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NRCS

Natural Resources Conservation Service

Iowa Department of Agriculture and Land Stewardship

IOWA STATE UNIVERSITY
Iowa Agriculture and Home Economics Experiment Station

IOWA STATE UNIVERSITY
University Extension

In cooperation with Iowa Agriculture and Home Economics Experiment Station and Cooperative Extension Service, Iowa State University, and Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship

Soil Survey of Cedar County, Iowa

Part II

How To Use This Soil Survey

This survey is divided into three parts. Part I includes general information about the survey area; descriptions of the general soil map units, detailed soil map units, and soil series in the area; and a description of how the soils formed. Part II describes the use and management of the soils and the major soil properties. This part may be updated as further information about soil management becomes available. Part III includes the maps.

On the **general soil map**, the survey area is divided into groups of soils called associations. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the soil associations on the color-coded map legend, and then refer to the section **General Soil Map Units** in Part I for a general description of the soils in your area.

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets** in Part III. Note the number of the map sheet, and turn to that sheet. Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. The **Contents** in Part I lists the map units and shows the page where each map unit is described.

The **Contents** in Part II shows which table has information on a specific land use or soil property for each detailed soil map unit. Also, see the **Contents** in Part I and Part II for other sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2007. Soil names and descriptions were approved in 2008. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2007. The most current official data are available through the NRCS Web Soil Survey (http://soils.usda.gov).

This survey was made cooperatively by the Natural Resources Conservation Service; the Iowa Agriculture and Home Economics Experiment Station and Cooperative Extension Service, Iowa State University; the Division of Soil Conservation, Iowa Department of Agriculture and Land Stewardship; and Cedar County. The survey is part of the technical assistance furnished to the Cedar County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: A typical rural landscape in Cedar County.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Soil Survey of
Cedar County, Iowa

Introduction to Part II

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

This part of the soil survey includes interpretations for various uses of the soils and data on soil properties. This information can be used to plan the use and management of soils for crops and pasture or as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Soils are rated in their natural state. No unusual modification of the soil site or material is made other than that which is considered normal practice for the rated use. Even though soils may have limitations, it is important to remember that engineers and others can modify soil features or can design or adjust the plans for a structure to compensate for most of the limitations. Most of these practices, however, are costly. The final decision in selecting a site for a particular use generally involves weighing the costs of site preparation and maintenance.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

The table “Classification of the Soils” is at the end of this section. Information about the system of soil taxonomy used by the Natural Resources Conservation Service is available in Part I of this publication. The extent of the map units in this survey area is shown in the table “Acreage and Proportionate Extent of the Soils.”

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate

the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative 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 and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text in Part I for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Ackmore	Fine-silty, mixed, superactive, nonacid, mesic Mollic Fluvaquents
Ankeny	Coarse-loamy, mixed, superactive, mesic Cumulic Hapludolls
Ansgar	Fine-silty, mixed, superactive, mesic Mollic Endoaqualfs
Aquolls	Mesic Aquolls
Atterberry	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
Bassett	Fine-loamy, mixed, superactive, mesic Mollic Hapludalfs
Brady	Coarse-loamy, mixed, active, mesic Aquollic Hapludalfs
Chelsea	Mixed, mesic Lamellic Udipsamments
Colo	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Coppock	Fine-silty, mixed, superactive, mesic Mollic Endoaqualfs
Dickinson	Coarse-loamy, mixed, superactive, mesic Typic Hapludolls
Dinsdale	Fine-silty, mixed, superactive, mesic Typic Argiudolls
*Dinsdale	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Downs	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
*Downs	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Ely	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Emeline	Loamy, mixed, superactive, mesic Lithic Hapludolls
Fayette	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Franklin	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
Garwin	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Judson	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Kennebec	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Kenyon	Fine-loamy, mixed, superactive, mesic Typic Hapludolls
*Kenyon	Fine-loamy, mixed, superactive, mesic Dystric Eutrudepts
Klinger	Fine-silty, mixed, superactive, mesic Aquic Hapludolls
Klingmore	Fine-silty, mixed, superactive, mesic Aquic Hapludolls
Klossner	Loamy, mixed, euic, mesic Terric Haplosaprists
Lamont	Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs
Lindley	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs
Maxfield	Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Maxmore	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Mt. Carroll	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
*Mt. Carroll	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Muscatine	Fine-silty, mixed, superactive, mesic Aquic Hapludolls
Nevin	Fine-silty, mixed, superactive, mesic Aquic Pachic Argiudolls
Nodaway	Fine-silty, mixed, superactive, nonacid, mesic Mollic Udifluvents
Perks	Mixed, mesic Typic Udipsamments
Pillot	Fine-silty over sandy or sandy-skeletal, mixed, superactive, mesic Typic Argiudolls
Psammaquents	Mesic Psammaquents
Radford	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Richwood	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Rockton	Fine-loamy, mixed, superactive, mesic Typic Argiudolls
Rowley	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Saude	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludolls
Sparta	Sandy, mixed, mesic Entic Hapludolls
Sperry	Fine, smectitic, mesic Typic Argialbolls
Spillville	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Tama	Fine-silty, mixed, superactive, mesic Typic Argiudolls
*Tama	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Tell	Fine-silty over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs
Udorthents	Loamy Udorthents
Walford	Fine-silty, mixed, superactive, mesic Mollic Endoaqualfs
Waubeek	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Whittier	Fine-silty over sandy or sandy-skeletal, mixed, superactive, mesic Mollic Hapludalfs

Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
8B	Judson silty clay loam, 2 to 5 percent slopes	1,617	0.4
41B	Sparta loamy fine sand, 2 to 5 percent slopes	382	0.1
41C	Sparta loamy fine sand, 5 to 9 percent slopes	501	0.1
41E	Sparta loamy fine sand, 9 to 18 percent slopes	250	*
63B	Chelsea loamy fine sand, 2 to 5 percent slopes	522	0.1
63C	Chelsea loamy fine sand, 5 to 9 percent slopes	1,214	0.3
63E	Chelsea loamy fine sand, 9 to 18 percent slopes	1,087	0.3
65D2	Lindley loam, 9 to 14 percent slopes, moderately eroded	585	0.2
65E2	Lindley loam, 14 to 18 percent slopes, moderately eroded	1,142	0.3
65F2	Lindley loam, 18 to 25 percent slopes, moderately eroded	423	0.1
83B	Kenyon loam, 2 to 5 percent slopes	1,628	0.4
83C	Kenyon loam, 5 to 9 percent slopes	576	0.2
83C2	Kenyon loam, 5 to 9 percent slopes, moderately eroded	986	0.3
88	Nevin silty clay loam, 0 to 2 percent slopes, rarely flooded	546	0.1
110C	Lamont fine sandy loam, 2 to 9 percent slopes	399	0.1
110E	Lamont fine sandy loam, 9 to 18 percent slopes	419	0.1
118	Garwin silty clay loam, 0 to 2 percent slopes	3,173	0.9
119	Muscatine silty clay loam, 0 to 2 percent slopes	13,901	3.7
119B	Muscatine silty clay loam, 2 to 5 percent slopes	5,742	1.5
120	Tama silty clay loam, 0 to 2 percent slopes	441	0.1
120B	Tama silty clay loam, 2 to 5 percent slopes	56,491	15.2
120C	Tama silty clay loam, 5 to 9 percent slopes	6,903	1.9
120C2	Tama silty clay loam, 5 to 9 percent slopes, moderately eroded	22,778	6.1

See footnote at end of table.

Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
120D2	Tama silty clay loam, 9 to 14 percent slopes, moderately eroded	2,084	0.6
121	Tama silt loam, 0 to 2 percent slopes	1,357	0.4
122	Sperry silt loam, 0 to 1 percent slopes, depressional	368	*
133	Colo silty clay loam, 0 to 2 percent slopes, occasionally flooded	10,930	2.9
133+	Colo silt loam, 0 to 2 percent slopes, occasionally flooded, overwash	4,393	1.2
136	Ankeny fine sandy loam, 0 to 2 percent slopes, rarely flooded	692	0.2
143	Brady sandy loam, 0 to 2 percent slopes	736	0.2
160	Walford silt loam, 0 to 2 percent slopes	1,330	0.4
162B	Downs silt loam, 2 to 5 percent slopes	8,711	2.3
162C	Downs silt loam, 5 to 9 percent slopes	1,438	0.4
162C2	Downs silt loam, 5 to 9 percent slopes, moderately eroded	14,713	3.9
162D2	Downs silt loam, 9 to 14 percent slopes, moderately eroded	10,716	2.9
162D3	Downs silty clay loam, 9 to 14 percent slopes, severely eroded	2,848	0.8
162E3	Downs silty clay loam, 14 to 18 percent slopes, severely eroded	735	0.2
163B	Fayette silt loam, 2 to 5 percent slopes	4,317	1.2
163C	Fayette silt loam, 5 to 9 percent slopes	2,593	0.7
163C2	Fayette silt loam, 5 to 9 percent slopes, moderately eroded	12,640	3.4
163D	Fayette silt loam, 9 to 14 percent slopes	2,683	0.7
163D2	Fayette silt loam, 9 to 14 percent slopes, moderately eroded	9,454	2.5
163D3	Fayette silty clay loam, 9 to 14 percent slopes, severely eroded	6,748	1.8
163E	Fayette silt loam, 14 to 18 percent slopes	1,829	0.5
163E2	Fayette silt loam, 14 to 18 percent slopes, moderately eroded	3,426	0.9
163E3	Fayette silty clay loam, 14 to 18 percent slopes, severely eroded	4,737	1.3
163F	Fayette silt loam, 18 to 25 percent slopes	3,594	1.0
163F2	Fayette silt loam, 18 to 25 percent slopes, moderately eroded	5,491	1.5
163G	Fayette silt loam, 25 to 40 percent slopes	1,085	0.3
171B	Bassett loam, 2 to 5 percent slopes	350	*
171C2	Bassett loam, 5 to 9 percent slopes, moderately eroded	1,653	0.4
171D2	Bassett loam, 9 to 14 percent slopes, moderately eroded	516	0.1
175B	Dickinson fine sandy loam, 2 to 5 percent slopes	1,042	0.3
175C	Dickinson fine sandy loam, 5 to 9 percent slopes	702	0.2
177	Saude loam, 0 to 2 percent slopes	876	0.2
184	Klinger silty clay loam, 1 to 3 percent slopes	9,592	2.6
212	Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded	1,981	0.5
220	Nodaway silt loam, 0 to 2 percent slopes, occasionally flooded	1,340	0.4
221	Klossner muck, 1 to 3 percent slopes	105	*
291	Atterberry silt loam, 0 to 2 percent slopes	8,830	2.4
291B	Atterberry silt loam, 2 to 5 percent slopes	2,178	0.6
293C	Fayette-Chelsea-Tell complex, 5 to 9 percent slopes	562	0.2
293E	Fayette-Chelsea-Tell complex, 9 to 18 percent slopes	1,108	0.3
293G	Fayette-Chelsea-Tell complex, 18 to 40 percent slopes	379	0.1
352B	Whittier silt loam, 2 to 5 percent slopes	517	0.1
352C2	Whittier silt loam, 5 to 9 percent slopes, moderately eroded	451	0.1
354	Aquolls, ponded, 0 to 1 percent slopes	238	*
377B	Dinsdale silty clay loam, 2 to 5 percent slopes	12,548	3.4
377C	Dinsdale silty clay loam, 5 to 9 percent slopes	1,005	0.3
377C2	Dinsdale silty clay loam, 5 to 9 percent slopes, moderately eroded	1,716	0.5
382	Maxfield silty clay loam, 0 to 2 percent slopes	5,757	1.5
412E	Emeline loam, 9 to 18 percent slopes	509	0.1
420B	Tama silty clay loam, terrace, 2 to 5 percent slopes	1,966	0.5
428B	Ely silty clay loam, 2 to 5 percent slopes	2,002	0.5
430	Ackmore silt loam, 0 to 2 percent slopes, occasionally flooded	801	0.2
442C	Dickinson-Tama complex, 5 to 9 percent slopes	249	*
450B	Pillot silt loam, 2 to 5 percent slopes	1,500	0.4
450C	Pillot silt loam, 5 to 9 percent slopes	381	0.1
462B	Downs silt loam, terrace, 2 to 5 percent slopes	1,033	0.3
462C	Downs silt loam, terrace, 5 to 9 percent slopes	508	0.1
463B	Fayette silt loam, terrace, 2 to 5 percent slopes	566	0.2
467	Radford silt loam, 0 to 2 percent slopes, occasionally flooded	1,553	0.4
478G	Rock outcrop-Emeline complex, 18 to 60 percent slopes	941	0.3
485	Spillville loam, 0 to 2 percent slopes, occasionally flooded	1,960	0.5
520	Coppock silt loam, 0 to 2 percent slopes, occasionally flooded	256	*
520B	Coppock silt loam, 2 to 5 percent slopes	639	0.2

See footnote at end of table.

Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
662C2	Mt. Carroll silt loam, 5 to 9 percent slopes, moderately eroded	952	0.3
662D2	Mt. Carroll silt loam, 9 to 14 percent slopes, moderately eroded	1,049	0.3
662D3	Mt. Carroll silt loam, 9 to 14 percent slopes, severely eroded	301	*
662E3	Mt. Carroll silt loam, 14 to 18 percent slopes, severely eroded	655	0.2
729B	Ackmore-Nodaway complex, 2 to 5 percent slopes	4,746	1.3
760	Ansgar silt loam, 0 to 2 percent slopes	921	0.2
761	Franklin silt loam, 1 to 3 percent slopes	5,319	1.4
771B	Waubeek silt loam, 2 to 5 percent slopes	1,182	0.3
814D	Rockton loam, 5 to 14 percent slopes	1,034	0.3
826	Rowley silt loam, 0 to 2 percent slopes	396	0.1
884	Klingmore silty clay loam, 1 to 3 percent slopes	766	0.2
911B	Colo-Ely complex, 2 to 5 percent slopes	30,690	8.2
977	Richwood silt loam, 0 to 2 percent slopes	372	*
982	Maxmore silty clay loam, 0 to 2 percent slopes	1,508	0.4
1118	Garwin silty clay loam, terrace, 0 to 2 percent slopes	337	*
1119	Muscatine silty clay loam, terrace, 0 to 2 percent slopes	953	0.3
1160	Walford silt loam, terrace, 0 to 2 percent slopes	440	0.1
1220	Nodaway silt loam, 0 to 2 percent slopes, channeled, frequently flooded	1,172	0.3
1291	Atterberry silt loam, terrace, 0 to 2 percent slopes	1,971	0.5
1315	Perks-Spillville complex, 0 to 2 percent slopes, channeled, frequently flooded	3,778	1.0
4946	Udorthents-Highway complex, 0 to 5 percent slopes	1,038	0.3
5010	Pits, sand and gravel	40	*
5030	Pits, limestone quarries	285	*
5040	Udorthents, loamy	142	*
5053	Psammaquents, 0 to 2 percent slopes, frequently flooded	207	*
8041B	Sparta loamy fine sand, terrace, 1 to 5 percent slopes	549	0.1
8041C	Sparta loamy fine sand, terrace, 5 to 9 percent slopes	60	*
AW	Animal waste lagoon	13	*
SL	Sewage lagoon	64	*
W	Water	2,096	0.6
	Total	372,700	100.0

* Less than 0.1 percent.

Agronomy

This section provides some general information about managing the soils for crops and for hay and pasture. The Iowa corn suitability rating system and the system of land capability classification used by the Natural Resources Conservation Service are explained, and the estimated yields of the main crops and hay and pasture plants are listed for each soil. Prime farmland is described, and interpretations for agricultural waste management are provided.

Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Cropland Management Considerations

The management concerns affecting the use of the detailed soil map units in the county for crops are shown in the table "Cropland Management Considerations" at the end of this section. The main concerns in managing nonirrigated cropland are conserving moisture, controlling wind erosion and water erosion, and maintaining soil fertility.

Conserving moisture consists primarily of reducing the evaporation and runoff rates and increasing the water infiltration rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Generally, a combination of several practices is needed to control wind erosion and water erosion. Conservation tillage, stripcropping, field windbreaks, contour farming, conservation cropping systems, crop residue management, terraces, diversions, and grassed waterways help to prevent excessive soil loss.

Measures that are effective in maintaining soil fertility include applying fertilizer, both organic and inorganic, including manure; incorporating crop residue or green manure crops into the soil; and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for nonirrigated crops respond well to applications of fertilizer.

Some of the considerations shown in the table cannot be easily overcome. These are channels, flooding, gullies, and ponding.

Additional considerations are as follows:

Lime content, limited available water capacity, limited content of organic matter, potential poor tilth and compaction, and restricted permeability.—These limitations can be minimized by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems. Also, crops may respond well to additions of phosphate fertilizer to soils that have a high content of lime.

Potential for ground-water contamination.—The proper use of nutrients and pesticides can reduce the risk of ground-water contamination.

Potential for surface-water contamination.—The risk of surface-water contamination can be reduced by the proper use of nutrients and pesticides and by conservation farming practices that reduce the runoff rate.

Surface crusting.—This limitation retards seedling development after periods of heavy rainfall.

Surface rock fragments.—This limitation causes rapid wear of tillage equipment. It cannot be easily overcome.

Surface stones.—Stones or boulders on or near the surface can hinder normal tillage unless they are removed.

Salt content.—In areas where this is a limitation, only salt-tolerant crops should be grown.

On irrigated soils the main management concerns are efficient water use, nutrient management, control of erosion, pest and weed control, and timely planting and harvesting for a successful crop. An irrigation system that provides optimum control and distribution of water at minimum cost is needed. Overirrigation wastes water, leaches plant nutrients, and causes erosion. Also, it can increase wetness and soil salinity.

Explanation of Criteria

Acid soil.—The pH is less than 6.1.

Channeled.—The word "channeled" is included in the map unit name.

Dense layer.—The bulk density is 1.80 g/cc or greater within the soil profile.

Depth to rock.—The depth to bedrock is less than 40 inches.

Eroded.—The word "eroded" is included in the map unit name.

Excessive permeability.—Saturated hydraulic conductivity is 42 micrometers per second or more within the soil profile.

Flooding.—Flooding is occasional, frequent, or very frequent.

Gullied.—The word "gullied" is included in the map unit name.

High content of organic matter.—The surface layer has more than 20 percent organic matter.

Lime content.—The pH is 7.4 or more in the surface layer, or the wind erodibility group is 4L.

Limited available water capacity.—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 6 inches or less.

Limited content of organic matter.—The content of organic matter is 2 percent or less in the surface layer.

Ponding.—Ponding duration is assigned to the map unit component. Water is above the surface.

Potential poor tilth and compaction.—The content of clay is 27 percent or more in the surface layer.

Potential for ground-water contamination (by nutrients or pesticides).—The depth to a seasonal high water table is 4 feet or less, the saturated hydraulic conductivity of any layer is more than 42 micrometers per second, or the depth to bedrock is less than 60 inches.

Potential for surface-water contamination (by nutrients or pesticides).—The map unit component is occasionally, frequently, or very frequently flooded, is subject to ponding, is assigned to hydrologic group C or D and has a slope of more than 2 percent, is assigned to hydrologic group A and has a slope of more than 6 percent, or is assigned to hydrologic group B, has a slope of 3 percent or more, and has a K factor of more than 0.17.

Previously eroded.—The word "eroded" is included in the map unit name.

Restricted permeability.—Saturated hydraulic conductivity is less than 0.42 micrometer per second within the soil profile.

Salt content.—The electrical conductivity is 4 or more in the surface layer or 8 or more within a depth of 30 inches.

Slope (equipment limitation).—The slope is more than 15 percent.

Surface crusting.—The content of clay is 27 percent or more and the content of organic matter is 2 percent or less in the surface layer.

Surface rock fragments (equipment limitation).—The terms describing the texture of the surface layer include any rock fragment modifier, except for gravelly, channery, stony, very stony, extremely stony, bouldery, very bouldery, and extremely bouldery.

Surface stones (equipment limitation).—The word "stony" or "bouldery" is included in the description of the surface layer, or 0.01 to 0.1 percent of the surface is covered by stones or boulders.

Water erosion.—Either the slope is 6 percent or more, or the slope is more than 3 percent and less than 6 percent and the surface layer is not sandy.

Water table.—A water table is within 2.5 feet of the surface.

Wind erosion.—The wind erodibility group is 1, 2, 3, or 4L.

Hydrologic groups are described under the heading "Water Features." Erosion factors (e.g., K factor) and wind erodibility groups are described under the heading "Physical Properties."

Cropland Management Considerations

(See text for a description of the considerations listed in this table)

Map symbol and soil name	Pct. of map unit	Cropland management considerations
8B:		
Judson	95	Potential poor tilth and compaction Potential for surface-water contamination Water erosion
41B:		
Sparta	100	Acid soil Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wind erosion
41C:		
Sparta	85	Acid soil Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Wind erosion
41E:		
Sparta	90	Acid soil Slope Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
63B:		
Chelsea	90	Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wind erosion
63C:		
Chelsea	90	Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Wind erosion
63E:		
Chelsea	95	Slope Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
65D2:		
Lindley, moderately eroded---	90	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Restricted permeability Water erosion
65E2:		
Lindley, moderately eroded---	90	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Restricted permeability Water erosion
65F2:		
Lindley, moderately eroded---	85	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Restricted permeability Water erosion
83B:		
Kenyon-----------------------	85	Potential for ground-water contamination Potential for surface-water contamination Water erosion
83C:		
Kenyon-----------------------	80	Potential for ground-water contamination Potential for surface-water contamination Water erosion
83C2:		
Kenyon, moderately eroded----	85	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
88:		
Nevin, rarely flooded--------	90	Potential poor tilth and compaction Potential for ground-water contamination Water table
110C:		
Lamont-----------------------	85	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
110E:		
Lamont-----------------------	95	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
118:		
Garwin	95	Potential poor tilth and compaction Potential for ground-water contamination Water table
119:		
Muscatine	95	Potential poor tilth and compaction Potential for ground-water contamination Water table
119B:		
Muscatine	95	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Water erosion Water table
120:		
Tama	100	No major considerations
120B:		
Tama	90	Potential for surface-water contamination Water erosion
120C:		
Tama	80	Potential for surface-water contamination Water erosion
120C2:		
Tama, moderately eroded	90	Potential for surface-water contamination Previously eroded Water erosion
120D2:		
Tama, moderately eroded	90	Potential for surface-water contamination Previously eroded Water erosion
121:		
Tama	85	Potential for ground-water contamination
122:		
Sperry, depressional	95	Ponding Potential for ground-water contamination Potential for surface-water contamination Water table
133:		
Colo, occasionally flooded	85	Flooding Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Water table
133+:		
Colo, occasionally flooded, overwash	90	Flooding Potential for ground-water contamination Potential for surface-water contamination Water table

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
136:		
Ankeny, rarely flooded	85	Excessive permeability Potential for ground-water contamination Wind erosion
143:		
Brady	95	Excessive permeability Potential for ground-water contamination Water table Wind erosion
160:		
Walford	95	Acid soil Potential for ground-water contamination Water table
162B:		
Downs	95	Potential for ground-water contamination Potential for surface-water contamination Water erosion
162C:		
Downs	85	Potential for ground-water contamination Potential for surface-water contamination Water erosion
162C2:		
Downs, moderately eroded	90	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
162D2:		
Downs, moderately eroded	85	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
162D3:		
Downs, severely eroded	90	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
162E3:		
Downs, severely eroded	90	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
163B:		
Fayette	95	Potential for ground-water contamination Potential for surface-water contamination Water erosion
163C:		
Fayette	90	Potential for ground-water contamination Potential for surface-water contamination Water erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
163C2:		
Fayette, moderately eroded---	90	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
163D:		
Fayette----------	80	Potential for ground-water contamination Potential for surface-water contamination Water erosion
163D2:		
Fayette, moderately eroded---	80	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
163D3:		
Fayette, severely eroded-----	75	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
163E:		
Fayette----------	75	Slope Potential for ground-water contamination Potential for surface-water contamination Water erosion
163E2:		
Fayette, moderately eroded---	70	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
163E3:		
Fayette, severely eroded-----	80	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
163F:		
Fayette----------	75	Slope Potential for ground-water contamination Potential for surface-water contamination Water erosion
163F2:		
Fayette, moderately eroded---	70	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
163G:		
Fayette	85	Slope Potential for ground-water contamination Potential for surface-water contamination Water erosion
171B:		
Bassett	85	Potential for ground-water contamination Potential for surface-water contamination Water erosion
171C2:		
Bassett, moderately eroded	90	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
171D2:		
Bassett, moderately eroded	85	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
175B:		
Dickinson	95	Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Water erosion Wind erosion
175C:		
Dickinson	85	Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
177:		
Saude	90	Acid soil Excessive permeability Potential for ground-water contamination
184:		
Klinger	95	Potential for ground-water contamination Water table
212:		
Kennebec, occasionally flooded	90	Flooding Potential for ground-water contamination Potential for surface-water contamination
220:		
Nodaway, occasionally flooded	90	Flooding Potential for ground-water contamination Potential for surface-water contamination

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
221:		
Klossner	100	High content of organic matter Potential for ground-water contamination Restricted permeability Water table Wind erosion
291:		
Atterberry	90	Potential for ground-water contamination Water table
291B:		
Atterberry	95	Potential for ground-water contamination Potential for surface-water contamination Water erosion Water table
293C:		
Fayette	40	Potential for ground-water contamination Potential for surface-water contamination Water erosion
Chelsea	30	Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Wind erosion
Tell	20	Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
293E:		
Fayette	40	Slope Potential for ground-water contamination Potential for surface-water contamination Water erosion
Chelsea	30	Slope Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Tell	20	Slope Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
293G:		
Fayette	40	Slope Potential for ground-water contamination Potential for surface-water contamination Water erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
293G:		
Chelsea	30	Slope Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Tell	20	Slope Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
352B:		
Whittier	95	Acid soil Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
352C2:		
Whittier, moderately eroded	100	Acid soil Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
354:		
Aquolls, ponded	100	Ponding Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water table
377B:		
Dinsdale	85	Potential for ground-water contamination Potential for surface-water contamination Water erosion
377C:		
Dinsdale	85	Potential for ground-water contamination Potential for surface-water contamination Water erosion
377C2:		
Dinsdale, moderately eroded	95	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
382:		
Maxfield	100	Potential poor tilth and compaction Potential for ground-water contamination Water table

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
412E:		
Emeline	90	Slope Depth to rock Lime content Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion Wind erosion
420B:		
Tama, terrace	95	Potential for surface-water contamination Water erosion
428B:		
Ely	95	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Water erosion Water table
430:		
Ackmore, occasionally flooded	90	Flooding Potential for ground-water contamination Potential for surface-water contamination Water table
442C:		
Dickinson	55	Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Water erosion Wind erosion
Tama	40	Potential for surface-water contamination Water erosion Wind erosion
450B:		
Pillot	90	Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
450C:		
Pillot	85	Excessive permeability Potential for ground-water contamination Potential for surface-water contamination Water erosion
462B:		
Downs, terrace	95	Potential for ground-water contamination Potential for surface-water contamination Water erosion
462C:		
Downs, terrace	90	Potential for ground-water contamination Potential for surface-water contamination Water erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
463B:		
Fayette, terrace	95	Potential for ground-water contamination Potential for surface-water contamination Water erosion
467:		
Radford, occasionally flooded	95	Flooding Potential for ground-water contamination Potential for surface-water contamination Water table
478G:		
Rock outcrop	60	Not applicable
Emeline	30	Slope Depth to rock Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion
485:		
Spillville, occasionally flooded	85	Flooding Potential for ground-water contamination Potential for surface-water contamination Water table
520:		
Coppock, occasionally flooded	95	Acid soil Flooding Potential for ground-water contamination Potential for surface-water contamination Water table
520B:		
Coppock	95	Acid soil Potential for ground-water contamination Potential for surface-water contamination Water erosion Water table
662C2:		
Mt. Carroll, moderately eroded	95	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
662D2:		
Mt. Carroll, moderately eroded	90	Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
662D3:		
Mt. Carroll, severely eroded	95	Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
662E3:		
Mt. Carroll, severely eroded	95	Slope Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Previously eroded Water erosion
729B:		
Ackmore	50	Potential for ground-water contamination Potential for surface-water contamination Water erosion Water table
Nodaway	40	Potential for ground-water contamination Potential for surface-water contamination Water erosion
760:		
Ansgar	95	Acid soil Potential for ground-water contamination Water table
761:		
Franklin	90	Acid soil Potential for ground-water contamination Water table
771B:		
Waubeek	85	Acid soil Potential for ground-water contamination Potential for surface-water contamination Water erosion
814D:		
Rockton	85	Depth to rock Limited available water capacity Potential for ground-water contamination Potential for surface-water contamination Restricted permeability Water erosion
826:		
Rowley	85	Excessive permeability Potential for ground-water contamination Water table
884:		
Klingmore	90	Potential for ground-water contamination Water table
911B:		
Colo	55	Potential poor tilth and compaction Potential for ground-water contamination Water erosion Water table
Ely	35	Potential poor tilth and compaction Potential for ground-water contamination Potential for surface-water contamination Water erosion Water table

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
977:		
Richwood	95	Potential for ground-water contamination
982:		
Maxmore	80	Potential for ground-water contamination Water table
1118:		
Garwin, terrace	95	Potential poor tilth and compaction Potential for ground-water contamination Water table
1119:		
Muscatine, terrace	95	Potential poor tilth and compaction Potential for ground-water contamination Water table
1160:		
Walford, terrace	95	Acid soil Potential for ground-water contamination Water table
1220:		
Nodaway, channeled, frequently flooded	85	Flooding Channeled Potential for ground-water contamination Potential for surface-water contamination
1291:		
Atterberry, terrace	95	Potential for ground-water contamination Water table
1315:		
Perks, frequently flooded	40	Flooding Channeled Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Wind erosion
Spillville, frequently flooded	30	Flooding Channeled Potential for ground-water contamination Potential for surface-water contamination Water table Wind erosion
4946:		
Udorthents	65	No major considerations
Highway	30	Not applicable
5010.		
Pits, sand and gravel		
5030.		
Pits, limestone quarries		

Cropland Management Considerations--Continued

Map symbol and soil name	Pct. of map unit	Cropland management considerations
5040:		
Udorthents, loamy	100	No major considerations
5053:		
Psammaquents, frequently flooded	100	Flooding Potential for ground-water contamination Potential for surface-water contamination Water table
8041B:		
Sparta, terrace	100	Acid soil Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Wind erosion
8041C:		
Sparta, terrace	100	Acid soil Excessive permeability Limited available water capacity Limited content of organic matter Potential for ground-water contamination Potential for surface-water contamination Wind erosion
AW.		
Animal waste lagoon		
SL.		
Sewage lagoon		
W.		
Water		

Crop Yield Estimates

The tables “Land Capability, Corn Suitability Rating, and Yields per Acre of Crops” and “Land Capability and Yields per Acre of Pasture” are described in this section. Crops other than those shown in the tables 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 or the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

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 landforming 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 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, or wildlife habitat.

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.

[Reference: United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. USDA Handbook 210.]

Corn Suitability Rating

The corn suitability rating (CSR) system was developed in Iowa to rate the productivity of each different kind of soil for row crops. CSRs provide a relative ranking of all soils mapped in the State of Iowa. They can be used to compare the potential yield production of one soil with that of other soils. Ratings range from 5 to 100. A rating of 5 indicates severe limitations for row crop production. Soil properties and weather conditions are the dominant factors that affect productivity.

Crop Yields

The average yields per acre that can be expected of the principal crops under a high level of management are shown in the 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 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, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

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.

Pasture Yields

Some pasture yields are expressed in the table in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about forage yields other than those shown in the table.

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops

(The crop yields estimates were determined through recent research conducted by Iowa State University. They are based on a high level of management and are for nonirrigated areas. See text for additional information. 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	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
8B—Judson	95	2e	90	197	53	87
41B—Sparta	100	4s	42	100	26	47
41C—Sparta	85	4s	26	93	24	44
41E—Sparta	90	6s	5	---	---	---
63B—Chelsea	90	4s	40	95	23	46
63C—Chelsea	90	4s	21	86	19	34
63E—Chelsea	95	7s	5	---	---	---
65D2—Lindley, moderately eroded	90	4e	38	129	32	53
65E2—Lindley, moderately eroded	90	6e	24	---	---	---
65F2—Lindley, moderately eroded	85	7e	8	---	---	---
83B—Kenyon	85	2e	87	196	48	92
83C—Kenyon	80	3e	72	189	47	91
83C2—Kenyon, moderately eroded	85	3e	69	184	45	88
88—Nevin, rarely flooded	90	1	92	203	55	98
110C—Lamont	85	3e	44	117	30	73
110E—Lamont	95	6e	17	---	---	58
118—Garwin	95	2w	95	207	56	100

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
119---------- Muscatine	95	1	100	210	57	102
119B---------- Muscatine	95	2e	95	206	56	100
120---------- Tama	100	1	100	210	57	102
120B---------- Tama	90	2e	95	206	56	100
120C---------- Tama	80	3e	80	200	54	95
120C2---------- Tama, moderately eroded	90	3e	78	195	53	95
120D2---------- Tama, moderately eroded	90	3e	68	184	50	88
121---------- Tama	85	1	95	210	54	97
122---------- Sperry, depressional	95	3w	63	156	42	68
133---------- Colo, occasionally flooded	85	2w	80	171	46	75
133+---------- Colo, occasionally flooded, overwash	90	2w	85	173	47	77
136---------- Ankeny, rarely flooded	85	2w	70	172	44	---
143---------- Brady	95	2w	60	136	33	65
160---------- Walford	95	2w	67	164	43	79
162B---------- Downs	95	2e	90	195	53	92
162C---------- Downs	85	3e	75	189	51	92
162C2---------- Downs, moderately eroded	90	3e	73	184	50	86
162D2---------- Downs, moderately eroded	85	3e	63	174	47	81
162D3---------- Downs, severely eroded	90	4e	60	164	44	79
162E3---------- Downs, severely eroded	90	6e	50	---	---	---

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
163B---------- Fayette	95	2e	85	184	50	89
163C---------- Fayette	90	3e	70	178	48	86
163C2---------- Fayette, moderately eroded	90	3e	68	173	47	84
163D---------- Fayette	80	3e	60	166	45	81
163D2---------- Fayette, moderately eroded	80	3e	58	162	44	81
163D3---------- Fayette, severely eroded	75	4e	56	152	41	74
163E---------- Fayette	75	4e	50	145	40	71
163E2---------- Fayette, moderately eroded	70	4e	48	142	38	68
163E3---------- Fayette, severely eroded	80	6e	46	---	---	---
163F---------- Fayette	75	6e	30	---	---	---
163F2---------- Fayette, moderately eroded	70	6e	27	---	---	---
163G---------- Fayette	85	7e	19	---	---	---
171B---------- Bassett	85	2e	82	184	45	89
171C2---------- Bassett, moderately eroded	90	3e	64	173	42	83
171D2---------- Bassett, moderately eroded	85	3e	53	162	39	77
175B---------- Dickinson	95	3e	56	139	37	65
175C---------- Dickinson	85	3e	41	129	35	62
177---------- Saude	90	2s	64	140	33	65
184---------- Klinger	95	1	93	203	55	98

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
212---------- Kennebec, occasionally flooded	90	1	94	199	55	105
220---------- Nodaway, occasionally flooded	90	2w	85	183	53	84
221---------- Klossner	100	3w	45	129	35	69
291---------- Atterberry	90	1	90	169	49	87
291B---------- Atterberry	95	2e	85	176	48	85
293C----------			45	134	36	65
Fayette----------	40	3e				
Chelsea----------	30	4s				
Tell----------	20	3e				
293E----------			25	112	29	---
Fayette----------	40	4e				
Chelsea----------	30	7s				
Tell----------	20	4e				
293G----------			5	---	---	---
Fayette----------	40	7e				
Chelsea----------	30	7s				
Tell----------	20	6e				
352B---------- Whittier	95	2e	62	163	44	79
352C2---------- Whittier, moderately eroded	100	3e	40	151	41	73
354---------- Aquolls, ponded	100	7w	5	---	---	---
377B---------- Dinsdale	85	2e	90	198	54	96
377C---------- Dinsdale	85	3e	75	191	52	93
377C2---------- Dinsdale, moderately eroded	95	3e	73	187	51	91
382---------- Maxfield	100	2w	90	198	54	96
412E---------- Emeline	90	7s	5	---	---	---
420B---------- Tama, terrace	95	2e	94	206	55	99

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
428B---------- Ely	95	2e	93	195	53	87
430---------- Ackmore, occasionally flooded	90	2w	83	174	47	78
442C----------			55	161	43	76
Dickinson----------	55	3e				
Tama----------	40	3e				
450B---------- Pillot	90	2e	69	186	48	85
450C---------- Pillot	85	3e	53	181	45	80
462B---------- Downs, terrace	95	2e	85	195	53	92
462C---------- Downs, terrace	90	3e	75	186	51	92
463B---------- Fayette, terrace	95	2e	85	183	50	89
467---------- Radford, occasionally flooded	95	2w	85	178	44	86
478G----------			5	---	---	---
Rock outcrop----------	60	7s				
Emeline----------	30	7s				
485---------- Spillville, occasionally flooded	85	2w	92	191	48	94
520---------- Coppock, occasionally flooded	95	2w	65	150	41	61
520B---------- Coppock	95	2w	60	146	40	59
662C2---------- Mt. Carroll, moderately eroded	95	3e	72	159	49	88
662D2---------- Mt. Carroll, moderately eroded	90	3e	61	142	46	83
662D3---------- Mt. Carroll, severely eroded	95	4e	58	134	44	79
662E3---------- Mt. Carroll, severely eroded	95	6e	48	---	---	73

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
729B			83	175	50	81
Ackmore	50	2w				
Nodaway	40	2w				
760	95	2w	80	186	51	91
Ansgar						
761	90	1	83	177	48	85
Franklin						
771B	85	2e	87	189	52	93
Waubeek						
814D	85	4e	26	103	27	54
Rockton						
826	85	1	95	165	54	97
Rowley						
884	90	1	95	204	55	99
Klingmore						
911B			85	175	48	86
Colo	55	2w				
Ely	35	2e				
977	95	1	95	199	54	97
Richwood						
982	80	2w	93	197	54	98
Maxmore						
1118	95	2w	95	207	56	100
Garwin, terrace						
1119	95	1	100	210	57	102
Muscatine, terrace						
1160	95	2w	67	164	42	74
Walford, terrace						
1220	85	5w	25	---	---	---
Nodaway, channeled, frequently flooded						
1291	95	1	90	178	51	92
Atterberry, terrace						
1315			34	---	---	---
Perks, frequently flooded	40	5w				
Spillville, frequently flooded	30	5w				
4946. Udorthents-Highway						
5010. Pits, sand and gravel						

Land Capability, Corn Suitability Rating, and Yields per Acre of Crops--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Corn suitability rating	Corn	Soybeans	Oats
				Bu	Bu	Bu
5030. Pits, limestone quarries						
5040. Udorthents, loamy						
5053. Psammaquents, frequently flooded						
8041B---------- Sparta, terrace	100	4s	40	100	29	50
8041C---------- Sparta, terrace	100	4s	40	100	29	50
AW. Animal waste lagoon						
SL. Sewage lagoon						
W. Water						

Land Capability and Yields per Acre of Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. 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	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
8B—Judson	95	2e	6.7	6.5	3.9	11.2
41B—Sparta	100	4s	3.3	3.2	1.9	3.5
41C—Sparta	85	4s	3.1	3.0	1.8	3.2
41E—Sparta	90	6s	2.6	2.6	1.2	2.5
63B—Chelsea	90	4s	3.2	3.1	1.9	4.8
63C—Chelsea	90	4s	2.4	2.3	1.4	5.0
63E—Chelsea	95	7s	2.3	2.2	1.3	3.8
65D2—Lindley, moderately eroded	90	4e	4.2	4.0	2.4	6.7
65E2—Lindley, moderately eroded	90	6e	3.3	3.3	2.0	5.6
65F2—Lindley, moderately eroded	85	7e	3.0	2.9	1.7	4.5
83B—Kenyon	85	2e	6.6	6.4	3.8	10.9
83C—Kenyon	80	3e	6.3	6.2	3.7	10.6
83C2—Kenyon, moderately eroded	85	3e	6.2	6.0	3.6	10.3
88—Nevin, rarely flooded	90	1	6.5	6.7	4.0	10.9
110C—Lamont	85	3e	5.1	5.0	3.0	6.2
110E—Lamont	95	6e	4.0	3.9	2.4	5.6
118—Garwin	95	2w	5.0	6.8	4.1	8.4

See footnote at end of table.

