28	1.25-1.35	0.60-2.00	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
5541: Nodaway, CHANNELED---	0-7	2-10	67	18-27	1.25-1.35	0.60-2.00	0.20-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
	7-14	2-10		18-28	1.25-1.35	0.60-2.00	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
	14-45	2-10		18-28	1.25-1.35	0.60-2.00	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
	45-60	2-10		18-28	1.25-1.35	0.60-2.00	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
5970: Otoe, SEVERELY ERODED-----	0-6	1-6		30-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-6.0	2.0-4.0	.37	.37	4	7	48
	6-15	0-6		35-55	1.30-1.50	0.01-0.06	0.11-0.16	6.0-9.0	0.5-1.0	.32	.32			
	15-22	0-6		35-55	1.30-1.50	0.01-0.06	0.11-0.16	6.0-9.0	0.5-1.0	.32	.32			
	22-32	0-6		35-55	1.30-1.50	0.01-0.06	0.11-0.16	6.0-9.0	0.5-1.0	.32	.32			
	32-40	1-6		27-40	1.30-1.50	0.06-0.20	0.16-0.20	3.0-6.0	0.0-0.5	.43	.43			
	40-50	1-6		27-40	1.30-1.50	0.06-0.20	0.16-0.20	3.0-6.0	0.0-0.5	.43	.43			
	50-57	1-6		27-40	1.30-1.50	0.06-0.20	0.16-0.20	3.0-6.0	0.0-0.5	.43	.43			
	57-80	10-45		27-40	1.30-1.50	0.06-0.20	0.14-0.18	3.0-6.0	0.0-0.5	.37	.37			

PHYSICAL PROPERTIES OF THE SOILS
Gage County, Nebraska: Update

(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	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
6005: Padonia-----	0-11	20		27-35	1.30-1.40	0.60-2.00	0.21-0.23	3.0-5.9	2.0-4.0	.37	---	3	7	38
	11-22	8		35-50	1.20-1.40	0.06-0.20	0.11-0.18	6.0-8.9	2.0-4.0	.32	---			
	22-32	8		35-50	1.20-1.40	0.06-0.20	0.11-0.18	6.0-8.9	1.0-3.0	.32	---			
	32-37	8		35-40	1.30-1.40	0.20-0.60	0.18-0.20	3.0-5.9	0.5-1.0	.43	---			
	37-41			---	---	0.01-0.06	---	---	---	---	---			
7069: Steinauer----	0-6	20-45	36	27-32	1.20-1.35	0.20-0.60	0.19-0.22	3.0-5.9	0.5-2.0	.32	.32	5	4L	86
	6-15	20-45	36	27-32	1.30-1.50	0.20-0.60	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	15-41	20-52	36	24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	41-60	20-52	36	24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
7078: Steinauer----	0-6	20-45		27-32	1.20-1.35	0.20-0.60	0.19-0.22	3.0-5.9	0.5-2.0	.32	.32	5	4L	86
	6-15	20-45		27-32	1.30-1.50	0.20-0.60	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	15-41	20-52		24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
	41-60	20-52		24-35	1.30-1.65	0.20-0.60	0.16-0.19	3.0-5.9	0.0-0.5	.37	.37			
8061: Wymore-----	0-5	2-8		27-40	1.30-1.50	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	5-9	2-8		30-45	1.30-1.50	0.06-0.20	0.13-0.23	3.0-8.9	1.0-2.0	.28	.28			
	9-17	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	1.0-2.0	.32	.32			
	17-25	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	25-32	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	32-40	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	40-53	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	53-80	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
8063: Wymore-----	0-5	2-8		27-40	1.30-1.50	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	5-9	2-8		30-45	1.30-1.50	0.06-0.20	0.13-0.23	3.0-8.9	1.0-2.0	.28	.28			
	9-17	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	1.0-2.0	.32	.32			
	17-25	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	25-32	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	32-40	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	40-53	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	53-80	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
8080: Wymore-----	0-5	2-8		27-40	1.30-1.50	0.20-0.60	0.21-0.23	3.0-5.9	2.0-4.0	.37	.37	5	7	38
	5-9	2-8		30-45	1.30-1.50	0.06-0.20	0.13-0.23	3.0-8.9	1.0-2.0	.28	.28			
	9-17	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	1.5-2.0	.32	.32			
	17-25	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	25-32	2-8		42-55	1.30-1.50	0.01-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.32	.32			
	32-40	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	40-80	2-8		27-40	1.30-1.50	0.06-0.20	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
9900: Arents, Earthen Dam-	---			---	---	---	---	---	---	---	---			
9980: Mine Or Quarry-----	0-60			---	---	---	0.00-0.00	---	---	---	---			0
9985: Pits-----	0-60	95	1	0-8	1.70-2.00	6.00-20.00	0.02-0.09	0.0-2.9	0.0-0.5	.10	.17	2	8	0
9995: Miscellaneous Water-----	---			---	---	---	---	---	---	---	---			---
9998: Water-----	---			---	---	---	---	---	---	---	---			0

CHEMICAL PROPERTIES OF THE SOILS
Gage County, Nebraska

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.

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
 Gage County, Nebraska

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
1849:							
Burchard-----	0-13	15-25	5.6-7.3	0	0	0	0
	13-19	15-25	6.1-7.3	0	0	0	0
	19-29	15-25	7.4-8.4	5-10	0	0	0
	29-37	15-25	7.4-8.4	5-10	0	0	0
	37-60	10-20	7.4-8.4	1-15	0-2	0	0
1873:							
Burchard-----	0-13	15-25	5.6-7.3	0	0	0	0
	13-19	15-25	6.1-7.3	0	0	0	0
	19-29	15-25	7.4-8.4	5-10	0	0	0
	29-37	15-25	7.4-8.4	5-10	0	0	0
	37-60	10-20	7.4-8.4	1-15	0-2	0	0
Steinauer-----	0-6	15-25	7.4-8.4	5-10	0	0	0
	6-15	15-25	7.9-8.4	5-15	0	0	0
	15-41	15-25	7.9-8.4	5-15	0	0	0
	41-60	15-25	7.9-8.4	5-15	0	0	0
1879:							
Burchard-----	0-13	15-25	5.6-7.3	0	0	0	0
	13-19	15-25	6.1-7.3	0	0	0	0
	19-29	15-25	7.4-8.4	5-10	0	0	0
	29-37	15-25	7.4-8.4	5-10	0	0	0
	37-60	10-20	7.4-8.4	1-15	0-2	0	0
Steinauer-----	0-6	15-25	7.4-8.4	5-10	0	0	0
	6-15	15-25	7.9-8.4	5-15	0	0	0
	15-41	15-25	7.9-8.4	5-15	0	0	0
	41-60	15-25	7.9-8.4	5-15	0	0	0
1930:							
Butler-----	0-6	18-27	5.1-6.5	0	0	0	0
	6-10	18-27	5.1-6.5	0	0	0	0
	10-12	18-27	5.1-6.5	0	0	0	0
	12-25	30-40	5.6-7.8	0	0	0	0
	25-34	30-40	5.6-7.8	0	0	0	0
	34-43	20-35	6.6-8.4	0-5	0	0	0
	43-60	20-35	6.6-8.4	0-5	0	0	0
2076:							
Chase, RARELY FLOODED-----	0-9	15-30	5.6-7.3	0	0	0	0
	9-19	15-30	5.6-7.3	0	0	0	0
	19-30	15-40	5.6-7.8	0	0	0	0
	30-41	15-40	5.6-7.8	0	0	0	0
	41-47	10-30	6.1-8.4	0-1	0	0	0
	47-80	10-30	6.1-8.4	0-1	0	0	0
2201:							
Cortland, SEVERELY ERODED	0-6	10-30	4.5-6.0	0	0	0	0
	6-15	10-30	5.1-6.5	0	0	0	0
	15-28	10-30	5.1-6.5	0	0	0	0
	28-36	1.0-25	5.6-7.3	0	0	0	0
	36-40	1.0-25	5.6-7.3	0	0	0	0
	40-50	1.0-25	5.6-7.3	0	0	0	0
	50-80	1.0-25	5.6-7.3	0	0	0	0
Malmo, SEVERELY ERODED-----	0-6	25-31	5.6-6.5	0	0	0	0
	6-15	30-36	6.1-7.8	0-5	0	0	0
	15-25	30-36	6.1-7.8	0-5	0	0	0
	25-39	30-36	6.1-7.8	0-5	0	0	0
	39-43	27-37	7.4-7.8	1-5	0	0	0
	43-54	13-33	7.4-8.4	1-10	0	0	0
	54-80	13-33	7.4-8.4	1-10	0	0	0
2418:							
Derooin, SEVERELY ERODED-----	0-7	20-35	5.6-6.5	0	0	0	0
	7-12	15-25	6.1-7.8	0-5	0	0	0
	12-18	15-25	6.1-7.8	0-5	0	0	0
	18-40	15-25	6.1-7.8	0-5	0	0	0
	40-50	10-20	6.1-7.8	0-5	0	0	0
	50-80	10-20	6.1-7.8	0-5	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Gage County, Nebraska

