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Service

In cooperation with
Jefferson County Soil
and Water Conservation
District, Missouri
Department of Natural
Resources, Missouri
Agricultural Experiment
Station, and Missouri
Department of
Conservation

Soil Survey of Jefferson County, Missouri



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How To Use This Soil Survey

General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. 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 map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

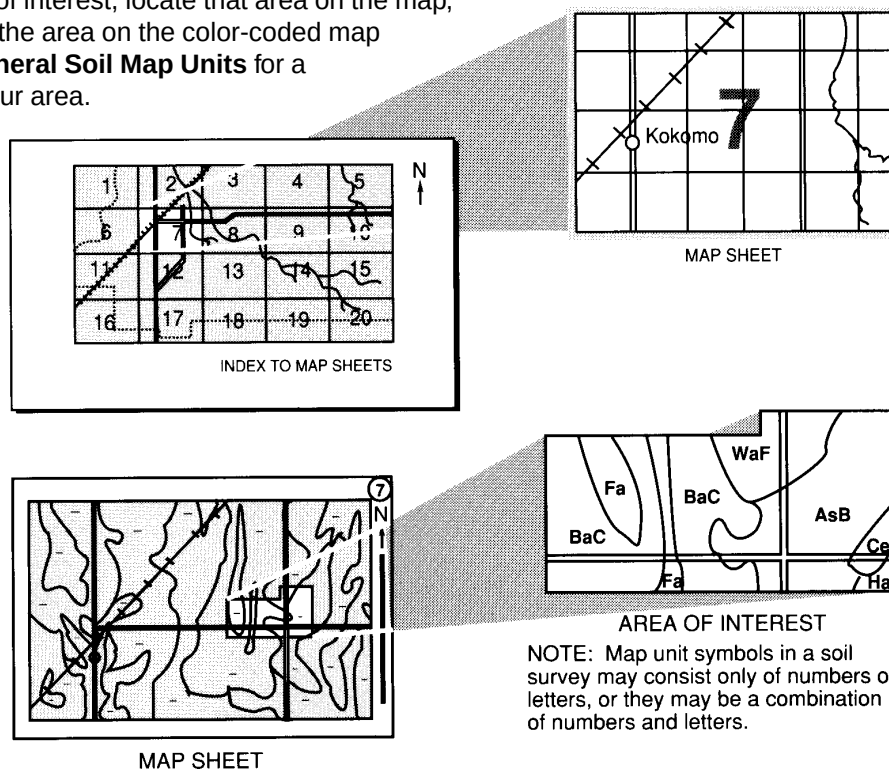
Detailed Soil Maps

The detailed soil maps follow the general soil map. These 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**, which precedes the soil maps. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map units symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for 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 (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1996. Soil names and descriptions were approved in 2000. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1996. This survey was made cooperatively by the Natural Resources Conservation Service and the Missouri Agricultural Experiment Station. The Missouri Department of Natural Resources provided soil scientists to assist with the fieldwork. The survey is part of the technical assistance furnished to the Jefferson 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.

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Cover: A small lake development on the Sonsac-Useful-Moko association near High Ridge.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is <http://www.nrcs.usda.gov> (click on "Technical Resources").

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Jefferson County, Missouri

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United States Department of Agriculture, Natural Resources Conservation Service
in cooperation with
Jefferson County Soil and Water Conservation District, Missouri Department of
Natural Resources, Missouri Agricultural Experiment Station, and Missouri
Department of Conservation

JEFFERSON COUNTY is in the eastern part of Missouri (fig. 1). The county has an area of about 425,280 acres, or about 664 square miles. This includes about 2,176 acres of water in the Big, Meramec, and Mississippi Rivers and many large impoundments.

Jefferson County is bordered on the north by the Meramec River and St. Louis County, on the east by the Mississippi River, on the south by Ste. Genevieve and St. Francois Counties, and on the west by Washington and Franklin Counties. Hillsboro, near the center of the county, is the county seat.

The county is in three land resource areas. The eastern part of the county is in the Central Mississippi Valley Wooded Slopes, the central part is in the Ozark Border, and the southwestern part is in the Ozark Highland.

General Nature of the County

This section describes climate; history and development; physiography, relief, and drainage; and geology.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Festus in the period 1961 to 1986. Table 2 shows probable dates of the first freeze in fall and the last

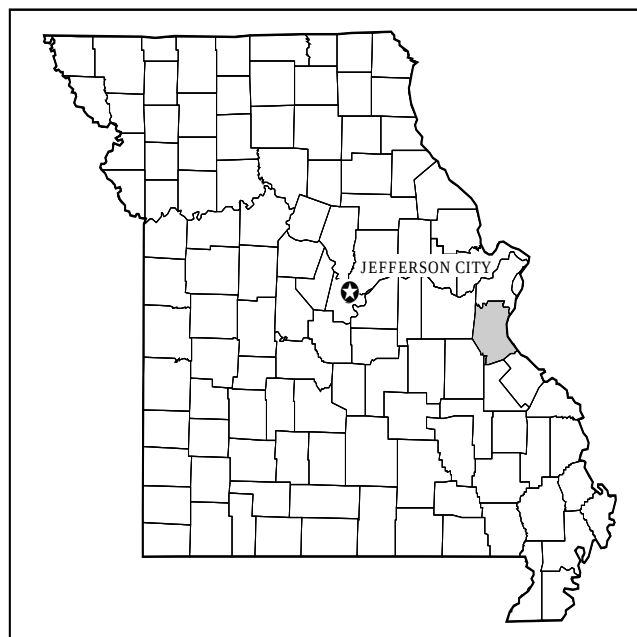


Figure 1.—Location of Jefferson County in Missouri.

freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 33 degrees F and the average daily minimum temperature is 21.5 degrees. The lowest temperature on record, which

occurred on January 17, 1977, is -27 degrees. In summer, the average temperature is 75 degrees and the average daily maximum temperature is 88 degrees. The highest recorded temperature, which occurred on July 15, 1980, is 110 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 38 inches. Of this, 17 inches, or 45 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 4 inches on October 20, 1983. Thunderstorms occur on about 46 days each year, and most occur between May and August.