Land Capability and Yields per Acre of Pasture--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
119---------- Muscatine	95	1	6.8	7.0	4.2	11.4
119B---------- Muscatine	95	2e	6.7	6.8	4.1	11.2
120---------- Tama	100	1	7.1	7.0	4.2	11.9
120B---------- Tama	90	2e	7.0	6.8	4.1	11.7
120C---------- Tama	80	3e	6.7	6.6	3.9	11.4
120C2---------- Tama, moderately eroded	90	3e	6.6	6.5	3.9	11.1
120D2---------- Tama, moderately eroded	90	3e	6.1	6.0	3.6	10.5
121---------- Tama	85	1	6.8	6.6	4.0	11.9
122---------- Sperry, depressional	95	3w	3.7	5.1	3.1	6.2
133---------- Colo, occasionally flooded	85	2w	4.1	5.6	3.3	6.8
133+---------- Colo, occasionally flooded, overwash	90	2w	4.2	5.7	3.4	7.0
136---------- Ankeny, rarely flooded	85	2s	4.2	4.1	2.8	8.1
143---------- Brady	95	2w	4.3	8.1	2.7	4.2
160---------- Walford	95	2w	4.0	5.4	3.2	6.4
162B---------- Downs	95	2e	6.4	6.3	3.8	11.1
162C---------- Downs	85	3e	6.4	6.3	3.8	10.7
162C2---------- Downs, moderately eroded	90	3e	6.0	5.9	3.5	10.5
162D2---------- Downs, moderately eroded	85	3e	5.7	5.5	3.3	9.8
162D3---------- Downs, severely eroded	90	4e	5.5	5.4	3.2	9.3

See footnote at end of table.

Land Capability and Yields per Acre of Pasture--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
162E3---- Downs, severely eroded	90	6e	4.8	4.7	2.8	8.1
163B---- Fayette	95	2e	6.3	6.1	3.7	10.5
163C---- Fayette	90	3e	6.0	5.9	3.5	10.1
163C2---- Fayette, moderately eroded	90	3e	5.9	5.7	3.4	9.8
163D---- Fayette	80	3e	5.7	5.5	3.3	9.5
163D2---- Fayette, moderately eroded	80	3e	5.7	5.5	3.3	9.8
163D3---- Fayette, severely eroded	75	4e	5.2	5.0	3.0	8.6
163E---- Fayette	75	4e	5.0	4.8	2.9	8.3
163E2---- Fayette, moderately eroded	70	4e	4.8	4.7	2.8	8.0
163E3---- Fayette, severely eroded	80	6e	4.5	4.3	2.6	7.4
163F---- Fayette	75	6e	4.5	4.7	2.8	7.6
163F2---- Fayette, moderately eroded	70	6e	4.4	4.3	2.6	7.3
163G---- Fayette	85	7e	4.3	4.2	2.5	7.2
171B---- Bassett	85	2e	6.3	6.1	3.7	10.2
171C2---- Bassett, moderately eroded	90	3e	5.8	5.7	3.4	9.4
171D2---- Bassett, moderately eroded	85	3e	5.4	5.3	3.2	8.9
175B---- Dickinson	95	3e	4.7	4.6	2.7	7.7
175C---- Dickinson	85	3e	4.5	4.3	2.6	7.3

See footnote at end of table.

Land Capability and Yields per Acre of Pasture--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
177---------- Saude	90	2s	4.6	4.5	2.7	7.3
184---------- Klinger	95	1	6.6	6.7	4.0	11.0
212---------- Kennebec, occasionally flooded	90	1	6.9	6.8	4.0	10.8
220---------- Nodaway, occasionally flooded	90	2w	6.4	6.3	3.8	10.7
221---------- Klossner	100	3w	3.5	4.7	2.8	5.8
291---------- Atterberry	90	1	5.8	5.7	3.6	9.3
291B---------- Atterberry	95	2e	5.7	5.6	3.5	9.1
293C----------			4.5	4.4	2.7	4.4
Fayette----------	40	3e				
Chelsea----------	30	4s				
Tell----------	20	3e				
293E----------			2.7	2.7	1.6	3.4
Fayette----------	40	4e				
Chelsea----------	30	7s				
Tell----------	20	4e				
293G----------			2.4	2.3	1.8	3.2
Fayette----------	40	7e				
Chelsea----------	30	7s				
Tell----------	20	6e				
352B---------- Whittier	95	2e	5.5	5.4	3.2	9.3
352C2---------- Whittier, moderately eroded	100	3e	5.1	5.0	3.0	8.7
354---------- Aquolls, ponded	100	7w	---	---	---	---
377B---------- Dinsdale	85	2e	6.7	6.6	3.9	11.2
377C---------- Dinsdale	85	3e	6.5	6.4	3.8	10.9
377C2---------- Dinsdale, moderately eroded	95	3e	6.3	6.2	3.7	10.6
382---------- Maxfield	100	2w	4.8	6.6	3.9	8.0

See footnote at end of table.

Land Capability and Yields per Acre of Pasture--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
412E---------- Emeline	90	7s	1.5	1.4	0.9	1.5
420B---------- Tama, terrace	95	2e	6.9	6.8	4.1	11.7
428B---------- Ely	95	2e	6.4	6.5	3.9	10.6
430---------- Ackmore, occasionally flooded	90	2w	4.2	4.1	3.5	7.1
442C----------			5.3	5.2	3.1	7.3
Dickinson----------	55	3e				
Tama----------	40	3e				
450B---------- Pillot	90	2e	6.4	6.3	3.7	7.1
450C---------- Pillot	85	3e	6.2	6.1	3.6	6.5
462B---------- Downs, terrace	95	2e	6.4	6.3	3.8	11.1
462C---------- Downs, terrace	90	3e	6.4	6.3	3.8	10.7
463B---------- Fayette, terrace	95	2e	6.3	6.1	3.7	10.5
467---------- Radford, occasionally flooded	95	2w	5.8	5.7	3.5	6.5
478G----------			---	---	0.5	---
Rock outcrop----------	60	7s				
Emeline----------	30	7s				
485---------- Spillville, occasionally flooded	85	2w	6.2	6.4	3.8	10.4
520---------- Coppock, occasionally flooded	95	2w	3.6	5.0	3.0	6.1
520B---------- Coppock	95	2w	3.5	4.8	2.9	5.9
662C2---------- Mt. Carroll, moderately eroded	95	3e	6.2	6.1	3.6	8.5
662D2---------- Mt. Carroll, moderately eroded	90	3e	5.8	5.7	3.4	8.0

See footnote at end of table.

Land Capability and Yields per Acre of Pasture--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
662D3---------- Mt. Carroll, severely eroded	95	4e	5.5	5.4	3.2	7.1
662E3---------- Mt. Carroll, severely eroded	95	6e	5.1	5.0	3.0	7.8
729B----------			5.9	5.8	3.4	6.8
Ackmore----------	50	2w				
Nodaway----------	40	2w				
760---------- Ansgar	95	2w	4.5	6.2	3.7	7.6
761---------- Franklin	90	1	5.7	5.8	3.7	10.1
771B---------- Waubeek	85	2e	6.5	6.4	3.8	10.9
814D---------- Rockton	85	4e	3.8	3.7	2.2	3.7
826---------- Rowley	85	1	6.5	6.6	4.0	7.8
884---------- Klingmore	90	1	6.6	6.8	4.0	11.0
911B----------			4.3	5.9	3.5	6.8
Colo----------	55	2w				
Ely----------	35	2e				
977---------- Richwood	95	1	6.8	6.7	4.0	8.2
982---------- Maxmore	80	2w	4.9	6.7	4.0	8.2
1118---------- Garwin, terrace	95	2w	5.0	6.8	4.1	8.4
1119---------- Muscatine, terrace	95	1	6.8	7.0	4.2	11.4
1160---------- Walford, terrace	95	2w	3.7	5.1	3.1	6.4
1220---------- Nodaway, channeled, frequently flooded	85	5w	4.2	6.2	2.0	7.0
1291---------- Atterberry, terrace	95	1	6.1	6.0	3.9	9.3

See footnote at end of table.

Land Capability and Yields per Acre of Pasture--Continued

Map symbol and soil name	Pct. of map unit	Land capability	Bromegrass-alfalfa hay	Smooth bromegrass	Kentucky bluegrass	Bromegrass-alfalfa
			Tons	AUM*	AUM*	AUM*
1315---------- Perks, frequently flooded---------- Spillville, frequently flooded----------	40 30	5w 5w	4.2	4.1	2.5	5.0
4946. Udorthents-Highway						
5010. Pits, sand and gravel						
5030. Pits, limestone quarries						
5040. Udorthents, loamy						
5053. Psammaquents, frequently flooded						
8041B---------- Sparta, terrace	100	4s	3.5	3.5	2.1	5.9
8041C---------- Sparta, terrace	100	4s	3.5	3.5	2.1	5.9
AW. Animal waste lagoon						
SL. Sewage lagoon						
W. Water						

* Animal unit month: The amount of forage required to feed one mature cow, of approximately 1,000 pounds weight, with or without a calf, for 30 days.

Prime Farmland and Other Important Farmland

The table “Prime Farmland and Other Important Farmland” lists the map units in the survey area that are considered prime farmland and farmland of statewide importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation’s food supply.

Prime farmland 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 quality, 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. The water supply is dependable and of adequate quality. Prime farmland 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 areas 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.

For some soils identified in the table as prime farmland, 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.

In some areas, land that does not meet the criteria for prime farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Prime Farmland and Other Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, such as "where drained," those conditions are specified)

Map symbol	Map unit name	Farmland classification
8B	Judson silty clay loam, 2 to 5 percent slopes	Prime farmland
41B	Sparta loamy fine sand, 2 to 5 percent slopes	Prime farmland where irrigated
41C	Sparta loamy fine sand, 5 to 9 percent slopes	Farmland of statewide importance
63B	Chelsea loamy fine sand, 2 to 5 percent slopes	Prime farmland where irrigated
63C	Chelsea loamy fine sand, 5 to 9 percent slopes	Farmland of statewide importance
65D2	Lindley loam, 9 to 14 percent slopes, moderately eroded	Farmland of statewide importance
83B	Kenyon loam, 2 to 5 percent slopes	Prime farmland
83C	Kenyon loam, 5 to 9 percent slopes	Farmland of statewide importance
83C2	Kenyon loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
88	Nevin silty clay loam, 0 to 2 percent slopes, rarely flooded	Prime farmland
110C	Lamont fine sandy loam, 2 to 9 percent slopes	Farmland of statewide importance
118	Garwin silty clay loam, 0 to 2 percent slopes	Prime farmland where drained
119	Muscatine silty clay loam, 0 to 2 percent slopes	Prime farmland
119B	Muscatine silty clay loam, 2 to 5 percent slopes	Prime farmland
120	Tama silty clay loam, 0 to 2 percent slopes	Prime farmland
120B	Tama silty clay loam, 2 to 5 percent slopes	Prime farmland
120C	Tama silty clay loam, 5 to 9 percent slopes	Farmland of statewide importance
120C2	Tama silty clay loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
120D2	Tama silty clay loam, 9 to 14 percent slopes, moderately eroded	Farmland of statewide importance
121	Tama silt loam, 0 to 2 percent slopes	Prime farmland
122	Sperry silt loam, 0 to 1 percent slopes, depressional	Prime farmland where drained
133	Colo silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland where drained
133+	Colo silt loam, 0 to 2 percent slopes, occasionally flooded, overwash	Prime farmland where drained
136	Ankeny fine sandy loam, 0 to 2 percent slopes, rarely flooded	Prime farmland
143	Brady sandy loam, 0 to 2 percent slopes	Prime farmland
160	Walford silt loam, 0 to 2 percent slopes	Prime farmland where drained
162B	Downs silt loam, 2 to 5 percent slopes	Prime farmland
162C	Downs silt loam, 5 to 9 percent slopes	Farmland of statewide importance
162C2	Downs silt loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
162D2	Downs silt loam, 9 to 14 percent slopes, moderately eroded	Farmland of statewide importance
162D3	Downs silty clay loam, 9 to 14 percent slopes, severely eroded	Farmland of statewide importance
163B	Fayette silt loam, 2 to 5 percent slopes	Prime farmland
163C	Fayette silt loam, 5 to 9 percent slopes	Farmland of statewide importance
163C2	Fayette silt loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
163D	Fayette silt loam, 9 to 14 percent slopes	Farmland of statewide importance
163D2	Fayette silt loam, 9 to 14 percent slopes, moderately eroded	Farmland of statewide importance
163D3	Fayette silty clay loam, 9 to 14 percent slopes, severely eroded	Farmland of statewide importance
171B	Bassett loam, 2 to 5 percent slopes	Prime farmland
171C2	Bassett loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
171D2	Bassett loam, 9 to 14 percent slopes, moderately eroded	Farmland of statewide importance
175B	Dickinson fine sandy loam, 2 to 5 percent slopes	Prime farmland
175C	Dickinson fine sandy loam, 5 to 9 percent slopes	Farmland of statewide importance
177	Saude loam, 0 to 2 percent slopes	Prime farmland
184	Klinger silty clay loam, 1 to 3 percent slopes	Prime farmland
212	Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland
220	Nodaway silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland
221	Klossner muck, 1 to 3 percent slopes	Farmland of statewide importance
291	Atterberry silt loam, 0 to 2 percent slopes	Prime farmland
291B	Atterberry silt loam, 2 to 5 percent slopes	Prime farmland

Prime Farmland and Other Important Farmland--Continued

Map symbol	Map unit name	Farmland classification
293C	Fayette-Chelsea-Tell complex, 5 to 9 percent slopes	Farmland of statewide importance
352B	Whittier silt loam, 2 to 5 percent slopes	Prime farmland
352C2	Whittier silt loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
377B	Dinsdale silty clay loam, 2 to 5 percent slopes	Prime farmland
377C	Dinsdale silty clay loam, 5 to 9 percent slopes	Farmland of statewide importance
377C2	Dinsdale silty clay loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
382	Maxfield silty clay loam, 0 to 2 percent slopes	Prime farmland where drained
420B	Tama silty clay loam, terrace, 2 to 5 percent slopes	Prime farmland
428B	Ely silty clay loam, 2 to 5 percent slopes	Prime farmland
430	Ackmore silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland
442C	Dickinson-Tama complex, 5 to 9 percent slopes	Farmland of statewide importance
450B	Pillot silt loam, 2 to 5 percent slopes	Prime farmland
450C	Pillot silt loam, 5 to 9 percent slopes	Farmland of statewide importance
462B	Downs silt loam, terrace, 2 to 5 percent slopes	Prime farmland
462C	Downs silt loam, terrace, 5 to 9 percent slopes	Farmland of statewide importance
463B	Fayette silt loam, terrace, 2 to 5 percent slopes	Prime farmland
467	Radford silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland
485	Spillville loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland
520	Coppock silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland where drained
520B	Coppock silt loam, 2 to 5 percent slopes	Prime farmland where drained
662C2	Mt. Carroll silt loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
662D2	Mt. Carroll silt loam, 9 to 14 percent slopes, moderately eroded	Farmland of statewide importance
662D3	Mt. Carroll silt loam, 9 to 14 percent slopes, severely eroded	Farmland of statewide importance
729B	Ackmore-Nodaway complex, 2 to 5 percent slopes	Prime farmland
760	Ansgar silt loam, 0 to 2 percent slopes	Prime farmland where drained
761	Franklin silt loam, 1 to 3 percent slopes	Prime farmland
771B	Waubeek silt loam, 2 to 5 percent slopes	Prime farmland
814D	Rockton loam, 5 to 14 percent slopes	Farmland of statewide importance
826	Rowley silt loam, 0 to 2 percent slopes	Farmland of statewide importance
884	Klingmore silty clay loam, 1 to 3 percent slopes	Prime farmland
911B	Colo-Ely complex, 2 to 5 percent slopes	Prime farmland where drained
977	Richwood silt loam, 0 to 2 percent slopes	Prime farmland
982	Maxmore silty clay loam, 0 to 2 percent slopes	Prime farmland where drained
1118	Garwin silty clay loam, terrace, 0 to 2 percent slopes	Prime farmland where drained
1119	Muscatine silty clay loam, terrace, 0 to 2 percent slopes	Prime farmland
1160	Walford silt loam, terrace, 0 to 2 percent slopes	Prime farmland where drained
1291	Atterberry silt loam, terrace, 0 to 2 percent slopes	Prime farmland

Agricultural Waste Management

The table “Agricultural Waste Management” is described in this section.

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.

This table shows 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 this table, 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, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops. 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. *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 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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 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 erosion 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.

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 erosion 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.

A soil feature considered in the ratings for application of manure, sewage sludge, and wastewater is depth to the top of a water table (saturated zone). During August, September, and October, this depth is generally more than 60 cm in normal years. For soils that are limited by wetness, “Nov-Jul” indicates the most problematic months of the year for application of manure, sewage sludge, and wastewater. These soils may be slow to drain and can become waterlogged and boggy during periods of heavy precipitation.

Agricultural Waste Management

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the 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
8B:							
Judson	95	Not limited		Not limited		Somewhat limited Too steep for surface application	0.08
41B:							
Sparta	100	Very limited Filtering capacity Leaching Too acid	1.00 0.45 0.02	Very limited Filtering capacity Too acid	1.00 0.07	Very limited Filtering capacity Too steep for surface application Too acid	1.00 0.08 0.07
41C:							
Sparta	85	Very limited Filtering capacity Leaching Too acid	1.00 0.45 0.02	Very limited Filtering capacity Too acid	1.00 0.07	Very limited Filtering capacity Too steep for surface application Too acid	1.00 0.92 0.07
41E:							
Sparta	90	Very limited Filtering capacity Slope Leaching	1.00 0.96 0.45	Very limited Filtering capacity Slope Too acid	1.00 0.96 0.07	Very limited Filtering capacity Too steep for surface application Too steep for sprinkler application	1.00 1.00 0.98
63B:							
Chelsea	90	Very limited Filtering capacity Leaching Droughty	1.00 0.45 0.06	Very limited Filtering capacity Droughty	1.00 0.06	Very limited Filtering capacity Too steep for surface application Droughty	1.00 0.08 0.06
63C:							
Chelsea	90	Very limited Filtering capacity Leaching Droughty	1.00 0.45 0.06	Very limited Filtering capacity Droughty	1.00 0.06	Very limited Filtering capacity Too steep for surface application Droughty	1.00 0.92 0.06

Agricultural Waste Management--Continued

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
63E:							
Chelsea	95	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Leaching	0.45	Droughty	0.13		
						Too steep for sprinkler application	0.98
65D2:							
Lindley, moderately eroded	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.08	Too acid	0.31		
						Too steep for sprinkler application	0.78
65E2:							
Lindley, moderately eroded	90	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.08	Too acid	0.31		
						Too steep for sprinkler application	1.00
65F2:							
Lindley, moderately eroded	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.08	Too acid	0.31		
						Too steep for surface application	1.00
83B:							
Kenyon	85	Very limited		Not limited		Somewhat limited	
		Dense layer	1.00			Too steep for surface application	0.08

Agricultural Waste Management--Continued

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
83C:							
Kenyon	80	Very limited		Not limited		Somewhat limited	
		Dense layer	1.00			Too steep for surface application	0.92
						Too steep for sprinkler application	0.02
83C2:							
Kenyon, moderately eroded	85	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.92
						Too steep for sprinkler application	0.02
88:							
Nevin, rarely flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
				Flooding	0.40		
110C:							
Lamont	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Leaching	0.45	Too acid	0.07	Too steep for surface application	0.32
		Too acid	0.02			Too acid	0.07
110E:							
Lamont	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Leaching	0.45	Too acid	0.07	Too steep for sprinkler application	0.98
		Too acid	0.02			Too acid	0.07
118:							
Garwin	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70				
119:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Too acid	0.02	Too acid	0.07	Too acid	0.07

Agricultural Waste Management--Continued

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
119B:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07
120:							
Tama	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too acid	0.07
120B:							
Tama	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07
120C:							
Tama	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
120C2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
120D2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	0.78
						Too acid	0.07
121:							
Tama	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too acid	0.07

Agricultural Waste Management--Continued

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
122:							
Sperry, depressional	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
133:							
Colo, occasionally flooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70	Flooding	1.00	Flooding	0.60
		Flooding	0.60				
133+:							
Colo, occasionally flooded, overwash	90	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70	Flooding	1.00	Flooding	0.60
		Flooding	0.60				
136:							
Ankeny, rarely flooded	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
				Flooding	0.40		
143:							
Brady	95	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Too acid	0.02	Too acid	0.07	Too acid	0.07
160:							
Walford	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70				
162B:							
Downs	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07

Agricultural Waste Management--Continued

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
162C:							
Downs	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
162C2:							
Downs, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
162D2:							
Downs, moderately eroded	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07		
						Too steep for sprinkler application	0.78
						Too acid	0.07
162D3:							
Downs, severely eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07		
						Too steep for sprinkler application	0.78
						Too acid	0.07
162E3:							
Downs, severely eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07		
						Too steep for sprinkler application	1.00
						Too acid	0.07
163B:							
Fayette	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07

Agricultural Waste Management--Continued

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
163C:							
Fayette	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
163C2:							
Fayette, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
163D:							
Fayette	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07		
						Too steep for sprinkler application	0.78
						Too acid	0.07
163D2:							
Fayette, moderately eroded	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07		
						Too steep for sprinkler application	0.78
						Too acid	0.07
163D3:							
Fayette, severely eroded	75	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07		
						Too steep for sprinkler application	0.78
						Too acid	0.07

Agricultural Waste Management--Continued

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
163E:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	1.00
						Too acid	0.07
163E2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	1.00
						Too acid	0.07
163E3:							
Fayette, severely eroded	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	1.00
						Too acid	0.07
163F:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	1.00
						Too acid	0.07
163F2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	1.00
						Too acid	0.07

Agricultural Waste Management--Continued

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
163G:							
Fayette	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	1.00
						Too acid	0.07
171B:							
Bassett	85	Very limited		Somewhat limited		Somewhat limited	
		Dense layer	1.00	Too acid	0.07	Too steep for surface application	0.08
		Too acid	0.02			Too acid	0.07
171C2:							
Bassett, moderately eroded	90	Very limited		Somewhat limited		Somewhat limited	
		Dense layer	1.00	Too acid	0.07	Too steep for surface application	0.92
		Too acid	0.02			Too acid	0.07
						Too steep for sprinkler application	0.02
171D2:							
Bassett, moderately eroded	85	Very limited		Somewhat limited		Very limited	
		Dense layer	1.00	Slope	0.63	Too steep for surface application	1.00
		Slope	0.63	Too acid	0.07	Too steep for sprinkler application	0.78
		Too acid	0.02			Too acid	0.07
175B:							
Dickinson	95	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching	0.45	Droughty	0.01	Too steep for surface application	0.08
		Droughty	0.01			Droughty	0.01
175C:							
Dickinson	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching	0.45	Droughty	0.01	Too steep for surface application	0.92
		Droughty	0.01			Too steep for sprinkler application	0.02

Agricultural Waste Management--Continued

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
177:							
Saude	90	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00	Very limited Filtering capacity	1.00
184:							
Klinger	95	Very limited Depth to saturated zone (Nov-Jul) Too acid	1.00 0.02	Very limited Depth to saturated zone (Nov-Jul) Too acid	1.00 0.07	Very limited Depth to saturated zone (Nov-Jul) Too acid	1.00 0.07
212:							
Kennebec, occasionally flooded	90	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
220:							
Nodaway, occasionally flooded	90	Somewhat limited Flooding	0.60	Very limited Flooding	1.00	Somewhat limited Flooding	0.60
221:							
Klossner	100	Very limited Slow water movement Depth to saturated zone (Nov-Jul) Leaching	1.00 1.00 0.90	Very limited Slow water movement Depth to saturated zone (Nov-Jul) Too acid	1.00 1.00 0.03	Very limited Slow water movement Depth to saturated zone (Nov-Jul) Too acid	1.00 1.00 0.03
291:							
Atterberry	90	Very limited Depth to saturated zone (Nov-Jul)	1.00	Very limited Depth to saturated zone (Nov-Jul)	1.00	Very limited Depth to saturated zone (Nov-Jul)	1.00
291B:							
Atterberry	95	Very limited Depth to saturated zone (Nov-Jul)	1.00	Very limited Depth to saturated zone (Nov-Jul)	1.00	Very limited Depth to saturated zone (Nov-Jul) Too steep for surface application	1.00 0.08
293C:							
Fayette	40	Somewhat limited Too acid	0.02	Somewhat limited Too acid	0.07	Somewhat limited Too steep for surface application Too acid Too steep for sprinkler application	0.92 0.07 0.02

Agricultural Waste Management--Continued

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
293C:							
Chelsea	30	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching	0.45	Droughty	0.06	Too steep for surface application	0.92
		Droughty	0.06			Droughty	0.06
Tell	20	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
293E:							
Fayette	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	0.98
						Too acid	0.07
Chelsea	30	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Leaching	0.45	Droughty	0.06	Too steep for sprinkler application	0.98
Tell	20	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Slope	0.96	Slope	0.96	Too steep for surface application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	0.98
293G:							
Fayette	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	1.00
						Too acid	0.07

Agricultural Waste Management--Continued

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
293G:							
Chelsea	30	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Leaching	0.45	Droughty	0.13	Too steep for surface application	1.00
Tell	20	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.02	Too acid	0.07	Too steep for surface application	1.00
352B:							
Whittier	95	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
						Too steep for surface application	0.08
352C2:							
Whittier, moderately eroded	100	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
						Too steep for surface application	0.92
						Too steep for sprinkler application	0.02
354:							
Aquolls, ponded	100	Not rated		Not rated		Not rated	
377B:							
Dinsdale	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07
377C:							
Dinsdale	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02

Agricultural Waste Management--Continued

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
377C2:							
Dinsdale, moderately eroded	95	Very limited		Somewhat limited		Somewhat limited	
		Dense layer	1.00	Too acid	0.07	Too steep for surface application	0.92
		Too acid	0.02			Too acid	0.07
						Too steep for sprinkler application	0.02
382:							
Maxfield	100	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70				
412E:							
Emeline	90	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	0.96	Slope	0.96	Too steep for surface application	1.00
420B:							
Tama, terrace	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07
428B:							
Ely	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
						Too steep for surface application	0.08
430:							
Ackmore, occasionally flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60

Agricultural Waste Management--Continued

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
442C:							
Dickinson	55	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching	0.45	Droughty	0.01	Too steep for surface application	0.92
		Droughty	0.01			Too steep for sprinkler application	0.02
Tama	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02
450B:							
Pillot	90	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
						Too steep for surface application	0.08
450C:							
Pillot	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
						Too steep for surface application	0.92
						Too steep for sprinkler application	0.02
462B:							
Downs, terrace	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07
462C:							
Downs, terrace	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.92
						Too acid	0.07
						Too steep for sprinkler application	0.02

Agricultural Waste Management--Continued

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
463B:							
Fayette, terrace	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
						Too acid	0.07
467:							
Radford, occasionally flooded	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
478G:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Emeline	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Droughty	1.00	Slope	1.00		
						Depth to bedrock	1.00
485:							
Spillville, occasionally flooded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
520:							
Coppock, occasionally flooded	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
520B:							
Coppock	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
						Too steep for surface application	0.08

Agricultural Waste Management--Continued

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
662C2:							
Mt. Carroll, moderately eroded--	95	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.92
						Too steep for sprinkler application	0.02
662D2:							
Mt. Carroll, moderately eroded--	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
						Too steep for sprinkler application	0.78
662D3:							
Mt. Carroll, severely eroded----	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
						Too steep for sprinkler application	0.78
662E3:							
Mt. Carroll, severely eroded----	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
						Too steep for sprinkler application	1.00
729B:							
Ackmore----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
						Too steep for surface application	0.08
Nodaway----------	40	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.08

Agricultural Waste Management--Continued

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
760:							
Ansgar	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70	Too acid	0.31	Too acid	0.31
		Too acid	0.08				
761:							
Franklin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Too acid	0.08	Too acid	0.31	Too acid	0.31
771B:							
Waubeek	85	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.08
814D:							
Rockton	85	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Slow water movement	1.00
		Depth to bedrock	0.35	Depth to bedrock	0.35	Too steep for surface application	1.00
		Slope	0.16	Slope	0.16		
						Too steep for sprinkler application	0.40
826:							
Rowley	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
884:							
Klingmore	90	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Too acid	0.02	Too acid	0.07	Too acid	0.07
911B:							
Colo	55	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70			Too steep for surface application	0.08

Agricultural Waste Management--Continued

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
911B:							
Ely	35	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
						Too steep for surface application	0.08
977:							
Richwood	95	Not limited		Not limited		Not limited	
982:							
Maxmore	80	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70				
1118:							
Garwin, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70				
1119:							
Muscatine, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Too acid	0.02	Too acid	0.07	Too acid	0.07
1160:							
Walford, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Leaching	0.70				
1220:							
Nodaway, channeled, frequently flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
1291:							
Atterberry, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
1315:							
Perks, frequently flooded	40	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Droughty	1.00	Droughty	1.00
		Flooding	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	1.00	Flooding	1.00	Flooding	1.00

Agricultural Waste Management--Continued

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
1315:							
Spillville, frequently flooded	30	Very limited		Very limited		Very limited	
		Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00	Depth to saturated zone (Nov-Jul)	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
4946:							
Udorthents	65	Not rated		Not rated		Not rated	
Highway	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
5053:							
Psammaquents, frequently flooded	100	Not rated		Not rated		Not rated	
8041B:							
Sparta, terrace	100	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching	0.45	Too acid	0.07	Too acid	0.07
		Too acid	0.02				
8041C:							
Sparta, terrace	100	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching	0.45	Too acid	0.07	Too steep for surface application	0.92
		Too acid	0.02			Too acid	0.07
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Recreational Development

The titles of the tables described in this section are:

- "Camp Areas, Picnic Areas, and Playgrounds"
- "Paths, Trails, and Golf Fairways"

In the tables described in this section, the soils of the survey area are rated according to limitations that affect their suitability for recreational development. 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. *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 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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 these tables can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

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.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, 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.