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
2420: Deroin, SEVERELY ERODED-----	0-7	20-35	5.6-6.5	0	0	0	0
	7-12	15-25	6.1-7.8	0-5	0	0	0
	12-18	15-25	6.1-7.8	0-5	0	0	0
	18-40	15-25	6.1-7.8	0-5	0	0	0
	40-50	10-20	6.1-7.8	0-5	0	0	0
	50-80	10-20	6.1-7.8	0-5	0	0	0
2695: Edalgo-----	0-4	15-35	6.1-7.3	0	0	0	0
	4-8	15-35	6.1-7.3	0	0	0	0
	8-28	20-50	5.6-8.4	0	0	0	0
	28-40	---	---	0	0	0	0
2832: Filley-----	0-6	15-20	5.6-7.3	0	0	0	0
	6-12	15-20	5.6-7.3	0	0	0	0
	12-23	15-20	5.1-6.5	0	0	0	0
	23-30	15-20	5.1-6.5	0	0	0	0
	30-80	5.0-10	5.1-6.5	0	0	0	0
2833: Filley-----	0-6	15-20	5.6-7.3	0	0	0	0
	6-12	15-20	5.6-7.3	0	0	0	0
	12-23	15-20	5.1-6.5	0	0	0	0
	23-30	15-20	5.1-6.5	0	0	0	0
	30-80	5.0-10	5.1-6.5	0	0	0	0
2863: Fluvaquents----	0-20	25-50	6.6-8.4	0-5	0	0.0-2.0	0
	20-80	---	---	---	---	---	---
3422: Hedville-----	0-10	5.0-18	5.6-7.3	0	0	0	0
	10-16	5.0-15	5.6-7.3	0	0	0	0
	16-22	---	---	---	---	---	---
4106: Judson-----	0-6	22-28	5.6-7.3	0	0	0	0
	6-12	22-28	5.6-7.3	0	0	0	0
	12-22	22-28	5.6-7.3	0	0	0	0
	22-31	22-28	5.6-7.3	0	0	0	0
	31-43	22-28	5.6-7.3	0	0	0	0
	43-54	22-28	6.1-7.8	0	0	0	0
	54-69	22-28	6.1-7.8	0	0	0	0
	69-80	22-28	6.1-7.8	0	0	0	0
	4210: Kennebec, RARELY FLOODED-----	0-10	30-36	5.6-7.3	0	0	0.0-2.0
10-19		30-36	5.6-7.3	0	0	0.0-2.0	0
19-45		30-36	5.6-7.3	0	0	0.0-2.0	0
45-56		30-36	6.1-7.3	0	0	0.0-2.0	0
56-70		30-36	6.1-7.3	0	0	0.0-2.0	0
70-80		30-36	6.1-7.3	0	0	0.0-2.0	0
4232: Kennebec, OCCASIONALLY FLOODED-----	0-10	30-36	5.6-7.3	0	0	0.0-2.0	0
	10-19	30-36	5.6-7.3	0	0	0.0-2.0	0
	19-45	30-36	5.6-7.3	0	0	0.0-2.0	0
	45-56	30-36	6.1-7.3	0	0	0.0-2.0	0
	56-70	30-36	6.1-7.3	0	0	0.0-2.0	0
	70-80	30-36	6.1-7.3	0	0	0.0-2.0	0
4281: Kezan, CHANNELED	0-6	18-30	6.6-7.8	0	0	0	0
	6-13	15-25	6.6-7.8	0	0	0	0
	13-19	15-25	6.6-8.4	0-10	0	0	0
	19-32	15-25	6.6-8.4	0-10	0	0	0
	32-44	15-25	6.6-8.4	0-10	0	0	0
	44-60	15-25	6.6-8.4	0-10	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Gage County, Nebraska

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio	
	In	meq/100g	pH	Pct	Pct	mmhos/cm		
4287: Kezan, OCCASIONALLY FLOODED-----	0-6	18-30	6.6-7.8	0	0	0	0	
	6-13	15-25	6.6-7.8	0	0	0	0	
	13-19	15-25	6.6-8.4	0-10	0	0	0	
	19-32	15-25	6.6-8.4	0-10	0	0	0	
	32-44	15-25	6.6-8.4	0-10	0	0	0	
	44-60	15-25	6.6-8.4	0-10	0	0	0	
4298: Kipson-----	0-9	20-30	7.4-8.4	10-20	0	0	0	
	9-17	10-30	7.9-9.0	30-60	0	0	0	
	17-36	---	---	---	---	---	---	
Sogn-----	0-4	15-35	6.6-8.4	0-5	0	0	0	
	4-8	15-35	6.6-8.4	0-5	0	0	0	
	8-12	---	---	---	---	---	---	
4300: Kipson-----	0-9	20-30	7.4-8.4	10-20	0	0	0	
	9-17	10-30	7.9-9.0	30-60	0	0	0	
	17-36	---	---	---	---	---	---	
Sogn-----	0-4	15-35	6.6-8.4	0-5	0	0	0	
	4-8	15-35	6.6-8.4	0-5	0	0	0	
	8-12	---	---	---	---	---	---	
Rock Outcrop---	0-60	---	---	---	---	0	---	
4428: Lancaster-----	0-8	5.0-25	5.6-6.5	0	0	0	0	
	8-12	5.0-25	5.6-6.5	0	0	0	0	
	12-21	10-25	5.6-7.3	0	0	0	0	
	21-33	5.0-15	6.1-7.3	0	0	0	0	
	33-40	---	---	---	---	---	---	
4429: Lancaster-----	0-8	5.0-25	5.6-6.5	0	0	0	0	
	8-12	5.0-25	5.6-6.5	0	0	0	0	
	12-21	10-25	5.6-7.3	0	0	0	0	
	21-33	5.0-15	6.1-7.3	0	0	0	0	
	33-40	---	---	---	---	---	---	
4858: Malmo, SEVERELY ERODED-----	0-6	25-31	5.6-6.5	0	0	0	0	
	6-15	30-36	6.1-7.8	0-5	0	0	0	
	15-25	30-36	6.1-7.8	0-5	0	0	0	
	25-39	30-36	6.1-7.8	0-5	0	0	0	
	39-43	27-37	7.4-7.8	1-5	0	0	0	
	43-54	13-33	7.4-8.4	1-10	0	0	0	
	54-80	13-33	7.4-8.4	1-10	0	0	0	
4864: Malmo, SEVERELY ERODED-----	0-6	25-31	5.6-6.5	0	0	0	0	
	6-15	30-36	6.1-7.8	0-5	0	0	0	
	15-25	30-36	6.1-7.8	0-5	0	0	0	
	25-39	30-36	6.1-7.8	0-5	0	0	0	
	39-43	27-37	7.4-7.8	1-5	0	0	0	
	43-54	13-33	7.4-8.4	1-10	0	0	0	
	54-80	13-33	7.4-8.4	1-10	0	0	0	
	Pawnee-----	0-6	20-30	5.6-7.3	0	0	0	0
		6-10	25-30	5.6-7.3	0	0	0	0
		10-14	25-30	5.6-7.3	0	0	0	0
		14-24	30-40	6.1-7.8	0	0	0	0
		24-32	30-40	6.1-7.8	0	0	0	0
		32-45	30-40	6.1-7.8	0	0	0	0
		45-53	15-30	6.1-7.8	0-5	0	0	0
		53-80	20-25	7.4-8.4	1-10	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Gage County, Nebraska

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
5397: Morrill-----	0-6	8.0-30	4.5-7.3	0	0	0	0
	6-12	10-30	5.1-7.3	0	0	0	0
	12-22	15-30	5.1-7.3	0	0	0	0
	22-30	15-30	5.1-7.3	0	0	0	0
	30-35	15-30	5.1-7.3	0	0	0	0
	35-43	15-30	5.1-7.3	0	0	0	0
	43-52	5.0-15	5.1-7.3	0	0	0	0
	52-59	4.0-25	5.1-7.3	0	0	0	0
	59-73	4.0-25	5.1-7.3	0	0	0	0
	73-80	4.0-25	5.1-7.3	0	0	0	0
5480: Muscotah, OCCASIONALLY FLOODED-----	0-9	15-30	5.6-7.3	0	0	0	0
	9-16	15-30	5.6-7.3	0	0	0	0
	16-23	15-30	5.6-7.3	0	0	0	0
	23-35	20-40	5.6-7.3	0	0	0	0
	35-44	20-40	5.6-7.3	0	0	0	0
	44-60	20-40	5.6-7.3	0	0	0	0
	60-70	20-40	5.6-7.3	1-10	0	0	0
	70-80	20-40	5.6-7.3	0	0	0	0
5540: Nodaway, OCCASIONALLY FLOODED-----	0-7	20-25	6.1-7.3	0	0	0.0-2.0	0
	7-14	20-25	6.1-7.3	0	0	0.0-2.0	0
	14-45	20-25	6.1-7.3	0	0	0.0-2.0	0
	45-60	20-25	6.1-7.3	0	0	0.0-2.0	0
5541: Nodaway, CHANNELED-----	0-7	20-25	6.1-7.3	0	0	0.0-2.0	0
	7-14	20-25	6.1-7.3	0	0	0.0-2.0	0
	14-45	20-25	6.1-7.3	0	0	0.0-2.0	0
	45-60	20-25	6.1-7.3	0	0	0.0-2.0	0
5970: Otoe, SEVERELY ERODED-----	0-6	23-32	5.1-6.5	0	0	0	0
	6-15	30-46	5.6-7.3	0	0	0	0
	15-22	30-46	5.6-7.3	0	0	0	0
	22-32	30-46	5.6-7.3	0	0	0	0
	32-40	18-29	6.6-7.8	0	0	0	0
	40-50	18-29	6.6-7.8	0	0	0	0
	50-57	18-29	6.6-7.8	0	0	0	0
	57-80	16-33	6.6-7.8	0	0	0	0
6005: Padonia-----	0-11	15-35	6.1-7.3	0	0	0	0
	11-22	15-35	6.6-7.8	0	0	0	0
	22-32	15-35	7.4-8.4	1-10	0	0	0
	32-37	15-35	7.4-8.4	5-15	0	0	0
	37-41	---	---	---	---	---	---
7069: Steinauer-----	0-6	15-25	7.4-8.4	5-10	0	0	0
	6-15	15-25	7.9-8.4	5-15	0	0	0
	15-41	15-25	7.9-8.4	5-15	0	0	0
	41-60	15-25	7.9-8.4	5-15	0	0	0
7078: Steinauer-----	0-6	15-25	7.4-8.4	5-10	0	0	0
	6-15	15-25	7.9-8.4	5-15	0	0	0
	15-41	15-25	7.9-8.4	5-15	0	0	0
	41-60	15-25	7.9-8.4	5-15	0	0	0
8061: Wymore-----	0-5	23-32	5.6-6.5	0	0	0	0
	5-9	23-36	5.6-6.5	0	0	0	0
	9-17	30-42	5.6-7.3	0	0	0	0
	17-25	30-42	5.6-7.3	0	0	0	0
	25-32	30-42	5.6-7.3	0	0	0	0
	32-40	19-29	6.6-7.3	0-2	0	0	0
	40-53	19-29	6.6-7.3	0-2	0	0	0
	53-80	19-29	6.6-7.3	0-2	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Gage County, Nebraska