Camp Areas, Picnic Areas, and Playgrounds

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the 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
8B:							
Judson	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
41B:							
Sparta	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Too sandy	0.95
						Slope	0.50
41C:							
Sparta	85	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.95	Too sandy	0.95	Slope	1.00
						Too sandy	0.95
41E:							
Sparta	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Too sandy	0.95	Too sandy	0.95	Too sandy	0.95
63B:							
Chelsea	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Too sandy	0.95
						Slope	0.50
63C:							
Chelsea	90	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.95	Too sandy	0.95	Slope	1.00
						Too sandy	0.95
63E:							
Chelsea	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Too sandy	0.95	Too sandy	0.95	Too sandy	0.95
65D2:							
Lindley, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.63	Slope	0.63	Slow water movement	0.99
65E2:							
Lindley, moderately eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99
65F2:							
Lindley, moderately eroded	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.99	Slow water movement	0.99	Slow water movement	0.99

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
83B:							
Kenyon	85	Not limited		Not limited		Somewhat limited Slope	0.50
83C:							
Kenyon	80	Not limited		Not limited		Very limited Slope	1.00
83C2:							
Kenyon, moderately eroded	85	Not limited		Not limited		Very limited Slope	1.00
88:							
Nevin, rarely flooded	90	Very limited Depth to saturated zone Flooding	1.00 1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
110C:							
Lamont	85	Not limited		Not limited		Somewhat limited Slope	0.88
110E:							
Lamont	95	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
118:							
Garwin	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
119:							
Muscatine	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
119B:							
Muscatine	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.50
120:							
Tama	100	Not limited		Not limited		Not limited	
120B:							
Tama	90	Not limited		Not limited		Somewhat limited Slope	0.50
120C:							
Tama	80	Not limited		Not limited		Very limited Slope	1.00
120C2:							
Tama, moderately eroded	90	Not limited		Not limited		Very limited Slope	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
120D2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
121:							
Tama	85	Not limited		Not limited		Not limited	
122:							
Sperry, depressional	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
133:							
Colo, 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	1.00			Flooding	0.60
133+:							
Colo, occasionally flooded, overwash	90	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	0.60
136:							
Ankeny, rarely flooded	85	Very limited		Not limited		Not limited	
		Flooding	1.00				
143:							
Brady	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Gravel content	0.04
160:							
Walford	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
162B:							
Downs	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
162C:							
Downs	85	Not limited		Not limited		Very limited	
						Slope	1.00
162C2:							
Downs, moderately eroded	90	Not limited		Not limited		Very limited	
						Slope	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
162D2: Downs, moderately eroded	85	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
162D3: Downs, severely eroded	90	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
162E3: Downs, severely eroded	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
163B: Fayette	95	Not limited		Not limited		Somewhat limited Slope	0.50
163C: Fayette	90	Not limited		Not limited		Very limited Slope	1.00
163C2: Fayette, moderately eroded	90	Not limited		Not limited		Very limited Slope	1.00
163D: Fayette	80	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
163D2: Fayette, moderately eroded	80	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
163D3: Fayette, severely eroded	75	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
163E: Fayette	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
163E2: Fayette, moderately eroded	70	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
163E3: Fayette, severely eroded	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
163F: Fayette	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
163F2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
163G:							
Fayette	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
171B:							
Bassett	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
171C2:							
Bassett, moderately eroded	90	Not limited		Not limited		Very limited	
						Slope	1.00
171D2:							
Bassett, moderately eroded	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
175B:							
Dickinson	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
175C:							
Dickinson	85	Not limited		Not limited		Very limited	
						Slope	1.00
177:							
Saude	90	Not limited		Not limited		Not limited	
184:							
Klinger	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
212:							
Kennebec, occasionally flooded	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
220:							
Nodaway, occasionally flooded	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
221:							
Klossner	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
291:							
Atterberry	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
291B:							
Atterberry	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.50
293C:							
Fayette	40	Not limited		Not limited		Very limited Slope	1.00
Chelsea	30	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy	0.95	Very limited Slope Too sandy	1.00 0.95
Tell	20	Not limited		Not limited		Very limited Slope	1.00
293E:							
Fayette	40	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
Chelsea	30	Somewhat limited Slope Too sandy	0.96 0.95	Somewhat limited Slope Too sandy	0.96 0.95	Very limited Slope Too sandy	1.00 0.95
Tell	20	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
293G:							
Fayette	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Chelsea	30	Very limited Slope Too sandy	1.00 0.95	Very limited Slope Too sandy	1.00 0.95	Very limited Slope Too sandy	1.00 0.95
Tell	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
352B:							
Whittier	95	Not limited		Not limited		Somewhat limited Slope	0.50
352C2:							
Whittier, moderately eroded	100	Not limited		Not limited		Very limited Slope	1.00
354:							
Aquolls, ponded	100	Not rated		Not rated		Not rated	
377B:							
Dinsdale	85	Not limited		Not limited		Somewhat limited Slope	0.50
377C:							
Dinsdale	85	Not limited		Not limited		Very limited Slope	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
377C2:							
Dinsdale, moderately eroded	95	Not limited		Not limited		Very limited	
						Slope	1.00
382:							
Maxfield	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
412E:							
Emeline	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	0.96	Slope	0.96	Depth to bedrock	1.00
420B:							
Tama, terrace	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
428B:							
Ely	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.50
430:							
Ackmore, occasionally flooded	90	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	0.60
442C:							
Dickinson	55	Not limited		Not limited		Very limited	
						Slope	1.00
Tama	40	Not limited		Not limited		Very limited	
						Slope	1.00
450B:							
Pillot	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
450C:							
Pillot	85	Not limited		Not limited		Very limited	
						Slope	1.00
462B:							
Downs, terrace	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
462C:							
Downs, terrace	90	Not limited		Not limited		Very limited	
						Slope	1.00
463B:							
Fayette, terrace	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
467:							
Radford, occasionally flooded	95	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	0.60
478G:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Emeline	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
485:							
Spillville, 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	1.00			Flooding	0.60
520:							
Coppock, occasionally flooded	95	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	0.60
520B:							
Coppock	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.50
662C2:							
Mt. Carroll, moderately eroded	95	Not limited		Not limited		Very limited	
						Slope	1.00
662D2:							
Mt. Carroll, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
662D3:							
Mt. Carroll, severely eroded	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
662E3:							
Mt. Carroll, severely eroded	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
729B:							
Ackmore	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.50
Nodaway	40	Not limited		Not limited		Somewhat limited	
						Slope	0.50
760:							
Ansgar	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
761:							
Franklin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
771B:							
Waubeek	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50
814D:							
Rockton	85	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.99	Slow water movement	0.99	Slope	1.00
		Slope	0.16	Slope	0.16	Slow water movement	0.99
						Depth to bedrock	0.35
826:							
Rowley	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
884:							
Klingmore	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
911B:							
Colo	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.50
Ely	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Slope	0.50
977:							
Richwood	95	Not limited		Not limited		Not limited	
982:							
Maxmore	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
1118:							
Garwin, terrace-----	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
1119:							
Muscatine, terrace--	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
1160:							
Walford, terrace----	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
1220:							
Nodaway, channeled, frequently flooded	85	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
1291:							
Atterberry, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
1315:							
Perks, frequently flooded------------	40	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Too sandy	0.98	Flooding	1.00
		Too sandy	0.98	Flooding	0.40	Too sandy	0.98
Spillville, frequently flooded	30	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	0.40	Flooding	1.00
4946:							
Udorthents----------	65	Not rated		Not rated		Not rated	
Highway-------------	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel-------------	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries-----------	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy---	100	Not rated		Not rated		Not rated	
5053:							
Psammaquents, frequently flooded	100	Not rated		Not rated		Not rated	

Camp Areas, Picnic Areas, and Playgrounds--Continued

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
8041B:							
Sparta, terrace	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Too sandy	0.95
						Slope	0.12
8041C:							
Sparta, terrace	100	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.95	Too sandy	0.95	Slope	1.00
						Too sandy	0.95
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Paths, Trails, and Golf Fairways

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8B:							
Judson	95	Not limited		Not limited		Not limited	
41B:							
Sparta	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Droughty	0.07
41C:							
Sparta	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Droughty	0.07
41E:							
Sparta	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Slope	0.96
						Droughty	0.07
63B:							
Chelsea	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Droughty	0.28
63C:							
Chelsea	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Droughty	0.28
63E:							
Chelsea	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.95	Too sandy	0.95	Slope	0.96
						Droughty	0.48
65D2:							
Lindley, moderately eroded	90	Not limited		Not limited		Somewhat limited	
						Slope	0.63
65E2:							
Lindley, moderately eroded	90	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
65F2:							
Lindley, moderately eroded	85	Somewhat limited		Not limited		Very limited	
		Slope	0.82			Slope	1.00
83B:							
Kenyon	85	Not limited		Not limited		Not limited	
83C:							
Kenyon	80	Not limited		Not limited		Not limited	
83C2:							
Kenyon, moderately eroded	85	Not limited		Not limited		Not limited	

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88:							
Nevin, rarely flooded	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
110C:							
Lamont	85	Not limited		Not limited		Not limited	
110E:							
Lamont	95	Not limited		Not limited		Somewhat limited Slope	0.96
118:							
Garwin	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
119:							
Muscatine	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
119B:							
Muscatine	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
120:							
Tama	100	Not limited		Not limited		Not limited	
120B:							
Tama	90	Not limited		Not limited		Not limited	
120C:							
Tama	80	Not limited		Not limited		Not limited	
120C2:							
Tama, moderately eroded	90	Not limited		Not limited		Not limited	
120D2:							
Tama, moderately eroded	90	Not limited		Not limited		Somewhat limited Slope	0.63
121:							
Tama	85	Not limited		Not limited		Not limited	
122:							
Sperry, depressional	95	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
133: Colo, occasionally flooded	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
133+: Colo, occasionally flooded, overwash	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
136: Ankeny, rarely flooded	85	Not limited		Not limited		Not limited	
143: Brady	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
160: Walford	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
162B: Downs	95	Not limited		Not limited		Not limited	
162C: Downs	85	Not limited		Not limited		Not limited	
162C2: Downs, moderately eroded	90	Not limited		Not limited		Not limited	
162D2: Downs, moderately eroded	85	Not limited		Not limited		Somewhat limited Slope	0.63
162D3: Downs, severely eroded	90	Not limited		Not limited		Somewhat limited Slope	0.63
162E3: Downs, severely eroded	90	Somewhat limited Slope	0.02	Not limited		Very limited Slope	1.00
163B: Fayette	95	Not limited		Not limited		Not limited	
163C: Fayette	90	Not limited		Not limited		Not limited	

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163C2:							
Fayette, moderately eroded	90	Not limited		Not limited		Not limited	
163D:							
Fayette	80	Not limited		Not limited		Somewhat limited	
						Slope	0.63
163D2:							
Fayette, moderately eroded	80	Not limited		Not limited		Somewhat limited	
						Slope	0.63
163D3:							
Fayette, severely eroded	75	Not limited		Not limited		Somewhat limited	
						Slope	0.63
163E:							
Fayette	75	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
163E2:							
Fayette, moderately eroded	70	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
163E3:							
Fayette, severely eroded	80	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
163F:							
Fayette	75	Somewhat limited		Not limited		Very limited	
		Slope	0.82			Slope	1.00
163F2:							
Fayette, moderately eroded	70	Somewhat limited		Not limited		Very limited	
		Slope	0.82			Slope	1.00
163G:							
Fayette	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
171B:							
Bassett	85	Not limited		Not limited		Not limited	
171C2:							
Bassett, moderately eroded	90	Not limited		Not limited		Not limited	
171D2:							
Bassett, moderately eroded	85	Not limited		Not limited		Somewhat limited	
						Slope	0.63
175B:							
Dickinson	95	Not limited		Not limited		Not limited	

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
175C:							
Dickinson	85	Not limited		Not limited		Not limited	
177:							
Saude	90	Not limited		Not limited		Not limited	
184:							
Klinger	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
212:							
Kennebec, occasionally flooded	90	Not limited		Not limited		Somewhat limited Flooding	0.60
220:							
Nodaway, occasionally flooded	90	Not limited		Not limited		Somewhat limited Flooding	0.60
221:							
Klossner	100	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
291:							
Atterberry	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
291B:							
Atterberry	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
293C:							
Fayette	40	Not limited		Not limited		Not limited	
Chelsea	30	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy	0.95	Somewhat limited Droughty	0.28
Tell	20	Not limited		Not limited		Not limited	
293E:							
Fayette	40	Not limited		Not limited		Somewhat limited Slope	0.96
Chelsea	30	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy	0.95	Somewhat limited Slope Droughty	0.96 0.28
Tell	20	Very limited Water erosion	1.00	Very limited Water erosion	1.00	Somewhat limited Slope	0.96

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
293G:							
Fayette	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.14	Slope	1.00
Chelsea	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too sandy	0.95	Slope	1.00
		Too sandy	0.95	Slope	0.14	Droughty	0.48
Tell	20	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.22		
352B:							
Whittier	95	Not limited		Not limited		Not limited	
352C2:							
Whittier, moderately eroded	100	Not limited		Not limited		Not limited	
354:							
Aquolls, ponded	100	Not rated		Not rated		Not rated	
377B:							
Dinsdale	85	Not limited		Not limited		Not limited	
377C:							
Dinsdale	85	Not limited		Not limited		Not limited	
377C2:							
Dinsdale, moderately eroded	95	Not limited		Not limited		Not limited	
382:							
Maxfield	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
412E:							
Emeline	90	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.96
420B:							
Tama, terrace	95	Not limited		Not limited		Not limited	
428B:							
Ely	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
430:							
Ackmore, occasionally flooded	90	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

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
442C:							
Dickinson	55	Not limited		Not limited		Not limited	
Tama	40	Not limited		Not limited		Not limited	
450B:							
Pillot	90	Not limited		Not limited		Not limited	
450C:							
Pillot	85	Not limited		Not limited		Not limited	
462B:							
Downs, terrace	95	Not limited		Not limited		Not limited	
462C:							
Downs, terrace	90	Not limited		Not limited		Not limited	
463B:							
Fayette, terrace	95	Not limited		Not limited		Not limited	
467:							
Radford, occasionally flooded	95	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
478G:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Emeline	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
485:							
Spillville, 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
520:							
Coppock, occasionally flooded	95	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
520B:							
Coppock	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
662C2:							
Mt. Carroll, moderately eroded--	95	Not limited		Not limited		Not limited	
662D2:							
Mt. Carroll, moderately eroded--	90	Not limited		Not limited		Somewhat limited	
						Slope	0.63
662D3:							
Mt. Carroll, severely eroded----	95	Not limited		Not limited		Somewhat limited	
						Slope	0.63
662E3:							
Mt. Carroll, severely eroded----	95	Somewhat limited		Not limited		Very limited	
		Slope	0.02			Slope	1.00
729B:							
Ackmore----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Nodaway----------	40	Not limited		Not limited		Not limited	
760:							
Ansgar----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
761:							
Franklin----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
771B:							
Waubeek----------	85	Not limited		Not limited		Not limited	
814D:							
Rockton----------	85	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.35
						Slope	0.16
826:							
Rowley----------	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
884:							
Klingmore----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
911B:							
Colo----------	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
911B:							
Ely	35	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
977:							
Richwood	95	Not limited		Not limited		Not limited	
982:							
Maxmore	80	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
1118:							
Garwin, terrace	95	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
1119:							
Muscatine, terrace	95	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
1160:							
Walford, terrace	95	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
1220:							
Nodaway, channeled, frequently flooded	85	Somewhat limited Flooding	 0.40	Somewhat limited Flooding	 0.40	Very limited Flooding	 1.00
1291:							
Atterberry, terrace	95	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
1315:							
Perks, frequently flooded	40	Somewhat limited Too sandy Flooding	 0.98 0.40	Somewhat limited Too sandy Flooding	 0.98 0.40	Very limited Flooding Droughty	 1.00 1.00
Spillville, frequently flooded	30	Very limited Depth to saturated zone Flooding	 1.00 0.40	Very limited Depth to saturated zone Flooding	 1.00 0.40	Very limited Flooding Depth to saturated zone	 1.00 1.00
4946:							
Udorthents	65	Not rated		Not rated		Not rated	
Highway	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	

Paths, Trails, and Golf Fairways--Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5030:							
Pits, limestone quarries	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
5053:							
Psammaquents, frequently flooded	100	Not rated		Not rated		Not rated	
8041B:							
Sparta, terrace	100	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy	0.95	Somewhat limited Droughty	0.07
8041C:							
Sparta, terrace	100	Somewhat limited Too sandy	0.95	Somewhat limited Too sandy	0.95	Somewhat limited Droughty	0.07
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

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

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

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary, which is in Part I of this publication.

Building Site Development

The titles of the tables described in this section are:

- "Dwellings and Small Commercial Buildings"
- "Roads and Streets, Shallow Excavations, and Lawns and Landscaping"

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. The tables described in this section 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. *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 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

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.

Dwellings and Small Commercial Buildings

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the 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
8B:							
Judson	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
41B:							
Sparta	100	Not limited		Not limited		Not limited	
41C:							
Sparta	85	Not limited		Not limited		Somewhat limited	
						Slope	0.88
41E:							
Sparta	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
63B:							
Chelsea	90	Not limited		Not limited		Not limited	
63C:							
Chelsea	90	Not limited		Not limited		Somewhat limited	
						Slope	0.88
63E:							
Chelsea	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
65D2:							
Lindley, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.32	Shrink-swell	0.32	Shrink-swell	0.32
65E2:							
Lindley, moderately eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.32	Shrink-swell	0.32	Shrink-swell	0.32
65F2:							
Lindley, moderately eroded	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.32	Shrink-swell	0.32	Shrink-swell	0.32
83B:							
Kenyon	85	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.61		
83C:							
Kenyon	80	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.61	Slope	0.88

Dwellings and Small Commercial Buildings--Continued

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
83C2:							
Kenyon, moderately eroded	85	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.61	Slope	0.88
88:							
Nevin, rarely flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
110C:							
Lamont	85	Not limited		Not limited		Somewhat limited	
						Slope	0.12
110E:							
Lamont	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
118:							
Garwin	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
119:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
119B:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
120:							
Tama	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
120B:							
Tama	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
120C:							
Tama	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
120C2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50

Dwellings and Small Commercial Buildings--Continued

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
120D2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
121:							
Tama	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
122:							
Sperry, depressional	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Ponding	1.00	Shrink-swell	1.00
		Ponding	1.00	Shrink-swell	0.32	Ponding	1.00
133:							
Colo, occasionally flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
133+:							
Colo, occasionally flooded, overwash	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
136:							
Ankeny, rarely flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
143:							
Brady	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
160:							
Walford	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
162B:							
Downs	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
162C:							
Downs	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50

Dwellings and Small Commercial Buildings--Continued

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
162C2:							
Downs, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
162D2:							
Downs, moderately eroded	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
162D3:							
Downs, severely eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
162E3:							
Downs, severely eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
163B:							
Fayette	95	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.01			Shrink-swell	0.01
163C:							
Fayette	90	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.01			Slope	0.88
						Shrink-swell	0.01
163C2:							
Fayette, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
163D:							
Fayette	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
163D2:							
Fayette, moderately eroded	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
163D3:							
Fayette, severely eroded	75	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
163E:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01

Dwellings and Small Commercial Buildings--Continued

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
163E2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
163E3:							
Fayette, severely eroded	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
163F:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
163F2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
163G:							
Fayette	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
171B:							
Bassett	85	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.61		
171C2:							
Bassett, moderately eroded	90	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.61	Slope	0.88
171D2:							
Bassett, moderately eroded	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
				Depth to saturated zone	0.61		
175B:							
Dickinson	95	Not limited		Not limited		Not limited	
175C:							
Dickinson	85	Not limited		Not limited		Somewhat limited	
						Slope	0.88
177:							
Saude	90	Not limited		Not limited		Not limited	

Dwellings and Small Commercial Buildings--Continued

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
184:							
Klinger	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.32			Shrink-swell	0.32
212:							
Kennebec, occasionally flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
				Shrink-swell	0.50		
220:							
Nodaway, occasionally flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
				Shrink-swell	0.50		
221:							
Klossner	100	Very limited		Very limited		Very limited	
		Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Organic matter content	1.00			Organic matter content	1.00
291:							
Atterberry	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
291B:							
Atterberry	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
293C:							
Fayette	40	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.01			Slope	0.88
						Shrink-swell	0.01
Chelsea	30	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Tell	20	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Slope	0.88
						Shrink-swell	0.50

Dwellings and Small Commercial Buildings--Continued

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
293E:							
Fayette	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
Chelsea	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
Tell	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
293G:							
Fayette	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.01			Shrink-swell	0.01
Chelsea	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Tell	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
352B:							
Whittier	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
352C2:							
Whittier, moderately eroded	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
354:							
Aquolls, ponded	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
377B:							
Dinsdale	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.68	Depth to saturated zone	0.61	Shrink-swell	0.68
377C:							
Dinsdale	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.68	Depth to saturated zone	0.61	Slope	0.88
						Shrink-swell	0.68
377C2:							
Dinsdale, moderately eroded	95	Not limited		Somewhat limited		Somewhat limited	
				Depth to saturated zone	0.61	Slope	0.88

Dwellings and Small Commercial Buildings--Continued

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
382:							
Maxfield	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.18	Shrink-swell	0.18	Shrink-swell	0.18
412E:							
Emeline	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.96	Slope	0.96	Depth to hard bedrock	1.00
420B:							
Tama, terrace	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
428B:							
Ely	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
430:							
Ackmore, occasionally flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	1.00	Shrink-swell	0.50
442C:							
Dickinson	55	Not limited		Not limited		Somewhat limited	
						Slope	0.88
Tama	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50
450B:							
Pillot	90	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
450C:							
Pillot	85	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Slope	0.88
						Shrink-swell	0.50
462B:							
Downs, terrace	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
462C:							
Downs, terrace	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.88
						Shrink-swell	0.50

Dwellings and Small Commercial Buildings--Continued

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
463B:							
Fayette, terrace----	95	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.01			Shrink-swell	0.01
467:							
Radford, occasionally flooded----------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		
478G:							
Rock outcrop--------	60	Not rated		Not rated		Not rated	
Emeline----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
485:							
Spillville, occasionally flooded----------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
520:							
Coppock, occasionally flooded----------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.68	Shrink-swell	0.50
520B:							
Coppock----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.68	Shrink-swell	0.50
662C2:							
Mt. Carroll, moderately eroded--	95	Not limited		Not limited		Somewhat limited	
						Slope	0.88
662D2:							
Mt. Carroll, moderately eroded--	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
662D3:							
Mt. Carroll, severely eroded----	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00

Dwellings and Small Commercial Buildings--Continued

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
662E3:							
Mt. Carroll, severely eroded----	95	Very limited Slope	 1.00	Very limited Slope	 1.00	Very limited Slope	 1.00
729B:							
Ackmore----------	50	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Depth to saturated zone Shrink-swell	 1.00 1.00	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50
Nodaway----------	40	Somewhat limited Shrink-swell	 0.50	Somewhat limited Depth to saturated zone Shrink-swell	 0.61 0.50	Somewhat limited Shrink-swell	 0.50
760:							
Ansgar----------	95	Very limited Depth to saturated zone Shrink-swell	 1.00 0.68	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Shrink-swell	 1.00 0.68
761:							
Franklin----------	90	Very limited Depth to saturated zone Shrink-swell	 1.00 0.68	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Shrink-swell	 1.00 0.68
771B:							
Waubeek----------	85	Somewhat limited Shrink-swell	 0.18	Somewhat limited Depth to saturated zone	 0.61	Somewhat limited Shrink-swell	 0.18
814D:							
Rockton----------	85	Somewhat limited Depth to hard bedrock Slope	 0.35 0.16	Very limited Depth to hard bedrock Slope	 1.00 0.16	Very limited Slope Depth to hard bedrock	 1.00 0.35
826:							
Rowley----------	85	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50
884:							
Klingmore----------	90	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50
911B:							
Colo----------	55	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited Depth to saturated zone Shrink-swell	 1.00 0.50

Dwellings and Small Commercial Buildings--Continued

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
911B:							
Ely	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50			Shrink-swell	0.50
977:							
Richwood	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
982:							
Maxmore	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.68	Shrink-swell	0.68	Shrink-swell	0.68
1118:							
Garwin, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
1119:							
Muscatine, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
1160:							
Walford, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
1220:							
Nodaway, channeled, frequently flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
				Shrink-swell	0.50		
1291:							
Atterberry, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
1315:							
Perks, frequently flooded	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Spillville, frequently flooded	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Dwellings and Small Commercial Buildings--Continued

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
4946:							
Udorthents	65	Not rated		Not rated		Not rated	
Highway	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
5053:							
Psammaquents, frequently flooded	100	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8041B:							
Sparta, terrace	100	Not limited		Not limited		Not limited	
8041C:							
Sparta, terrace	100	Not limited		Not limited		Somewhat limited	
						Slope	0.88
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Roads and Streets, Shallow Excavations, and Lawns and Landscaping

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the 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
8B:							
Judson	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
41B:							
Sparta	100	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.07
41C:							
Sparta	85	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.07
41E:							
Sparta	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.96	Cutbanks cave	1.00	Slope	0.96
				Slope	0.96	Droughty	0.07
63B:							
Chelsea	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.28
63C:							
Chelsea	90	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.28
63E:							
Chelsea	95	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.96	Cutbanks cave	1.00	Slope	0.96
				Slope	0.96	Droughty	0.48
65D2:							
Lindley, moderately eroded	90	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Slope	0.63	Slope	0.63
		Slope	0.63	Cutbanks cave	0.10		
		Frost action	0.50				
65E2:							
Lindley, moderately eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
65F2:							
Lindley, moderately eroded	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
83B:							
Kenyon	85	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
				Cutbanks cave	0.10		
83C:							
Kenyon	80	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
				Cutbanks cave	0.10		
83C2:							
Kenyon, moderately eroded	85	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
				Cutbanks cave	0.10		
88:							
Nevin, rarely flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
110C:							
Lamont	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
110E:							
Lamont	95	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.96	Cutbanks cave	1.00	Slope	0.96
		Frost action	0.50	Slope	0.96		
118:							
Garwin	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
119:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
119B:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
120:							
Tama	100	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
120B:							
Tama	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
120C:							
Tama	80	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
120C2:							
Tama, moderately eroded	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
120D2:							
Tama, moderately eroded	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
121:							
Tama	85	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
122:							
Sperry, depressional	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Ponding	1.00	Ponding	1.00
		Low strength	1.00	Cutbanks cave	0.10		
133:							
Colo, 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
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
133+:							
Colo, occasionally flooded, overwash	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
136:							
Ankeny, rarely flooded	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
		Flooding	0.40				
143:							
Brady	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to saturated zone	1.00		
160:							
Walford	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
162B:							
Downs	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
162C:							
Downs	85	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
162C2:							
Downs, moderately eroded	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
162D2:							
Downs, moderately eroded	85	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
162D3:							
Downs, severely eroded	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
162E3:							
Downs, severely eroded	90	Very limited		Very limited		Very limited	
		Frost action	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	1.00				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
163B:							
Fayette	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.01				
163C:							
Fayette	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.01				
163C2:							
Fayette, moderately eroded	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
163D:							
Fayette	80	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
163D2:							
Fayette, moderately eroded	80	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
163D3:							
Fayette, severely eroded	75	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
163E:							
Fayette	75	Very limited		Very limited		Very limited	
		Frost action	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	1.00				
163E2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Frost action	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	1.00				
163E3:							
Fayette, severely eroded	80	Very limited		Very limited		Very limited	
		Frost action	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	1.00				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
163F:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
163F2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
163G:							
Fayette	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
171B:							
Bassett	85	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
				Cutbanks cave	0.10		
171C2:							
Bassett, moderately eroded	90	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
				Cutbanks cave	0.10		
171D2:							
Bassett, moderately eroded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Frost action	0.50	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
175B:							
Dickinson	95	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
175C:							
Dickinson	85	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
177:							
Saude	90	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
184:							
Klinger	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Dense layer	0.50		
		Low strength	1.00	Cutbanks cave	0.10		

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
212:							
Kennebec, occasionally flooded	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.61	Flooding	0.60
		Flooding	1.00	Flooding	0.60		
		Low strength	1.00	Cutbanks cave	0.10		
220:							
Nodaway, occasionally flooded	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.61	Flooding	0.60
		Flooding	1.00	Flooding	0.60		
		Low strength	1.00	Cutbanks cave	0.10		
221:							
Klossner	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Subsidence	1.00	Organic matter content	1.00		
		Frost action	1.00	Cutbanks cave	0.10		
291:							
Atterberry	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
291B:							
Atterberry	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
293C:							
Fayette	40	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.01				
Chelsea	30	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.28
Tell	20	Very limited		Very limited		Not limited	
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
293E:							
Fayette	40	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.96				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
293E:							
Chelsea	30	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.96	Cutbanks cave	1.00	Slope	0.96
				Slope	0.96	Droughty	0.28
Tell	20	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Cutbanks cave	1.00	Slope	0.96
		Low strength	1.00	Slope	0.96		
		Slope	0.96				
293G:							
Fayette	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
Chelsea	30	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
				Slope	1.00	Droughty	0.48
Tell	20	Very limited		Very limited		Very limited	
		Slope	1.00	Cutbanks cave	1.00	Slope	1.00
		Frost action	1.00	Slope	1.00		
		Low strength	1.00				
352B:							
Whittier	95	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50				
		Frost action	0.50				
352C2:							
Whittier, moderately eroded	100	Very limited		Very limited		Not limited	
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50				
		Frost action	0.50				
354:							
Aquolls, ponded	100	Very limited		Very limited		Not rated	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Ponding	1.00	Ponding	1.00		
377B:							
Dinsdale	85	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.61		
		Low strength	1.00				
		Shrink-swell	0.68	Dense layer	0.50		
				Cutbanks cave	0.10		
377C:							
Dinsdale	85	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.61		
		Low strength	1.00				
		Shrink-swell	0.68	Dense layer	0.50		
				Cutbanks cave	0.10		

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
377C2:							
Dinsdale, moderately eroded	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.61		
		Low strength	0.22	Dense layer	0.50		
				Cutbanks cave	0.10		
382:							
Maxfield	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Dense layer	0.50		
		Low strength	1.00	Cutbanks cave	0.10		
412E:							
Emeline	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Low strength	1.00	Slope	0.96	Droughty	1.00
		Slope	0.96	Cutbanks cave	0.10	Slope	0.96
420B:							
Tama, terrace	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
428B:							
Ely	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
430:							
Ackmore, occasionally flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
442C:							
Dickinson	55	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
Tama	40	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
450B:							
Pillot	90	Very limited		Very limited		Not limited	
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
450C:							
Pillot	85	Very limited		Very limited		Not limited	
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
462B:							
Downs, terrace	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
462C:							
Downs, terrace	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
463B:							
Fayette, terrace	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.01				
467:							
Radford, occasionally flooded	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
478G:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Emeline	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10	Droughty	1.00
485:							
Spillville, 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	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
520:							
Coppock, occasionally flooded	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
520B:							
Coppock	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
662C2:							
Mt. Carroll, moderately eroded	95	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
662D2:							
Mt. Carroll, moderately eroded	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
662D3:							
Mt. Carroll, severely eroded	95	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.63	Slope	0.63
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.63				
662E3:							
Mt. Carroll, severely eroded	95	Very limited		Very limited		Very limited	
		Frost action	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
729B:							
Ackmore	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
Nodaway	40	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.61		
		Low strength	1.00				
		Shrink-swell	0.50	Cutbanks cave	0.10		
760:							
Ansgar	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Dense layer	0.50		
		Low strength	1.00	Cutbanks cave	0.10		
761:							
Franklin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Dense layer	0.50		
		Low strength	1.00	Cutbanks cave	0.10		

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
771B:							
Waubeek	85	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Depth to saturated zone	0.61		
		Low strength	1.00	Dense layer	0.50		
		Shrink-swell	0.18	Cutbanks cave	0.10		
814D:							
Rockton	85	Somewhat limited		Very limited		Somewhat limited	
		Low strength	0.78	Depth to hard bedrock	1.00	Depth to bedrock	0.35
		Frost action	0.50	Slope	0.16	Slope	0.16
		Depth to hard bedrock	0.35	Cutbanks cave	0.10		
826:							
Rowley	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Depth to saturated zone	1.00		
		Low strength	1.00				
884:							
Klingmore	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Dense layer	0.50		
		Low strength	1.00	Cutbanks cave	0.10		
911B:							
Colo	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
Ely	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
977:							
Richwood	95	Very limited		Very limited		Not limited	
		Frost action	1.00	Cutbanks cave	1.00		
		Low strength	1.00				
		Shrink-swell	0.50				
982:							
Maxmore	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
1118:							
Garwin, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
1119:							
Muscatine, terrace--	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
1160:							
Walford, terrace----	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
1220:							
Nodaway, channeled, frequently flooded	85	Very limited		Somewhat limited		Very limited	
		Frost action	1.00	Flooding	0.80	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	0.61		
		Low strength	1.00	Cutbanks cave	0.10		
1291:							
Atterberry, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
1315:							
Perks, frequently flooded----------	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
				Flooding	0.80	Droughty	1.00
Spillville, frequently flooded	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	0.10		
4946:							
Udorthents----------	65	Not rated		Not rated		Not rated	
Highway----------	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel----------	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries----------	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy---	100	Not rated		Not rated		Not rated	

Roads and Streets, Shallow Excavations, and Lawns and Landscaping--Continued

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
5053:							
Psammaquents, frequently flooded	100	Very limited		Very limited		Not rated	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Flooding	1.00	Flooding	0.80		
8041B:							
Sparta, terrace-----	100	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.07
8041C:							
Sparta, terrace-----	100	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.07
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon-------	100	Not rated		Not rated		Not rated	
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Sanitary Facilities

The titles of the tables described in this section are:

- “Sewage Disposal”
- “Landfills”

These 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. *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 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 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.

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.