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
8063:							
Wymore-----	0-5	23-32	5.6-6.5	0	0	0	0
	5-9	23-36	5.6-6.5	0	0	0	0
	9-17	30-42	5.6-7.3	0	0	0	0
	17-25	30-42	5.6-7.3	0	0	0	0
	25-32	30-42	5.6-7.3	0	0	0	0
	32-40	19-29	6.6-7.3	0-2	0	0	0
	40-53	19-29	6.6-7.3	0-2	0	0	0
	53-80	19-29	6.6-7.3	0-2	0	0	0
8080:							
Wymore-----	0-5	23-32	5.6-6.5	0	0	0	0
	5-9	23-36	5.6-6.5	0	0	0	0
	9-17	30-42	5.6-7.3	0	0	0	0
	17-25	30-42	5.6-7.3	0	0	0	0
	25-32	30-42	5.6-7.3	0	0	0	0
	32-40	19-29	6.6-7.3	0-2	0	0	0
	40-80	19-29	6.6-7.3	0-2	0	0	0
9900:							
Arents, Earthen Dam-----	---	---	---	---	---	---	---
9980:							
Mine Or Quarry--	0-60	---	---	---	---	0	---
9985:							
Fits-----	0-60	0.0-5.0	6.6-8.4	0	0	0	0
9995:							
Miscellaneous Water-----	---	---	---	---	---	---	---
9998:							
Water-----	---	---	---	---	---	---	---

WATER FEATURES
Gage County, Nebraska

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
			Ft	Ft	Ft				
1849: Burchard-----	B		---	---	---	---	---	---	---
1873: Burchard-----	B		---	---	---	---	---	---	---
Steinauer-----	B		---	---	---	---	---	---	---
1879: Burchard-----	B		---	---	---	---	---	---	---
Steinauer-----	B		---	---	---	---	---	---	---
1930: Butler-----	D	March	0.5-1.5	1.0-2.0	---	---	---	---	None
		April	0.5-1.5	1.0-2.0	---	---	---	---	None
		May	0.5-1.5	1.0-2.0	---	---	---	---	None
		June	0.5-1.5	1.0-2.0	---	---	---	---	None
		July	0.5-1.5	1.0-2.0	---	---	---	---	None
2076: Chase, RARELY FLOODED----	C	February	2.0-4.0	>6.0	---	---	---	---	None
		March	2.0-4.0	>6.0	---	---	---	Very brief	Rare
		April	2.0-4.0	>6.0	---	---	---	Very brief	Rare
		May	2.0-4.0	>6.0	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
2201: Cortland, SEVERELY ERODED-	B		---	---	---	---	---	---	---
Malmo, SEVERELY ERODED----	D	March	1.0-3.0	1.5-3.0	---	---	---	---	None
		April	1.0-3.0	1.5-3.0	---	---	---	---	None
		May	1.0-3.0	1.5-3.0	---	---	---	---	None
		June	1.0-3.0	1.5-3.0	---	---	---	---	None
2418: Deroiin, SEVERELY ERODED---	B		---	---	---	---	---	---	---
2420: Deroiin, SEVERELY ERODED---	B		---	---	---	---	---	---	---
2695: Edalgo-----	C		---	---	---	---	---	---	---
2832: Filley-----	B		---	---	---	---	---	---	---
2833: Filley-----	B		---	---	---	---	---	---	---
2863: Fluvaquents-----	D	January	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		February	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		March	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		April	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		May	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		June	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		July	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Occasional
		August	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Occasional
		September	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Occasional
		October	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Occasional
		November	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
		December	0.0	>6.0	0.0-2.0	Very long	Frequent	Brief	Frequent
3422: Hedville-----	D		---	---	---	---	---	---	---
4106: Judson-----	B		---	---	---	---	---	---	---
4210:			---	---	---	---	---	---	---

(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, RARELY FLOODED--	B	January	3.5-5.0	>6.0	---	---	---	---	None
		February	3.5-5.0	>6.0	---	---	---	Brief	Rare
		March	3.5-5.0	>6.0	---	---	---	Brief	Rare
		April	3.5-5.0	>6.0	---	---	---	Brief	Rare
		May	3.5-5.0	>6.0	---	---	---	Brief	Rare
		June	3.5-5.0	>6.0	---	---	---	Brief	Rare
		July	3.5-5.0	>6.0	---	---	---	Brief	Rare
		August	---	---	---	---	---	Brief	Rare
		September	---	---	---	---	---	Brief	Rare
		October	---	---	---	---	---	Brief	Rare
		November	3.5-5.0	>6.0	---	---	---	---	None
		December	3.5-5.0	>6.0	---	---	---	---	None
4232: Kennebec, OCCASIONALLY FLOODED-----	B	January	3.5-5.0	>6.0	---	---	---	---	None
		February	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		March	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		April	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		May	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		June	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		July	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	3.5-5.0	>6.0	---	---	---	Brief	Occasional
		December	3.5-5.0	>6.0	---	---	---	---	None
4281: Kezan, CHANNELED-----	D	January	0.0-1.5	>6.0	---	---	---	---	None
		February	0.0-1.5	>6.0	---	---	---	---	None
		March	0.0-1.5	>6.0	---	---	---	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	---	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	---	Brief	Frequent
		June	0.0-1.5	>6.0	---	---	---	Brief	Frequent
		July	3.0-6.0	>6.0	---	---	---	Brief	Frequent
		August	3.0-6.0	>6.0	---	---	---	---	None
		September	3.0-6.0	>6.0	---	---	---	---	None
		October	3.0-6.0	>6.0	---	---	---	---	None
		November	0.0-1.5	>6.0	---	---	---	---	None
		December	0.0-1.5	>6.0	---	---	---	---	None
4287: Kezan, OCCASIONALLY FLOODED-----	D	January	0.0-1.5	>6.0	---	---	---	---	None
		February	0.0-1.5	>6.0	---	---	---	---	None
		March	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		April	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		May	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		June	0.0-1.5	>6.0	---	---	---	Brief	Occasional
		July	3.0-6.0	>6.0	---	---	---	Brief	Occasional
		August	3.0-6.0	>6.0	---	---	---	---	None
		September	3.0-6.0	>6.0	---	---	---	---	None
		October	3.0-6.0	>6.0	---	---	---	---	None
		November	0.0-1.5	>6.0	---	---	---	---	None
		December	0.0-1.5	>6.0	---	---	---	---	None
4298: Kipson-----	D								
Sogn-----	D								
4300: Kipson-----	D								
Sogn-----	D								
Rock Outcrop-----	D								
4428: Lancaster-----	B								
4429: Lancaster-----	B								
4858: Malmo, SEVERELY ERODED----	D	March	1.0-3.0	1.5-3.0	---	---	---	None	
		April	1.0-3.0	1.5-3.0	---	---	---	None	
		May	1.0-3.0	1.5-3.0	---	---	---	None	
		June	1.0-3.0	1.5-3.0	---	---	---	None	
4864:									

(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
Malmo, SEVERELY ERODED----	D	March	1.0-3.0	1.5-3.0	---	---	---	---	None
		April	1.0-3.0	1.5-3.0	---	---	---	---	None
		May	1.0-3.0	1.5-3.0	---	---	---	---	None
		June	1.0-3.0	1.5-3.0	---	---	---	---	None
Pawnee-----	D	March	1.0-3.0	1.5-3.0	---	---	---	---	None
		April	1.0-3.0	1.5-3.0	---	---	---	---	None
		May	1.0-3.0	1.5-3.0	---	---	---	---	None
5397: Morrill-----	B		---	---	---	---	---	---	
5480: Muscotah, OCCASIONALLY FLOODED-----	D	March	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		May	1.5-3.0	>6.0	---	---	---	Brief	Occasional
		June	1.5-3.0	>6.0	---	---	---	Brief	Occasional
5540: Nodaway, OCCASIONALLY FLOODED-----	B	February	---	---	---	---	---	Brief	Occasional
		March	---	---	---	---	---	Brief	Occasional
		April	3.0-5.0	>6.0	---	---	---	Brief	Occasional
		May	3.0-5.0	>6.0	---	---	---	Brief	Occasional
		June	3.0-5.0	>6.0	---	---	---	Brief	Occasional
		July	3.0-5.0	>6.0	---	---	---	Brief	Occasional
		August	---	---	---	---	---	Brief	Occasional
		September	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	Brief	Occasional
		November	---	---	---	---	---	Brief	Occasional
		5541: Nodaway, CHANNELED-----	B	February	---	---	---	---	---
March	---			---	---	---	---	Brief	Frequent
April	3.0-5.0			>6.0	---	---	---	Brief	Frequent
May	3.0-5.0			>6.0	---	---	---	Brief	Frequent
June	3.0-5.0			>6.0	---	---	---	Brief	Frequent
July	3.0-5.0			>6.0	---	---	---	Brief	Frequent
August	---			---	---	---	---	Brief	Frequent
September	---			---	---	---	---	Brief	Frequent
October	---			---	---	---	---	Brief	Frequent
November	---			---	---	---	---	Brief	Frequent
5970: Otoe, SEVERELY ERODED----	D			March	1.0-3.0	1.5-3.0	---	---	---
		April	1.0-3.0	1.5-3.0	---	---	---	---	None
6005: Padonia-----	C		---	---	---	---	---	---	
7069: Steinauer-----	B		---	---	---	---	---	---	
7078: Steinauer-----	B		---	---	---	---	---	---	
8061: Wymore-----	D		---	---	---	---	---	---	
8063: Wymore-----	D	March	1.0-3.0	1.5-3.0	---	---	---	---	None
		April	1.0-3.0	1.5-3.0	---	---	---	---	None
8080: Wymore-----	D	March	1.0-3.0	1.5-3.0	---	---	---	---	None
		April	1.0-3.0	1.5-3.0	---	---	---	---	None
9980: Mine Or Quarry-----	---		---	---	---	---	---	---	
9985: Pits-----	A		---	---	---	---	---	---	
9998: Water-----	---		---	---	---	---	---	---	

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
		In					
1849: Burchard-----	---	---	---	---	Moderate	Moderate	Low
1873: Burchard-----	---	---	---	---	Moderate	Moderate	Low
Steinauer-----	---	---	---	---	Moderate	High	Low
1879: Burchard-----	---	---	---	---	Moderate	Moderate	Low
Steinauer-----	---	---	---	---	Moderate	High	Low
1930: Butler-----	---	---	---	---	High	High	Low
2076: Chase, RARELY FLOODED-----	---	---	---	---	High	High	Low
2201: Cortland, SEVERELY ERODED	---	---	---	---	Moderate	Moderate	Moderate
Malmo, SEVERELY ERODED-----	---	---	---	---	High	High	Low
2418: Deroin, SEVERELY ERODED-----	---	---	---	---	High	Moderate	Moderate
2420: Deroin, SEVERELY ERODED-----	---	---	---	---	High	Moderate	Moderate
2695: Edalgo-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Moderate	Moderate	Low
2832: Filley-----	---	---	---	---	Moderate	Low	Moderate
2833: Filley-----	---	---	---	---	Moderate	Low	Moderate
2863: Fluvaquents-----	---	---	---	---	Moderate	High	Low
3422: Hedville-----	4-20	Bedrock (lithic)	---	Strongly cemented	Moderate	Low	Moderate
4106: Judson-----	---	---	---	---	High	Moderate	Low
4210: Kennebec, RARELY FLOODED-----	---	---	---	---	High	Moderate	Low
4232: Kennebec, OCCASIONALLY FLOODED-----	---	---	---	---	High	Moderate	Low
4281: Kezan, CHANNELED	---	---	---	---	High	High	Low
4287: Kezan, OCCASIONALLY FLOODED-----	---	---	---	---	High	High	Low
4298: Kipson-----	7-20	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Low
Sogn-----	4-20	Bedrock (lithic)	---	Indurated	Moderate	Low	Low
4300: Kipson-----	7-20	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Low
Sogn-----	4-20	Bedrock (lithic)	---	Indurated	Moderate	Low	Low
Rock Outcrop----	0-0	Bedrock (lithic)	---	Indurated	None	---	---
4428: Lancaster-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Moderate
4429: Lancaster-----	20-40	Bedrock (paralithic)	---	Moderately cemented	Moderate	Low	Moderate
4858: Malmo, SEVERELY ERODED-----	---	---	---	---	High	High	Low
4864: Malmo, SEVERELY ERODED-----	---	---	---	---	High	High	Low
Pawnee-----	---	---	---	---	High	High	Low
5397: Morrill-----	---	---	---	---	Moderate	Moderate	Moderate
5480: Muscotah, OCCASIONALLY FLOODED-----	---	---	---	---	Moderate	High	Low
5540: Nodaway, OCCASIONALLY FLOODED-----	---	---	---	---	High	Moderate	Low
5541: Nodaway, CHANNELED-----	---	---	---	---	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
		In	In				
5970: Otoe, SEVERELY ERODED-----	---	---	---	---	High	High	Moderate
6005: Padonia-----	20-40	Bedrock (paralithic)	---	Weakly cemented	Moderate	High	Low
7069: Steinauer-----	---	---	---	---	Moderate	High	Low
7078: Steinauer-----	---	---	---	---	Moderate	High	Low
8061: Wymore-----	---	---	---	---	High	High	Moderate
8063: Wymore-----	---	---	---	---	High	High	Moderate
8080: Wymore-----	---	---	---	---	High	High	Moderate
9900: Arents, Earthen Dam-----	---	---	---	---	---	---	---
9980: Mine Or Quarry--	---	---	---	---	---	---	---
9985: Pits-----	---	---	---	---	Low	Low	Low
9995: Miscellaneous Water-----	---	---	---	---	---	---	---
9998: Water-----	---	---	---	---	---	---	---

WATER MANAGEMENT
Gage County, Nebraska

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
Gage County, Nebraska

(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
1849: Burchard-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
1873: Burchard-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Steinauer-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
1879: Burchard-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
Steinauer-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
1930: Butler-----	Limitation: frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily percs slowly wetness
2076: Chase, RARELY FLOODED-----	Limitation: flooding frost action percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly
2201: Cortland, SEVERELY ERODED	Limitation: deep to water	Limitation: slope	Favorable	Favorable
Malmo, SEVERELY ERODED-----	Limitation: frost action percs slowly slope	Limitation: slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
2418: Deroin, SEVERELY ERODED-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
2420: Deroin, SEVERELY ERODED-----	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope
2695: Edalgo-----	Limitation: deep to water	Limitation: percs slowly slope thin layer	Limitation: area reclaim erodes easily slope	Limitation: area reclaim erodes easily slope
2832: Filley-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
2833: Filley-----	Limitation: deep to water	Limitation: slope soil blowing	Limitation: slope too sandy soil blowing	Limitation: slope
2863: Fluvaquents----	Limitation: flooding percs slowly ponding	Limitation: rooting depth ponding droughty	Limitation: ponding	Limitation: rooting depth wetness droughty
3422: Hedville-----	Limitation: deep to water	Limitation: slope thin layer soil blowing	Limitation: area reclaim slope depth to rock	Limitation: area reclaim slope depth to rock
4106: Judson-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
4210: Kennebec, RARELY FLOODED-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable
4232: Kennebec, OCCASIONALLY FLOODED-----	Limitation: deep to water	Limitation: flooding	Favorable	Favorable

WATER MANAGEMENT--Continued
Gage County, Nebraska

(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
4281: Kezan, CHANNELED	Limitation: flooding frost action	Limitation: flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
4287: Kezan, OCCASIONALLY FLOODED-----	Limitation: flooding frost action	Limitation: flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
4298: Kipson-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Sogn-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
4300: Kipson-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
Sogn-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Rock Outcrop----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
4428: Lancaster-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily depth to rock
4429: Lancaster-----	Limitation: deep to water	Limitation: slope depth to rock	Limitation: erodes easily depth to rock	Limitation: erodes easily depth to rock
4858: Malmo, SEVERELY ERODED-----	Limitation: frost action percs slowly slope	Limitation: slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
4864: Malmo, SEVERELY ERODED-----	Limitation: frost action percs slowly slope	Limitation: slope wetness	Limitation: erodes easily slope wetness	Limitation: erodes easily slope wetness
Pawnee-----	Limitation: frost action percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
5397: Morrill-----	Limitation: deep to water	Limitation: slope	Favorable	Favorable
5480: Muscotah, OCCASIONALLY FLOODED-----	Limitation: flooding percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly
5540: Nodaway, OCCASIONALLY FLOODED-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
5541: Nodaway, CHANNELED-----	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
5970: Otoe, SEVERELY ERODED-----	Limitation: frost action percs slowly slope	Limitation: slope slow intake wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
6005: Padonia-----	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

WATER MANAGEMENT--Continued
Gage County, Nebraska

(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
7069: Steinauer-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
7078: Steinauer-----	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope
8061: Wymore-----	Limitation: frost action percs slowly	Limitation: percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
8063: Wymore-----	Limitation: frost action percs slowly	Limitation: percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
8080: Wymore-----	Limitation: frost action percs slowly	Limitation: percs slowly wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
9900: Arents, Earthen Dam-----	---	---	---	---
9980: Mine Or Quarry--	---	---	---	---
9985: Pits-----	Limitation: deep to water	Limitation: fast intake slope droughty	Limitation: slope too sandy	Limitation: rooting depth slope droughty
9995: Miscellaneous Water-----	---	---	---	---
9998: Water-----	---	---	---	---