Sewage Disposal

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the 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
8B:					
Judson	95	Somewhat limited		Somewhat limited	
		Slow water movement	0.95	Slope	0.32
				Seepage	0.05
41B:					
Sparta	100	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.32
41C:					
Sparta	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
41E:					
Sparta	90	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.96		
63B:					
Chelsea	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.32
63C:					
Chelsea	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
63E:					
Chelsea	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.96		

Sewage Disposal--Continued

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
65D2:					
Lindley, moderately eroded	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.63		
65E2:					
Lindley, moderately eroded	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
65F2:					
Lindley, moderately eroded	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	1.00		
83B:					
Kenyon	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
		Depth to saturated zone	0.99	Slope	0.32
83C:					
Kenyon	80	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
83C2:					
Kenyon, moderately eroded	85	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
88:					
Nevin, rarely flooded	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Flooding	0.40
		Flooding	0.40	Seepage	0.05

Sewage Disposal--Continued

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
110C:					
Lamont	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.68
110E:					
Lamont	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.96		
118:					
Garwin	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
119:					
Muscatine	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
119B:					
Muscatine	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
120:					
Tama	100	Somewhat limited		Somewhat limited	
		Slow water movement	0.95	Seepage	0.05
120B:					
Tama	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.95	Slope	0.32
				Seepage	0.05
120C:					
Tama	80	Somewhat limited		Very limited	
		Slow water movement	0.95	Slope	1.00
				Seepage	0.05

Sewage Disposal--Continued

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
120C2:					
Tama, moderately eroded	90	Somewhat limited		Very limited	
		Slow water movement	0.95	Slope	1.00
				Seepage	0.05
120D2:					
Tama, moderately eroded	90	Somewhat limited		Very limited	
		Slow water movement	0.95	Slope	1.00
				Seepage	0.05
		Slope	0.63		
121:					
Tama	85	Somewhat limited		Very limited	
		Slow water movement	0.95	Seepage	1.00
122:					
Sperry, depressional	95	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Ponding	1.00	Ponding	1.00
133:					
Colo, 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
		Seepage, bottom layer	1.00	Seepage	1.00
133+:					
Colo, occasionally flooded, overwash	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Seepage	1.00
136:					
Ankeny, rarely flooded	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Flooding	0.40
		Filtering capacity	1.00		
		Flooding	0.40		

Sewage Disposal--Continued

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
143:					
Brady	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
160:					
Walford	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
162B:					
Downs	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
162C:					
Downs	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.95	Seepage	1.00
162C2:					
Downs, moderately eroded	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.95	Seepage	1.00
162D2:					
Downs, moderately eroded	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.95	Seepage	1.00
		Slope	0.63		
162D3:					
Downs, severely eroded	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.95	Seepage	1.00
		Slope	0.63		

Sewage Disposal--Continued

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
162E3:					
Downs, severely eroded	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
163B:					
Fayette	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
		Slow water movement	0.95		
163C:					
Fayette	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slow water movement	0.95		
163C2:					
Fayette, moderately eroded	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slow water movement	0.95		
163D:					
Fayette	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slow water movement	0.95		
		Slope	0.63		
163D2:					
Fayette, moderately eroded	80	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slow water movement	0.95		
		Slope	0.63		
163D3:					
Fayette, severely eroded	75	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slow water movement	0.95		
		Slope	0.63		

Sewage Disposal--Continued

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
163E:					
Fayette	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
163E2:					
Fayette, moderately eroded	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
163E3:					
Fayette, severely eroded	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
163F:					
Fayette	75	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
163F2:					
Fayette, moderately eroded	70	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
163G:					
Fayette	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
171B:					
Bassett	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
		Depth to saturated zone	0.99	Slope	0.32

Sewage Disposal--Continued

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
171C2:					
Bassett, moderately eroded	90	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
171D2:					
Bassett, moderately eroded	85	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
175B:					
Dickinson	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	0.32
175C:					
Dickinson	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	1.00
177:					
Saude	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00		
184:					
Klinger	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
212:					
Kennebec, occasionally flooded	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71

Sewage Disposal--Continued

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
220:					
Nodaway, occasionally flooded	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
		Slow water movement	0.95	Seepage	0.05
221:					
Klossner	100	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Subsidence	1.00	Organic matter content	1.00
291:					
Atterberry	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
291B:					
Atterberry	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
293C:					
Fayette	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.95	Seepage	1.00
Chelsea	30	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
Tell	20	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	1.00

Sewage Disposal--Continued

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
293E:					
Fayette	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slope	0.96		
		Slow water movement	0.95		
Chelsea	30	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Seepage, bottom layer	1.00		
		Slope	0.96		
Tell	20	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
		Slope	0.96		
		Slow water movement	0.95		
293G:					
Fayette	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
Chelsea	30	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00		
		Seepage, bottom layer	1.00		
Tell	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
352B:					
Whittier	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
		Slow water movement	0.95		
352C2:					
Whittier, moderately eroded	100	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slow water movement	0.95		

Sewage Disposal--Continued

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
354:					
Aquolls, ponded	100	Very limited		Not rated	
		Depth to saturated zone	1.00		
		Slow water movement	1.00		
		Ponding	1.00		
377B:					
Dinsdale	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
		Slow water movement	0.95	Slope	0.32
377C:					
Dinsdale	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to saturated zone	0.99	Seepage	1.00
		Slow water movement	0.95	Depth to saturated zone	0.71
377C2:					
Dinsdale, moderately eroded	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
382:					
Maxfield	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
412E:					
Emeline	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.96		
420B:					
Tama, terrace	95	Somewhat limited		Somewhat limited	
		Slow water movement	0.95	Slope	0.32
				Seepage	0.05

Sewage Disposal--Continued

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
428B:					
Ely	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Slope	0.32
				Seepage	0.05
430:					
Ackmore, occasionally flooded	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Seepage	1.00
442C:					
Dickinson	55	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Filtering capacity	1.00	Slope	1.00
Tama	40	Somewhat limited		Very limited	
		Slow water movement	0.95	Slope	1.00
				Seepage	0.05
450B:					
Pillot	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
450C:					
Pillot	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	1.00
462B:					
Downs, terrace	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
462C:					
Downs, terrace	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	0.95	Seepage	1.00

Sewage Disposal--Continued

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
463B:					
Fayette, terrace	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
467:					
Radford, occasionally flooded	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Seepage	1.00
478G:					
Rock outcrop	60	Not rated		Not rated	
Emeline	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00		
485:					
Spillville, 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
		Filtering capacity	1.00	Seepage	1.00
520:					
Coppock, occasionally flooded	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Seepage	1.00
520B:					
Coppock	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Seepage	1.00
				Slope	0.32
662C2:					
Mt. Carroll, moderately eroded	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

Sewage Disposal--Continued

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
662D2:					
Mt. Carroll, moderately eroded--	90	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.63		
662D3:					
Mt. Carroll, severely eroded----	95	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.63		
662E3:					
Mt. Carroll, severely eroded----	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		
729B:					
Ackmore----------	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Seepage	1.00
				Slope	0.32
Nodaway----------	40	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
		Depth to saturated zone	0.99	Slope	0.32
760:					
Ansgar----------	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
761:					
Franklin----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		

Sewage Disposal--Continued

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
771B:					
Waubeek	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71
		Slow water movement	0.95	Slope	0.32
814D:					
Rockton	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.16	Seepage	1.00
826:					
Rowley	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95		
884:					
Klingmore	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
911B:					
Colo	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95	Slope	0.32
Ely	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.95	Slope	0.32
				Seepage	0.05
977:					
Richwood	95	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		

Sewage Disposal--Continued

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
982:					
Maxmore	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
1118:					
Garwin, terrace	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
1119:					
Muscatine, terrace	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
1160:					
Walford, terrace	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		
1220:					
Nodaway, channeled, frequently flooded	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.71
1291:					
Atterberry, terrace	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.95		

Sewage Disposal--Continued

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
1315:					
Perks, frequently flooded	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		
Spillville, frequently flooded	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
4946:					
Udorthents	65	Not rated		Not rated	
Highway	30	Not rated		Not rated	
5010:					
Pits, sand and gravel	100	Not rated		Not rated	
5030:					
Pits, limestone quarries	100	Not rated		Not rated	
5040:					
Udorthents, loamy	100	Not rated		Not rated	
5053:					
Psammaquents, frequently flooded	100	Very limited		Not rated	
		Flooding	1.00		
		Depth to saturated zone	1.00		
		Filtering capacity	1.00		
8041B:					
Sparta, terrace	100	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.08
8041C:					
Sparta, terrace	100	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
AW:					
Animal waste lagoon	100	Not rated		Not rated	

Sewage Disposal--Continued

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
SL:					
Sewage lagoon-------	100	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	

Landfills

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the 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
8B:							
Judson	95	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
41B:							
Sparta	100	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00				
41C:							
Sparta	85	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00				
41E:							
Sparta	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
				Slope	0.96	Seepage	1.00
		Too sandy	1.00			Slope	0.96
		Slope	0.96				
63B:							
Chelsea	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00				
63C:							
Chelsea	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00				
63E:							
Chelsea	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
				Slope	0.96	Seepage	1.00
		Too sandy	1.00			Slope	0.96
		Slope	0.96				
65D2:							
Lindley, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
65E2:							
Lindley, moderately eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50

Landfills--Continued

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
65F2:							
Lindley, moderately eroded	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
83B:							
Kenyon	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
83C:							
Kenyon	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
83C2:							
Kenyon, moderately eroded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
88:							
Nevin, rarely flooded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
110C:							
Lamont	85	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
110E:							
Lamont	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
118:							
Garwin	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50

Landfills--Continued

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
119:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Too clayey	0.50			Too clayey	0.50
119B:							
Muscatine	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Too clayey	0.50			Too clayey	0.50
120:							
Tama	100	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
120B:							
Tama	90	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
120C:							
Tama	80	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
120C2:							
Tama, moderately eroded	90	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
120D2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
121:							
Tama	85	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
122:							
Sperry, depressional	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Too clayey	1.00
		Too clayey	0.50			Ponding	1.00
133:							
Colo, occasionally flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Seepage, bottom layer	1.00				

Landfills--Continued

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
133+:							
Colo, occasionally flooded, overwash--	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
136:							
Ankeny, rarely flooded----------	85	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Flooding	0.40	Flooding	0.40		
143:							
Brady----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
160:							
Walford----------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
162B:							
Downs----------	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
162C:							
Downs----------	85	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
162C2:							
Downs, moderately eroded----------	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
162D2:							
Downs, moderately eroded----------	85	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.63	Slope	0.63	Slope	0.63

Landfills--Continued

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
162D3:							
Downs, severely eroded	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
162E3:							
Downs, severely eroded	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
163B:							
Fayette	95	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
163C:							
Fayette	90	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
163C2:							
Fayette, moderately eroded	90	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Seepage	1.00
163D:							
Fayette	80	Very limited		Somewhat limited		Very limited	
		Seepage, bottom layer	1.00	Slope	0.63	Seepage	1.00
		Slope	0.63			Slope	0.63
						Too clayey	0.50
163D2:							
Fayette, moderately eroded	80	Very limited		Somewhat limited		Very limited	
		Seepage, bottom layer	1.00	Slope	0.63	Seepage	1.00
		Slope	0.63			Slope	0.63
163D3:							
Fayette, severely eroded	75	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
163E:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50

Landfills--Continued

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
163E2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
163E3:							
Fayette, severely eroded	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
163F:							
Fayette	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
163F2:							
Fayette, moderately eroded	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
163G:							
Fayette	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
171B:							
Bassett	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
171C2:							
Bassett, moderately eroded	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
171D2:							
Bassett, moderately eroded	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Slope	0.63
		Slope	0.63	Slope	0.63		

Landfills--Continued

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
175B:							
Dickinson	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
175C:							
Dickinson	85	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
177:							
Saude	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
184:							
Klinger	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
212:							
Kennebec, occasionally flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage, bottom layer	1.00	Seepage	1.00		
220:							
Nodaway, occasionally flooded	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Too clayey	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Too clayey	0.50				
221:							
Klossner	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Seepage	1.00		
291:							
Atterberry	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Too clayey	0.50
		Too clayey	0.50				

Landfills--Continued

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
291B:							
Atterberry	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Too clayey	0.50
		Too clayey	0.50				
293C:							
Fayette	40	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
Chelsea	30	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Tell	20	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
293E:							
Fayette	40	Very limited		Somewhat limited		Very limited	
		Seepage, bottom layer	1.00	Slope	0.96	Seepage	1.00
		Slope	0.96			Slope	0.96
						Too clayey	0.50
Chelsea	30	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
				Slope	0.96	Seepage	1.00
		Too sandy	1.00			Slope	0.96
		Slope	0.96				
Tell	20	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
				Slope	0.96	Seepage	1.00
		Too sandy	1.00			Slope	0.96
		Slope	0.96				
293G:							
Fayette	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
Chelsea	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00				
Tell	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
						Seepage	1.00
		Too sandy	1.00				

Landfills--Continued

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
352B:							
Whittier	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
352C2:							
Whittier, moderately eroded	100	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
354:							
Aquolls, ponded	100	Not rated		Not rated		Not rated	
377B:							
Dinsdale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
377C:							
Dinsdale	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
377C2:							
Dinsdale, moderately eroded	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
382:							
Maxfield	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
412E:							
Emeline	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Slope	0.96	Seepage	1.00
		Slope	0.96			Slope	0.96
420B:							
Tama, terrace	95	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50

Landfills--Continued

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
428B:							
Ely	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
430:							
Ackmore, occasionally flooded	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Seepage	1.00		
442C:							
Dickinson	55	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
Tama	40	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
450B:							
Pillot	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
450C:							
Pillot	85	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
462B:							
Downs, terrace	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
462C:							
Downs, terrace	90	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
463B:							
Fayette, terrace	95	Very limited		Not limited		Very limited	
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50

Landfills--Continued

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
467:							
Radford, occasionally flooded	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Seepage	1.00		
478G:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Emeline	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
485:							
Spillville, occasionally flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
520:							
Coppock, occasionally flooded	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Seepage	1.00		
520B:							
Coppock	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Seepage	1.00	Too clayey	0.50
662C2:							
Mt. Carroll, moderately eroded	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
662D2:							
Mt. Carroll, moderately eroded	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.63	Slope	0.63	Slope	0.63

Landfills--Continued

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
662D3:							
Mt. Carroll, severely eroded	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
662E3:							
Mt. Carroll, severely eroded	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
729B:							
Ackmore	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Seepage	1.00	Too clayey	0.50
Nodaway	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				
760:							
Ansgar	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
						Too clayey	0.50
761:							
Franklin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
771B:							
Waubeek	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
814D:							
Rockton	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Seepage	1.00	Seepage	1.00
				Slope	0.16	Slope	0.16
826:							
Rowley	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
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00

Landfills--Continued

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
884:							
Klingmore	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Too clayey	0.50			Too clayey	0.50
911B:							
Colo	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Too clayey	0.50
		Too clayey	0.50				
Ely	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
977:							
Richwood	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
982:							
Maxmore	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Hard to compact	1.00
		Too clayey	0.50			Seepage	1.00
1118:							
Garwin, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
						Too clayey	0.50
1119:							
Muscatine, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Seepage	1.00
		Too clayey	0.50			Too clayey	0.50
1160:							
Walford, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
		Too clayey	0.50				

Landfills--Continued

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
1220:							
Nodaway, channeled, frequently flooded	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Seepage, bottom layer	1.00	Seepage	1.00		
1291:							
Atterberry, terrace	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00			Too clayey	0.50
		Too clayey	0.50				
1315:							
Perks, frequently flooded	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too sandy	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	1.00				
Spillville, frequently flooded	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
4946:							
Udorthents	65	Not rated		Not rated		Not rated	
Highway	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy	100	Not rated		Not rated		Not rated	
5053:							
Psammaquents, frequently flooded	100	Not rated		Very limited		Not rated	
				Flooding	1.00		
				Depth to saturated zone	1.00		
				Seepage	1.00		

Landfills--Continued

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
8041B:							
Sparta, terrace	100	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
8041C:							
Sparta, terrace	100	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Construction Materials

The titles of the tables described in this section are:

- "Source of Sand and Gravel"
- "Source of Reclamation Material, Roadfill, and Topsoil"

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

Gravel and *sand* 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 table "Source of Sand and Gravel," only the likelihood 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 bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated as *improbable, possible, probable,* or *very likely* sources of gravel. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of gravel. The number 0.00 indicates an improbable source; 0.01 to 0.39, a possible source; 0.40 to 0.99, a probable source; and 1.00, a very likely source.

The soils are rated *good, fair,* or *poor* as potential sources of sand. A rating of good or fair means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. The larger the number, the greater the likelihood that the layer is a source of sand.

In the table "Source of Reclamation Material, Roadfill, and Topsoil," the rating class terms are *good, fair,* and *poor*. 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 reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

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).

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.

Source of Sand and Gravel

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The 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 as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
8B:					
Judson	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
41B:					
Sparta	100	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.35
41C:					
Sparta	85	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.35
41E:					
Sparta	90	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.35
63B:					
Chelsea	90	Improbable		Fair	
		Thickest layer	0.00	Bottom layer	0.12
		Bottom layer	0.00	Thickest layer	0.12
63C:					
Chelsea	90	Improbable		Fair	
		Thickest layer	0.00	Bottom layer	0.12
		Bottom layer	0.00	Thickest layer	0.12
63E:					
Chelsea	95	Improbable		Fair	
		Thickest layer	0.00	Bottom layer	0.12
		Bottom layer	0.00	Thickest layer	0.12
65D2:					
Lindley, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
65E2:					
Lindley, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
65F2:					
Lindley, moderately eroded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
83B:					
Kenyon	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
83C:					
Kenyon	80	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
83C2:					
Kenyon, moderately eroded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
88:					
Nevin, rarely flooded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
110C:					
Lamont	85	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.08
110E:					
Lamont	95	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.08
118:					
Garwin	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
119:					
Muscatine	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
119B:					
Muscatine	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
120:					
Tama	100	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
120B:					
Tama	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
120C:					
Tama	80	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
120C2:					
Tama, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
120D2:					
Tama, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
121:					
Tama	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
122:					
Sperry, depressional	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
133:					
Colo, occasionally flooded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
133+:					
Colo, occasionally flooded, overwash	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
136:					
Ankeny, rarely flooded	85	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.05
143:					
Brady	95	Possible		Fair	
		Thickest layer	0.00	Thickest layer	0.13
		Bottom layer	0.12	Bottom layer	0.76
160:					
Walford	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
162B:					
Downs	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
162C:					
Downs	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
162C2:					
Downs, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
162D2:					
Downs, moderately eroded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
162D3:					
Downs, severely eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
162E3:					
Downs, severely eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163B:					
Fayette	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163C:					
Fayette	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163C2:					
Fayette, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163D:					
Fayette	80	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163D2:					
Fayette, moderately eroded	80	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163D3:					
Fayette, severely eroded	75	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163E:					
Fayette	75	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
163E2:					
Fayette, moderately eroded	70	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163E3:					
Fayette, severely eroded	80	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163F:					
Fayette	75	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163F2:					
Fayette, moderately eroded	70	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
163G:					
Fayette	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
171B:					
Bassett	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
171C2:					
Bassett, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
171D2:					
Bassett, moderately eroded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
175B:					
Dickinson	95	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.36
175C:					
Dickinson	85	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.36
177:					
Saude	90	Possible		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.04	Bottom layer	0.59

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
184:					
Klinger	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
212:					
Kennebec, occasionally flooded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
220:					
Nodaway, occasionally flooded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
221:					
Klossner	100	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
291:					
Atterberry	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
291B:					
Atterberry	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
293C:					
Fayette	40	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chelsea	30	Improbable		Fair	
		Thickest layer	0.00	Bottom layer	0.12
		Bottom layer	0.00	Thickest layer	0.12
Tell	20	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.64
293E:					
Fayette	40	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chelsea	30	Improbable		Fair	
		Thickest layer	0.00	Bottom layer	0.12
		Bottom layer	0.00	Thickest layer	0.12
Tell	20	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.64

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
293G:					
Fayette	40	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Chelsea	30	Improbable		Fair	
		Thickest layer	0.00	Bottom layer	0.12
		Bottom layer	0.00	Thickest layer	0.12
Tell	20	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.64
352B:					
Whittier	95	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.12
352C2:					
Whittier, moderately eroded	100	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.12
354:					
Aquolls, ponded	100	Not rated		Not rated	
377B:					
Dinsdale	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
377C:					
Dinsdale	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
377C2:					
Dinsdale, moderately eroded	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
382:					
Maxfield	100	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
412E:					
Emeline	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
420B:					
Tama, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
428B:					
Ely	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
430:					
Ackmore, occasionally flooded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
442C:					
Dickinson	55	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.36
Tama	40	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
450B:					
Pillot	90	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.10
450C:					
Pillot	85	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.10
462B:					
Downs, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
462C:					
Downs, terrace	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
463B:					
Fayette, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
467:					
Radford, occasionally flooded	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
478G:					
Rock outcrop	60	Not rated		Not rated	
Emeline	30	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
485:					
Spillville, occasionally flooded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
520:					
Coppock, occasionally flooded	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
520B:					
Coppock	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
662C2:					
Mt. Carroll, moderately eroded	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
662D2:					
Mt. Carroll, moderately eroded	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
662D3:					
Mt. Carroll, severely eroded	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
662E3:					
Mt. Carroll, severely eroded	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
729B:					
Ackmore	50	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Nodaway	40	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
760:					
Ansgar	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
761:					
Franklin	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
771B:					
Waubeek	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
814D:					
Rockton	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
826:					
Rowley	85	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.36
884:					
Klingmore	90	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
911B:					
Colo	55	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Ely	35	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
977:					
Richwood	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
982:					
Maxmore	80	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
1118:					
Garwin, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
1119:					
Muscatine, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
1160:					
Walford, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
1220:					
Nodaway, channeled, frequently flooded	85	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Source of Sand and Gravel--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand	
		Rating class	Value	Rating class	Value
1291:					
Atterberry, terrace	95	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
1315:					
Perks, frequently flooded	40	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.10
		Bottom layer	0.00	Bottom layer	0.42
Spillville, frequently flooded	30	Improbable		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
4946:					
Udorthents	65	Not rated		Not rated	
Highway	30	Not rated		Not rated	
5010:					
Pits, sand and gravel	100	Not rated		Not rated	
5030:					
Pits, limestone quarries	100	Not rated		Not rated	
5040:					
Udorthents, loamy	100	Not rated		Not rated	
5053:					
Psammaquents, frequently flooded	100	Not rated		Not rated	
8041B:					
Sparta, terrace	100	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.35
8041C:					
Sparta, terrace	100	Improbable		Fair	
		Thickest layer	0.00	Thickest layer	0.27
		Bottom layer	0.00	Bottom layer	0.35
AW:					
Animal waste lagoon	100	Not rated		Not rated	
SL:					
Sewage lagoon	100	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Source of Reclamation Material, Roadfill, and Topsoil

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.00 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 as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8B:							
Judson	95	Fair		Poor		Good	
		Water erosion	0.90	Low strength	0.00		
				Shrink-swell	0.87		
41B:							
Sparta	100	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
41C:							
Sparta	85	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
41E:							
Sparta	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.04
		Organic matter content	0.12				
63B:							
Chelsea	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
63C:							
Chelsea	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
63E:							
Chelsea	95	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.04
		Organic matter content	0.12				
65D2:							
Lindley, moderately eroded	90	Fair		Poor		Fair	
		Organic matter content	0.18	Low strength	0.00	Slope	0.37
		Too acid	0.68	Shrink-swell	0.95		

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
65E2:							
Lindley, moderately eroded	90	Fair		Poor		Poor	
		Organic matter content	0.18	Low strength	0.00	Slope	0.00
		Too acid	0.68	Shrink-swell	0.95		
				Slope	0.98		
65F2:							
Lindley, moderately eroded	85	Fair		Poor		Poor	
		Organic matter content	0.18	Low strength	0.00	Slope	0.00
		Too acid	0.68	Slope	0.18		
				Shrink-swell	0.95		
83B:							
Kenyon	85	Fair		Fair		Good	
		Organic matter content	0.50	Low strength	0.78		
		Too acid	0.97				
83C:							
Kenyon	80	Fair		Fair		Good	
		Organic matter content	0.50	Low strength	0.78		
		Too acid	0.97				
83C2:							
Kenyon, moderately eroded	85	Fair		Fair		Good	
		Organic matter content	0.12	Low strength	0.78		
		Too acid	0.97				
		Water erosion	0.99				
88:							
Nevin, rarely flooded	90	Fair		Poor		Poor	
		Water erosion	0.90	Wetness	0.00	Wetness	0.00
		Too acid	0.99	Low strength	0.00		
				Shrink-swell	0.87		
110C:							
Lamont	85	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.97				
110E:							
Lamont	95	Fair		Good		Fair	
		Organic matter content	0.12			Slope	0.04
		Too acid	0.97				
118:							
Garwin	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too clayey	0.98	Low strength	0.00	Too clayey	0.86
				Shrink-swell	0.35		

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119:							
Muscatine	95	Fair		Poor		Poor	
		Too clayey	0.88	Wetness	0.00	Wetness	0.00
		Water erosion	0.90	Low strength	0.00	Too clayey	0.77
		Too acid	0.97	Shrink-swell	0.69		
119B:							
Muscatine	95	Fair		Poor		Poor	
		Too clayey	0.88	Wetness	0.00	Wetness	0.00
		Water erosion	0.90	Low strength	0.00	Too clayey	0.77
		Too acid	0.97	Shrink-swell	0.69		
120:							
Tama	100	Fair		Poor		Fair	
		Too acid	0.84	Low strength	0.00	Too clayey	0.86
		Water erosion	0.90	Shrink-swell	0.87		
		Too clayey	0.98				
120B:							
Tama	90	Fair		Poor		Fair	
		Too acid	0.84	Low strength	0.00	Too clayey	0.86
		Water erosion	0.90	Shrink-swell	0.87		
		Too clayey	0.98				
120C:							
Tama	80	Fair		Poor		Fair	
		Too acid	0.84	Low strength	0.00	Too clayey	0.86
		Water erosion	0.90	Shrink-swell	0.87		
		Too clayey	0.98				
120C2:							
Tama, moderately eroded	90	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Too clayey	0.86
				Shrink-swell	0.87		
		Too acid	0.84				
		Water erosion	0.90				
120D2:							
Tama, moderately eroded	90	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.37
				Shrink-swell	0.87	Too clayey	0.86
		Too acid	0.84				
		Water erosion	0.90				
121:							
Tama	85	Fair		Poor		Fair	
		Too acid	0.84	Low strength	0.00	Too clayey	0.86
		Water erosion	0.90	Shrink-swell	0.87		
		Too clayey	0.98				
122:							
Sperry, depressional	95	Poor		Poor		Poor	
		Too clayey	0.00	Wetness	0.00	Wetness	0.00
		Organic matter content	0.12	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.58		
		Too acid	0.84				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
133: Colo, occasionally flooded	85	Fair		Poor		Poor	
		Too clayey	0.88	Wetness	0.00	Wetness	0.00
				Low strength	0.00	Too clayey	0.88
				Shrink-swell	0.89		
133+: Colo, occasionally flooded, overwash	90	Fair		Poor		Poor	
		Too clayey	0.88	Wetness	0.00	Wetness	0.00
				Low strength	0.00	Too clayey	0.88
				Shrink-swell	0.92		
136: Ankeny, rarely flooded	85	Good		Good		Good	
143: Brady	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.84			Hard to reclaim (rock fragments)	0.18
		Carbonate content	0.97			Rock fragments	0.97
160: Walford	95	Fair		Poor		Poor	
		Organic matter content	0.50	Wetness	0.00	Wetness	0.00
		Too acid	0.74	Low strength	0.00	Too clayey	0.64
		Water erosion	0.90	Shrink-swell	0.49		
162B: Downs	95	Fair		Poor		Fair	
		Organic matter content	0.88	Low strength	0.00	Too clayey	0.72
		Too acid	0.88	Shrink-swell	0.94		
		Water erosion	0.90				
162C: Downs	85	Fair		Poor		Fair	
		Organic matter content	0.88	Low strength	0.00	Too clayey	0.72
		Too acid	0.88	Shrink-swell	0.94		
		Water erosion	0.90				
162C2: Downs, moderately eroded	90	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Too clayey	0.72
		Too acid	0.88	Shrink-swell	0.87		
		Water erosion	0.90				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
162D2:							
Downs, moderately eroded	85	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.37
				Shrink-swell	0.87	Too clayey	0.72
		Too acid	0.88				
		Water erosion	0.90				
162D3:							
Downs, severely eroded	90	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.37
				Shrink-swell	0.87	Too clayey	0.58
		Too acid	0.88				
		Water erosion	0.90				
162E3:							
Downs, severely eroded	90	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
				Shrink-swell	0.87	Too clayey	0.58
		Too acid	0.88	Slope	0.98		
		Water erosion	0.90				
163B:							
Fayette	95	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
		Too acid	0.68				
		Water erosion	0.90				
163C:							
Fayette	90	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
		Too acid	0.68				
		Water erosion	0.90				
163C2:							
Fayette, moderately eroded	90	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
				Shrink-swell	0.92		
		Too acid	0.68				
		Water erosion	0.90				
163D:							
Fayette	80	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.37
		Too acid	0.68				
		Water erosion	0.90				
163D2:							
Fayette, moderately eroded	80	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.37
				Shrink-swell	0.92		
		Too acid	0.68				
		Water erosion	0.90				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163D3:							
Fayette, severely eroded	75	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.37
		Too acid	0.68	Shrink-swell	0.92		
		Water erosion	0.90				
163E:							
Fayette	75	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.68	Slope	0.98		
		Water erosion	0.90				
163E2:							
Fayette, moderately eroded	70	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.68	Shrink-swell	0.92		
		Water erosion	0.90	Slope	0.98		
163E3:							
Fayette, severely eroded	80	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.68	Shrink-swell	0.92		
		Water erosion	0.90	Slope	0.98		
163F:							
Fayette	75	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.68	Slope	0.18		
		Water erosion	0.90				
163F2:							
Fayette, moderately eroded	70	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.68	Slope	0.18		
		Water erosion	0.90	Shrink-swell	0.92		
163G:							
Fayette	85	Fair		Poor		Poor	
		Organic matter content	0.12	Slope	0.00	Slope	0.00
		Too acid	0.68	Low strength	0.00		
		Water erosion	0.90				
171B:							
Bassett	85	Fair		Fair		Good	
		Organic matter content	0.12	Low strength	0.78		
		Too acid	0.88				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171C2:							
Bassett, moderately eroded	90	Fair		Fair		Good	
		Organic matter content	0.88	Low strength	0.78		
		Too acid	0.88				
171D2:							
Bassett, moderately eroded	85	Fair		Fair		Fair	
		Organic matter content	0.88	Low strength	0.78	Slope	0.37
		Too acid	0.88				
175B:							
Dickinson	95	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.84				
		Droughty	0.99				
175C:							
Dickinson	85	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.84				
		Droughty	0.99				
177:							
Saude	90	Fair		Good		Fair	
		Organic matter content	0.12			Hard to reclaim (rock fragments)	0.82
		Too acid	0.74				
184:							
Klinger	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.84	Low strength	0.78		
		Water erosion	0.90				
212:							
Kennebec, occasionally flooded	90	Good		Poor		Good	
				Low strength	0.00		
				Shrink-swell	0.87		
220:							
Nodaway, occasionally flooded	90	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.87		

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
221:							
Klossner	100	Poor		Poor		Poor	
		Wind erosion	0.00	Wetness	0.00	Wetness	0.00
		Organic matter content	0.12	Low strength	0.22	Organic matter content	0.00
		Too acid	0.99				
291:							
Atterberry	90	Fair		Poor		Poor	
		Organic matter content	0.18	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.99		
		Too acid	0.97				
291B:							
Atterberry	95	Fair		Poor		Poor	
		Organic matter content	0.18	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.99		
		Too acid	0.97				
293C:							
Fayette	40	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
		Too acid	0.68				
		Water erosion	0.90				
Chelsea	30	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
Tell	20	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.84				
		Water erosion	0.99				
293E:							
Fayette	40	Fair		Poor		Fair	
		Organic matter content	0.12	Low strength	0.00	Slope	0.04
		Too acid	0.68				
		Water erosion	0.90				
Chelsea	30	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00			Slope	0.04
		Organic matter content	0.12				
Tell	20	Fair		Good		Fair	
		Organic matter content	0.12			Slope	0.04
		Too acid	0.84				
		Water erosion	0.99				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
293G:							
Fayette	40	Fair		Poor		Poor	
		Organic matter content	0.12	Low strength	0.00	Slope	0.00
				Slope	0.00		
		Too acid	0.68				
		Water erosion	0.90				
Chelsea	30	Poor		Poor		Poor	
		Too sandy	0.00	Slope	0.00	Slope	0.00
		Wind erosion	0.00			Too sandy	0.00
		Organic matter content	0.12				
Tell	20	Fair		Poor		Poor	
		Organic matter content	0.12	Slope	0.00	Slope	0.00
		Too acid	0.84				
		Water erosion	0.99				
352B:							
Whittier	95	Fair		Poor		Good	
		Too acid	0.74	Low strength	0.00		
		Organic matter content	0.88				
		Water erosion	0.90				
352C2:							
Whittier, moderately eroded	100	Fair		Poor		Good	
		Too acid	0.74	Low strength	0.00		
		Organic matter content	0.88				
		Water erosion	0.90				
354:							
Aquolls, ponded	100	Not rated		Not rated		Not rated	
377B:							
Dinsdale	85	Fair		Fair		Fair	
		Organic matter content	0.12	Low strength	0.78	Too clayey	0.80
				Shrink-swell	0.99		
		Water erosion	0.90				
		Too clayey	0.92				
377C:							
Dinsdale	85	Fair		Fair		Fair	
		Organic matter content	0.12	Low strength	0.78	Too clayey	0.80
				Shrink-swell	0.99		
		Water erosion	0.90				
		Too clayey	0.92				
377C2:							
Dinsdale, moderately eroded	95	Fair		Fair		Good	
		Organic matter content	0.12	Low strength	0.78		
		Water erosion	0.90				
		Too acid	0.97				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
382:							
Maxfield	100	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too clayey	0.98	Low strength	0.00	Too clayey	0.98
				Shrink-swell	0.94		
412E:							
Emeline	90	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Slope	0.04
420B:							
Tama, terrace	95	Fair		Poor		Fair	
		Too acid	0.84	Low strength	0.00	Too clayey	0.86
		Water erosion	0.90	Shrink-swell	0.87		
		Too clayey	0.98				
428B:							
Ely	95	Fair		Poor		Poor	
		Water erosion	0.90	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
				Shrink-swell	0.94		
430:							
Ackmore, occasionally flooded	90	Good		Poor		Poor	
				Wetness	0.00	Wetness	0.00
				Low strength	0.00		
				Shrink-swell	0.33		
442C:							
Dickinson	55	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.84				
		Droughty	0.99				
Tama	40	Fair		Poor		Fair	
		Too acid	0.84	Low strength	0.00	Too clayey	0.86
		Water erosion	0.90	Shrink-swell	0.87		
		Too clayey	0.98				
450B:							
Pillot	90	Fair		Good		Fair	
		Organic matter content	0.12			Too clayey	0.86
		Water erosion	0.90				
		Too clayey	0.98				
450C:							
Pillot	85	Fair		Good		Fair	
		Organic matter content	0.12			Too clayey	0.86
		Water erosion	0.90				
		Too clayey	0.98				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
462B:							
Downs, terrace------	95	Fair		Poor		Fair	
		Organic matter content	0.88	Low strength	0.00	Too clayey	0.72
				Shrink-swell	0.94		
		Too acid	0.88				
		Water erosion	0.90				
462C:							
Downs, terrace------	90	Fair		Poor		Fair	
		Organic matter content	0.88	Low strength	0.00	Too clayey	0.72
				Shrink-swell	0.94		
		Too acid	0.88				
		Water erosion	0.90				
463B:							
Fayette, terrace----	95	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
		Too acid	0.68				
		Water erosion	0.90				
467:							
Radford, occasionally flooded----------	95	Fair		Poor		Poor	
		Organic matter content	0.50	Wetness	0.00	Wetness	0.00
		Water erosion	0.68	Low strength	0.00		
478G:							
Rock outcrop--------	60	Not rated		Not rated		Not rated	
Emeline----------	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
				Low strength	0.00		
485:							
Spillville, occasionally flooded----------	85	Good		Poor		Poor	
				Wetness	0.00	Wetness	0.00
				Low strength	0.00		
520:							
Coppock, occasionally flooded----------	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
		Too acid	0.54	Shrink-swell	0.88		
		Water erosion	0.90				
520B:							
Coppock----------	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
		Too acid	0.54	Shrink-swell	0.88		
		Water erosion	0.90				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
662C2:							
Mt. Carroll, moderately eroded--	95	Fair		Poor		Good	
		Organic matter content	0.50	Low strength	0.00		
		Water erosion	0.90				
		Too acid	0.97				
662D2:							
Mt. Carroll, moderately eroded--	90	Fair		Poor		Fair	
		Organic matter content	0.50	Low strength	0.00	Slope	0.37
		Water erosion	0.90				
		Too acid	0.97				
662D3:							
Mt. Carroll, severely eroded----	95	Fair		Poor		Fair	
		Organic matter content	0.50	Low strength	0.00	Slope	0.37
		Water erosion	0.90				
		Too acid	0.97				
662E3:							
Mt. Carroll, severely eroded----	95	Fair		Poor		Poor	
		Organic matter content	0.50	Low strength	0.00	Slope	0.00
				Slope	0.98		
		Water erosion	0.90				
		Too acid	0.97				
729B:							
Ackmore----------	50	Good		Poor		Poor	
				Wetness	0.00	Wetness	0.00
				Low strength	0.00		
				Shrink-swell	0.33		
Nodaway----------	40	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
				Shrink-swell	0.87		
		Water erosion	0.90				
760:							
Ansgar----------	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
						Too clayey	0.53
		Too acid	0.74				
		Water erosion	0.90				
761:							
Franklin----------	90	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
				Low strength	0.78	Too clayey	0.53
		Too acid	0.74				
		Too clayey	0.92				

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
771B:							
Waubeek	85	Fair		Good		Good	
		Organic matter content	0.12				
		Too acid	0.74				
		Water erosion	0.99				
814D:							
Rockton	85	Fair		Poor		Fair	
		Depth to bedrock	0.65	Depth to bedrock	0.00	Depth to bedrock	0.65
		Too acid	0.84	Low strength	0.22	Slope	0.84
		Organic matter content	0.88	Shrink-swell	0.96		
826:							
Rowley	85	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too acid	0.84			Too clayey	0.86
		Water erosion	0.90				
884:							
Klingmore	90	Fair		Poor		Poor	
		Too acid	0.84	Wetness	0.00	Wetness	0.00
		Organic matter content	0.88	Low strength	0.78	Too clayey	0.70
		Too clayey	0.98	Shrink-swell	0.92		
911B:							
Colo	55	Fair		Poor		Poor	
		Too clayey	0.88	Wetness	0.00	Wetness	0.00
				Low strength	0.00	Too clayey	0.88
				Shrink-swell	0.89		
Ely	35	Fair		Poor		Poor	
		Water erosion	0.90	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
				Shrink-swell	0.94		
977:							
Richwood	95	Fair		Poor		Good	
		Organic matter content	0.88	Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.99		
982:							
Maxmore	80	Fair		Poor		Poor	
		Too clayey	0.92	Wetness	0.00	Wetness	0.00
				Low strength	0.78	Too clayey	0.76
				Shrink-swell	0.90		
1118:							
Garwin, terrace	95	Fair		Poor		Poor	
		Organic matter content	0.12	Wetness	0.00	Wetness	0.00
		Too clayey	0.98	Low strength	0.00	Too clayey	0.86
				Shrink-swell	0.35		

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1119:							
Muscatine, terrace--	95	Fair		Poor		Poor	
		Too clayey	0.88	Wetness	0.00	Wetness	0.00
		Water erosion	0.90	Low strength	0.00	Too clayey	0.77
		Too acid	0.97	Shrink-swell	0.69		
1160:							
Walford, terrace----	95	Fair		Poor		Poor	
		Organic matter content	0.50	Wetness	0.00	Wetness	0.00
				Low strength	0.00	Too clayey	0.64
		Too acid	0.74	Shrink-swell	0.49		
		Water erosion	0.90				
1220:							
Nodaway, channeled, frequently flooded	85	Fair		Poor		Good	
		Organic matter content	0.12	Low strength	0.00		
				Shrink-swell	0.87		
		Water erosion	0.90				
1291:							
Atterberry, terrace	95	Fair		Poor		Poor	
		Organic matter content	0.18	Wetness	0.00	Wetness	0.00
				Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.99		
		Too acid	0.97				
1315:							
Perks, frequently flooded----------	40	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Droughty	0.00				
		Organic matter content	0.12				
Spillville, frequently flooded	30	Good		Poor		Poor	
				Wetness	0.00	Wetness	0.00
				Low strength	0.00		
4946:							
Udorthents----------	65	Not rated		Not rated		Not rated	
Highway----------	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel----------	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries----------	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy---	100	Not rated		Not rated		Not rated	
5053:							
Psammaquents, frequently flooded	100	Not rated		Not rated		Not rated	

Source of Reclamation Material, Roadfill, and Topsoil--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8041B:							
Sparta, terrace	100	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
8041C:							
Sparta, terrace	100	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Organic matter content	0.12				
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Water Management

The table “Ponds and Embankments” gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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

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. Embankments that have zoned construction (core and shell) are not considered. 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 trafficability.