WATER MANAGEMENT--Continued
Gage County, Nebraska

(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
1849: Burchard-----	85	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.25	Very limited Deep to water	1.00
1873: Burchard-----	50	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.25	Very limited Deep to water	1.00
Steinauer-----	35	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
1879: Burchard-----	45	Somewhat limited Seepage Slope	0.05 0.03	Somewhat limited Piping	0.15	Very limited Deep to water	1.00
Steinauer-----	40	Somewhat limited Seepage Slope	0.05 0.02	Somewhat limited Piping	0.08	Very limited Deep to water	1.00
1930: Butler-----	92	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Hard to pack	1.00 0.74	Very limited Deep to water	1.00
2076: Chase, RARELY FLOODED-----	85	Somewhat limited Seepage	0.05	Somewhat limited Hard to pack Depth to saturated zone	0.57 0.43	Very limited Deep to water	1.00
2201: Cortland, SEVERELY ERODED-----	55	Very limited Seepage	1.00	Somewhat limited Seepage	0.20	Very limited Deep to water	1.00
Malmo, SEVERELY ERODED-----	25	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.48	Very limited Deep to water	1.00
2418: Derooin, SEVERELY ERODED-----	85	Somewhat limited Seepage	0.04	Somewhat limited Piping	0.01	Very limited Deep to water	1.00
2420: Derooin, SEVERELY ERODED-----	90	Somewhat limited Seepage	0.04	Somewhat limited Piping	0.01	Very limited Deep to water	1.00
2695: Edalgo-----	80	Somewhat limited Depth to bedrock Slope	0.17 0.02	Somewhat limited Thin layer Hard to pack	0.91 0.68	Very limited Deep to water	1.00
2832: Filley-----	95	Very limited Seepage	1.00	Somewhat limited Seepage	0.62	Very limited Deep to water	1.00
2833: Filley-----	90	Very limited Seepage Slope	1.00 0.03	Somewhat limited Seepage	0.62	Very limited Deep to water	1.00
2863: Fluvaquents-----	95	Very limited Seepage	1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Somewhat limited Cutbanks cave	0.10
3422: Hedville-----	80	Very limited Depth to bedrock Slope	1.00 0.08	Very limited Thin layer Piping	1.00 1.00	Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Gage County, Nebraska

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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
4106: Judson-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.01	Very limited Deep to water	1.00
4210: Kennebec, RARELY FLOODED-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.50	Somewhat limited Deep to water Slow refill Cutbanks cave	0.81 0.30 0.10
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.50	Somewhat limited Deep to water Slow refill Cutbanks cave	0.81 0.30 0.10
4281: Kezan, CHANNELED----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.50	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
4287: Kezan, OCCASIONALLY FLOODED-----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 0.50	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
4298: Kipson-----	50	Somewhat limited Depth to bedrock Slope	0.58 0.03	Very limited Thin layer Piping	1.00 0.02	Very limited Deep to water	1.00
Sogn-----	45	Very limited Seepage Depth to bedrock	1.00 1.00	Very limited Thin layer	1.00	Very limited Deep to water	1.00
4300: Kipson-----	50	Somewhat limited Depth to bedrock Slope	0.58 0.50	Very limited Thin layer Piping	1.00 0.02	Very limited Deep to water	1.00
Sogn-----	35	Very limited Seepage Depth to bedrock Slope	1.00 1.00 0.50	Very limited Thin layer	1.00	Very limited Deep to water	1.00
Rock Outcrop-----	15	Not rated		Not rated		Not rated	
4428: Lancaster-----	80	Somewhat limited Seepage Depth to bedrock	0.72 0.06	Somewhat limited Thin layer Piping	0.77 0.59	Very limited Deep to water	1.00
4429: Lancaster-----	80	Somewhat limited Seepage Depth to bedrock	0.72 0.06	Somewhat limited Thin layer Piping	0.77 0.59	Very limited Deep to water	1.00
4858: Malmo, SEVERELY ERODED-----	85	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.48	Very limited Deep to water	1.00
4864: Malmo, SEVERELY ERODED-----	60	Not limited		Very limited Depth to saturated zone Hard to pack	1.00 0.48	Very limited Deep to water	1.00
Pawnee-----	30	Not limited		Very limited		Very limited	

WATER MANAGEMENT--Continued
Gage County, Nebraska

(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
5397: Morrill-----	80	Very limited Seepage Slope	1.00 0.03	Depth to saturated zone	1.00	Deep to water	1.00
				Hard to pack	0.84		
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Somewhat limited Seepage	0.05	Somewhat limited Seepage	0.07	Very limited Deep to water	1.00
				Depth to saturated zone	0.95	Slow refill	1.00
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Somewhat limited Seepage	0.70	Hard to pack	0.80	Cutbanks cave Deep to water	0.10 0.02
				Somewhat limited		Somewhat limited	
5541: Nodaway, CHANNELED--	85	Somewhat limited Seepage	0.70	Piping	0.68	Deep to water Slow refill Cutbanks cave	0.81 0.30 0.10
				Somewhat limited Piping	0.68	Somewhat limited Deep to water Slow refill Cutbanks cave	0.81 0.30 0.10
5970: Otoe, SEVERELY ERODED-----	85	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Deep to water	1.00
6005: Padonia-----	85	Somewhat limited Depth to bedrock Seepage	0.11 0.05	Hard to pack	0.58	Very limited Deep to water	1.00
				Somewhat limited Thin layer Hard to pack	0.85 0.11		
7069: Steinauer-----	85	Somewhat limited Slope Seepage	0.12 0.05	Piping	0.08	Very limited Deep to water	1.00
				Somewhat limited Piping	0.08	Very limited Deep to water	1.00
7078: Steinauer-----	85	Somewhat limited Slope Seepage	0.97 0.05	Very limited Depth to saturated zone	1.00	Very limited Deep to water	1.00
				Hard to pack	0.64		
8061: Wymore-----	90	Not limited		Very limited Depth to saturated zone	1.00	Very limited Deep to water	1.00
8063: Wymore-----	90	Not limited		Hard to pack	0.64	Very limited Deep to water	1.00
				Very limited Depth to saturated zone	1.00		
8080: Wymore-----	90	Not limited		Hard to pack	0.64	Very limited Deep to water	1.00
				Very limited Depth to saturated zone	1.00		
9900: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
9980: Mine Or Quarry-----	100	Somewhat limited		Not limited		Very limited	

WATER MANAGEMENT--Continued
Gage County, Nebraska

(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
9985: Pits-----	100	Slope Not rated	0.50	Not rated		Deep to water Not rated	1.00
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated		Not rated	

SANITARY FACILITIES
Gage County, Nebraska

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
Gage County, Nebraska

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
Gage County, Nebraska

(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
1849: Burchard-----	85	Very limited Restricted permeability	1.00	Somewhat limited Slope	0.33
1873: Burchard-----	50	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope	1.00
Steinauer-----	35	Very limited Restricted permeability Slope	1.00 0.04	Very limited Slope	1.00
1879: Burchard-----	45	Very limited Restricted permeability Slope	1.00 1.00	Very limited Slope	1.00
Steinauer-----	40	Very limited Restricted permeability Slope	1.00 0.96	Very limited Slope	1.00
1930: Butler-----	92	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Not limited	
2076: Chase, RARELY FLOODED-----	85	Very limited Restricted permeability Depth to saturated zone Flooding	 1.00 1.00 0.40	Very limited Depth to saturated zone Flooding	 1.00 0.40
2201: Cortland, SEVERELY ERODED-----	55	Very limited Restricted permeability Filtering capacity Slope	 1.00 1.00 0.04	Very limited Slope Seepage	 1.00 1.00
Malmo, SEVERELY ERODED-----	25	Very limited Restricted permeability Depth to saturated zone Slope	 1.00 1.00 0.04	Very limited Slope Depth to saturated zone	 1.00 0.25
2418: Deroin, SEVERELY ERODED-----	85	Very limited Restricted permeability	 1.00	Somewhat limited Slope	 0.09
2420: Deroin, SEVERELY ERODED-----	90	Very limited Restricted permeability Slope	 1.00 0.00	Very limited Slope	 1.00
2695: Edalgo-----	80	Very limited Restricted permeability Depth to bedrock Slope	1.00 1.00 0.96	Very limited Depth to soft bedrock Slope	1.00 1.00
2832: Filley-----	95	Very limited Filtering capacity Slope	1.00 0.04	Very limited Seepage Slope	1.00 1.00
2833: Filley-----	90	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Seepage	1.00 1.00
2863: Fluvaquents-----	95	Very limited		Very limited	

SANITARY FACILITIES--Continued
Gage County, Nebraska

(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
3422: Hedville-----	80	Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
4106: Judson-----	90	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
4210: Kennebec, RARELY FLOODED-----	85	Somewhat limited Restricted permeability	0.50	Somewhat limited Seepage	0.50
		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.71
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
		Very limited		Very limited	
4281: Kezan, CHANNELED----	85	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Restricted permeability	0.50	Seepage	0.50
4287: Kezan, OCCASIONALLY FLOODED-----	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
4298: Kipson-----	50	Restricted permeability	0.50	Seepage	0.50
		Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
Sogn-----	45	Seepage	0.50	Seepage	0.50
		Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock	1.00
4300: Kipson-----	50	Slope	0.16	Slope	1.00
		Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
Sogn-----	35	Slope	1.00	Slope	1.00
		Seepage	0.50	Seepage	0.50
Rock Outcrop-----	15	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
4428: Lancaster-----	80	Not rated		Not rated	
		Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Restricted permeability	0.46	Slope	0.67
				Seepage	0.53

SANITARY FACILITIES--Continued
Gage County, Nebraska

(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
4429: Lancaster-----	80	Very limited Depth to bedrock	1.00	Very limited Depth to soft bedrock	1.00
		Restricted permeability	0.46	Slope	1.00
		Slope	0.04	Seepage	0.53
4858: Malmo, SEVERELY ERODED-----	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.33
		Depth to saturated zone	1.00	Depth to saturated zone	0.25
4864: Malmo, SEVERELY ERODED-----	60	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.25
		Slope	0.04		
Pawnee-----	30	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.25
		Slope	0.04		
5397: Morrill-----	80	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Restricted permeability	0.50	Seepage	0.50
5541: Nodaway, CHANNELED--	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Restricted permeability	0.50	Seepage	0.50
5970: Otoe, SEVERELY ERODED-----	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.25
6005: Padonia-----	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.04	Slope	1.00
7069: Steinauer-----	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
7078: Steinauer-----	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00		

SANITARY FACILITIES--Continued
Gage County, Nebraska

(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
8061: Wymore-----	90	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.25
8063: Wymore-----	90	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Somewhat limited Slope Depth to saturated zone	0.33 0.25
8080: Wymore-----	90	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Somewhat limited Depth to saturated zone	0.25
9900: Arents, Earthen Dam-	100	Not rated		Not rated	
9980: Mine Or Quarry-----	100	Very limited Slope Restricted permeability	1.00 1.00	Very limited Slope	1.00
9985: Pits-----	100	Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated	

SANITARY FACILITIES--Continued
Gage County, Nebraska

(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
1849: Burchard-----	85	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
1873: Burchard-----	50	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
Steinauer-----	35	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
1879: Burchard-----	45	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
Steinauer-----	40	Somewhat limited Slope Too clayey	0.96 0.50	Somewhat limited Slope	0.96	Somewhat limited Slope Too clayey	0.96 0.50
1930: Butler-----	92	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 Too clayey	1.00 0.50
2076: Chase, RARELY FLOODED-----	85	Somewhat limited Too clayey Depth to saturated zone Flooding	 0.50 0.44 0.40	Somewhat limited Flooding	 0.40	Somewhat limited Too clayey Depth to saturated zone	 0.50 0.09
2201: Cortland, SEVERELY ERODED-----	55	Very limited Too Sandy Seepage Slope	 1.00 1.00 0.04	Very limited Seepage Slope	 1.00 0.04	Very limited Seepage Too Sandy Too clayey Slope	 1.00 0.50 0.50 0.04
Malmo, SEVERELY ERODED-----	25	Very limited Depth to saturated zone Slope	 1.00 0.04	Somewhat limited Depth to saturated zone Slope	 0.75 0.04	Very limited Too clayey Depth to saturated zone Slope	 1.00 0.86 0.04
2418: Derooin, SEVERELY ERODED-----	85	Somewhat limited Too clayey	 0.50	Not limited		Somewhat limited Too clayey	 0.50
2420: Derooin, SEVERELY ERODED-----	90	Somewhat limited Too clayey Slope	 0.50 0.00	Somewhat limited Slope	 0.00	Somewhat limited Too clayey Slope	 0.50 0.00
2695: Edalgo-----	80	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.96	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.96
2832: Filley-----	95	Very limited Seepage Too Sandy Slope	1.00 1.00 0.04	Very limited Seepage Slope	1.00 0.04	Very limited Seepage Too Sandy Slope	1.00 0.50 0.04
2833: Filley-----	90	Very limited Seepage Too Sandy Slope	1.00 1.00 1.00	Very limited Seepage Slope	1.00 1.00	Very limited Seepage Slope Too Sandy	1.00 1.00 0.50
2863: Fluvaquents-----	95	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 Seepage	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 1.00
3422: Hedville-----	80	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
4106: Judson-----	90	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50

SANITARY FACILITIES--Continued
Gage County, Nebraska

(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
4210: Kennebec, RARELY FLOODED-----	85	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Not limited	
4232: Kennebec, OCCASIONALLY FLOODED-----	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	
4281: Kezan, CHANNELED----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
4287: Kezan, OCCASIONALLY FLOODED-----	85	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
4298: Kipson-----	50	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Carbonate content Slope Too clayey	1.00 1.00 1.00 0.50
Sogn-----	45	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.16	Very limited Depth to bedrock Slope	1.00 0.16	Very limited Depth to bedrock Too clayey Slope	1.00 0.50 0.16
4300: Kipson-----	50	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Carbonate content Too clayey	1.00 1.00 1.00 0.50
Sogn-----	35	Very limited Depth to bedrock Slope Too clayey	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
Rock Outcrop-----	15	Not rated		Not rated		Not rated	
4428: Lancaster-----	80	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
4429: Lancaster-----	80	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
4858: Malmo, SEVERELY ERODED-----	85	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.75	Very limited Too clayey Depth to saturated zone	1.00 0.86
4864: Malmo, SEVERELY ERODED-----	60	Very limited Depth to saturated zone Slope	1.00 0.04	Somewhat limited Depth to saturated zone Slope	0.75 0.04	Very limited Too clayey Depth to saturated zone Slope	1.00 0.86 0.04
Pawnee-----	30	Very limited Depth to saturated zone Too clayey Slope	1.00 0.50 0.04	Somewhat limited Depth to saturated zone Slope	0.75 0.04	Very limited Too clayey Depth to saturated zone Slope	1.00 0.86 0.04
5397: Morrill-----	80	Very limited Seepage Too Sandy Slope	1.00 1.00 1.00	Very limited Slope	1.00	Very limited Slope Seepage Too Sandy	1.00 0.50 0.50

SANITARY FACILITIES--Continued
Gage County, Nebraska

(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
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too clayey	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Hard to compact	1.00
		Too clayey	1.00			Depth to saturated zone	0.68
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
5541: Nodaway, CHanneled--	85	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
5970: Otoe, SEVERELY ERODED-----	85	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75	Too clayey	1.00
		Too clayey	0.50			Depth to saturated zone	0.86
6005: Padonia-----	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too clayey	1.00	Slope	0.04	Too clayey	1.00
		Slope	0.04			Slope	0.04
7069: Steinauer-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
7078: Steinauer-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
8061: Wymore-----	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
8063: Wymore-----	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
8080: Wymore-----	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.86
		Too clayey	0.50			Too clayey	0.50
9900: Arents, Earthen Dam-	100	Not rated		Not rated		Not rated	
9980: Mine Or Quarry-----	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
9985: Pits-----	100	Not rated		Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated		Not rated	

AGRICULTURAL WASTE MANAGEMENT
Gage County, Nebraska

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
Gage County, Nebraska

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
Gage County, Nebraska

(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
1849: Burchard-----	85	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Somewhat limited Restricted permeability Too steep for surface application	0.22 0.08
1873: Burchard-----	50	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
		Slope	0.04	Slope	0.04	Restricted permeability Too steep for sprinkler application	0.22 0.22
Steinauer-----	35	Somewhat limited Restricted permeability	0.30	Somewhat limited Restricted permeability	0.22	Very limited Too steep for surface application	1.00
		Slope	0.04	Slope	0.04	Restricted permeability Too steep for sprinkler application	0.22 0.22
1879: Burchard-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for sprinkler application Restricted permeability	1.00 0.22
Steinauer-----	40	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Too steep for surface application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for sprinkler application Restricted permeability	0.97 0.22
1930: Butler-----	92	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	Too acid	0.42	Too acid	0.42
		Too acid	0.11				
2076: Chase, RARELY FLOODED-----	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.43	Depth to saturated zone Flooding	0.43 0.40	Depth to saturated zone	0.43
2201: Cortland, SEVERELY ERODED-----	55	Somewhat limited		Very limited		Very limited	
		Restricted permeability	0.95	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.50	Restricted permeability	0.85	Too acid	1.00
		Slope	0.04	Slope	0.04	Restricted permeability Too steep for sprinkler application	0.85 0.22
Malmo, SEVERELY ERODED-----	25	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Gage County, Nebraska

(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
2418: Deroin, SEVERELY ERODED-----	85	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Too acid	0.14	Depth to saturated zone	1.00
		Slope	0.04	Slope	0.04	Too steep for sprinkler application	0.22
		Too acid	0.03			Too acid	0.14
		Somewhat limited		Somewhat limited		Somewhat limited	
2420: Deroin, SEVERELY ERODED-----	90	Restricted permeability	0.41	Too acid	0.31	Too acid	0.31
		Too acid	0.08	Restricted permeability	0.31	Restricted permeability	0.31
						Too steep for surface application	0.00
		Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.41	Too acid	0.31	Too steep for surface application	1.00
2695: Edalgo-----	80	Too acid	0.08	Restricted permeability	0.31	Too acid	0.31
		Slope	0.00	Slope	0.00	Restricted permeability	0.31
						Too steep for sprinkler application	0.10
		Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
2832: Filley-----	95	Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Depth to bedrock	0.65	Depth to bedrock	0.65	Too steep for sprinkler application	0.97
		Droughty	0.43	Droughty	0.43	Depth to bedrock	0.65
						Droughty	0.43
		Very limited		Very limited		Very limited	
2833: Filley-----	90	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Slope	0.04	Slope	0.04	Too steep for surface application	1.00
						Too steep for sprinkler application	0.22
		Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
2863: Fluvaquents-----	95	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
						Too steep for sprinkler application	1.00
		Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3422: Hedville-----	80	Flooding	1.00	Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff limitation	0.40				
		Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
				Depth to bedrock	1.00		