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.

Ponds and Embankments

(Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8B:							
Judson	95	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.24	Piping	0.07	Depth to water	1.00
		Slope	0.08				
41B:							
Sparta	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.35	Depth to water	1.00
		Slope	0.08				
41C:							
Sparta	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.35	Depth to water	1.00
		Slope	0.92				
41E:							
Sparta	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.35	Depth to water	1.00
		Slope	1.00				
63B:							
Chelsea	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
		Slope	0.08				
63C:							
Chelsea	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
		Slope	0.92				
63E:							
Chelsea	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
		Slope	1.00				
65D2:							
Lindley, moderately eroded	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.61	Depth to water	1.00
65E2:							
Lindley, moderately eroded	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.61	Depth to water	1.00
65F2:							
Lindley, moderately eroded	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.61	Depth to water	1.00

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
83B:							
Kenyon	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.47	Depth to saturated zone	0.81
		Slope	0.08			Cutbanks cave	0.10
83C:							
Kenyon	80	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.47	Depth to saturated zone	0.81
		Slope	0.92			Cutbanks cave	0.10
83C2:							
Kenyon, moderately eroded	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.45	Depth to saturated zone	0.81
		Slope	0.92			Cutbanks cave	0.10
88:							
Nevin, rarely flooded	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.24	Depth to saturated zone	1.00	Slow refill	0.76
						Cutbanks cave	0.10
110C:							
Lamont	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
		Slope	0.32				
110E:							
Lamont	95	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Seepage	0.08	Depth to water	1.00
		Seepage	1.00				
118:							
Garwin	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
119:							
Muscatine	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
119B:							
Muscatine	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Slope	0.08				
120:							
Tama	100	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.24	Piping	0.05	Depth to water	1.00
120B:							
Tama	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.24	Piping	0.05	Depth to water	1.00
		Slope	0.08				

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120C:							
Tama	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.05	Depth to water	1.00
		Seepage	0.24				
120C2:							
Tama, moderately eroded	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.01	Depth to water	1.00
		Seepage	0.24				
120D2:							
Tama, moderately eroded	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.01	Depth to water	1.00
		Seepage	0.24				
121:							
Tama	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.24	Piping	0.05	Depth to water	1.00
122:							
Sperry, depressional	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.24	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
133:							
Colo, occasionally flooded	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
133+:							
Colo, occasionally flooded, overwash	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.24	Depth to saturated zone	1.00	Cutbanks cave	0.10
136:							
Ankeny, rarely flooded	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.05	Depth to water	1.00
143:							
Brady	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.76		
160:							
Walford	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.01		
162B:							
Downs	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.42	Depth to water	1.00
		Slope	0.08				

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
162C:							
Downs	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.42	Depth to water	1.00
		Slope	0.92				
162C2:							
Downs, moderately eroded	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.25	Depth to water	1.00
		Slope	0.92				
162D2:							
Downs, moderately eroded	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.25	Depth to water	1.00
		Seepage	1.00				
162D3:							
Downs, severely eroded	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.33	Depth to water	1.00
		Seepage	1.00				
162E3:							
Downs, severely eroded	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.33	Depth to water	1.00
		Seepage	1.00				
163B:							
Fayette	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.19	Depth to water	1.00
		Slope	0.08				
163C:							
Fayette	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.19	Depth to water	1.00
		Slope	0.92				
163C2:							
Fayette, moderately eroded	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.24	Depth to water	1.00
		Slope	0.92				
163D:							
Fayette	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.19	Depth to water	1.00
		Seepage	1.00				
163D2:							
Fayette, moderately eroded	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.24	Depth to water	1.00
		Seepage	1.00				

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163D3:							
Fayette, severely eroded	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.26	Depth to water	1.00
		Seepage	1.00				
163E:							
Fayette	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.19	Depth to water	1.00
		Seepage	1.00				
163E2:							
Fayette, moderately eroded	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.24	Depth to water	1.00
		Seepage	1.00				
163E3:							
Fayette, severely eroded	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.26	Depth to water	1.00
		Seepage	1.00				
163F:							
Fayette	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.19	Depth to water	1.00
		Seepage	1.00				
163F2:							
Fayette, moderately eroded	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.24	Depth to water	1.00
		Seepage	1.00				
163G:							
Fayette	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.24	Depth to water	1.00
		Seepage	1.00				
171B:							
Bassett	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.61	Depth to saturated zone	0.81
		Slope	0.08			Cutbanks cave	0.10
171C2:							
Bassett, moderately eroded	90	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.52	Depth to saturated zone	0.81
		Slope	0.92			Cutbanks cave	0.10
171D2:							
Bassett, moderately eroded	85	Very limited		Somewhat limited		Somewhat limited	
		Slope	1.00	Piping	0.52	Depth to saturated zone	0.81
		Seepage	1.00			Cutbanks cave	0.10

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
175B:							
Dickinson	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.36	Depth to water	1.00
		Slope	0.08				
175C:							
Dickinson	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.36	Depth to water	1.00
		Slope	0.92				
177:							
Saude	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.59	Depth to water	1.00
184:							
Klinger	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.13		
212:							
Kennebec, occasionally flooded	90	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.87	Depth to saturated zone	0.81
						Cutbanks cave	0.10
220:							
Nodaway, occasionally flooded	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.24	Piping	1.00	Depth to saturated zone	0.81
						Slow refill	0.76
						Cutbanks cave	0.10
221:							
Klossner	100	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
291:							
Atterberry	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.13		
291B:							
Atterberry	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Slope	0.08	Piping	0.13		
293C:							
Fayette	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.19	Depth to water	1.00
		Slope	0.92				

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
293C:							
Chelsea	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
		Slope	0.92				
Tell	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.92	Seepage	0.64		
293E:							
Fayette	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.19	Depth to water	1.00
		Seepage	1.00				
Chelsea	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
		Slope	1.00				
Tell	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.64		
293G:							
Fayette	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.24	Depth to water	1.00
		Seepage	1.00				
Chelsea	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Depth to water	1.00
		Slope	1.00				
Tell	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Seepage	0.64		
352B:							
Whittier	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.08	Seepage	0.12		
352C2:							
Whittier, moderately eroded	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	0.99	Depth to water	1.00
		Slope	0.92	Seepage	0.12		
354:							
Aquolls, ponded	100	Somewhat limited		Not rated		Somewhat limited	
		Seepage	0.01			Slow refill	0.99
						Cutbanks cave	0.10
377B:							
Dinsdale	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.26	Depth to saturated zone	0.81
		Slope	0.08			Cutbanks cave	0.10

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
377C:							
Dinsdale	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.26	Depth to saturated zone	0.81
		Slope	0.92			Cutbanks cave	0.10
377C2:							
Dinsdale, moderately eroded	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.33	Depth to saturated zone	0.81
		Slope	0.92			Cutbanks cave	0.10
382:							
Maxfield	100	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.02		
412E:							
Emeline	90	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	0.18		
420B:							
Tama, terrace	95	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.24	Piping	0.05	Depth to water	1.00
		Slope	0.08				
428B:							
Ely	95	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.24	Depth to saturated zone	1.00	Slow refill	0.76
		Slope	0.08	Piping	0.25	Cutbanks cave	0.10
430:							
Ackmore, occasionally flooded	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.02		
442C:							
Dickinson	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.36	Depth to water	1.00
		Slope	0.92				
Tama	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.92	Piping	0.05	Depth to water	1.00
		Seepage	0.24				
450B:							
Pillot	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	0.99	Depth to water	1.00
		Slope	0.08	Seepage	0.10		

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
450C:							
Pillot	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	0.99	Depth to water	1.00
		Slope	0.92	Seepage	0.10		
462B:							
Downs, terrace	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.42	Depth to water	1.00
		Slope	0.08				
462C:							
Downs, terrace	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.42	Depth to water	1.00
		Slope	0.92				
463B:							
Fayette, terrace	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.19	Depth to water	1.00
		Slope	0.08				
467:							
Radford, occasionally flooded	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.30		
478G:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Emeline	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	0.18		
485:							
Spillville, occasionally flooded	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.77		
520:							
Coppock, occasionally flooded	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.01		
520B:							
Coppock	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Slope	0.08	Piping	0.01		

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
662C2:							
Mt. Carroll, moderately eroded--	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.79	Depth to water	1.00
		Slope	0.92				
662D2:							
Mt. Carroll, moderately eroded--	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.79	Depth to water	1.00
		Seepage	1.00				
662D3:							
Mt. Carroll, severely eroded----	95	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.79	Depth to water	1.00
		Seepage	1.00				
662E3:							
Mt. Carroll, severely eroded----	95	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.79	Depth to water	1.00
		Seepage	1.00				
729B:							
Ackmore----------	50	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Slope	0.08	Piping	0.02		
Nodaway----------	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to saturated zone	0.81
		Slope	0.08			Cutbanks cave	0.10
760:							
Ansgar----------	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.27		
761:							
Franklin----------	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.30		
771B:							
Waubeek----------	85	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Piping	0.46	Depth to saturated zone	0.81
		Slope	0.08			Cutbanks cave	0.10
814D:							
Rockton----------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.83	Depth to water	1.00
		Slope	1.00	Piping	0.04		
		Depth to bedrock	0.83				

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
826:							
Rowley	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Seepage	0.36		
884:							
Klingmore	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
911B:							
Colo	55	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Slope	0.08				
Ely	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.24	Depth to saturated zone	1.00	Slow refill	0.76
		Slope	0.08			Cutbanks cave	0.10
				Piping	0.25		
977:							
Richwood	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.97	Depth to water	1.00
982:							
Maxmore	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
1118:							
Garwin, terrace	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
1119:							
Muscatine, terrace	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
1160:							
Walford, terrace	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.01		
1220:							
Nodaway, channeled, frequently flooded	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to saturated zone	0.81
						Cutbanks cave	0.10
1291:							
Atterberry, terrace	95	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.13		

Ponds and Embankments--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1315:							
Perks, frequently flooded	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.42	Depth to water	1.00
Spillville, frequently flooded	30	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.77		
4946:							
Udorthents	65	Not rated		Not rated		Not rated	
Highway	30	Not rated		Not rated		Not rated	
5010:							
Pits, sand and gravel	100	Not rated		Not rated		Not rated	
5030:							
Pits, limestone quarries	100	Not rated		Not rated		Not rated	
5040:							
Udorthents, loamy	100	Not rated		Not rated		Very limited	
						Depth to water	1.00
5053:							
Psammaquents, frequently flooded	100	Very limited		Not rated		Somewhat limited	
		Seepage	1.00			Cutbanks cave	0.10
8041B:							
Sparta, terrace	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.35	Depth to water	1.00
8041C:							
Sparta, terrace	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.35	Depth to water	1.00
		Slope	0.92				
AW:							
Animal waste lagoon	100	Not rated		Not rated		Not rated	
SL:							
Sewage lagoon	100	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

The table described in this section gives the engineering classifications and the range of engineering 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 in Part I.

Classification of the soils is determined according to the Unified soil classification system (ASTM) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO).

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.

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 ovendry 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.

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487–00.

Engineering Properties

(Absence of an entry indicates that 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		
	In				Pct	Pct					Pct	
8B:												
Judson----------	0-8	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-25
	8-28	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-25
	28-52	Silty clay loam	CL	A-6, A-7	0	0	100	100	100	95-100	30-50	15-25
	52-60	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	100	95-100	25-50	5-25
41B:												
Sparta----------	0-8	Sand, fine sand, loamy sand, loamy fine sand	SC-SM, SP-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	8-15	Sand, fine sand, loamy sand, loamy fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	15-72	Sand, loamy sand, loamy fine sand, fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-20	NP-4
	72-80	Sand, fine sand	SP-SM, SM, SP	A-2-4, A-1-b	0	0	95-100	90-100	50-95	2-20	0-17	NP-2
41C:												
Sparta----------	0-8	Sand, fine sand, loamy sand, loamy fine sand	SC-SM, SP-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	8-15	Sand, fine sand, loamy sand, loamy fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	15-72	Sand, loamy sand, loamy fine sand, fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-20	NP-4
	72-80	Sand, fine sand	SP-SM, SM, SP	A-2-4, A-1-b	0	0	95-100	90-100	50-95	2-20	0-17	NP-2
41E:												
Sparta----------	0-8	Sand, fine sand, loamy sand, loamy fine sand	SC-SM, SP-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	8-15	Sand, fine sand, loamy sand, loamy fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	15-72	Sand, loamy sand, loamy fine sand, fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-20	NP-4
	72-80	Sand, fine sand	SP-SM, SM, SP	A-2-4, A-1-b	0	0	95-100	90-100	50-95	2-20	0-17	NP-2
63B:												
Chelsea----------	0-8	Fine sand, loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	65-80	10-35	0-14	NP
	8-36	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
	36-70	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
63C:												
Chelsea---------	0-8	Fine sand, loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	65-80	10-35	0-14	NP
	8-36	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
	36-70	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
63E:												
Chelsea---------	0-4	Fine sand, loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	65-80	10-35	0-14	NP
	4-36	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
	36-70	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
65D2:												
Lindley, moderately eroded---------	0-8	Loam	CL	A-6	0	0	95-100	90-100	85-95	50-65	25-35	10-15
	8-40	Clay loam, loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	55-75	30-45	12-20
	40-60	Loam, clay loam	CL	A-6	0	0	95-100	90-100	85-95	50-70	25-35	10-15
65E2:												
Lindley, moderately eroded---------	0-8	Loam	CL	A-6	0	0	95-100	90-100	85-95	50-65	25-35	10-15
	8-40	Clay loam, loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	55-75	30-45	12-20
	40-60	Loam, clay loam	CL	A-6	0	0	95-100	90-100	85-95	50-70	25-35	10-15
65F2:												
Lindley, moderately eroded---------	0-8	Loam	CL	A-6	0	0	95-100	90-100	85-95	50-65	25-35	10-15
	8-40	Clay loam, loam	CL	A-6, A-7	0	0	95-100	90-100	85-95	55-75	30-45	12-20
	40-60	Loam, clay loam	CL	A-6	0	0	95-100	90-100	85-95	50-70	25-35	10-15

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
83B:												
Kenyon----------	0-8	Loam, silt loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	8-14	Loam, silt loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	14-19	Loam, sandy clay loam, silt loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	19-55	Loam, clay loam, sandy clay loam	CL	A-6	0	0-5	90-95	85-95	80-90	50-65	30-40	10-20
	55-80	Loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
83C:												
Kenyon----------	0-8	Loam, silt loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	8-14	Loam, silt loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	14-19	Loam, sandy clay loam, silt loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	19-55	Loam, clay loam, sandy clay loam	CL	A-6	0	0-5	90-95	85-95	80-90	50-65	30-40	10-20
	55-80	Loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
83C2:												
Kenyon, moderately eroded---------	0-8	Loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	8-14	Sandy clay loam, loam	CL	A-6	0	0-5	95-100	95-100	85-95	65-75	30-40	10-20
	14-35	Clay loam, sandy clay loam, loam	CL	A-6	0	0-5	90-95	85-95	80-90	50-65	30-40	10-20
	35-41	Loam	CL	A-6	0	0-5	90-95	85-95	80-90	50-65	25-35	10-20
	41-80	Loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
88:												
Nevin, rarely flooded--------	0-8	Silty clay loam	CL, OL	A-7, A-6	0	0	100	100	100	90-95	35-45	10-20
	8-30	Silty clay loam	CL, OL	A-7, A-6	0	0	100	100	100	90-95	35-45	10-20
	30-46	Silty clay loam	CL	A-7	0	0	100	100	95-100	90-95	40-50	20-30
	46-62	Silty clay loam, silt loam	CL	A-7	0	0	100	100	95-100	90-95	40-50	20-30
110C:												
Lamont----------	0-8	Fine sandy loam	SC-SM, SC	A-2, A-4	0	0	100	100	80-95	25-50	15-25	5-10
	8-23	Loamy fine sand, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	80-95	15-50	15-25	NP-5
	23-53	Sandy clay loam, loam, fine sandy loam	SC, SC-SM	A-2, A-4	0	0	100	100	85-95	30-50	20-30	5-10
	53-80	Loamy sand, loamy fine sand, sand	SM	A-2-4, A-3	0	0	100	100	70-90	5-25	0-14	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
110E:												
Lamont----------	0-8	Fine sandy loam	SC-SM, SC	A-2, A-4	0	0	100	100	80-95	25-50	15-25	5-10
	8-23	Loamy fine sand, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	80-95	15-50	15-25	NP-5
	23-53	Loam, sandy clay loam, fine sandy loam	SC, SC-SM	A-2, A-4	0	0	100	100	85-95	30-50	20-30	5-10
	53-80	Loamy sand, loamy fine sand, sand	SM	A-2-4, A-3	0	0	100	100	70-90	5-25	0-14	NP
118:												
Garwin----------	0-8	Silty clay loam	CL, CH	A-7	0	0	100	100	100	95-100	45-55	20-30
	8-18	Silty clay loam	CL, CH	A-7	0	0	100	100	100	95-100	45-55	20-30
	18-42	Silty clay loam	CL, CH	A-7	0	0	100	100	100	95-100	45-55	25-35
	42-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	15-20
119:												
Muscatine-------	0-8	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	8-20	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	20-42	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	20-30
	42-64	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
119B:												
Muscatine-------	0-8	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	8-20	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	20-42	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	20-30
	42-64	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
120:												
Tama------------	0-8	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	8-18	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	18-45	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	45-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
120B:												
Tama------------	0-8	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	8-18	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	18-45	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	45-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
120C:												
Tama	0-8	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	8-18	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	18-45	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	45-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
120C2:												
Tama, moderately eroded	0-8	Silt loam, silty clay loam	ML	A-7, A-6	0	0	100	100	100	95-100	35-50	10-20
	8-26	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	26-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
120D2:												
Tama, moderately eroded	0-8	Silt loam, silty clay loam	ML	A-7, A-6	0	0	100	100	100	95-100	35-50	10-20
	8-26	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	26-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
121:												
Tama	0-8	Silt loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	8-18	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	18-45	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	45-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
122:												
Sperry, depressional	0-8	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
	8-10	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
	10-17	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
	17-28	Silty clay, silty clay loam	CH	A-7	0	0	100	100	100	95-100	50-65	25-35
	28-47	Silty clay, silty clay loam	CH	A-7	0	0	100	100	100	95-100	50-65	25-35
	47-80	Silty clay loam, silt loam	CL	A-7	0	0	100	100	100	95-100	40-50	20-30

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
133:												
Colo, occasionally flooded--------	0-8	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-60	15-30
	8-40	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-55	20-30
	40-46	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-55	20-30
	46-52	Silty clay loam, clay loam, silt loam	CH, CL	A-7	0	0	100	100	95-100	80-100	40-55	15-30
	52-60	Silty clay loam, clay loam, silt loam	CH, CL	A-7	0	0	100	100	95-100	80-100	40-55	15-30
133+:												
Colo, occasionally flooded, overwash-------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	8-14	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	14-40	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-55	20-30
	40-46	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-55	20-30
	46-60	Silty clay loam, clay loam, silt loam	CH, CL	A-7	0	0	100	100	95-100	80-100	40-55	15-30
136:												
Ankeny, rarely flooded--------	0-8	Fine sandy loam	SC-SM, SC	A-6, A-4, A-2-4	0	0-4	95-100	90-100	80-97	35-47	25-34	6-11
	8-30	Fine sandy loam	SC-SM, SC	A-6, A-2-4, A-4	0	0-4	95-100	90-100	80-97	35-47	25-34	6-11
	30-44	Fine sandy loam, sandy loam	SC, SC-SM	A-4, A-2-4	0	0-4	95-100	90-100	81-96	35-45	21-27	6-10
	44-60	Loamy fine sand, fine sandy loam, fine sand	SC-SM, SM	A-2-4	0	0-4	95-100	91-100	82-98	22-32	0-21	NP-6
143:												
Brady-----------	0-8	Sandy loam	SC-SM, SM, CL-ML, ML	A-1, A-2, A-4	0	0-5	95-100	75-100	45-85	20-55	0-25	NP-7
	8-23	Sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4	0	0-5	95-100	75-100	45-85	20-55	0-25	NP-7
	23-37	Sandy loam, sandy clay loam, gravelly sandy loam	CL, ML, SC, SM	A-4, A-6, A-1, A-2	0	0-5	85-100	60-100	35-90	20-55	15-35	NP-15
	37-56	Loamy sand, sandy loam	SC, SC-SM, SM, SP-SM	A-2-4, A-1, A-2, A-4	0	0-5	95-100	75-100	35-70	10-40	0-30	NP-10
	56-80	Gravelly sand, coarse sand, gravel	GP, GP-GM, SP, SP-SM	A-1, A-2-4, A-3	0	0-5	40-95	30-85	20-60	0-10	0-0	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
160:												
Walford---------	0-8	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-35	10-15
	8-22	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	22-50	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	45-55	20-30
	50-63	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	45-55	20-30
	63-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	35-40	15-20
162B:												
Downs-----------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-17	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	17-39	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	39-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
162C:												
Downs-----------	0-8	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	8-17	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	17-39	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	39-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
162C2:												
Downs, moderately eroded---------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-33	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	33-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
162D2:												
Downs, moderately eroded---------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-33	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	33-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
162D3:												
Downs, severely eroded---------	0-8	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-27	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	27-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
162E3:												
Downs, severely eroded---------	0-8	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-27	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	27-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
163B:												
Fayette---------	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
163C:												
Fayette---------	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
163C2:												
Fayette, moderately eroded---------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-28	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	28-41	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	41-73	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
163D:												
Fayette---	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	29-41	13-21
163D2:												
Fayette, moderately eroded---	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-28	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	28-41	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	41-73	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
163D3:												
Fayette, severely eroded	0-8	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-26	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	26-39	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	39-73	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
163E:												
Fayette---	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
163E2:												
Fayette, moderately eroded---------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-28	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	28-41	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	41-73	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
163E3:												
Fayette, severely eroded	0-8	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-26	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	26-39	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	39-73	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
163F:												
Fayette---------	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
163F2:												
Fayette, moderately eroded---------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-28	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	100	95-100	35-45	15-25
	28-41	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	41-73	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
163G:												
Fayette---------	0-3	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	3-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
171B:												
Bassett---------	0-8	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	95-100	85-95	65-85	20-30	5-15
	8-10	Silt loam, loam	CL	A-4, A-6	0	0-5	95-100	95-100	85-95	65-85	20-30	5-15
	10-14	Loam	CL	A-4, A-6	0	0-5	95-100	95-100	85-95	65-85	20-30	5-15
	14-59	Sandy clay loam, clay loam, loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
	59-73	Loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
171C2:												
Bassett, moderately eroded---------	0-8	Loam	CL, CL-ML	A-6, A-4	0	0	100	95-100	85-95	65-85	20-30	5-15
	8-53	Loam, clay loam, sandy clay loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
	53-73	Loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
171D2:												
Bassett, moderately eroded---------	0-8	Loam	CL, CL-ML	A-6, A-4	0	0	100	95-100	85-95	65-85	20-30	5-15
	8-53	Loam, clay loam, sandy clay loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
	53-73	Loam	CL	A-6	0	2-5	90-95	85-95	80-90	50-65	30-40	11-20
175B:												
Dickinson-------	0-8	Fine sandy loam	SM, SC-SM, SC	A-2, A-4	0	0	100	100	85-95	30-50	15-30	NP-10
	8-18	Fine sandy loam, sandy loam	SM, SC-SM, SC	A-4, A-2	0	0	100	100	85-95	30-50	15-30	NP-10
	18-30	Fine sandy loam, sandy loam	SM, SC-SM, SC	A-4, A-2	0	0	100	100	85-95	30-50	15-30	NP-10
	30-36	Loamy sand, fine sandy loam, sandy loam	SC-SM, SM, SC	A-4	0	0	100	100	85-95	35-50	15-30	NP-10
	36-60	Sand, loamy fine sand, loamy sand	SM	A-2, A-3	0	0	100	100	70-90	5-20	0-14	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
175C:												
Dickinson-------	0-8	Fine sandy loam	SM, SC-SM, SC	A-2, A-4	0	0	100	100	85-95	30-50	15-30	NP-10
	8-18	Fine sandy loam, sandy loam	SM, SC-SM, SC	A-4, A-2	0	0	100	100	85-95	30-50	15-30	NP-10
	18-30	Fine sandy loam, sandy loam	SM, SC-SM, SC	A-4, A-2	0	0	100	100	85-95	30-50	15-30	NP-10
	30-36	Loamy sand, fine sandy loam, sandy loam	SM, SC, SC-SM	A-4	0	0	100	100	85-95	35-50	15-30	NP-10
	36-60	Sand, loamy fine sand, loamy sand	SM	A-2, A-3	0	0	100	100	70-90	5-20	0-14	NP
177:												
Saude-----------	0-8	Loam	CL	A-6	0	0	100	90-100	70-90	50-75	25-35	10-15
	8-13	Loam	CL	A-6	0	0	100	90-100	70-90	50-75	25-35	10-15
	13-16	Loam	CL, CL-ML, SC-SM	A-4, A-6	0	0-3	90-95	90-95	70-90	50-75	20-30	5-15
	16-24	Loam	CL, CL-ML, SC-SM	A-4, A-6	0	0-3	90-95	90-95	70-90	50-75	20-30	5-15
	24-28	Sandy loam	CL, SC, CL-ML, SC-SM	A-4, A-6	0	0-3	90-95	90-95	60-85	45-60	20-30	5-15
	28-36	Loamy sand	SW, SM	A-1-b	0	0-3	85-95	85-95	20-40	3-25	0-14	NP
	36-60	Sand, loamy sand, very gravelly coarse sand	SW, SM, GP, GM	A-1-b	0	2-10	50-90	50-85	15-35	3-25	0-14	NP
184:												
Klinger---------	0-8	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	8-14	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	14-19	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	19-29	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	20-30
	29-59	Clay loam, loam	CL	A-6	0	0-5	90-95	85-95	75-85	55-65	25-35	10-20
	59-72	Loam, clay loam	CL	A-6	0	0-5	90-95	85-95	75-85	55-65	25-35	10-20
	72-80	Loam	CL	A-6	0	0-5	90-95	85-95	75-85	55-65	25-35	10-20
212:												
Kennebec, occasionally flooded--------	0-8	Silt loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	25-45	10-20
	8-41	Silt loam	CL	A-7, A-6	0	0	100	100	95-100	90-100	25-45	10-20
	41-54	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15
	54-80	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-15

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
220:												
Nodaway, occasionally flooded--------	0-8	Silt loam	CL	A-6, A-4	0	0	100	94-100	90-100	86-100	25-35	5-15
	8-31	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-99	25-40	5-15
	31-42	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-100	25-40	5-15
	42-80	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-99	25-40	5-15
221:												
Klossner--------	0-8	Muck	PT		0	0	100	100	---	---	---	---
	8-26	Muck	PT		0	0	100	100	---	---	---	---
	26-36	Mucky silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-95	50-90	25-40	5-20
	36-48	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-95	50-90	25-40	5-20
	48-80	Clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-95	50-90	25-40	5-20
291:												
Atterberry------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	8-17	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	95-100	25-35	5-15
	17-48	Silty clay loam, silt loam	CH, CL	A-6, A-7	0	0	100	100	95-100	95-100	35-55	15-30
	48-60	Silt loam, loam	CL	A-6	0	0	100	100	95-100	95-100	30-40	10-20
291B:												
Atterberry------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	8-17	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	95-100	25-35	5-15
	17-48	Silty clay loam, silt loam	CH, CL	A-6, A-7	0	0	100	100	95-100	95-100	35-55	15-30
	48-60	Silt loam, loam	CL	A-6	0	0	100	100	95-100	95-100	30-40	10-20
293C:												
Fayette---------	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
293C:												
Chelsea---------	0-8	Fine sand, loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	65-80	10-35	0-14	NP
	8-36	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
	36-70	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
Tell------------	0-8	Silt loam	CL	A-4	0	0	100	100	90-100	85-95	25-30	7-10
	8-18	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	85-95	30-40	10-16
	18-28	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	85-95	30-40	10-16
	28-32	Loam, sandy loam, sandy clay loam	SC-SM, CL-ML, SC, CL	A-4, A-2, A-6	0	0	100	90-100	55-95	25-75	20-35	4-14
	32-60	Stratified sand, loamy sand	SP, SP-SM, SM	A-1, A-3, A-2	0	0	100	90-100	45-75	0-30	0-14	NP
293E:												
Fayette---------	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
Chelsea---------	0-8	Fine sand, loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	65-80	10-35	0-14	NP
	8-36	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
	36-70	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
Tell------------	0-8	Silt loam	CL	A-4	0	0	100	100	90-100	85-95	25-30	7-10
	8-18	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	85-95	30-40	10-16
	18-28	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	85-95	30-40	10-16
	28-32	Loam, sandy loam, sandy clay loam	SC-SM, CL-ML, SC, CL	A-4, A-2, A-6	0	0	100	90-100	55-95	25-75	20-35	4-14
	32-60	Stratified sand, loamy sand	SP, SP-SM, SM	A-1, A-3, A-2	0	0	100	90-100	45-75	0-30	0-14	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
293G:												
Fayette---------	0-3	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	3-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
Chelsea---------	0-4	Fine sand, loamy fine sand	SM, SP-SM	A-2-4	0	0	100	100	65-80	10-35	0-14	NP
	4-36	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
	36-70	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
Tell----------	0-9	Silt loam	CL	A-4	0	0	100	100	90-100	85-95	25-30	7-10
	9-18	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	85-95	30-40	10-16
	18-28	Silty clay loam, silt loam	CL	A-6	0	0	100	100	90-100	85-95	30-40	10-16
	28-32	Loam, sandy loam, sandy clay loam	SC-SM, CL-ML, SC, CL	A-4, A-2, A-6	0	0	100	90-100	55-95	25-75	20-35	4-14
	32-60	Stratified sand, loamy sand	SP, SP-SM, SM	A-1, A-3, A-2	0	0	100	90-100	45-75	0-30	0-14	NP
352B:												
Whittier--------	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	25-35	5-15
	8-15	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	15-32	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	90-95	35-45	15-25
	32-37	Loam, sandy loam	SC, CL	A-6, A-4	0	0	100	95-100	80-90	45-75	25-40	8-20
	37-45	Loamy fine sand, fine sand, loamy sand	SC-SM, SM	A-3, A-2	0	0	100	95-100	80-90	5-20	15-20	NP-5
	45-60	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
352C2:												
Whittier, moderately eroded---	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-95	25-35	5-15
	8-30	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	90-95	35-45	15-25
	30-34	Loam, sandy loam	SC, CL	A-6, A-4	0	0	100	95-100	80-90	45-75	25-40	8-20
	34-43	Loamy fine sand, fine sand, loamy sand	SC-SM, SM	A-3, A-2	0	0	100	95-100	80-90	5-20	15-20	NP-5
	43-60	Fine sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	100	65-85	3-15	0-14	NP
354. Aquolls, ponded												
377B:												
Dinsdale---	0-8	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	35-50	12-23
	8-19	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	35-50	12-23
	19-34	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	34-46	Clay loam, loam	CL	A-6	0	0-5	90-95	90-95	75-85	55-65	25-35	10-20
	46-80	Clay loam, loam	CL	A-6	0	0-5	90-95	90-95	75-85	55-65	25-35	10-20
377C:												
Dinsdale---	0-8	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	35-50	12-23
	8-19	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	35-50	12-23
	19-34	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	34-46	Clay loam, loam	CL	A-6	0	0-5	90-95	90-95	75-85	55-65	25-35	10-20
	46-80	Clay loam, loam	CL	A-6	0	0-5	90-95	90-95	75-85	55-65	25-35	10-20
377C2:												
Dinsdale, moderately eroded---	0-8	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	100	95-100	35-50	12-23
	8-19	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	19-31	Clay loam, loam	CL	A-6	0	0-5	90-95	90-95	75-85	55-65	25-35	10-20
	31-80	Clay loam, loam	CL	A-6	0	0-5	90-95	90-95	75-85	55-65	25-35	10-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
382:												
Maxfield--------	0-8	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	91-99	49-62	18-24
	8-19	Silty clay loam	CL, CH	A-7-6	0	0	100	100	95-100	91-99	43-57	18-24
	19-29	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	91-100	36-48	17-24
	29-55	Clay loam, loam	CL	A-6	0	0-4	90-95	79-91	72-91	57-79	29-46	13-25
	55-80	Clay loam, loam	CL	A-6	0	0-4	90-95	79-91	72-91	57-79	29-46	13-25
412E:												
Emeline---------	0-9	Silt loam, clay loam, loam	CL	A-6	0	0-10	85-100	85-100	85-100	70-100	25-40	11-23
	9-80	Bedrock	---	---	---	---	---	---	---	---	---	---
420B:												
Tama, terrace---	0-8	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	8-18	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	18-45	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	45-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
428B:												
Ely----------	0-8	Silty clay loam	CL, MH, ML	A-6, A-7	0	0	100	100	95-100	95-100	30-55	10-25
	8-32	Silty clay loam	CL, MH, ML	A-6, A-7	0	0	100	100	95-100	95-100	30-55	10-25
	32-47	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	95-100	35-50	10-25
	47-80	Silt loam, silty clay loam, loam	CL	A-6	0	0	100	100	90-100	85-100	25-40	10-20
430:												
Ackmore, occasionally flooded--------	0-8	Silt loam	ML, CL	A-4, A-7, A-6	0	0	100	100	95-100	85-100	25-50	8-20
	8-25	Silt loam	CL, ML	A-6, A-7, A-4	0	0	100	100	95-100	85-100	25-50	8-20
	25-60	Silty clay loam, silt loam	CL, CH	A-6, A-7	0	0	100	100	95-100	85-100	35-60	15-30
442C:												
Dickinson-------	0-8	Fine sandy loam	SM, SC-SM, SC	A-2, A-4	0	0	100	100	85-95	30-50	15-30	NP-10
	8-18	Fine sandy loam, sandy loam	SM, SC-SM, SC	A-4, A-2	0	0	100	100	85-95	30-50	15-30	NP-10
	18-30	Fine sandy loam, sandy loam	SM, SC-SM, SC	A-4, A-2	0	0	100	100	85-95	30-50	15-30	NP-10
	30-36	Loamy sand, fine sandy loam, sandy loam	SM, SC, SC-SM	A-4	0	0	100	100	85-95	35-50	15-30	NP-10
	36-60	Sand, loamy fine sand, loamy sand	SM	A-2, A-3	0	0	100	100	70-90	5-20	0-14	NP