AGRICULTURAL WASTE MANAGEMENT--Continued
Gage County, Nebraska

(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
4106: Judson-----	90	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Cobble content	0.12	Too steep for sprinkler application	1.00
		Cobble content	0.12			Cobble content	0.12
		Not limited		Not limited		Somewhat limited	0.00
		Too steep for surface application				Too steep for surface application	
4210: Kennebec, RARELY FLOODED-----	85	Not limited		Somewhat limited		Not limited	
				Flooding	0.40		
4232: Kennebec, OCCASIONALLY FLOODED-----	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
4281: Kezan, CHANNELED----	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Runoff limitation	0.40				
4287: Kezan, OCCASIONALLY FLOODED-----	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Runoff limitation	0.40				
4298: Kipson-----	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Droughty	0.99	Droughty	0.99	Too steep for sprinkler application	1.00
		Runoff limitation	0.40			Droughty	0.99
Sogn-----	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Runoff limitation	0.40	Slope	0.16	Too steep for surface application	1.00
		Slope	0.16			Too steep for sprinkler application	0.39
4300: Kipson-----	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Droughty	0.99	Droughty	0.99	Too steep for sprinkler application	1.00
		Runoff limitation	0.40			Droughty	0.99
Sogn-----	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40			Too steep for sprinkler application	1.00
Rock Outcrop-----	15	Not rated		Not rated		Not rated	

AGRICULTURAL WASTE MANAGEMENT--Continued
Gage County, Nebraska

(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
4428: Lancaster-----	80	Somewhat limited Depth to bedrock	0.20	Somewhat limited Depth to bedrock	0.20	Somewhat limited Too steep for surface application	0.31
		Too acid	0.03	Too acid	0.14	Depth to bedrock Too acid	0.20 0.14
4429: Lancaster-----	80	Somewhat limited Depth to bedrock	0.20	Somewhat limited Depth to bedrock	0.20	Very limited Too steep for surface application	1.00
		Slope	0.04	Too acid	0.14	Too steep for sprinkler application	0.22
		Too acid	0.03	Slope	0.04	Depth to bedrock Too acid	0.20 0.14
4858: Malmo, SEVERELY ERODED-----	85	Very limited		Very limited		Very limited	
		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
		Runoff limitation	0.40	Too acid	0.14	Too acid	0.14
		Too acid	0.03			Too steep for surface application	0.08
4864: Malmo, SEVERELY ERODED-----	60	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40	Too acid	0.14	Depth to saturated zone	1.00
		Slope	0.04	Slope	0.04	Too steep for sprinkler application	0.22
Pawnee-----	30	Too acid	0.03			Too acid	0.14
		Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
5397: Morrill-----	80	Runoff limitation	0.40	Slope	0.04	Depth to saturated zone	1.00
		Slope	0.04			Too steep for sprinkler application	0.22
		Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Restricted permeability	0.50	Too acid	1.00	Too acid	1.00
		Too acid	0.50	Restricted permeability	0.37	Too steep for sprinkler application	1.00
		Filtering capacity	0.00	Filtering capacity	0.00	Restricted permeability	0.37
						Filtering capacity	0.00
5480: Muscotah, OCCASIONALLY FLOODED-----	90	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
		Runoff limitation	0.40				

AGRICULTURAL WASTE MANAGEMENT--Continued
Gage County, Nebraska

(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
5540: Nodaway, OCCASIONALLY FLOODED-----	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
5541: Nodaway, CHANNELED--	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
5970: Otoe, SEVERELY ERODED-----	85	Very limited		Very limited		Very limited	
		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
		Runoff limitation	0.40	Too acid	0.31	Too steep for surface application	0.91
		Too acid	0.08			Too acid	0.31
						Too steep for sprinkler application	0.02
6005: Padonia-----	85	Very limited Restricted permeability Depth to bedrock	1.00 0.42	Very limited Restricted permeability Depth to bedrock	1.00 0.42	Very limited Restricted permeability Too steep for surface application Depth to bedrock	1.00 1.00 0.42
		Droughty Slope	0.08 0.04	Droughty Slope	0.08 0.04	Too steep for sprinkler application Droughty	0.22 0.08
7069: Steinauer-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for sprinkler application Restricted permeability	1.00 0.22
7078: Steinauer-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Too steep for surface application	1.00
		Restricted permeability	0.30	Restricted permeability	0.22	Too steep for sprinkler application Restricted permeability	1.00 0.22
8061: Wymore-----	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
8063: Wymore-----	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 Too steep for surface application	1.00 1.00 0.14 0.08
8080: Wymore-----	90	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone	1.00 1.00	Very limited Restricted permeability Depth to saturated zone	1.00 1.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Gage County, Nebraska

(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
9900: Arents, Earthen Dam-	100	Runoff limitation	0.40	Too acid	0.14	Too acid	0.14
		Too acid	0.03				
		Not rated		Not rated		Not rated	
9980: Mine Or Quarry-----	100	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Low adsorption	1.00	Low adsorption	1.00	Low adsorption	1.00
		Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
						Restricted permeability	1.00
9985: Pits-----	100	Not rated		Not rated		Not rated	
9995: Miscellaneous Water-	100	Not rated		Not rated		Not rated	
9998: Water-----	100	Not rated		Not rated		Not rated	

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
 Gage County, Nebraska

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
1849: BURCHARD CLAY LOAM, 2 TO 6 PERCENT SLOPES	BURCHARD	No	hillslope	---	---	---	---
	WYMORE	No	hillslope	---	---	---	---
	MALMO	No	hillslope	---	---	---	---
1873: BURCHARD-STEINAUER CLAY LOAMS, 6 TO 12 PERCENT SLOPES, ERODED	BURCHARD	No	hillslope	---	---	---	---
	STEINAUER	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
1879: BURCHARD-STEINAUER CLAY LOAMS, 12 TO 18 PERCENT SLOPES, ERODED	BURCHARD	No	hillslope	---	---	---	---
	STEINAUER	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
1930: BUTLER SILT LOAM, 0 TO 1 PERCENT SLOPES	BUTLER	No	broad interstream divide, swale	---	---	---	---
	FILLMORE	Yes	broad interstream divide, playa	2A	YES	NO	NO
	WYMORE	No	broad interstream divide	---	---	---	---
2076: CHASE SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES, RARELY FLOODED	CHASE	No	flood plain	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
2201: CORTLAND-MALMO COMPLEX, 6 TO 12 PERCENT SLOPES	MUSCOTAH	No	flood plain	---	---	---	---
	CORTLAND	No	hillslope	---	---	---	---
2418: DEROIN SILTY CLAY LOAM, 2 TO 5 PERCENT SLOPES	MALMO	No	hillslope	---	---	---	---
	OTOE	No	hillslope	---	---	---	---
2420: DEROIN SILTY CLAY LOAM, 5 TO 11 PERCENT SLOPES	DEROIN	No	hillslope	---	---	---	---
	MALMO	No	hillslope	---	---	---	---
2695: EDALGO SILTY CLAY LOAM, 8 TO 20 PERCENT SLOPES	EDALGO	No	hillslope	---	---	---	---
	PADONIA	No	hillslope	---	---	---	---
2832: FILLEY FINE SANDY LOAM, 6 TO 12 PERCENT SLOPES	HEDVILLE	No	hillslope	---	---	---	---
	FILLEY	No	hillslope	---	---	---	---
2833: FILLEY FINE SANDY LOAM, 12 TO 18 PERCENT SLOPES	CORTLAND	No	hillslope	---	---	---	---
	FILLEY	No	hillslope	---	---	---	---
2863: FLUVAQUENTS, SILTY, FREQUENTLY FLOODED	MORRILL	No	hillslope	---	---	---	---
	FLUVAQUENTS	Yes	flood plain, depression	3,2B3	YES	NO	YES
3422: HEDVILLE COBBLY LOAM, 6 TO 30 PERCENT SLOPES	KEZAN	Yes	drainageway, flood plain	2B3	YES	NO	NO
	HEDVILLE	No	hillslope	---	---	---	---
	LANCASTER	No	hillslope	---	---	---	---
	ROCK OUTCROP	Unranked	hillslope	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
 HYDRIC SOILS LIST
 Gage County, Nebraska