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
442C:												
Tama----------	0-8	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	8-18	Silt loam, silty clay loam	ML	A-6, A-7	0	0	100	100	100	95-100	35-50	10-20
	18-45	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	45-60	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
450B:												
Pillot----------	0-8	Silt loam	CL	A-6	0	0	100	90-100	85-100	85-100	25-40	10-20
	8-15	Silt loam	CL	A-6	0	0	100	90-100	85-100	85-100	25-40	10-20
	15-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	90-100	70-100	50-100	30-45	10-25
	32-36	Loam, sandy loam, sandy clay loam	CL, SC-SM, CL-ML, SC	A-4, A-2, A-6	0	0	100	90-100	55-95	25-75	20-35	4-14
	36-60	Loamy sand, sand, sandy loam	SC-SM, SM, SP-SM	A-1, A-3, A-2	0	0-5	75-100	75-100	25-70	5-25	15-25	NP-5
450C:												
Pillot----------	0-8	Silt loam	CL	A-6	0	0	100	90-100	85-100	85-100	25-40	10-20
	8-15	Silt loam	CL	A-6	0	0	100	90-100	85-100	85-100	25-40	10-20
	15-32	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	90-100	70-100	50-100	30-45	10-25
	32-36	Loam, sandy loam, sandy clay loam	CL, SC-SM, CL-ML, SC	A-4, A-2, A-6	0	0	100	90-100	55-95	25-75	20-35	4-14
	36-60	Loamy sand, sand, sandy loam	SC-SM, SM, SP-SM	A-1, A-3, A-2	0	0-5	75-100	75-100	25-70	5-25	15-25	NP-5
462B:												
Downs, terrace--	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-17	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	17-39	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	39-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20
462C:												
Downs, terrace--	0-8	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	8-17	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	17-39	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
	39-60	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	10-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
463B:												
Fayette, terrace	0-8	Silt loam	CL	A-7-6, A-6, A-4	0	0	100	100	100	95-100	29-42	9-18
	8-11	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	11-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	24-38	9-18
	14-34	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	34-44	16-23
	34-47	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
	47-73	Silt loam	CL	A-7-6, A-6	0	0	100	100	100	95-100	29-41	13-21
467:												
Radford, occasionally flooded--------	0-12	Silt loam	CL, ML	A-6, A-4	0	0	100	100	95-100	85-100	28-36	5-15
	12-33	Silt loam	CL, ML	A-6, A-4	0	0	100	100	95-100	85-100	28-36	5-15
	33-80	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	100	85-100	70-95	35-50	15-25
478G:												
Rock outcrop.												
Emeline---------	0-9	Silt loam, clay loam, loam	CL	A-6	0	0-10	85-100	85-100	85-100	70-100	25-40	11-23
	9-80	Bedrock	---	---	---	---	---	---	---	---	---	---
485:												
Spillville, occasionally flooded--------	0-8	Loam	CL	A-6	0	0	100	95-100	85-95	60-80	25-40	10-20
	8-54	Loam	CL	A-6	0	0	100	95-100	85-95	60-80	25-40	10-20
	54-79	Sandy loam, sandy clay loam, loam	CL, CL-ML, SC-SM, SC	A-6, A-4	0	0	100	95-100	80-90	35-75	20-40	5-15
520:												
Coppock, occasionally flooded--------	0-8	Silt loam	CL	A-6	0	0	100	100	98-100	95-100	30-40	10-20
	8-25	Silt loam	CL	A-6	0	0	100	100	98-100	95-100	30-40	10-20
	25-43	Silty clay loam, silt loam	CH, CL, MH, ML	A-6, A-7	0	0	100	100	98-100	95-100	35-55	15-25
	43-75	Silty clay loam	CH, CL	A-7	0	0	100	100	98-100	95-100	40-60	15-30

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
520B:												
Coppock---------	0-8	Silt loam	CL	A-6	0	0	100	100	98-100	95-100	30-40	10-20
	8-25	Silt loam	CL	A-6	0	0	100	100	98-100	95-100	30-40	10-20
	25-43	Silty clay loam, silt loam	CH, CL, MH, ML	A-6, A-7	0	0	100	100	98-100	95-100	35-55	15-25
	43-75	Silty clay loam	CH, CL	A-7	0	0	100	100	98-100	95-100	40-60	15-30
662C2:												
Mt. Carroll, moderately eroded---------	0-8	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	25-36	7-18
	8-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	25-36	7-18
	14-37	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	37-53	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	53-60	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	60-80	Silt loam	CL	A-6, A-4	0	0	100	100	100	90-100	26-37	7-17
662D2:												
Mt. Carroll, moderately eroded---------	0-8	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	25-36	7-18
	8-14	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	25-36	7-18
	14-37	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	37-53	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	53-60	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	60-80	Silt loam	CL	A-6, A-4	0	0	100	100	100	90-100	26-37	7-17
662D3:												
Mt. Carroll, severely eroded	0-8	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	25-36	7-18
	8-31	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	31-47	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	47-54	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	54-80	Silt loam	CL	A-6, A-4	0	0	100	100	100	90-100	26-37	7-17
662E3:												
Mt. Carroll, severely eroded	0-8	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	25-36	7-18
	8-31	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	31-47	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	47-54	Silt loam	CL	A-6, A-4	0	0	100	100	100	95-100	27-40	8-20
	54-80	Silt loam	CL	A-6, A-4	0	0	100	100	100	90-100	26-37	7-17

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
729B:												
Ackmore---	0-8	Silt loam	ML, CL	A-4, A-7, A-6	0	0	100	100	95-100	85-100	25-50	8-20
	8-25	Silt loam	CL, ML	A-6, A-7, A-4	0	0	100	100	95-100	85-100	25-50	8-20
	25-60	Silty clay loam, silt loam	CL, CH	A-6, A-7	0	0	100	100	95-100	85-100	35-60	15-30
Nodaway---	0-8	Silt loam	CL	A-6, A-4	0	0	100	94-100	90-100	86-100	25-35	5-15
	8-31	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-99	25-40	5-15
	31-42	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-100	25-40	5-15
	42-80	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-99	25-40	5-15
760:												
Ansgar---	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-12	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	12-28	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	20-30
	28-36	Clay loam, loam	CL	A-6	0	0-5	95-100	90-95	75-85	55-65	25-35	10-20
	36-47	Loam, clay loam, sandy clay loam	SC, CL	A-6	0	2-5	90-95	85-95	75-85	45-65	25-35	10-20
	47-72	Loam, clay loam, sandy clay loam	SC, CL	A-6	0	2-5	90-95	85-95	75-85	45-65	25-35	10-20
761:												
Franklin---	0-8	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	8-13	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	13-18	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	20-30
	18-28	Silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	20-30
	28-37	Clay loam, loam	CL	A-6	0	0-5	95-100	90-95	75-85	55-65	25-35	10-20
	37-46	Loam, clay loam	CL	A-6	0	0-5	95-100	90-95	75-85	55-65	25-35	10-20
	46-64	Loam, clay loam	CL	A-6	0	0-5	95-100	90-95	75-85	55-65	25-35	10-20
	64-74	Clay loam, loam	CL	A-6	0	0-5	95-100	90-95	75-85	55-65	25-35	10-20
771B:												
Waubeek---	0-8	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	100	95-100	25-35	5-15
	8-13	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	13-29	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	29-45	Clay loam, loam	CL	A-6	0	0-5	90-95	85-95	75-85	50-65	25-35	10-20
	45-80	Loam, clay loam	CL	A-6	0	0-5	90-95	85-95	75-85	50-65	25-35	10-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
814D:												
Rockton	0-8	Loam	CL, ML	A-6, A-7-6	0	0	90-100	90-100	85-95	50-75	34-45	11-18
	8-15	Loam	CL, ML	A-7-6, A-6	0	0	90-100	90-100	85-95	50-75	34-45	11-18
	15-26	Sandy clay loam, clay loam, loam	SC, CL	A-7-6, A-6	0	0	90-100	90-100	75-90	45-70	36-47	17-25
	26-31	Silty clay, clay, clay loam	CH, CL	A-7-6	0	0-2	90-100	90-100	90-95	70-90	45-72	25-45
	31-80	Bedrock	---	---	---	---	---	---	---	---	---	---
826:												
Rowley	0-8	Silt loam	CL	A-6, A-4	0	0	100	100	90-100	85-95	25-35	8-13
	8-16	Silt loam	CL	A-6, A-4	0	0	100	100	90-100	85-95	25-35	8-13
	16-21	Silty clay loam, silt loam	CL	A-7, A-6	0	0	100	100	90-100	85-95	30-50	10-25
	21-32	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	32-45	Silt loam	SC-SM, SC, CL, CL-ML	A-6, A-4	0	0	100	100	80-100	35-75	20-30	4-11
	45-55	Sand, fine sand, stratified sandy loam to silt loam	SP-SM, SM	A-3, A-2	0	0	100	100	50-90	5-35	0-14	NP
	55-60	Sand, loamy fine sand, loamy sand	SM	A-2, A-3	0	0	100	100	70-90	5-20	0-14	NP
884:												
Klingmore	0-8	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	8-19	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	15-25
	19-34	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	20-30
	34-56	Silt loam, silty clay loam	CL	A-7-6	0	0	100	100	100	95-100	40-50	20-30
	56-80	Clay loam, loam	CL	A-6	0	0-5	90-95	85-95	75-85	55-65	25-35	10-20
911B:												
Colo	0-8	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-60	15-30
	8-40	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-55	20-30
	40-46	Silty clay loam	CH, CL	A-7	0	0	100	100	90-100	90-100	40-55	20-30
	46-52	Silty clay loam, clay loam, silt loam	CH, CL	A-7	0	0	100	100	95-100	80-100	40-55	15-30
	52-60	Silty clay loam, clay loam, silt loam	CH, CL	A-7	0	0	100	100	95-100	80-100	40-55	15-30

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
911B:												
Ely	0-8	Silty clay loam	CL, MH, ML	A-6, A-7	0	0	100	100	95-100	95-100	30-55	10-25
	8-32	Silty clay loam	CL, MH, ML	A-6, A-7	0	0	100	100	95-100	95-100	30-55	10-25
	32-47	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	95-100	35-50	10-25
	47-80	Silt loam, silty clay loam, loam	CL	A-6	0	0	100	100	90-100	85-100	25-40	10-20
977:												
Richwood	0-8	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	85-95	25-35	8-13
	8-18	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	85-95	25-35	8-13
	18-46	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	85-95	25-40	7-20
	46-60	Stratified loamy sand to silt loam	CL-ML, SC, SC-SM, CL	A-4, A-6	0	0	100	100	85-95	35-75	20-30	4-11
982:												
Maxmore	0-8	Silt loam, silty clay loam	CL, CH	A-7-6	0	0	100	100	100	95-100	45-55	20-30
	8-20	Silt loam, silty clay loam	CL, CH	A-7-6	0	0	100	100	100	95-100	45-55	20-30
	20-50	Silt loam, silty clay loam	CH, CL	A-7-6	0	0	100	100	100	95-100	45-55	25-35
	50-80	Clay loam, loam	CL	A-6	0	0-5	90-95	85-95	75-85	55-65	25-35	10-20
1118:												
Garwin, terrace	0-8	Silty clay loam	CL, CH	A-7	0	0	100	100	100	95-100	45-55	20-30
	8-18	Silty clay loam	CL, CH	A-7	0	0	100	100	100	95-100	45-55	20-30
	18-42	Silty clay loam	CL, CH	A-7	0	0	100	100	100	95-100	45-55	25-35
	42-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-40	15-20
1119:												
Muscatine, terrace	0-8	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	8-20	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	15-25
	20-42	Silty clay loam	CL	A-7	0	0	100	100	100	95-100	40-50	20-30
	42-64	Silt loam, silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-45	15-25
1160:												
Walford, terrace	0-8	Silt loam	CL	A-6	0	0	100	100	100	95-100	30-35	10-15
	8-22	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-35	5-15
	22-50	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	45-55	20-30
	50-63	Silty clay loam	CH, CL	A-7	0	0	100	100	100	95-100	45-55	20-30
	63-80	Silt loam	CL	A-6	0	0	100	100	100	95-100	35-40	15-20

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
1220:												
Nodaway, channeled, frequently flooded--------	0-7	Silt loam	CL	A-6, A-4	0	0	100	94-100	90-100	86-100	25-35	5-15
	7-31	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-99	25-40	5-15
	31-42	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-100	25-40	5-15
	42-80	Stratified silt loam to silty clay loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	94-100	88-100	84-99	25-40	5-15
1291:												
Atterberry, terrace--------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	8-17	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	95-100	25-35	5-15
	17-48	Silty clay loam, silt loam	CH, CL	A-6, A-7	0	0	100	100	95-100	95-100	35-55	15-30
	48-60	Silt loam, loam	CL	A-6	0	0	100	100	95-100	95-100	30-40	10-20
1315:												
Perks, frequently flooded--------	0-9	Loamy sand, sand	SM	A-1	0	0	90-100	90-95	30-50	3-20	0-14	NP
	9-60	Sand, loamy sand	SP	A-1	0	0	90-100	90-95	30-50	3-20	0-14	NP
Spillville, frequently flooded--------	0-8	Loam	CL	A-6	0	0	100	95-100	85-95	60-80	25-40	10-20
	8-54	Loam	CL	A-6	0	0	100	95-100	85-95	60-80	25-40	10-20
	54-79	Sandy loam, sandy clay loam, loam	CL, CL-ML, SC-SM, SC	A-6, A-4	0	0	100	95-100	80-90	35-75	20-40	5-15
4946:												
Udorthents------	0-80	Variable	---	---	---	---	---	---	---	---	---	15-30
Highway.												
5010.												
Pits, sand and gravel												

Engineering Properties--Continued

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		
	In				Pct	Pct					Pct	
5030. Pits, limestone quarries												
5040: Udorthents, loamy----------	0-80	Variable	---	---	---	---	---	---	---	---	---	15-30
5053. Psammaquents, frequently flooded												
8041B:												
Sparta, terrace	0-8	Sand, fine sand, loamy sand, loamy fine sand	SC-SM, SP-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	8-15	Sand, fine sand, loamy sand, loamy fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	15-72	Sand, loamy sand, loamy fine sand, fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-20	NP-4
	72-80	Sand, fine sand	SP-SM, SM, SP	A-2-4, A-1-b	0	0	95-100	90-100	50-95	2-20	0-17	NP-2
8041C:												
Sparta, terrace	0-8	Sand, fine sand, loamy sand, loamy fine sand	SC-SM, SP-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	8-15	Sand, fine sand, loamy sand, loamy fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-25	NP-6
	15-72	Sand, loamy sand, loamy fine sand, fine sand	SP-SM, SC-SM, SM	A-2-4, A-1-b	0	0	95-100	90-100	50-95	5-35	0-20	NP-4
	72-80	Sand, fine sand	SP-SM, SM, SP	A-2-4, A-1-b	0	0	95-100	90-100	50-95	2-20	0-17	NP-2
AW. Animal waste lagoon												
SL. Sewage lagoon												
W. Water												

Physical Properties

The table described in this section 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.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the 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 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 (ovendry) 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 linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water 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 the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) 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 Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf 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 described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

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

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

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
8B:													
Judson	95	0-8	27-32	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-5.0	.28	.28	5	7	38
		8-28	27-32	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	3.0-4.0	.28	.28			
		28-52	30-35	1.35-1.45	0.6-2	0.21-0.23	3.0-5.9	2.0-3.0	.43	.43			
		52-60	25-32	1.35-1.45	0.6-2	0.21-0.23	3.0-5.9	0.0-1.0	.43	.43			
41B:													
Sparta	100	0-8	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17	5	2	134
		8-15	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17			
		15-72	1-8	1.40-1.60	6-20	0.05-0.11	0.0-0.0	0.0-0.5	.15	.15			
		72-80	0-5	1.50-1.70	6-20	0.04-0.07	0.0-0.0	0.0-0.5	.15	.15			
41C:													
Sparta	85	0-8	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17	5	2	134
		8-15	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17			
		15-72	1-8	1.40-1.60	6-20	0.05-0.11	0.0-0.0	0.0-0.5	.15	.15			
		72-80	0-5	1.50-1.70	6-20	0.04-0.07	0.0-0.0	0.0-0.5	.15	.15			
41E:													
Sparta	90	0-8	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17	5	2	134
		8-15	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17			
		15-72	1-8	1.40-1.60	6-20	0.05-0.11	0.0-0.0	0.0-0.5	.15	.15			
		72-80	0-5	1.50-1.70	6-20	0.04-0.07	0.0-0.0	0.0-0.5	.15	.15			
63B:													
Chelsea	90	0-8	8-15	1.50-1.55	6-20	0.10-0.15	0.0-0.0	0.5-1.0	.17	.17	5	2	134
		8-36	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
		36-70	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
63C:													
Chelsea	90	0-8	8-15	1.50-1.55	6-20	0.10-0.15	0.0-0.0	0.5-1.0	.17	.17	5	2	134
		8-36	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
		36-70	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
63E:													
Chelsea	95	0-4	8-15	1.50-1.55	6-20	0.10-0.15	0.0-0.0	0.5-1.0	.17	.17	5	2	134
		4-36	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
		36-70	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
65D2:													
Lindley, moderately eroded	90	0-8	18-27	1.20-1.40	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-40	25-35	1.40-1.60	0.2-0.6	0.14-0.18	2.6-5.8	0.0-0.5	.32	.32			
		40-60	18-32	1.45-1.65	0.2-0.6	0.12-0.16	0.4-4.8	0.0-0.5	.32	.32			
65E2:													
Lindley, moderately eroded	90	0-8	18-27	1.20-1.40	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-40	25-35	1.40-1.60	0.2-0.6	0.14-0.18	2.6-5.8	0.0-0.5	.32	.32			
		40-60	18-32	1.45-1.65	0.2-0.6	0.12-0.16	0.4-4.8	0.0-0.5	.32	.32			
65F2:													
Lindley, moderately eroded	85	0-8	18-27	1.20-1.40	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-40	25-35	1.40-1.60	0.2-0.6	0.14-0.18	2.6-5.8	0.0-0.5	.32	.32			
		40-60	18-32	1.45-1.65	0.2-0.6	0.12-0.16	0.4-4.8	0.0-0.5	.32	.32			
83B:													
Kenyon	85	0-8	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	3.0-4.0	.24	.24	5	6	48
		8-14	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	3.0-4.0	.24	.24			
		14-19	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	1.0-3.0	.24	.24			
		19-55	20-30	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-4.2	0.0-1.0	.28	.28			
		55-80	20-24	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.37	.37			
83C:													
Kenyon	80	0-8	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	3.0-4.0	.24	.24	5	6	48
		8-14	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	3.0-4.0	.24	.24			
		14-19	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	1.0-3.0	.24	.24			
		19-55	20-30	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-4.2	0.0-1.0	.28	.28			
		55-80	20-24	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.37	.37			
83C2:													
Kenyon, moderately eroded	85	0-8	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	2.0-3.0	.24	.24	5	6	48
		8-14	18-26	1.40-1.45	0.1-1	0.20-0.22	0.4-2.9	0.0-1.0	.24	.24			
		14-35	20-30	1.45-1.65	0.1-1	0.17-0.19	1.0-4.2	0.0-1.0	.28	.28			
		35-41	20-24	1.65-1.75	0.0015-0.1	0.17-0.19	1.0-2.3	0.0-0.5	.37	.37			
		41-80	20-24	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.37	.37			
88:													
Nevin, rarely flooded	90	0-8	27-29	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-6.0	.28	.28	5	7	38
		8-30	27-29	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-6.0	.28	.28			
		30-46	30-35	1.30-1.40	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		46-62	25-36	1.40-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
110C:													
Lamont	85	0-8	10-15	1.50-1.55	2-6	0.16-0.18	0.0-2.9	0.5-1.5	.24	.24	4	3	86
		8-23	5-15	1.50-1.55	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.24	.24			
		23-53	10-22	1.45-1.65	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.24	.24			
		53-80	5-15	1.65-1.75	6-20	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
110E:													
Lamont	95	0-8	10-15	1.50-1.55	2-6	0.16-0.18	0.0-2.9	0.5-1.5	.24	.24	4	3	86
		8-23	5-15	1.50-1.55	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.24	.24			
		23-53	10-22	1.45-1.65	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.24	.24			
		53-80	5-15	1.65-1.75	6-20	0.09-0.11	0.0-2.9	0.0-0.5	.17	.17			
118:													
Garwin	95	0-8	30-35	1.30-1.35	0.6-2	0.21-0.23	6.0-8.9	6.0-7.0	.28	.28	5	7	38
		8-18	30-35	1.30-1.35	0.6-2	0.21-0.23	6.0-8.9	3.0-5.0	.28	.28			
		18-42	27-35	1.28-1.35	0.6-2	0.18-0.20	6.0-8.9	1.0-2.0	.28	.28			
		42-80	20-26	1.35-1.45	0.6-2	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
119:													
Muscatine	95	0-8	28-30	1.30-1.35	0.6-2	0.22-0.24	4.1-5.5	4.0-6.0	.28	.28	5	7	38
		8-20	28-30	1.30-1.35	0.6-2	0.22-0.24	5.0-5.5	4.0-6.0	.28	.28			
		20-42	30-35	1.28-1.35	0.6-2	0.18-0.20	5.5-6.8	1.0-2.0	.43	.43			
		42-64	22-30	1.35-1.40	0.6-2	0.18-0.20	3.5-5.5	0.5-1.0	.43	.43			
119B:													
Muscatine	95	0-8	28-30	1.30-1.35	0.6-2	0.22-0.24	4.1-5.5	4.0-6.0	.28	.28	5	7	38
		8-20	28-30	1.30-1.35	0.6-2	0.22-0.24	5.0-5.5	4.0-6.0	.28	.28			
		20-42	30-35	1.28-1.35	0.6-2	0.18-0.20	5.5-6.8	1.0-2.0	.43	.43			
		42-64	22-30	1.35-1.40	0.6-2	0.18-0.20	3.5-5.5	0.5-1.0	.43	.43			
120:													
Tama	100	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
		8-18	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28			
		18-45	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		45-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
120B:													
Tama	90	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	7	38
		8-18	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28			
		18-45	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		45-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
120C:													
Tama	80	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	7	38
		8-18	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28			
		18-45	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		45-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
120C2:													
Tama, moderately eroded	90	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	2.0-3.0	.28	.28	5	7	38
		8-26	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		26-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
120D2:													
Tama, moderately eroded	90	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	2.0-3.0	.28	.28	5	7	38
		8-26	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		26-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
121:													
Tama	85	0-8	22-26	1.30-1.35	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
		8-18	22-30	1.30-1.35	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28			
		18-45	27-35	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		45-60	20-30	1.40-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
122:													
Sperry, depressional	95	0-8	18-22	1.35-1.40	0.6-2	0.22-0.24	0.4-1.6	3.0-4.0	.37	.37	3	6	48
		8-10	18-22	1.35-1.40	0.6-2	0.22-0.24	0.4-1.6	3.0-4.0	.37	.37			
		10-17	18-22	1.35-1.40	0.6-2	0.22-0.24	0.4-1.6	0.5-1.0	.43	.43			
		17-28	30-45	1.40-1.45	0.06-0.2	0.14-0.16	6.0-8.9	0.5-1.0	.43	.43			
		28-47	38-45	1.40-1.45	0.06-0.2	0.14-0.16	6.0-8.9	0.5-1.0	.43	.43			
		47-80	26-34	1.45-1.50	0.2-0.6	0.19-0.21	2.6-5.8	0.0-0.5	.43	.43			
133:													
Colo, occasionally flooded	85	0-8	27-36	1.28-1.32	0.6-2	0.21-0.23	3.0-5.9	5.0-7.0	.28	.28	5	7	38
		8-40	30-35	1.25-1.35	0.6-2	0.18-0.20	3.0-5.9	3.0-4.0	.28	.28			
		40-46	30-35	1.25-1.35	0.6-2	0.18-0.20	3.0-5.9	3.0-4.0	.28	.28			
		46-52	25-35	1.35-1.45	0.6-2	0.18-0.20	2.6-5.8	1.0-2.0	.32	.32			
		52-60	22-35	1.35-1.45	0.6-2	0.18-0.20	2.6-5.8	1.0-2.0	.32	.32			
133+:													
Colo, occasionally flooded, overwash	90	0-8	20-26	1.25-1.30	0.6-2	0.22-0.24	1.0-2.9	3.0-5.0	.28	.28	5	6	48
		8-14	20-26	1.25-1.30	0.6-2	0.22-0.24	1.0-2.9	3.0-5.0	.28	.28			
		14-40	30-35	1.25-1.35	0.6-2	0.18-0.20	3.0-5.9	4.0-6.0	.28	.28			
		40-46	30-35	1.25-1.35	0.6-2	0.18-0.20	3.0-5.9	3.0-4.0	.28	.28			
		46-60	25-35	1.35-1.45	0.6-2	0.18-0.20	2.6-5.8	1.0-2.0	.32	.32			
136:													
Ankeny, rarely flooded	85	0-8	10-18	1.50-1.55	2-6	0.16-0.18	0.0-0.4	2.0-3.0	.20	.20	4	3	86
		8-30	10-18	1.50-1.55	2-6	0.16-0.18	0.0-0.4	2.0-3.0	.20	.20			
		30-44	10-16	1.55-1.65	2-6	0.15-0.17	0.0-0.0	0.5-1.0	.20	.20			
		44-60	2-10	1.65-1.75	6-20	0.12-0.14	0.0-0.0	0.0-0.5	.20	.20			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
143:													
Brady	95	0-8	2-15	1.35-1.55	2-6	0.12-0.16	0.0-2.9	1.5-2.5	.15	.15	4	3	86
		8-23	2-15	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.2-0.8	.15	.15			
		23-37	5-22	1.35-1.55	2-6	0.12-0.17	0.0-2.9	0.0-0.5	.24	.24			
		37-56	5-20	1.35-1.50	2-6	0.08-0.13	0.0-2.9	0.0-0.5	.20	.20			
		56-80	0-10	1.40-1.50	20-20	0.02-0.04	0.0-2.9	0.0-0.0	.10	.05			
160:													
Walford	95	0-8	20-26	1.35-1.40	0.6-2	0.21-0.23	3.0-5.9	2.0-3.0	.32	.32	5	6	48
		8-22	18-26	1.40-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.43	.43			
		22-50	27-35	1.35-1.40	0.2-0.6	0.18-0.20	6.0-8.9	0.0-1.0	.43	.43			
		50-63	27-35	1.35-1.40	0.2-0.6	0.18-0.20	6.0-8.9	0.0-1.0	.43	.43			
		63-80	24-27	1.40-1.45	0.6-2	0.20-0.22	3.0-5.9	0.0-1.0	.43	.43			
162B:													
Downs	95	0-8	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.5-3.5	.32	.32	5	6	48
		8-17	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	0.5-1.5	.32	.32			
		17-39	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
		39-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
162C:													
Downs	85	0-8	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.5-3.5	.32	.32	5	6	48
		8-17	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	0.5-1.5	.32	.32			
		17-39	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
		39-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
162C2:													
Downs, moderately eroded	90	0-8	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-33	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
		33-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
162D2:													
Downs, moderately eroded	85	0-8	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-33	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
		33-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
162D3:													
Downs, severely eroded	90	0-8	18-30	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	1.0-2.0	.32	.32	4	7	38
		8-27	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		27-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
162E3:													
Downs, severely eroded	90	0-8	18-30	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	1.0-2.0	.32	.32	4	7	38
		8-27	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		27-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
163B:													
Fayette	95	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
163C:													
Fayette	90	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
163C2:													
Fayette, moderately eroded	90	0-8	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-28	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		28-41	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		41-73	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
163D:													
Fayette	80	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
163D2:													
Fayette, moderately eroded	80	0-8	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-28	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		28-41	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		41-73	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
163D3:													
Fayette, severely eroded	75	0-8	18-30	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.5-1.0	.32	.32	4	7	38
		8-26	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		26-39	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		39-73	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
163E:													
Fayette	75	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
163E2:													
Fayette, moderately eroded	70	0-8	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-28	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		28-41	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		41-73	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
163E3:													
Fayette, severely eroded	80	0-8	18-30	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.5-1.0	.32	.32	4	6	48
		8-26	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		26-39	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		39-73	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
163F:													
Fayette	75	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
163F2:													
Fayette, moderately eroded	70	0-8	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-28	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
		28-41	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		41-73	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
163G:													
Fayette	85	0-3	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		3-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
171B:													
Bassett	85	0-8	18-25	1.45-1.50	0.1-1	0.19-0.21	0.4-2.6	2.0-4.0	.28	.28	5	6	48
		8-10	18-25	1.45-1.50	0.1-1	0.19-0.21	0.4-2.6	0.5-1.0	.28	.28			
		10-14	18-25	1.45-1.50	0.1-1	0.19-0.21	0.4-2.6	0.5-1.0	.28	.28			
		14-59	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.28	.28			
		59-73	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.28	.28			
171C2:													
Bassett, moderately eroded	90	0-8	18-25	1.45-1.50	0.1-1	0.19-0.21	0.0-2.9	1.0-3.0	.28	.28	5	6	48
		8-53	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
		53-73	20-24	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.37	.37			
171D2:													
Bassett, moderately eroded	85	0-8	18-25	1.45-1.50	0.1-1	0.19-0.21	0.0-2.9	1.0-3.0	.28	.28	5	6	48
		8-53	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.5-1.0	.28	.28			
		53-73	20-24	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.37	.37			
175B:													
Dickinson	95	0-8	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20	4	3	86
		8-18	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
		18-30	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
		30-36	10-15	1.45-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.24	.24			
		36-60	4-10	1.60-1.70	6-20	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			
175C:													
Dickinson	85	0-8	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20	4	3	86
		8-18	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
		18-30	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
		30-36	10-15	1.45-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.24	.24			
		36-60	4-10	1.60-1.70	6-20	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
177:													
Saude	90	0-8	18-24	1.40-1.45	0.6-2	0.20-0.22	0.4-2.3	3.0-4.0	.24	.24	4	6	48
		8-13	18-24	1.40-1.45	0.6-2	0.20-0.22	0.4-2.3	2.0-4.0	.24	.24			
		13-16	12-18	1.40-1.50	0.6-6	0.15-0.19	0.0-0.4	1.0-3.0	.24	.24			
		16-24	12-18	1.40-1.50	0.6-6	0.15-0.19	0.0-0.4	0.5-1.0	.24	.24			
		24-28	12-18	1.40-1.50	0.6-6	0.15-0.19	0.0-0.4	0.5-1.0	.24	.24			
		28-36	2-8	1.50-1.75	20-101	0.02-0.06	0.0-0.0	0.0-0.5	.10	.20			
		36-60	2-8	1.50-1.75	20-101	0.02-0.06	0.0-0.0	0.0-0.5	.10	.20			
184:													
Klinger	95	0-8	25-30	1.30-1.35	0.1-1	0.22-0.24	2.6-4.2	4.0-6.0	.28	.28	5	7	38
		8-14	25-30	1.30-1.35	0.1-1	0.22-0.24	2.6-4.2	2.0-5.0	.28	.28			
		14-19	27-30	1.30-1.35	0.1-1	0.22-0.24	3.2-4.2	1.0-4.0	.28	.28			
		19-29	28-35	1.35-1.45	0.1-1	0.18-0.20	3.5-5.8	0.5-2.0	.43	.43			
		29-59	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
		59-72	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
		72-80	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
212:													
Kennebec, occasionally flooded	90	0-8	22-26	1.25-1.35	0.6-2	0.22-0.24	3.0-5.9	2.0-4.0	.28	.28	5	6	48
		8-41	24-32	1.25-1.35	0.6-2	0.22-0.24	3.0-5.9	5.0-6.0	.28	.28			
		41-54	24-32	1.35-1.40	0.6-2	0.20-0.22	3.0-5.9	5.0-6.0	.43	.43			
		54-80	24-30	1.35-1.40	0.6-2	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43			
220:													
Nodaway, occasionally flooded	90	0-8	18-27	1.25-1.35	0.6-2	0.20-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-31	18-28	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
		31-42	18-30	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
		42-80	18-28	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
221:													
Klossner	100	0-8	25-30	0.25-0.45	0.2-6	0.35-0.45	---	20-50	.32	.32	5	2	134
		8-26	25-30	0.25-0.45	0.2-6	0.35-0.45	---	20-50	.32	.32			
		26-36	7-35	1.45-1.75	0.2-2	0.14-0.22	0.0-2.3	0.5-1.0	.37	.37			
		36-48	7-35	1.45-1.75	0.2-2	0.14-0.22	0.0-2.3	0.5-1.0	.37	.37			
		48-80	7-35	1.45-1.75	0.2-2	0.14-0.22	0.0-2.3	0.0-0.5	.37	.37			
291:													
Atterberry	90	0-8	20-26	1.35-1.55	0.6-2	0.22-0.25	0.0-2.9	2.0-4.0	.32	.32	5	6	48
		8-17	15-26	1.40-1.60	0.6-2	0.21-0.24	0.0-2.9	0.5-1.0	.32	.32			
		17-48	25-35	1.40-1.60	0.6-2	0.14-0.24	3.0-5.9	0.1-0.5	.43	.43			
		48-60	18-27	1.40-1.65	0.6-2	0.14-0.24	0.0-2.9	0.1-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
291B:													
Atterberry----------	95	0-8	20-26	1.35-1.55	0.6-2	0.22-0.25	0.0-2.9	2.0-4.0	.32	.32	5	6	48
		8-17	15-26	1.40-1.60	0.6-2	0.21-0.24	0.0-2.9	0.5-1.0	.32	.32			
		17-48	25-35	1.40-1.60	0.6-2	0.14-0.24	3.0-5.9	0.1-0.5	.43	.43			
		48-60	18-27	1.40-1.65	0.6-2	0.14-0.24	0.0-2.9	0.1-0.5	.43	.43			
293C:													
Fayette----------	40	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
Chelsea----------	30	0-8	8-15	1.50-1.55	6-20	0.10-0.15	0.0-0.0	0.5-1.0	.17	.17	5	2	134
		8-36	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
		36-70	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
Tell----------	20	0-8	14-18	1.35-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.37	.37	4	5	56
		8-18	20-28	1.50-1.60	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
		18-28	20-30	1.50-1.60	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
		28-32	10-25	1.50-1.60	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.37	.37			
		32-60	2-8	1.55-1.70	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
293E:													
Fayette----------	40	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
Chelsea----------	30	0-8	8-15	1.50-1.55	6-20	0.10-0.15	0.0-0.0	0.5-1.0	.17	.17	5	2	134
		8-36	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
		36-70	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
Tell----------	20	0-8	14-18	1.35-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.37	.37	4	5	56
		8-18	20-28	1.50-1.60	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
		18-28	20-30	1.50-1.60	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
		28-32	10-25	1.50-1.60	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.37	.37			
		32-60	2-8	1.55-1.70	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
293G:													
Fayette	40	0-3	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		3-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
Chelsea	30	0-4	8-15	1.50-1.55	6-20	0.10-0.15	0.0-0.0	0.5-1.0	.17	.17	5	2	134
		4-36	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
		36-70	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
Tell	20	0-9	14-18	1.35-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.37	.37	4	5	56
		9-18	20-28	1.50-1.60	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
		18-28	20-30	1.50-1.60	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
		28-32	10-25	1.50-1.60	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.37	.37			
		32-60	2-8	1.55-1.70	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
352B:													
Whittier	95	0-8	18-26	1.25-1.30	0.6-2	0.20-0.22	0.0-2.9	3.0-4.0	.28	.28	4	6	48
		8-15	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.5-1.5	.32	.32			
		15-32	28-32	1.30-1.40	0.6-2	0.17-0.19	3.0-5.9	0.5-1.0	.43	.43			
		32-37	12-18	1.50-1.60	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
		37-45	2-10	1.60-1.70	6-20	0.04-0.07	0.0-2.9	0.0-1.0	.17	.17			
		45-60	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
352C2:													
Whittier, moderately eroded	100	0-8	18-26	1.25-1.30	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	4	6	48
		8-30	28-32	1.30-1.40	0.6-2	0.17-0.19	3.0-5.9	0.5-1.0	.43	.43			
		30-34	12-18	1.50-1.60	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32			
		34-43	2-10	1.60-1.70	6-20	0.04-0.07	0.0-2.9	0.0-1.0	.17	.17			
		43-60	5-10	1.55-1.70	6-20	0.06-0.08	0.0-0.0	0.0-0.5	.17	.17			
354:													
Aquolls, ponded	100	0-80	---	---	0.0015-0.6	---	---	---	---	---	-	8	0
377B:													
Dinsdale	85	0-8	25-29	1.25-1.30	0.1-1	0.21-0.23	2.6-3.9	3.0-5.0	.28	.28	5	7	38
		8-19	25-29	1.25-1.30	0.1-1	0.21-0.23	2.6-3.9	3.0-5.0	.28	.28			
		19-34	30-34	1.30-1.35	0.1-1	0.18-0.20	4.2-5.4	1.0-2.0	.43	.43			
		34-46	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
		46-80	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
377C:													
Dinsdale	85	0-8	25-29	1.25-1.30	0.1-1	0.21-0.23	2.6-3.9	3.0-5.0	.28	.28	5	7	38
		8-19	25-29	1.25-1.30	0.1-1	0.21-0.23	2.6-3.9	3.0-5.0	.28	.28			
		19-34	30-34	1.30-1.35	0.1-1	0.18-0.20	4.2-5.4	1.0-2.0	.43	.43			
		34-46	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
		46-80	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
377C2:													
Dinsdale, moderately eroded	95	0-8	25-29	1.25-1.30	0.1-1	0.21-0.23	2.6-3.9	2.0-3.0	.28	.28	5	7	38
		8-19	30-34	1.30-1.35	0.1-1	0.18-0.20	4.2-5.4	0.5-2.0	.43	.43			
		19-31	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
		31-80	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
382:													
Maxfield	100	0-8	27-35	1.35-1.40	0.1-1	0.21-0.23	3.2-5.8	6.0-8.0	.28	.28	5	7	38
		8-19	27-35	1.35-1.40	0.1-1	0.21-0.23	3.2-5.8	3.0-6.0	.28	.28			
		19-29	25-34	1.40-1.50	0.1-1	0.18-0.20	2.6-5.4	0.5-2.0	.32	.32			
		29-55	20-35	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-5.8	0.0-0.5	.32	.32			
		55-80	20-35	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-5.8	0.0-0.5	.32	.32			
412E:													
Emeline	90	0-9	12-27	1.15-1.20	0.6-2	0.17-0.22	0.0-3.2	2.5-3.5	.28	.28	1	4L	86
		9-80	---	---	0.0015-0.6	---	---	---	---	---			
420B:													
Tama, terrace	95	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
		8-18	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28			
		18-45	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		45-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
428B:													
Ely	95	0-8	27-30	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-6.0	.28	.28	5	7	38
		8-32	27-30	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-6.0	.28	.28			
		32-47	28-35	1.30-1.40	0.6-2	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
		47-80	20-30	1.40-1.45	0.6-2	0.18-0.20	1.0-4.2	0.5-1.0	.43	.43			
430:													
Ackmore, occasionally flooded	90	0-8	18-27	1.25-1.30	0.6-2	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	6	48
		8-25	18-27	1.25-1.30	0.6-2	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32			
		25-60	26-38	1.30-1.40	0.6-2	0.18-0.20	6.0-8.9	3.0-5.0	.32	.32			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
442C:													
Dickinson----------	55	0-8	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20	4	3	86
		8-18	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
		18-30	10-18	1.50-1.55	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.20			
		30-36	10-15	1.45-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.24	.24			
		36-60	4-10	1.60-1.70	6-20	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			
Tama----------	40	0-8	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	3	48
		8-18	22-30	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28			
		18-45	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		45-60	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
450B:													
Pillot----------	90	0-8	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.32	.32	5	6	48
		8-15	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.32	.32			
		15-32	25-35	1.30-1.50	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.43			
		32-36	10-25	1.50-1.60	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.37	.37			
		36-60	2-10	1.60-1.70	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.17	.17			
450C:													
Pillot----------	85	0-8	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.32	.32	5	6	48
		8-15	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.32	.32			
		15-32	25-35	1.30-1.50	0.6-2	0.16-0.20	3.0-5.9	1.0-2.0	.43	.43			
		32-36	10-25	1.50-1.60	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.37	.37			
		36-60	2-10	1.60-1.70	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.17	.17			
462B:													
Downs, terrace--------	95	0-8	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.5-3.5	.32	.32	5	6	48
		8-17	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	0.5-1.5	.32	.32			
		17-39	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
		39-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
462C:													
Downs, terrace--------	90	0-8	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.5-3.5	.32	.32	5	6	48
		8-17	18-26	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	0.5-1.5	.32	.32			
		17-39	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.43	.43			
		39-60	22-26	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
463B:													
Fayette, terrace------	95	0-8	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-11	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		11-14	15-26	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.32	.32			
		14-34	24-32	1.30-1.45	0.6-2	0.18-0.20	2.3-4.8	0.0-1.0	.43	.43			
		34-47	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			
		47-73	20-30	1.45-1.50	0.6-2	0.18-0.20	1.0-4.2	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
467:													
Radford, occasionally flooded	95	0-12	18-27	1.40-1.60	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
		12-33	18-27	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
		33-80	24-35	1.35-1.55	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.32	.32			
478G:													
Rock outcrop	60	0-60	---	---	---	---	---	---	---	---	-	8	0
Emeline	30	0-9	12-27	1.15-1.20	0.6-2	0.17-0.22	0.0-3.2	2.5-3.5	.28	.28	1	6	48
		9-80	---	---	0.0015-0.6	---	---	---	---	---			
485:													
Spillville, occasionally flooded	85	0-8	18-26	1.45-1.55	0.6-2	0.19-0.21	0.4-2.9	4.0-5.0	.24	.24	5	6	48
		8-54	18-26	1.45-1.55	0.6-2	0.19-0.21	0.4-2.9	1.0-4.0	.24	.24			
		54-79	14-24	1.55-1.70	0.6-6	0.15-0.18	0.0-2.3	1.0-2.0	.28	.28			
520:													
Coppock, occasionally flooded	95	0-8	16-26	1.30-1.35	0.6-2	0.20-0.24	0.0-2.9	2.5-3.5	.32	.32	5	6	48
		8-25	16-27	1.30-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.43	.43			
		25-43	25-35	1.30-1.40	0.6-2	0.17-0.21	2.6-5.8	0.0-0.5	.43	.43			
		43-75	24-40	1.40-1.45	0.6-2	0.15-0.19	2.3-7.3	0.0-0.5	.43	.43			
520B:													
Coppock	95	0-8	16-26	1.30-1.35	0.6-2	0.20-0.24	0.0-2.9	2.5-3.5	.32	.32	5	6	48
		8-25	16-27	1.30-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.43	.43			
		25-43	25-35	1.30-1.40	0.6-2	0.17-0.21	2.6-5.8	0.0-0.5	.43	.43			
		43-75	24-40	1.40-1.45	0.6-2	0.15-0.19	2.3-7.3	0.0-0.5	.43	.43			
662C2:													
Mt. Carroll, moderately eroded	95	0-8	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-14	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.32	.32			
		14-37	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		37-53	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		53-60	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		60-80	16-24	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
662D2:													
Mt. Carroll, moderately eroded----	90	0-8	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-14	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.32	.32			
		14-37	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		37-53	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		53-60	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		60-80	16-24	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
662D3:													
Mt. Carroll, severely eroded----------	95	0-8	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-31	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		31-47	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		47-54	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		54-80	16-24	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
662E3:													
Mt. Carroll, severely eroded----------	95	0-8	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
		8-31	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		31-47	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		47-54	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.8	.43	.43			
		54-80	16-24	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.43	.43			
729B:													
Ackmore----------	50	0-8	18-27	1.25-1.30	0.6-2	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	6	48
		8-25	18-27	1.25-1.30	0.6-2	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32			
		25-60	26-38	1.30-1.40	0.6-2	0.18-0.20	6.0-8.9	3.0-5.0	.32	.32			
Nodaway----------	40	0-8	18-27	1.25-1.35	0.6-2	0.20-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		8-31	18-28	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
		31-42	18-30	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
		42-80	18-28	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
760:													
Ansgar----------	95	0-8	18-25	1.30-1.35	0.1-1	0.21-0.23	0.4-2.6	3.0-4.0	.28	.28	5	6	48
		8-12	18-25	1.30-1.35	0.1-1	0.21-0.23	0.4-2.6	0.5-1.0	.28	.28			
		12-28	30-34	1.35-1.40	0.1-1	0.18-0.20	4.2-5.4	0.0-0.5	.37	.37			
		28-36	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.37	.37			
		36-47	20-30	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.43	.43			
		47-72	20-30	1.75-1.90	0.0015-0.1	0.17-0.19	0.0-2.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
761:													
Franklin	90	0-8	18-25	1.30-1.35	0.1-1	0.21-0.23	0.4-2.6	3.0-4.0	.28	.28	5	6	48
		8-13	18-25	1.30-1.35	0.1-1	0.21-0.23	0.4-2.6	0.5-1.0	.28	.28			
		13-18	30-34	1.35-1.40	0.1-1	0.18-0.20	4.2-5.4	0.5-1.0	.37	.37			
		18-28	30-34	1.35-1.40	0.1-1	0.18-0.20	4.2-5.4	0.0-0.5	.37	.37			
		28-37	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.37	.37			
		37-46	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.37	.37			
		46-64	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.37	.37			
		64-74	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.37	.37			
771B:													
Waubeek	85	0-8	18-26	1.25-1.30	0.1-1	0.21-0.23	0.4-2.9	2.0-4.0	.28	.28	5	6	48
		8-13	18-26	1.25-1.30	0.1-1	0.21-0.23	0.4-2.9	2.0-4.0	.28	.28			
		13-29	25-34	1.25-1.35	0.1-1	0.18-0.20	2.6-3.9	1.0-2.0	.37	.37			
		29-45	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-2.3	0.0-0.5	.37	.37			
		45-80	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-2.3	0.0-0.5	.37	.37			
814D:													
Rockton	85	0-8	18-27	1.30-1.40	0.6-2	0.20-0.22	0.4-3.2	3.0-4.0	.28	.28	3	6	48
		8-15	18-27	1.30-1.40	0.6-2	0.20-0.22	0.4-3.2	3.0-4.0	.28	.28			
		15-26	25-35	1.40-1.55	0.6-2	0.17-0.19	2.6-5.8	0.5-1.0	.28	.28			
		26-31	35-60	1.35-1.45	0.6-2	0.10-0.14	5.8-13.7	0.0-0.5	.28	.28			
		31-80	---	---	0.0015-0.6	---	---	---	---	---			
826:													
Rowley	85	0-8	15-22	1.35-1.45	0.6-2	0.22-0.24	0.0-2.9	4.0-5.0	.28	.28	4	5	56
		8-16	15-22	1.35-1.45	0.6-2	0.22-0.24	0.0-2.9	4.0-5.0	.28	.28			
		16-21	20-30	1.35-1.65	0.6-2	0.18-0.22	0.0-2.9	0.0-1.0	.43	.43			
		21-32	27-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
		32-45	10-20	1.55-1.65	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.43	.43			
		45-55	1-4	1.55-1.65	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
		55-60	4-10	1.60-1.70	6-20	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			
884:													
Klingmore	90	0-8	26-30	1.30-1.35	0.1-1	0.22-0.24	2.9-4.2	4.0-6.0	.28	.28	5	6	38
		8-19	26-30	1.30-1.35	0.1-1	0.22-0.24	2.9-4.2	4.0-5.0	.28	.28			
		19-34	26-35	1.35-1.45	0.1-1	0.18-0.20	2.9-5.8	0.5-1.0	.37	.37			
		34-56	26-35	1.35-1.45	0.1-1	0.18-0.20	2.9-5.8	0.5-1.0	.37	.37			
		56-80	20-28	1.75-1.90	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.43	.43			
911B:													
Colo	55	0-8	27-36	1.28-1.32	0.6-2	0.21-0.23	3.0-5.9	5.0-7.0	.28	.28	5	7	38
		8-40	30-35	1.25-1.35	0.6-2	0.18-0.20	3.0-5.9	3.0-4.0	.28	.28			
		40-46	30-35	1.25-1.35	0.6-2	0.18-0.20	3.0-5.9	3.0-4.0	.28	.28			
		46-52	25-35	1.35-1.45	0.6-2	0.18-0.20	2.6-5.8	1.0-2.0	.32	.32			
		52-60	22-35	1.35-1.45	0.6-2	0.18-0.20	2.6-5.8	1.0-2.0	.32	.32			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
911B:													
Ely	35	0-8	27-30	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-6.0	.28	.28	5	7	38
		8-32	27-30	1.30-1.35	0.6-2	0.21-0.23	3.0-5.9	4.0-6.0	.28	.28			
		32-47	28-35	1.30-1.40	0.6-2	0.18-0.20	3.0-5.9	1.0-3.0	.43	.43			
		47-80	20-30	1.40-1.45	0.6-2	0.18-0.20	1.0-4.2	0.5-1.0	.43	.43			
977:													
Richwood	95	0-8	15-22	1.35-1.60	0.6-2	0.22-0.24	0.0-2.9	3.5-4.5	.28	.28	4	5	56
		8-18	15-22	1.35-1.60	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.28	.28			
		18-46	18-30	1.55-1.65	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.43	.43			
		46-60	10-20	1.55-1.65	0.6-6	0.09-0.22	0.0-2.9	0.0-0.5	.43	.43			
982:													
Maxmore	80	0-8	25-35	1.35-1.40	0.1-1	0.21-0.23	2.6-5.8	6.0-8.0	.28	.28	5	7	38
		8-20	25-35	1.35-1.40	0.1-1	0.21-0.23	2.6-5.8	3.0-6.0	.28	.28			
		20-50	25-35	1.40-1.50	0.1-1	0.18-0.20	2.6-5.8	0.5-2.0	.32	.32			
		50-80	20-28	1.65-1.75	0.0015-0.1	0.17-0.19	1.0-3.5	0.0-0.5	.32	.32			
1118:													
Garwin, terrace	95	0-8	30-35	1.30-1.35	0.6-2	0.21-0.23	6.0-8.9	6.0-7.0	.28	.28	5	7	38
		8-18	30-35	1.30-1.35	0.6-2	0.21-0.23	6.0-8.9	3.0-5.0	.28	.28			
		18-42	27-35	1.28-1.35	0.6-2	0.18-0.20	6.0-8.9	1.0-2.0	.28	.28			
		42-80	20-26	1.35-1.45	0.6-2	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
1119:													
Muscatine, terrace	95	0-8	28-30	1.30-1.35	0.6-2	0.22-0.24	4.1-5.5	4.0-6.0	.28	.28	5	6	48
		8-20	28-30	1.30-1.35	0.6-2	0.22-0.24	5.0-5.5	4.0-6.0	.28	.28			
		20-42	30-35	1.28-1.35	0.6-2	0.18-0.20	5.5-6.8	1.0-2.0	.43	.43			
		42-64	22-30	1.35-1.40	0.6-2	0.18-0.20	3.5-5.5	0.5-1.0	.43	.43			
1160:													
Walford, terrace	95	0-8	20-26	1.35-1.40	0.6-2	0.21-0.23	3.0-5.9	2.0-3.0	.32	.32	5	6	48
		8-22	18-26	1.40-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.43	.43			
		22-50	27-35	1.35-1.40	0.2-0.6	0.18-0.20	6.0-8.9	0.0-1.0	.43	.43			
		50-63	27-35	1.35-1.40	0.2-0.6	0.18-0.20	6.0-8.9	0.0-1.0	.43	.43			
		63-80	24-27	1.40-1.45	0.6-2	0.20-0.22	3.0-5.9	0.0-1.0	.43	.43			
1220:													
Nodaway, channeled, frequently flooded	85	0-7	18-27	1.25-1.35	0.6-2	0.20-0.23	0.0-2.9	2.0-3.0	.32	.32	5	6	48
		7-31	18-28	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
		31-42	18-30	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			
		42-80	18-28	1.25-1.35	0.6-2	0.20-0.23	3.0-5.9	0.0-0.5	.43	.43			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
1291:													
Atterberry, terrace---	95	0-8	20-26	1.35-1.55	0.6-2	0.22-0.25	0.0-2.9	2.0-4.0	.32	.32	5	6	48
		8-17	15-26	1.40-1.60	0.6-2	0.21-0.24	0.0-2.9	0.5-1.0	.32	.32			
		17-48	25-35	1.40-1.60	0.6-2	0.14-0.24	3.0-5.9	0.1-0.5	.43	.43			
		48-60	18-27	1.40-1.65	0.6-2	0.14-0.24	0.0-2.9	0.1-0.5	.43	.43			
1315:													
Perks, frequently flooded----------	40	0-9	2-10	1.50-1.55	6-20	0.07-0.09	0.0-2.9	0.5-1.5	.15	.15	5	3	86
		9-60	2-10	1.50-1.75	6-20	0.02-0.04	0.0-2.9	0.0-0.5	.15	.15			
Spillville, frequently flooded----------	30	0-8	18-26	1.45-1.55	0.6-2	0.19-0.21	0.4-2.9	4.0-5.0	.24	.24	5	3	48
		8-54	18-26	1.45-1.55	0.6-2	0.19-0.21	0.4-2.9	1.0-4.0	.24	.24			
		54-79	14-24	1.55-1.70	0.6-6	0.15-0.18	0.0-2.3	1.0-2.0	.28	.28			
4946:													
Udorthents----------	65	0-80	12-32	1.45-1.65	---	0.12-0.18	3.0-5.9	---	.32	---	-	---	---
Highway.													
5010.													
Pits, sand and gravel													
5030.													
Pits, limestone quarries													
5040:													
Udorthents, loamy-----	100	0-80	12-32	1.45-1.65	---	0.12-0.18	3.0-5.9	---	.32	---	-	---	---
5053:													
Psammaquents, frequently flooded---	100	0-80	---	---	0.0015-0.6	---	---	---	---	---	-	---	---
8041B:													
Sparta, terrace-------	100	0-8	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17	5	2	134
		8-15	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17			
		15-72	1-8	1.40-1.60	6-20	0.05-0.11	0.0-0.0	0.0-0.5	.15	.15			
		72-80	0-5	1.50-1.70	6-20	0.04-0.07	0.0-0.0	0.0-0.5	.15	.15			
8041C:													
Sparta, terrace-------	100	0-8	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17	5	2	134
		8-15	3-10	1.20-1.40	2-6	0.09-0.12	0.0-0.0	1.0-2.0	.17	.17			
		15-72	1-8	1.40-1.60	6-20	0.05-0.11	0.0-0.0	0.0-0.5	.15	.15			
		72-80	0-5	1.50-1.70	6-20	0.04-0.07	0.0-0.0	0.0-0.5	.15	.15			

Physical Properties of the Soils--Continued

Map symbol and soil name	Pct. of map unit	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
									Kw	Kf	T		
		In	Pct	g/cc	In/hr	In/in	Pct	Pct					
AW.													
Animal waste lagoon													
SL.													
Sewage lagoon													
W.													
Water													

Chemical Properties

The table described in this section shows estimates of some chemical 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.

Cation-exchange capacity is the total amount of exchangeable cations 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. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of exchangeable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil 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.

Chemical Properties of the Soils

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

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
8B:					
Judson	0-8	25-30	---	5.6-7.3	0
	8-28	25-30	---	5.6-7.3	0
	28-52	25-30	---	5.6-7.3	0
	52-60	25-30	---	6.1-7.8	0-15
41B:					
Sparta	0-8	3.6-10	---	5.1-7.3	0
	8-15	3.3-9.2	---	5.1-7.3	0
	15-72	0.8-5.8	---	5.1-6.5	0
	72-80	0.0-3.8	---	5.1-6.0	0
41C:					
Sparta	0-8	3.6-10	---	5.1-7.3	0
	8-15	3.3-9.2	---	5.1-7.3	0
	15-72	0.8-5.8	---	5.1-6.5	0
	72-80	0.0-3.8	---	5.1-6.0	0
41E:					
Sparta	0-8	3.6-10	---	5.1-7.3	0
	8-15	3.3-9.2	---	5.1-7.3	0
	15-72	0.8-5.8	---	5.1-6.5	0
	72-80	0.0-3.8	---	5.1-6.0	0
63B:					
Chelsea	0-8	5.0-10	---	5.6-7.3	0
	8-36	5.0-10	---	5.1-6.5	0
	36-70	5.0-10	---	5.1-6.5	0
63C:					
Chelsea	0-8	5.0-10	---	5.6-7.3	0
	8-36	5.0-10	---	5.1-6.5	0
	36-70	5.0-10	---	5.1-6.5	0
63E:					
Chelsea	0-4	5.0-10	---	5.6-7.3	0
	4-36	5.0-10	---	5.1-6.5	0
	36-70	5.0-10	---	5.1-6.5	0
65D2:					
Lindley, moderately eroded	0-8	10-16	---	4.5-7.3	0
	8-40	15-20	---	4.5-6.5	0
	40-60	10-16	---	6.1-7.8	0-15
65E2:					
Lindley, moderately eroded	0-8	10-16	---	4.5-7.3	0
	8-40	15-20	---	4.5-6.5	0
	40-60	10-16	---	6.1-7.8	0-15
65F2:					
Lindley, moderately eroded	0-8	10-16	---	4.5-7.3	0
	8-40	15-20	---	4.5-6.5	0
	40-60	10-16	---	6.1-7.8	0-15

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
83B:					
Kenyon	0-8	20-25	---	5.6-7.3	0
	8-14	20-25	---	5.6-7.3	0
	14-19	20-25	---	5.6-7.3	0
	19-55	20-25	---	5.1-7.3	0
	55-80	20-25	---	5.1-8.4	0-30
83C:					
Kenyon	0-8	20-25	---	5.6-7.3	0
	8-14	20-25	---	5.6-7.3	0
	14-19	20-25	---	5.6-7.3	0
	19-55	20-25	---	5.1-7.3	0
	55-80	20-25	---	5.1-8.4	0-25
83C2:					
Kenyon, moderately eroded	0-8	20-25	---	5.6-7.3	0
	8-14	20-25	---	5.6-7.3	0
	14-35	20-25	---	5.1-7.3	0
	35-41	20-25	---	5.1-8.4	0-25
	41-80	20-25	---	5.1-8.4	0-25
88:					
Nevin, rarely flooded	0-8	30-36	---	5.6-7.3	0
	8-30	30-36	---	5.6-7.3	0
	30-46	30-36	---	6.1-6.5	0
	46-62	25-30	---	6.6-7.3	0
110C:					
Lamont	0-8	10-15	---	5.1-7.3	0
	8-23	10-15	---	5.1-7.3	0
	23-53	10-15	---	5.1-7.3	0
	53-80	5.0-10	---	5.1-6.5	0
110E:					
Lamont	0-8	10-15	---	5.1-7.3	0
	8-23	10-15	---	5.1-7.3	0
	23-53	10-15	---	5.1-7.3	0
	53-80	5.0-10	---	5.1-6.5	0
118:					
Garwin	0-8	36-41	---	5.6-7.3	0
	8-18	36-41	---	5.6-7.3	0
	18-42	36-41	---	6.1-7.3	0
	42-80	30-36	---	6.6-7.8	0-15
119:					
Muscatine	0-8	30-36	---	5.1-7.3	0
	8-20	30-36	---	5.1-7.3	0
	20-42	30-36	---	5.1-7.3	0
	42-64	30-36	---	6.6-7.8	0-15
119B:					
Muscatine	0-8	30-36	---	5.1-7.3	0
	8-20	30-36	---	5.1-7.3	0
	20-42	30-36	---	5.1-7.3	0
	42-64	30-36	---	6.6-7.8	0-15

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
120:					
Tama	0-8	25-30	---	5.1-7.3	0
	8-18	25-30	---	5.1-7.3	0
	18-45	25-30	---	5.1-6.5	0
	45-60	25-30	---	5.6-7.3	0
120B:					
Tama	0-8	25-30	---	5.1-7.3	0
	8-18	25-30	---	5.1-7.3	0
	18-45	25-30	---	5.1-6.5	0
	45-60	25-30	---	5.6-7.3	0
120C:					
Tama	0-8	25-30	---	5.1-7.3	0
	8-18	25-30	---	5.1-7.3	0
	18-45	25-30	---	5.1-6.5	0
	45-60	25-30	---	5.6-7.3	0
120C2:					
Tama, moderately eroded	0-8	25-30	---	5.1-7.3	0
	8-26	25-30	---	5.1-6.5	0
	26-60	25-30	---	5.6-7.3	0
120D2:					
Tama, moderately eroded	0-8	25-30	---	5.1-7.3	0
	8-26	25-30	---	5.1-6.5	0
	26-60	25-30	---	5.6-7.3	0
121:					
Tama	0-8	25-30	---	5.1-7.3	0
	8-18	25-30	---	5.1-7.3	0
	18-45	25-30	---	5.1-6.5	0
	45-60	25-30	---	5.6-7.3	0
122:					
Sperry, depressional	0-8	25-30	---	5.6-7.3	0
	8-10	25-30	---	5.6-7.3	0
	10-17	20-25	---	5.6-7.3	0
	17-28	30-36	---	5.1-6.5	0
	28-47	30-36	---	5.1-6.5	0
	47-80	25-30	---	5.6-6.5	0
133:					
Colo, occasionally flooded	0-8	36-41	---	5.6-7.3	0
	8-40	36-41	---	5.6-7.3	0
	40-46	36-41	---	5.6-7.3	0
	46-52	30-36	---	6.1-7.3	0
	52-60	30-36	---	6.1-7.3	0
133+:					
Colo, occasionally flooded, overwash	0-8	25-30	---	5.6-7.3	0
	8-14	25-30	---	5.6-7.3	0
	14-40	36-41	---	5.6-7.3	0
	40-46	36-41	---	5.6-7.3	0
	46-60	30-36	---	6.1-7.3	0

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
136:					
Ankeny, rarely flooded	0-8	10-17	---	6.1-7.3	0
	8-30	10-17	---	6.1-7.3	0
	30-44	8.5-13	---	6.1-7.3	0
	44-60	1.6-7.2	---	6.1-7.3	0
143:					
Brady	0-8	5.0-20	---	5.1-7.3	0
	8-23	5.0-20	---	5.1-7.3	0
	23-37	2.0-12	---	5.1-6.5	0
	37-56	2.0-12	---	5.1-7.3	0
	56-80	1.0-2.0	---	6.6-8.4	0-25
160:					
Walford	0-8	20-25	---	5.6-7.3	0
	8-22	20-25	---	5.1-7.3	0
	22-50	20-25	---	5.1-6.0	0
	50-63	20-25	---	5.1-6.0	0
	63-80	20-25	---	5.6-7.8	0-15
162B:					
Downs	0-8	20-25	---	5.1-7.3	0
	8-17	20-25	---	5.1-7.3	0
	17-39	20-25	---	4.5-7.3	0
	39-60	20-25	---	5.6-7.3	0
162C:					
Downs	0-8	20-25	---	5.1-7.3	0
	8-17	20-25	---	5.1-7.3	0
	17-39	20-25	---	4.5-7.3	0
	39-60	20-25	---	5.6-7.3	0
162C2:					
Downs, moderately eroded	0-8	20-25	---	5.1-7.3	0
	8-33	20-25	---	4.5-7.3	0
	33-60	20-25	---	5.6-7.3	0
162D2:					
Downs, moderately eroded	0-8	20-25	---	5.1-7.3	0
	8-33	20-25	---	4.5-7.3	0
	33-60	20-25	---	5.6-7.3	0
162D3:					
Downs, severely eroded	0-8	20-25	---	5.1-7.3	0
	8-27	20-25	---	4.5-7.3	0
	27-60	20-25	---	5.6-7.3	0
162E3:					
Downs, severely eroded	0-8	20-25	---	5.1-7.3	0
	8-27	20-25	---	4.5-7.3	0
	27-60	20-25	---	5.6-7.3	0

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
163B:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
163C:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
163C2:					
Fayette, moderately eroded	0-8	15-20	---	5.1-7.3	0
	8-28	15-20	---	4.5-6.5	0
	28-41	14-23	---	5.1-7.8	0-15
	41-73	15-20	---	5.1-7.8	0-15
163D:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
163D2:					
Fayette, moderately eroded	0-8	15-20	---	5.1-7.3	0
	8-28	15-20	---	4.5-6.5	0
	28-41	14-23	---	5.1-7.8	0-15
	41-73	15-20	---	5.1-7.8	0-15
163D3:					
Fayette, severely eroded	0-8	15-20	---	5.1-7.3	0
	8-26	15-20	---	4.5-6.5	0
	26-39	14-23	---	5.1-7.8	0-15
	39-73	15-20	---	5.1-7.8	0-15
163E:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
163E2:					
Fayette, moderately eroded	0-8	15-20	---	5.1-7.3	0
	8-28	15-20	---	4.5-6.5	0
	28-41	14-23	---	5.1-7.8	0-15
	41-73	15-20	---	5.1-7.8	0-15

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
163E3:					
Fayette, severely eroded	0-8	15-20	---	5.1-7.3	0
	8-26	15-20	---	4.5-6.5	0
	26-39	14-23	---	5.1-7.8	0-15
	39-73	15-20	---	5.1-7.8	0-15
163F:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
163F2:					
Fayette, moderately eroded	0-8	15-20	---	5.1-7.3	0
	8-28	15-20	---	4.5-6.5	0
	28-41	14-23	---	5.1-7.8	0-15
	41-73	15-20	---	5.1-7.8	0-15
163G:					
Fayette	0-3	13-22	---	5.1-7.3	0
	3-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
171B:					
Bassett	0-8	20-25	---	5.1-7.3	0
	8-10	20-25	---	5.1-6.5	0
	10-14	20-25	---	5.1-6.5	0
	14-59	20-25	---	4.5-6.5	0
	59-73	20-25	---	4.5-7.3	0-25
171C2:					
Bassett, moderately eroded	0-8	20-25	---	5.1-7.3	0
	8-53	20-25	---	4.5-6.5	0
	53-73	20-25	---	5.1-8.4	0-25
171D2:					
Bassett, moderately eroded	0-8	20-25	---	5.1-7.3	0
	8-53	20-25	---	4.5-6.5	0
	53-73	20-25	---	5.1-8.4	0-25
175B:					
Dickinson	0-8	15-20	---	5.6-7.3	0
	8-18	15-20	---	5.6-7.3	0
	18-30	15-20	---	5.6-7.3	0
	30-36	15-20	---	5.1-6.5	0
	36-60	5.0-10	---	5.6-6.5	0

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
175C:					
Dickinson	0-8	15-20	---	5.6-7.3	0
	8-18	15-20	---	5.6-7.3	0
	18-30	15-20	---	5.6-7.3	0
	30-36	15-20	---	5.1-6.5	0
	36-60	5.0-10	---	5.6-6.5	0
177:					
Saude	0-8	20-25	---	5.6-7.3	0
	8-13	20-25	---	5.6-7.3	0
	13-16	15-20	---	5.1-6.0	0
	16-24	15-20	---	5.1-6.0	0
	24-28	15-20	---	5.1-6.0	0
	28-36	5.0-10	---	5.1-6.5	0
	36-60	5.0-10	---	5.1-6.5	0
184:					
Klinger	0-8	30-36	---	5.1-7.3	0
	8-14	30-36	---	5.1-7.3	0
	14-19	30-36	---	5.1-7.3	0
	19-29	25-30	---	5.1-6.5	0
	29-59	15-20	---	5.1-7.8	0-15
	59-72	15-20	---	5.1-7.8	0-15
	72-80	15-20	---	5.1-7.8	0-15
212:					
Kennebec, occasionally flooded	0-8	30-36	---	5.6-7.3	0
	8-41	30-36	---	5.6-7.3	0
	41-54	30-36	---	6.1-7.3	0
	54-80	30-36	---	6.1-7.3	0
220:					
Nodaway, occasionally flooded	0-8	20-25	---	6.1-7.3	0
	8-31	20-25	---	6.1-7.3	0
	31-42	20-25	---	6.1-7.3	0
	42-80	20-25	---	6.1-7.3	0
221:					
Klossner	0-8	65-65	---	5.1-7.3	0
	8-26	65-65	---	5.1-7.3	0
	26-36	2.0-15	---	6.1-8.4	0-25
	36-48	2.0-15	---	6.1-8.4	0-25
	48-80	2.0-15	---	6.1-8.4	0-25
291:					
Atterberry	0-8	20-25	---	5.6-7.3	0
	8-17	10-18	---	5.1-7.3	0
	17-48	15-22	---	5.1-7.3	0
	48-60	11-17	---	5.6-7.8	0-15
291B:					
Atterberry	0-8	20-25	---	5.6-7.3	0
	8-17	10-18	---	5.1-7.3	0
	17-48	15-22	---	5.1-7.3	0
	48-60	11-17	---	5.6-7.8	0-15

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
293C:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
Chelsea	0-8	5.0-10	---	5.6-7.3	0
	8-36	5.0-10	---	5.1-6.5	0
	36-70	5.0-10	---	5.1-6.5	0
Tell	0-8	15-20	---	5.1-7.3	0
	8-18	4.0-25	---	5.1-6.5	0
	18-28	4.0-25	---	5.1-6.5	0
	28-32	2.0-20	---	5.1-6.5	0
	32-60	0.0-7.0	---	5.1-6.5	0
293E:					
Fayette	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
Chelsea	0-8	5.0-10	---	5.6-7.3	0
	8-36	5.0-10	---	5.1-6.5	0
	36-70	5.0-10	---	5.1-6.5	0
Tell	0-8	15-20	---	5.1-7.3	0
	8-18	4.0-25	---	5.1-6.5	0
	18-28	4.0-25	---	5.1-6.5	0
	28-32	2.0-20	---	5.1-6.5	0
	32-60	0.0-7.0	---	5.1-6.5	0
293G:					
Fayette	0-3	13-22	---	5.1-7.3	0
	3-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
Chelsea	0-4	5.0-10	---	5.6-7.3	0
	4-36	5.0-10	---	5.1-6.5	0
	36-70	5.0-10	---	5.1-6.5	0
Tell	0-9	15-20	---	5.1-7.3	0
	9-18	4.0-25	---	5.1-6.5	0
	18-28	4.0-25	---	5.1-6.5	0
	28-32	2.0-20	---	5.1-6.5	0
	32-60	0.0-7.0	---	5.1-6.5	0
352B:					
Whittier	0-8	20-25	---	5.6-7.3	0
	8-15	15-20	---	5.1-7.3	0
	15-32	20-25	---	5.1-7.3	0
	32-37	15-20	---	5.1-6.0	0
	37-45	5.0-10	---	5.1-6.5	0
	45-60	5.0-10	---	5.1-6.5	0

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
352C2:					
Whittier, moderately eroded	0-8	20-25	---	5.6-7.3	0
	8-30	20-25	---	5.1-7.3	0
	30-34	15-20	---	5.1-6.0	0
	34-43	5.0-10	---	5.1-6.5	0
	43-60	5.0-10	---	5.1-6.5	0
354.					
Aquolls, ponded					
377B:					
Dinsdale	0-8	25-30	---	5.1-7.3	0
	8-19	25-30	---	5.1-7.3	0
	19-34	25-30	---	5.1-7.3	0
	34-46	25-30	---	5.6-8.4	0-25
	46-80	25-30	---	5.6-8.4	0-25
377C:					
Dinsdale	0-8	25-30	---	5.1-7.3	0
	8-19	25-30	---	5.1-7.3	0
	19-34	25-30	---	5.1-7.3	0
	34-46	25-30	---	5.6-8.4	0-25
	46-80	25-30	---	5.6-8.4	0-25
377C2:					
Dinsdale, moderately eroded	0-8	25-30	---	5.1-7.3	0
	8-19	25-30	---	5.1-7.3	0
	19-31	25-30	---	5.6-8.4	0-25
	31-80	25-30	---	5.6-8.4	0-25
382:					
Maxfield	0-8	23-30	---	6.6-7.3	0
	8-19	23-30	---	6.6-7.3	0
	19-29	20-28	---	6.1-7.3	0
	29-55	14-27	---	6.1-7.8	0-15
	55-80	14-27	---	6.1-7.8	0-15
412E:					
Emeline	0-9	20-25	---	6.1-8.4	0-25
	9-80	---	---	---	---
420B:					
Tama, terrace	0-8	25-30	---	5.1-7.3	0
	8-18	25-30	---	5.1-7.3	0
	18-45	25-30	---	5.1-6.5	0
	45-60	25-30	---	5.6-7.3	0
428B:					
Ely	0-8	30-36	---	5.6-7.3	0
	8-32	30-36	---	5.6-7.3	0
	32-47	30-36	---	6.1-7.3	0
	47-80	25-30	---	6.6-8.4	0-25
430:					
Ackmore, occasionally flooded	0-8	25-30	---	5.6-7.3	0
	8-25	25-30	---	5.6-7.3	0
	25-60	25-30	---	5.6-7.8	0-15