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
4106: JUDSON SILT LOAM, 2 TO 5 PERCENT SLOPES	JUDSON	No	hillslope	---	---	---	---
	NODAWAY	No	drainageway	---	---	---	---
4210: KENNEBEC SILT LOAM, 0 TO 1 PERCENT SLOPES, RARELY FLOODED, COOL	KENNEBEC	No	flood plain	---	---	---	---
	JUDSON	No	hillslope	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
4232: KENNEBEC SILT LOAM, 0 TO 1 PERCENT SLOPES, OCCASIONALLY FLOODED, COOL	MUSCOTAH	No	flood plain	---	---	---	---
	KENNEBEC	No	flood plain	---	---	---	---
4281: KEZAN SILT LOAM, 0 TO 2 PERCENT SLOPES, CHANNLED, FREQUENTLY FLOODED	KEZAN	Yes	drainageway	2B3	YES	NO	NO
	KEZAN	Yes	drainageway	2B3	YES	NO	NO
	FLUVAQUENTS	Yes	drainageway	2B3,3	YES	NO	YES
	JUDSON	No	hillslope	---	---	---	---
4287: KEZAN SILT LOAM, 0 TO 2 PERCENT SLOPES, OCCASIONALLY FLOODED	KEZAN	Yes	drainageway	2B3	YES	NO	NO
	NODAWAY	No	drainageway	---	---	---	---
	KEZAN	Yes	drainageway	2B3	YES	NO	NO
	JUDSON	No	hillslope	---	---	---	---
4298: KIPSON-SOQN COMPLEX, 3 TO 30 PERCENT SLOPES	KIPSON	No	hillslope	---	---	---	---
	SOQN	No	hillslope	---	---	---	---
	ROCK OUTCROP	Unranked	hillslope	---	---	---	---
4300: KIPSON-SOQN-ROCK OUTCROP COMPLEX, 12 TO 60 PERCENT SLOPES	KIPSON	No	hillslope	---	---	---	---
	SOQN	No	hillslope	---	---	---	---
	ROCK OUTCROP	Unranked	hillslope	---	---	---	---
4428: LANCASTER LOAM, 2 TO 6 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	KIPSON	No	hillslope	---	---	---	---
	WYMORE	No	hillslope	---	---	---	---
4429: LANCASTER LOAM, 6 TO 12 PERCENT SLOPES	LANCASTER	No	hillslope	---	---	---	---
	HEDVILLE	No	hillslope	---	---	---	---
	KIPSON	No	hillslope	---	---	---	---
	SOQN	No	hillslope	---	---	---	---
4858: MALMO CLAY LOAM, 2 TO 6 PERCENT SLOPES	MALMO	No	hillslope	---	---	---	---
	MORRILL	No	hillslope	---	---	---	---
	WYMORE	No	hillslope	---	---	---	---
4864: MALMO-PAWNEE COMPLEX, 6 TO 12 PERCENT SLOPES	MALMO	No	hillslope	---	---	---	---
	PAWNEE	No	hillslope	---	---	---	---
	OTOE	No	hillslope	---	---	---	---
5397: MORRILL LOAM, 12 TO 18 PERCENT SLOPES	MORRILL	No	hillslope	---	---	---	---
	CORTLAND	No	hillslope	---	---	---	---
	FILLEY	No	hillslope	---	---	---	---
	MALMO	No	hillslope	---	---	---	---
	STEINAUER	No	hillslope	---	---	---	---
5480: MUSCOTAH SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES, OCCASIONALLY FLOODED	MUSCOTAH	No	flood plain	---	---	---	---
	NODAWAY	No	flood plain	---	---	---	---
	KEZAN	Yes	flood plain, drainageway	2B3	YES	NO	NO

HYDRIC SOIL INTERPRETATIONS
 HYDRIC SOILS LIST
 Gage County, Nebraska

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
5540: NODAWAY SILT LOAM, 0 TO 2 PERCENT SLOPES, OCCASIONALLY FLOODED	NODAWAY	No	flood plain	---	---	---	---
	JUDSON NODAWAY	No No	hillslope drainageway, flood plain	---	---	---	---
	KEZAN	Yes	flood plain	2B3	YES	NO	NO
5541: NODAWAY SILT LOAM, 0 TO 2 PERCENT SLOPES, CHANNELED, FREQUENTLY FLOODED	NODAWAY	No	drainageway, flood plain	---	---	---	---
	NODAWAY JUDSON KEZAN	No No Yes	flood plain hillslope flood plain	---	---	---	---
	KEZAN	Yes	flood plain	2B3	YES	NO	NO
5970: OTOE SILTY CLAY LOAM, 5 TO 9 PERCENT SLOPES	OTOE	No	hillslope	---	---	---	---
	MALMO WYMORE	No No	hillslope hillslope	---	---	---	---
6005: PADONIA SILTY CLAY LOAM, 6 TO 12 PERCENT SLOPES	PADONIA	No	hillslope	---	---	---	---
	MALMO KIPSON	No No	hillslope hillslope	---	---	---	---
7069: STEINAUER CLAY LOAM, 12 TO 30 PERCENT SLOPES	STEINAUER	No	hillslope	---	---	---	---
	BURCHARD NODAWAY	No No	hillslope drainageway	---	---	---	---
7078: STEINAUER CLAY LOAM, 30 TO 60 PERCENT SLOPES	STEINAUER	No	hillslope	---	---	---	---
	MORRILL NODAWAY ROCK OUTCROP	No No Unranked	hillslope drainageway hillslope	---	---	---	---
8061: WYMORE SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	WYMORE	No	broad interstream divide	---	---	---	---
	BUTLER	No	broad interstream divide, swale	---	---	---	---
8063: WYMORE SILTY CLAY LOAM, 2 TO 5 PERCENT SLOPES	WYMORE	No	hillslope	---	---	---	---
	OTOE MALMO	No No	hillslope hillslope	---	---	---	---
8080: WYMORE SILTY CLAY LOAM, TERRACE, 0 TO 2 PERCENT SLOPES	WYMORE	No	stream terrace	---	---	---	---
	BUTLER	No	stream terrace, swale	---	---	---	---
9900: ARENTS, EARTHEN DAM	ARENTS, EARTHEN DAM	Unranked	---	---	---	---	---
9980: PITS, QUARRY	MINE OR QUARRY	Unranked	---	---	---	---	---
9985: PITS, SAND AND GRAVEL	PITS	Unranked	---	---	---	---	---
9995: WASTE WATER, SEWAGE LAGOON	MISCELLANEOUS WATER	---	---	---	---	---	---
9998: WATER	WATER	Unranked	---	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Gage County, Nebraska

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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

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.

HIGHLY ERODIBLE LANDS REPORT
Gage County, Nebraska

Map Symbol	Soil Mapunit Name	HEL Classification R=175 C=15		
		Wind	Water	MU
1849	BURCHARD CLAY LOAM, 2 TO 6 PERCENT SLOPES	3	2	2
1873	BURCHARD-STEINAUER CLAY LOAMS, 6 TO 12 PERCENT SLOPES, ERODED	3	1	1
1879	BURCHARD-STEINAUER CLAY LOAMS, 12 TO 18 PERCENT SLOPES, ERODED	3	1	1
1930	BUTLER SILT LOAM, 0 TO 1 PERCENT SLOPES	3	3	3
2076	CHASE SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES, RARELY FLOODED	3	3	3
2201	CORTLAND-MALMO COMPLEX, 6 TO 12 PERCENT SLOPES	3	1	1
2418	DEROIN SILTY CLAY LOAM, 2 TO 5 PERCENT SLOPES	3	2	2
2420	DEROIN SILTY CLAY LOAM, 5 TO 11 PERCENT SLOPES	3	1	1
2695	EDALGO SILTY CLAY LOAM, 8 TO 20 PERCENT SLOPES	3	1	1
2832	FILLEY FINE SANDY LOAM, 6 TO 12 PERCENT SLOPES	3	1	1
2833	FILLEY FINE SANDY LOAM, 12 TO 18 PERCENT SLOPES	3	1	1
2863	FLUVAQUENTS, SILTY, FREQUENTLY FLOODED	3	3	3
3422	HEDVILLE COBBLY LOAM, 6 TO 30 PERCENT SLOPES	3	1	1
4106	JUDSON SILT LOAM, 2 TO 5 PERCENT SLOPES	3	2	2
4210	KENNEBEC SILT LOAM, 0 TO 1 PERCENT SLOPES, RARELY FLOODED, COOL	3	3	3
4232	KENNEBEC SILT LOAM, 0 TO 1 PERCENT SLOPES, OCCASIONALLY FLOODED, COOL	3	3	3
4281	KEZAN SILT LOAM, 0 TO 2 PERCENT SLOPES, CHANNELED, FREQUENTLY FLOODED	3	3	3
4287	KEZAN SILT LOAM, 0 TO 2 PERCENT SLOPES, OCCASIONALLY FLOODED	3	3	3
4298	KIPSON-SOQN COMPLEX, 3 TO 30 PERCENT SLOPES	3	1	1
4300	KIPSON-SOQN-ROCK OUTCROP COMPLEX, 12 TO 60 PERCENT SLOPES	3	1	1
4428	LANCASTER LOAM, 2 TO 6 PERCENT SLOPES	3	1	1
4429	LANCASTER LOAM, 6 TO 12 PERCENT SLOPES	3	1	1
4858	MALMO CLAY LOAM, 2 TO 6 PERCENT SLOPES	3	2	2
4864	MALMO-PAWNEE COMPLEX, 6 TO 12 PERCENT SLOPES	3	1	1
5397	MORRILL LOAM, 12 TO 18 PERCENT SLOPES	3	1	1
5480	MUSCOTAH SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES, OCCASIONALLY FLOODED	3	3	3
5540	NODAWAY SILT LOAM, 0 TO 2 PERCENT SLOPES, OCCASIONALLY FLOODED	3	3	3
5541	NODAWAY SILT LOAM, 0 TO 2 PERCENT SLOPES, CHANNELED, FREQUENTLY FLOODED	3	3	3
5970	OTOE SILTY CLAY LOAM, 5 TO 9 PERCENT SLOPES	3	1	1
6005	PADONIA SILTY CLAY LOAM, 6 TO 12 PERCENT SLOPES	3	1	1
7069	STEINAUER CLAY LOAM, 12 TO 30 PERCENT SLOPES	3	1	1
7078	STEINAUER CLAY LOAM, 30 TO 60 PERCENT SLOPES	3	1	1
8061	WYMORE SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	3	3	3
8063	WYMORE SILTY CLAY LOAM, 2 TO 5 PERCENT SLOPES	3	2	2
8080	WYMORE SILTY CLAY LOAM, TERRACE, 0 TO 2 PERCENT SLOPES	3	3	3
9900	ARENITS, EARTHEN DAM			
9980	PITS, QUARRY			
9985	PITS, SAND AND GRAVEL			
9995	WASTE WATER, SEWAGE LAGOON			
9998	WATER			