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
442C:					
Dickinson	0-8	15-20	---	5.6-7.3	0
	8-18	15-20	---	5.6-7.3	0
	18-30	15-20	---	5.6-7.3	0
	30-36	15-20	---	5.1-6.5	0
	36-60	5.0-10	---	5.6-6.5	0
Tama	0-8	25-30	---	5.1-7.3	0
	8-18	25-30	---	5.1-7.3	0
	18-45	25-30	---	5.1-6.5	0
	45-60	25-30	---	5.6-7.3	0
450B:					
Pillot	0-8	25-30	---	5.6-7.3	0
	8-15	25-30	---	5.6-7.3	0
	15-32	25-30	---	5.6-7.3	0
	32-36	2.0-20	---	5.6-7.3	0
	36-60	5.0-10	---	5.6-7.3	0
450C:					
Pillot	0-8	25-30	---	5.6-7.3	0
	8-15	25-30	---	5.6-7.3	0
	15-32	25-30	---	5.6-7.3	0
	32-36	2.0-20	---	5.6-7.3	0
	36-60	5.0-10	---	5.6-7.3	0
462B:					
Downs, terrace	0-8	20-25	---	5.1-7.3	0
	8-17	20-25	---	5.1-7.3	0
	17-39	20-25	---	4.5-7.3	0
	39-60	20-25	---	5.6-7.3	0
462C:					
Downs, terrace	0-8	20-25	---	5.1-7.3	0
	8-17	20-25	---	5.1-7.3	0
	17-39	20-25	---	4.5-7.3	0
	39-60	20-25	---	5.6-7.3	0
463B:					
Fayette, terrace	0-8	13-22	---	5.1-7.3	0
	8-11	11-21	---	5.1-7.3	0
	11-14	11-21	---	5.1-7.3	0
	14-34	17-25	---	4.5-6.5	0
	34-47	14-23	---	5.1-7.8	0-15
	47-73	14-23	---	5.1-7.8	0-15
467:					
Radford, occasionally flooded	0-12	15-24	---	5.6-7.3	0
	12-33	11-20	---	6.1-7.3	0
	33-80	14-23	---	6.1-7.8	0-15
478G:					
Rock outcrop.					
Emeline	0-9	20-25	---	6.1-8.4	0-25
	9-80	---	---	---	---

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
485:					
Spillville, occasionally flooded	0-8	20-25	---	5.6-7.3	0
	8-54	20-25	---	5.6-7.3	0
	54-79	20-25	---	5.6-7.3	0
520:					
Coppock, occasionally flooded	0-8	20-25	---	6.1-7.3	0
	8-25	20-25	---	5.6-7.3	0
	25-43	---	20-25	4.5-6.0	0
	43-75	---	20-25	4.5-6.0	0
520B:					
Coppock	0-8	20-25	---	6.1-7.3	0
	8-25	20-25	---	5.6-7.3	0
	25-43	---	20-25	4.5-6.0	0
	43-75	---	20-25	4.5-6.0	0
662C2:					
Mt. Carroll, moderately eroded	0-8	20-25	---	5.6-7.3	0
	8-14	20-25	---	5.6-7.3	0
	14-37	20-25	---	5.1-7.3	0
	37-53	20-25	---	5.1-7.3	0
	53-60	20-25	---	5.1-7.3	0
	60-80	20-25	---	5.6-8.4	0-25
662D2:					
Mt. Carroll, moderately eroded	0-8	20-25	---	5.6-7.3	0
	8-14	20-25	---	5.6-7.3	0
	14-37	20-25	---	5.1-7.3	0
	37-53	20-25	---	5.1-7.3	0
	53-60	20-25	---	5.1-7.3	0
	60-80	20-25	---	5.6-8.4	0-25
662D3:					
Mt. Carroll, severely eroded	0-8	20-25	---	5.6-7.3	0
	8-31	20-25	---	5.1-7.3	0
	31-47	20-25	---	5.1-7.3	0
	47-54	20-25	---	5.1-7.3	0
	54-80	20-25	---	5.6-8.4	0-25
662E3:					
Mt. Carroll, severely eroded	0-8	20-25	---	5.6-7.3	0
	8-31	20-25	---	5.1-7.3	0
	31-47	20-25	---	5.1-7.3	0
	47-54	20-25	---	5.1-7.3	0
	54-80	20-25	---	5.6-8.4	0-25
729B:					
Ackmore	0-8	25-30	---	5.6-7.3	0
	8-25	25-30	---	5.6-7.3	0
	25-60	25-30	---	5.6-7.8	0-15
Nodaway	0-8	20-25	---	6.1-7.3	0
	8-31	20-25	---	6.1-7.3	0
	31-42	20-25	---	6.1-7.3	0
	42-80	20-25	---	6.1-7.3	0

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
760:					
Ansgar	0-8	20-25	---	5.1-7.3	0
	8-12	20-25	---	5.1-7.3	0
	12-28	20-25	---	5.1-6.0	0
	28-36	20-25	---	5.1-8.4	0
	36-47	20-25	---	5.1-6.5	0
	47-72	20-25	---	5.1-6.5	0-25
761:					
Franklin	0-8	20-25	---	5.1-7.3	0
	8-13	20-25	---	5.1-7.3	0
	13-18	20-25	---	5.1-6.0	0
	18-28	20-25	---	5.1-6.0	0
	28-37	20-25	---	5.1-8.4	0-25
	37-46	20-25	---	5.1-8.4	0-25
	46-64	20-25	---	5.1-8.4	0-25
	64-74	20-25	---	5.1-8.4	0-25
771B:					
Waubeek	0-8	20-25	---	5.6-7.3	0
	8-13	20-25	---	5.6-7.3	0
	13-29	20-25	---	5.1-6.0	0
	29-45	20-25	---	5.1-7.3	0
	45-80	20-25	---	5.1-7.3	0
814D:					
Rockton	0-8	16-23	---	5.1-7.3	0
	8-15	16-23	---	5.1-7.3	0
	15-26	20-28	---	5.1-6.5	0
	26-31	23-44	---	5.6-7.3	0
	31-80	---	---	---	---
826:					
Rowley	0-8	25-30	---	6.1-7.3	0
	8-16	25-30	---	6.1-7.3	0
	16-21	20-25	---	5.1-7.3	0
	21-32	25-30	---	5.1-6.5	0
	32-45	20-25	---	5.1-7.3	0
	45-55	5.0-10	---	5.6-7.3	0
	55-60	5.0-10	---	5.6-6.5	0
884:					
Klingmore	0-8	30-36	---	5.1-7.3	0
	8-19	30-36	---	5.1-7.3	0
	19-34	30-36	---	5.1-6.5	0
	34-56	30-36	---	5.1-6.5	0
	56-80	25-30	---	5.6-8.4	0-25
911B:					
Colo	0-8	36-41	---	5.6-7.3	0
	8-40	36-41	---	5.6-7.3	0
	40-46	36-41	---	5.6-7.3	0
	46-52	30-36	---	6.1-7.3	0
	52-60	30-36	---	6.1-7.3	0
Ely	0-8	30-36	---	5.6-7.3	0
	8-32	30-36	---	5.6-7.3	0
	32-47	30-36	---	6.1-7.3	0
	47-80	25-30	---	6.6-8.4	0-25

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
977:					
Richwood	0-8	20-25	---	5.6-7.3	0
	8-18	20-25	---	5.6-7.3	0
	18-46	4.0-25	---	5.6-7.3	0
	46-60	2.0-15	---	5.6-7.3	0
982:					
Maxmore	0-8	36-41	---	6.6-7.3	0
	8-20	36-41	---	6.6-7.3	0
	20-50	36-41	---	6.1-7.3	0
	50-80	25-30	---	6.1-7.8	0-15
1118:					
Garwin, terrace	0-8	36-41	---	5.6-7.3	0
	8-18	36-41	---	5.6-7.3	0
	18-42	36-41	---	6.1-7.3	0
	42-80	30-36	---	6.6-7.8	0-15
1119:					
Muscatine, terrace	0-8	30-36	---	5.1-7.3	0
	8-20	30-36	---	5.1-7.3	0
	20-42	30-36	---	5.1-7.3	0
	42-64	30-36	---	6.6-7.8	0-15
1160:					
Walford, terrace	0-8	20-25	---	5.6-7.3	0
	8-22	20-25	---	5.1-7.3	0
	22-50	20-25	---	5.1-6.0	0
	50-63	20-25	---	5.1-6.0	0
	63-80	20-25	---	5.6-7.8	0-15
1220:					
Nodaway, channeled, frequently flooded	0-7	20-25	---	6.1-7.3	0
	7-31	20-25	---	6.1-7.3	0
	31-42	20-25	---	6.1-7.3	0
	42-80	20-25	---	6.1-7.3	0
1291:					
Atterberry, terrace	0-8	20-25	---	5.6-7.3	0
	8-17	10-18	---	5.1-7.3	0
	17-48	15-22	---	5.1-7.3	0
	48-60	11-17	---	5.6-7.8	0-15
1315:					
Perks, frequently flooded	0-9	5.0-10	---	5.6-7.3	0
	9-60	5.0-10	---	5.6-7.3	0
Spillville, frequently flooded	0-8	20-25	---	5.6-7.3	0
	8-54	20-25	---	5.6-7.3	0
	54-79	20-25	---	5.6-7.3	0
4946.					
Udorthents-Highway					
5010.					
Pits, sand and gravel					

Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
5030. Pits, limestone quarries					
5040. Udorthents, loamy					
5053. Psammaquents, frequently flooded					
8041B: Sparta, terrace------	0-8	3.6-10	---	5.1-7.3	0
	8-15	3.3-9.2	---	5.1-7.3	0
	15-72	0.8-5.8	---	5.1-6.5	0
	72-80	0.0-3.8	---	5.1-6.0	0
8041C: Sparta, terrace------	0-8	3.6-10	---	5.1-7.3	0
	8-15	3.3-9.2	---	5.1-7.3	0
	15-72	0.8-5.8	---	5.1-6.5	0
	72-80	0.0-3.8	---	5.1-6.0	0
AW. Animal waste lagoon					
SL. Sewage lagoon					
W. Water					

Water Features

The table described in this section 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.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are *negligible, very low, low, medium, high,* and *very high*.

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 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 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 is the temporary inundation of an area 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.

Water Features

(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	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
8B:										
Judson	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
41B:										
Sparta	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
41C:										
Sparta	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
41E:										
Sparta	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
63B:										
Chelsea	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
63C:										
Chelsea	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
63E:										
Chelsea	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
65D2:										
Lindley, moderately eroded	C	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
65E2:										
Lindley, moderately eroded	C	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
65F2:										
Lindley, moderately eroded	C	Very high								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
83B:										
Kenyon----------	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
83C:										
Kenyon----------	B	Medium								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None
83C2:										
Kenyon, moderately eroded	B	Medium								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None
88:										
Nevin, rarely flooded-----	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	Brief	Rare
			March	1.5-4.0	>6.0	---	---	None	Brief	Rare
			April	1.0-3.5	>6.0	---	---	None	Brief	Rare
			May	1.5-4.0	>6.0	---	---	None	Brief	Rare
			June	2.0-4.5	>6.0	---	---	None	Brief	Rare
			July	3.0-5.5	>6.0	---	---	None	Brief	Rare
			August	3.5-6.0	>6.0	---	---	None	Brief	Rare
			September	4.0-6.5	>6.0	---	---	None	Brief	Rare
			October	3.5-6.0	>6.0	---	---	None	Brief	Rare
			November	2.5-5.0	>6.0	---	---	None	Brief	Rare
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
110C:										
Lamont	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
110E:										
Lamont	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
118:										
Garwin	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
119:										
Muscatine	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
119B:										
Muscatine	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
120:										
Tama	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
120B:										
Tama	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
120C:										
Tama	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
120C2:										
Tama, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
120D2:										
Tama, moderately eroded---	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
121:										
Tama----------	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
122:										
Sperry, depressional------	C/D	Negligible								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
			March	0.5-2.0	>6.0	0.0-1.0	Long	Frequent	---	None
			April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
			May	0.5-2.0	>6.0	0.0-1.0	Long	Frequent	---	None
			June	1.0-2.0	>6.0	0.0-1.0	Long	Frequent	---	None
			July	2.0-3.5	>6.0	0.0-1.0	Long	Frequent	---	None
			August	2.5-3.5	>6.0	0.0-1.0	Long	Frequent	---	None
			September	3.0-4.0	>6.0	0.0-1.0	Long	Frequent	---	None
			October	2.5-3.5	>6.0	0.0-1.0	Long	Frequent	---	None
			November	1.5-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
133:										
Colo, occasionally flooded	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			March	0.5-2.0	>6.0	---	---	None	Brief	Occasional
			April	0.0-1.0	>6.0	---	---	None	Brief	Occasional
			May	0.5-2.0	>6.0	---	---	None	Brief	Occasional
			June	1.0-2.0	>6.0	---	---	None	Brief	Occasional
			July	2.0-3.5	>6.0	---	---	None	Brief	Occasional
			August	2.5-3.5	>6.0	---	---	None	Brief	Occasional
			September	3.0-4.0	>6.0	---	---	None	Brief	Occasional
			October	2.5-3.5	>6.0	---	---	None	Brief	Occasional
			November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			December	2.0-3.5	>6.0	---	---	None	---	None
133+:										
Colo, occasionally flooded, overwash	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			March	0.5-2.0	>6.0	---	---	None	Brief	Occasional
			April	0.0-1.0	>6.0	---	---	None	Brief	Occasional
			May	0.5-2.0	>6.0	---	---	None	Brief	Occasional
			June	1.0-2.0	>6.0	---	---	None	Brief	Occasional
			July	2.0-3.5	>6.0	---	---	None	Brief	Occasional
			August	2.5-3.5	>6.0	---	---	None	Brief	Occasional
			September	3.0-4.0	>6.0	---	---	None	Brief	Occasional
			October	2.5-3.5	>6.0	---	---	None	Brief	Occasional
			November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			December	2.0-3.5	>6.0	---	---	None	---	None
136:										
Ankeny, rarely flooded	B	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	Brief	Rare
			March	---	---	---	---	None	Brief	Rare
			April	---	---	---	---	None	Brief	Rare
			May	---	---	---	---	None	Brief	Rare
			June	---	---	---	---	None	Brief	Rare
			July	---	---	---	---	None	Brief	Rare
			August	---	---	---	---	None	Brief	Rare
			September	---	---	---	---	None	Brief	Rare
			October	---	---	---	---	None	Brief	Rare
			November	---	---	---	---	None	Brief	Rare
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
143:										
Brady	B	Very low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
160:										
Walford	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-2.0	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.5	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None
162B:										
Downs	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
162C:										
Downs----------	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
162C2:										
Downs, moderately eroded--	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
162D2:										
Downs, moderately eroded--	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
162D3:										
Downs, severely eroded----	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
162E3:										
Downs, severely eroded----	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163B:										
Fayette----------	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
163C:										
Fayette	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163C2:										
Fayette, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163D:										
Fayette	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
163D2:										
Fayette, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163D3:										
Fayette, severely eroded--	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163E:										
Fayette----------	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
163E2:										
Fayette, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163E3:										
Fayette, severely eroded--	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163F:										
Fayette----------	B	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
163F2:										
Fayette, moderately eroded	B	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
163G:										
Fayette----------	B	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
171B:										
Bassett----------	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
171C2:										
Bassett, moderately eroded	B	Medium								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None
171D2:										
Bassett, moderately eroded	B	Medium								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None
175B:										
Dickinson-----------	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
175C:										
Dickinson	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
177:										
Saude	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
184:										
Klinger	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	3.0-5.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
212:										
Kennebec, occasionally flooded	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	Brief	Occasional
			March	4.5-6.5	>6.0	---	---	None	Brief	Occasional
			April	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			May	4.5-6.5	>6.0	---	---	None	Brief	Occasional
			June	5.0-6.7	>6.0	---	---	None	Brief	Occasional
			July	6.0-6.7	>6.0	---	---	None	Brief	Occasional
			August	6.5-6.7	>6.0	---	---	None	Brief	Occasional
			September	6.5-6.7	>6.0	---	---	None	Brief	Occasional
			October	6.5-6.7	>6.0	---	---	None	Brief	Occasional
			November	5.5-6.7	>6.0	---	---	None	Brief	Occasional
			December	6.0-6.7	>6.0	---	---	None	---	None
220:										
Nodaway, occasionally flooded	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	Brief	Occasional
			March	4.5-6.5	>6.0	---	---	None	Brief	Occasional
			April	4.0-6.0	>6.0	---	---	None	Brief	Occasional
			May	4.5-6.5	>6.0	---	---	None	Brief	Occasional
			June	5.0-6.7	>6.0	---	---	None	Brief	Occasional
			July	6.0-6.7	>6.0	---	---	None	Brief	Occasional
			August	6.5-6.7	>6.0	---	---	None	Brief	Occasional
			September	6.5-6.7	>6.0	---	---	None	Brief	Occasional
			October	6.5-6.7	>6.0	---	---	None	Brief	Occasional
			November	5.5-6.7	>6.0	---	---	None	Brief	Occasional
			December	6.0-6.7	>6.0	---	---	None	---	None
221:										
Klossner	A/D	Very low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
291:										
Atterberry	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
291B:										
Atterberry	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
293C:										
Fayette	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
293C:										
Chelsea	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Tell	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
293E:										
Fayette	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
293E:										
Chelsea	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Tell	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
293G:										
Fayette	B	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
293G:										
Chelsea	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Tell	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
352B:										
Whittier	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
352C2:										
Whittier, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
354:										
Aquolls, ponded	---	Very low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
			March	0.5-2.0	>6.0	0.0-1.0	Long	Frequent	---	None
			April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
			May	0.5-2.0	>6.0	0.0-1.0	Long	Frequent	---	None
			June	1.0-2.0	>6.0	0.0-1.0	Long	Frequent	---	None
			July	2.0-3.5	>6.0	0.0-1.0	Long	Frequent	---	None
			August	2.5-3.5	>6.0	0.0-1.0	Long	Frequent	---	None
			September	3.0-4.0	>6.0	0.0-1.0	Long	Frequent	---	None
			October	2.5-3.5	>6.0	0.0-1.0	Long	Frequent	---	None
			November	1.5-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
377B:										
Dinsdale	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
377C:										
Dinsdale	B	Medium								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None
377C2:										
Dinsdale, moderately eroded	B	Medium								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None
382:										
Maxfield	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
412E:										
Emeline	D	High								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
420B:										
Tama, terrace	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
428B:										
Ely	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
430:										
Ackmore, occasionally flooded	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			March	1.5-4.0	>6.0	---	---	None	Brief	Occasional
			April	1.0-3.5	>6.0	---	---	None	Brief	Occasional
			May	1.5-4.0	>6.0	---	---	None	Brief	Occasional
			June	2.0-4.5	>6.0	---	---	None	Brief	Occasional
			July	3.0-5.5	>6.0	---	---	None	Brief	Occasional
			August	3.5-6.0	>6.0	---	---	None	Brief	Occasional
			September	4.0-6.5	>6.0	---	---	None	Brief	Occasional
			October	3.5-6.0	>6.0	---	---	None	Brief	Occasional
			November	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			December	3.0-5.5	>6.0	---	---	None	---	None
442C:										
Dickinson	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Tama	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
450B:										
Pillot	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
450C:										
Pillot	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
462B:										
Downs, terrace	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
462C:										
Downs, terrace----------	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
463B:										
Fayette, terrace----------	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
467:										
Radford, occasionally flooded----------	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			March	1.5-4.0	>6.0	---	---	None	Brief	Occasional
			April	1.0-3.5	>6.0	---	---	None	Brief	Occasional
			May	1.5-4.0	>6.0	---	---	None	Brief	Occasional
			June	2.0-4.5	>6.0	---	---	None	Brief	Occasional
			July	3.0-5.5	>6.0	---	---	None	Brief	Occasional
			August	3.5-6.0	>6.0	---	---	None	Brief	Occasional
			September	4.0-6.5	>6.0	---	---	None	Brief	Occasional
			October	3.5-6.0	>6.0	---	---	None	Brief	Occasional
			November	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
478G:										
Rock outcrop	---	High								
			Jan-Dec	---	---	---	---	None	---	---
Emeline	D	Very high								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
485:										
Spillville, occasionally flooded	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			March	1.5-4.0	>6.0	---	---	None	Brief	Occasional
			April	1.0-3.5	>6.0	---	---	None	Brief	Occasional
			May	1.5-4.0	>6.0	---	---	None	Brief	Occasional
			June	2.0-4.5	>6.0	---	---	None	Brief	Occasional
			July	3.0-5.5	>6.0	---	---	None	Brief	Occasional
			August	3.5-6.0	>6.0	---	---	None	Brief	Occasional
			September	4.0-6.5	>6.0	---	---	None	Brief	Occasional
			October	3.5-6.0	>6.0	---	---	None	Brief	Occasional
			November	2.5-5.0	>6.0	---	---	None	Brief	Occasional
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
520:										
Coppock, occasionally flooded	B	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			March	0.5-2.0	>6.0	---	---	None	Brief	Occasional
			April	0.0-1.0	>6.0	---	---	None	Brief	Occasional
			May	0.5-1.5	>6.0	---	---	None	Brief	Occasional
			June	1.0-2.0	>6.0	---	---	None	Brief	Occasional
			July	2.0-3.0	>6.0	---	---	None	Brief	Occasional
			August	2.5-3.5	>6.0	---	---	None	Brief	Occasional
			September	3.0-4.0	>6.0	---	---	None	Brief	Occasional
			October	2.5-3.5	>6.0	---	---	None	Brief	Occasional
			November	1.5-3.0	>6.0	---	---	None	Brief	Occasional
			December	2.0-3.5	>6.0	---	---	None	---	None
520B:										
Coppock	B	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
662C2:										
Mt. Carroll, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
662D2:										
Mt. Carroll, moderately eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
662D3:										
Mt. Carroll, severely eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
662E3:										
Mt. Carroll, severely eroded	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
729B:										
Ackmore	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
Nodaway	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
760:										
Ansgar	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
761:										
Franklin	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	3.0-5.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
771B:										
Waubeek	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	---	None
			March	4.5-6.5	>6.0	---	---	None	---	None
			April	4.0-6.0	>6.0	---	---	None	---	None
			May	4.5-6.5	>6.0	---	---	None	---	None
			June	5.0-6.7	>6.0	---	---	None	---	None
			July	6.0-6.7	>6.0	---	---	None	---	None
			August	6.5-6.7	>6.0	---	---	None	---	None
			September	6.5-6.7	>6.0	---	---	None	---	None
			October	6.5-6.7	>6.0	---	---	None	---	None
			November	5.5-6.7	>6.0	---	---	None	---	None
			December	6.0-6.7	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
814D:										
Rockton	B	Medium								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
826:										
Rowley	C	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
884:										
Klingmore	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	3.0-5.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
911B:										
Colo	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
Ely	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None
977:										
Richwood	B	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
982:										
Maxmore	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
1118:										
Garwin, terrace	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-1.5	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.0	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.5	>6.0	---	---	None	---	None
1119:										
Muscatine, terrace	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
1160:										
Walford, terrace----------	B/D	Low								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	---	None
			March	0.5-2.0	>6.0	---	---	None	---	None
			April	0.0-1.0	>6.0	---	---	None	---	None
			May	0.5-2.0	>6.0	---	---	None	---	None
			June	1.0-2.0	>6.0	---	---	None	---	None
			July	2.0-3.5	>6.0	---	---	None	---	None
			August	2.5-3.5	>6.0	---	---	None	---	None
			September	3.0-4.0	>6.0	---	---	None	---	None
			October	2.5-3.5	>6.0	---	---	None	---	None
			November	1.5-3.0	>6.0	---	---	None	---	None
			December	2.0-3.0	>6.0	---	---	None	---	None
1220:										
Nodaway, channeled, frequently flooded-------	B	Low								
			January	6.0-6.7	>6.0	---	---	None	---	None
			February	5.5-6.7	>6.0	---	---	None	Long	Frequent
			March	4.5-6.5	>6.0	---	---	None	Long	Frequent
			April	4.0-6.0	>6.0	---	---	None	Long	Frequent
			May	4.5-6.5	>6.0	---	---	None	Long	Frequent
			June	5.0-6.7	>6.0	---	---	None	Long	Frequent
			July	6.0-6.7	>6.0	---	---	None	Long	Frequent
			August	6.5-6.7	>6.0	---	---	None	Long	Frequent
			September	6.5-6.7	>6.0	---	---	None	Long	Frequent
			October	6.5-6.7	>6.0	---	---	None	Long	Frequent
			November	5.5-6.7	>6.0	---	---	None	Long	Frequent
			December	6.0-6.7	>6.0	---	---	None	---	None
1291:										
Atterberry, terrace-------	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	---	None
			March	1.5-4.0	>6.0	---	---	None	---	None
			April	1.0-3.5	>6.0	---	---	None	---	None
			May	1.5-4.0	>6.0	---	---	None	---	None
			June	2.0-4.5	>6.0	---	---	None	---	None
			July	3.0-5.5	>6.0	---	---	None	---	None
			August	3.5-6.0	>6.0	---	---	None	---	None
			September	4.0-6.5	>6.0	---	---	None	---	None
			October	3.5-6.0	>6.0	---	---	None	---	None
			November	2.5-5.0	>6.0	---	---	None	---	None
			December	3.0-5.5	>6.0	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
1315:										
Perks, frequently flooded	A	Low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	Long	Frequent
			March	---	---	---	---	None	Long	Frequent
			April	---	---	---	---	None	Long	Frequent
			May	---	---	---	---	None	Long	Frequent
			June	---	---	---	---	None	Long	Frequent
			July	---	---	---	---	None	Long	Frequent
			August	---	---	---	---	None	Long	Frequent
			September	---	---	---	---	None	Long	Frequent
			October	---	---	---	---	None	Long	Frequent
			November	---	---	---	---	None	Long	Frequent
			December	---	---	---	---	None	---	None
Spillville, frequently flooded	B	Low								
			January	3.0-5.5	>6.0	---	---	None	---	None
			February	2.5-5.0	>6.0	---	---	None	Long	Frequent
			March	1.5-4.0	>6.0	---	---	None	Long	Frequent
			April	1.0-3.5	>6.0	---	---	None	Long	Frequent
			May	1.5-4.0	>6.0	---	---	None	Long	Frequent
			June	2.0-4.5	>6.0	---	---	None	Long	Frequent
			July	3.0-5.5	>6.0	---	---	None	Long	Frequent
			August	3.5-6.0	>6.0	---	---	None	Long	Frequent
			September	4.0-6.5	>6.0	---	---	None	Long	Frequent
			October	3.5-6.0	>6.0	---	---	None	Long	Frequent
			November	2.5-5.0	>6.0	---	---	None	Long	Frequent
			December	3.0-5.5	>6.0	---	---	None	---	None
4946.										
Udorthents-Highway										
5010.										
Pits, sand and gravel										
5030.										
Pits, limestone quarries										
5040.										
Udorthents, loamy										

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
5053:										
Psammaquents, frequently flooded	A/D	---								
			January	2.0-3.5	>6.0	---	---	None	---	None
			February	1.5-3.0	>6.0	---	---	None	Very long	Frequent
			March	0.5-2.0	>6.0	---	---	None	Very long	Frequent
			April	0.0-1.0	>6.0	---	---	None	Very long	Frequent
			May	0.5-1.5	>6.0	---	---	None	Very long	Frequent
			June	1.0-2.0	>6.0	---	---	None	Very long	Frequent
			July	2.0-3.0	>6.0	---	---	None	Very long	Frequent
			August	2.5-3.5	>6.0	---	---	None	Very long	Frequent
			September	3.0-4.0	>6.0	---	---	None	Very long	Frequent
			October	2.5-3.5	>6.0	---	---	None	Very long	Frequent
			November	1.5-3.0	>6.0	---	---	None	Very long	Frequent
			December	2.0-3.5	>6.0	---	---	None	---	None
8041B:										
Sparta, terrace	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
8041C:										
Sparta, terrace	A	Very low								
			January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	---	---	---	---	None	---	None
			July	---	---	---	---	None	---	None
			August	---	---	---	---	None	---	None
			September	---	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None

Water Features--Continued

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
AW.										
Animal waste lagoon										
SL.										
Sewage lagoon										
W.										
Water										

Soil Features

The table described in this section 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 of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

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.

Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
8B:								
Judson	---	---	---	---	---	High	Moderate	Low
41B:								
Sparta	---	---	---	---	---	Low	Low	Moderate
41C:								
Sparta	---	---	---	---	---	Low	Low	Moderate
41E:								
Sparta	---	---	---	---	---	Low	Low	Moderate
63B:								
Chelsea	---	---	---	---	---	Low	Low	Low
63C:								
Chelsea	---	---	---	---	---	Low	Low	Low
63E:								
Chelsea	---	---	---	---	---	Low	Low	Low
65D2:								
Lindley, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate
65E2:								
Lindley, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate
65F2:								
Lindley, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate
83B:								
Kenyon	---	---	---	---	---	Moderate	Moderate	Moderate
83C:								
Kenyon	---	---	---	---	---	Moderate	Moderate	Moderate
83C2:								
Kenyon, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
88:								
Nevin, rarely flooded--	---	---	---	---	---	High	High	Low
110C:								
Lamont-----------	---	---	---	---	---	Moderate	Low	Moderate
110E:								
Lamont-----------	---	---	---	---	---	Moderate	Low	Moderate
118:								
Garwin-----------	---	---	---	---	---	High	High	Moderate
119:								
Muscatine--------	---	---	---	---	---	High	High	Moderate
119B:								
Muscatine--------	---	---	---	---	---	High	High	Moderate
120:								
Tama-------------	---	---	---	---	---	High	Moderate	Moderate
120B:								
Tama-------------	---	---	---	---	---	High	Moderate	Moderate
120C:								
Tama-------------	---	---	---	---	---	High	Moderate	Moderate
120C2:								
Tama, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
120D2:								
Tama, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
121:								
Tama-------------	---	---	---	---	---	High	Moderate	Moderate
122:								
Sperry, depressional---	---	---	---	---	---	High	High	Moderate
133:								
Colo, occasionally flooded----------	---	---	---	---	---	High	High	Moderate
133+:								
Colo, occasionally flooded, overwash-----	---	---	---	---	---	High	High	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
136:								
Ankeny, rarely flooded	---	---	---	---	---	Moderate	Low	Low
143:								
Brady	---	---	---	---	---	High	Low	Moderate
160:								
Walford	---	---	---	---	---	High	High	Moderate
162B:								
Downs	---	---	---	---	---	High	Moderate	Moderate
162C:								
Downs	---	---	---	---	---	High	Moderate	Moderate
162C2:								
Downs, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
162D2:								
Downs, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
162D3:								
Downs, severely eroded	---	---	---	---	---	High	Moderate	Moderate
162E3:								
Downs, severely eroded	---	---	---	---	---	High	Moderate	Moderate
163B:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
163C:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
163C2:								
Fayette, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
163D:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
163D2:								
Fayette, moderately eroded	---	---	---	---	---	High	Moderate	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
163D3:								
Fayette, severely eroded	---	---	---	---	---	High	Moderate	Moderate
163E:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
163E2:								
Fayette, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
163E3:								
Fayette, severely eroded	---	---	---	---	---	High	Moderate	Moderate
163F:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
163F2:								
Fayette, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
163G:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
171B:								
Bassett	---	---	---	---	---	Moderate	Moderate	Moderate
171C2:								
Bassett, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate
171D2:								
Bassett, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate
175B:								
Dickinson	---	---	---	---	---	Moderate	Low	Moderate
175C:								
Dickinson	---	---	---	---	---	Moderate	Low	Moderate
177:								
Saude	---	---	---	---	---	Low	Low	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
184:								
Klinger	---	---	---	---	---	High	High	Moderate
212:								
Kennebec, occasionally flooded	---	---	---	---	---	High	Moderate	Low
220:								
Nodaway, occasionally flooded	---	---	---	---	---	High	Moderate	Low
221:								
Klossner	---	---	---	4-15	25-32	High	High	Moderate
291:								
Atterberry	---	---	---	---	---	High	High	Moderate
291B:								
Atterberry	---	---	---	---	---	High	High	Moderate
293C:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
Chelsea	---	---	---	---	---	Low	Low	Low
Tell	---	---	---	---	---	High	Moderate	Moderate
293E:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
Chelsea	---	---	---	---	---	Low	Low	Low
Tell	---	---	---	---	---	High	Moderate	Moderate
293G:								
Fayette	---	---	---	---	---	High	Moderate	Moderate
Chelsea	---	---	---	---	---	Low	Low	Low
Tell	---	---	---	---	---	High	Moderate	Moderate
352B:								
Whittier	---	---	---	---	---	Moderate	Moderate	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
352C2:								
Whittier, moderately eroded	---	---	---	---	---	Moderate	Moderate	Moderate
354.								
Aquolls, ponded								
377B:								
Dinsdale	---	---	---	---	---	High	Moderate	Moderate
377C:								
Dinsdale	---	---	---	---	---	High	Moderate	Moderate
377C2:								
Dinsdale, moderately eroded	---	---	---	---	---	High	Moderate	Moderate
382:								
Maxfield	---	---	---	---	---	High	High	Moderate
412E:								
Emeline	Lithic bedrock	4-10	Strongly cemented	---	---	Moderate	Low	Low
420B:								
Tama, terrace	---	---	---	---	---	High	Moderate	Moderate
428B:								
Ely	---	---	---	---	---	High	High	Moderate
430:								
Ackmore, occasionally flooded	---	---	---	---	---	High	High	Low
442C:								
Dickinson	---	---	---	---	---	Moderate	Low	Moderate
Tama	---	---	---	---	---	High	Moderate	Moderate
450B:								
Pillot	---	---	---	---	---	High	Moderate	Moderate
450C:								
Pillot	---	---	---	---	---	High	Moderate	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
462B:								
Downs, terrace	---	---	---	---	---	High	Moderate	Moderate
462C:								
Downs, terrace	---	---	---	---	---	High	Moderate	Moderate
463B:								
Fayette, terrace	---	---	---	---	---	High	Moderate	Moderate
467:								
Radford, occasionally flooded	---	---	---	---	---	High	High	Low
478G:								
Rock outcrop.								
Emeline	Lithic bedrock	4-10	Strongly cemented	---	---	Moderate	Low	Low
485:								
Spillville, occasionally flooded	---	---	---	---	---	Moderate	High	Moderate
520:								
Coppock, occasionally flooded	---	---	---	---	---	High	High	Moderate
520B:								
Coppock	---	---	---	---	---	High	High	Moderate
662C2:								
Mt. Carroll, moderately eroded	---	---	---	---	---	High	Low	Moderate
662D2:								
Mt. Carroll, moderately eroded	---	---	---	---	---	High	Low	Moderate
662D3:								
Mt. Carroll, severely eroded	---	---	---	---	---	High	Low	Moderate
662E3:								
Mt. Carroll, severely eroded	---	---	---	---	---	High	Low	Moderate

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
729B:								
Ackmore	---	---	---	---	---	High	High	Low
Nodaway	---	---	---	---	---	High	Moderate	Low
760:								
Ansgar	---	---	---	---	---	High	High	Moderate
761:								
Franklin	---	---	---	---	---	High	High	Moderate
771B:								
Waubeek	---	---	---	---	---	High	Moderate	Moderate
814D:								
Rockton	Lithic bedrock	20-40	Strongly cemented	---	---	Moderate	Low	Low
826:								
Rowley	---	---	---	---	---	High	High	Moderate
884:								
Klingmore	---	---	---	---	---	High	High	Moderate
911B:								
Colo	---	---	---	---	---	High	High	Moderate
Ely	---	---	---	---	---	High	High	Moderate
977:								
Richwood	---	---	---	---	---	High	Low	Low
982:								
Maxmore	---	---	---	---	---	High	High	Moderate
1118:								
Garwin, terrace	---	---	---	---	---	High	High	Moderate
1119:								
Muscatine, terrace	---	---	---	---	---	High	High	Moderate
1160:								
Walford, terrace	---	---	---	---	---	High	High	Moderate
1220:								
Nodaway, channeled, frequently flooded	---	---	---	---	---	High	Moderate	Low

Soil Features--Continued

Map symbol and soil name	Restrictive layer			Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness	Initial	Total		Uncoated steel	Concrete
		In		In	In			
1291:								
Atterberry, terrace----	---	---	---	---	---	High	High	Moderate
1315:								
Perks, frequently flooded----------	---	---	---	---	---	Low	Low	Moderate
Spillville, frequently flooded----------	---	---	---	---	---	Moderate	High	Moderate
4946.								
Udorthents-Highway								
5010.								
Pits, sand and gravel								
5030.								
Pits, limestone quarries								
5040.								
Udorthents, loamy								
5053.								
Psammaquents, frequently flooded								
8041B:								
Sparta, terrace--------	---	---	---	---	---	Low	Low	Moderate
8041C:								
Sparta, terrace--------	---	---	---	---	---	Low	Low	Moderate
AW.								
Animal waste lagoon								
SL.								
Sewage lagoon								
W.								
Water								

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