The average seasonal snowfall is about 19 inches. The greatest snow depth at any one time during the period of record was 19 inches. On the average, 18 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 59 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time possible in summer and 49 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 11 miles per hour, from January to April.

History and Development

Prior to settlement by Europeans, Native Americans including the Delaware, Missouri, Osage, and Shawnee tribes inhabited the survey area (Jefferson Heritage, 1993). The Delaware, Missouri, and Osage tribes lived along river valleys and creek bottoms while farming the rich alluvial soils, such as the well drained Horsecreek, Sturkie, and Razort soils. The Shawnee were principally wanderers but also inhabited and farmed many of the same areas (Jefferson Heritage, 1993).

The king of Spain, Charles III, encouraged settlements by offering land grants to those who would settle in the survey area. John Hildebrand, recognized as the first settler, settled on Saline Creek in 1774, which was later known as the Meramec Settlement (Missouri Historic Review, 1907).

Lead, silica, zinc, barite, limestone, and other mineral deposits also lured settlers to the area (League of Women Voters, 1987). The first lead shot tower west of Pittsburgh, Pennsylvania, was erected in 1809 in the southern part of Herculaneum (Missouri Department of Agriculture, 1999). Sandstone mined from the St. Peter Sandstone Formation was used for the plate glass industry (Rehm, 1990). Soils associated with the St. Peter Sandstone are the very deep Minnith and Holstein soils, the moderately deep Pevely soil, and the shallow Ramsey soil.

After the Civil War, farming increased in the northern portion of the county. Cultivated crops were planted predominantly on the flood plain and terrace soils of the Big, Meramec, and Mississippi Rivers (Rehm, 1990). Cultivated crops were also planted in the uplands; however, in recent history, this practice has significantly declined due to alternate land use and erosion.

Timber harvesting has been a source of income throughout the history of the county. The more productive flood plain soils were cleared first. Harvesting is now mainly in the uplands on the Goss, Menfro, Useful, and Weingarten soils.

The population of Jefferson County tripled from 1950 to 1970, with only 16.9 percent of the residents living in incorporated areas (League of Women Voters, 1987). In 1990, the population had increased to 171,380, with 27 percent of the residents living in incorporated areas (Rehm, 1990). With the steady increase in population, the county is faced with an ever-increasing demand on the environment. The organization of the Jefferson County Soil and Water Conservation District in 1986 was a step toward recognizing and addressing problems related to the environment.

Physiography, Relief, and Drainage

Jefferson County is divided into seven distinct physiographic regions; from the northeast to the south, they are: a small area of Dissected Till Plains, the River Hills, the Zell Platform, the Burlington Escarpment, the Crystal Escarpment, the Salem Plateau, and the Avon Escarpment (Marbut, 1896). These regions have landscape shapes controlled by separate geologic units with variable bedding thickness, weatherability, and time of deposition. They vary from narrow ridgetops with steep hills and narrow valleys to gently rolling uplands. There is an association of soils that dominate each area.

The Dissected Till Plains consist of rolling and partially dissected basin with low hills and broad

ridges adjacent to the lower Meramec and Mississippi Rivers. Thick layers of alluvium and loess have subsequently covered glacial till and outwash materials. Deible and Freeburg soils are the dominant soil types on this landform.

The River Hills consist of a narrow band of uplands bounded on the east by the Mississippi River and on the west by the Burlington Escarpment. The Glaize, Joachim, Platin, Pomme, and Rock Creeks dissect this area. The ridges and the north and east slopes are blanketed with thick loess. The west and south slopes are cherty red clays on the upper side slopes and limestone outcrop on the lower side slopes. Gasconade, Menfro, and Sonsac soils are the major soils in this area.

The Zell Platform is a small valley with rolling topography east of Selma south to the Ste. Genevieve County line in the southern part of the county. The River Hills are on the east and the Crystal Escarpment is on the west. The major soils in this area are Freeburg and Menfro.

The Burlington Escarpment is a band that thins from north to south and borders the River Hills and the Crystal Escarpment. The ridges are generally narrow with deeply incised side slopes. The major soils are Goss and Wrengart soils.

The Crystal Escarpment follows the St. Peter Sandstone from the northwest corner of the county to the southeast and borders the Burlington Escarpment to the east and the Salem Plateau to the south and west. The ridges are generally broad with strongly sloping to moderately steep side slopes. The major soils in this area are Holstein, Minnith, Pevely, and Ramsey.

The Salem Plateau is the largest area in the county and borders the Crystal Escarpment to the north and east and the Avon Escarpment to the south. The narrow ridgetops are remnants of an extensive sedimentary plain that encompasses the entire Ozark region. The major soils in this area are Moko, Sonsac, and Useful.

The Avon Escarpment is the highest area in the county in the southwest corner. The Salem Plateau is on its north and extends into Ste. Genevieve and St. Francois Counties. The major soils in this area are Goss and Wrengart.

The highest point in the county on Vinegar Hill is about 1,060 feet above sea level. The lowest point is in the Mississippi River bottom and is about 385 feet above sea level.

Flood plains of the Big, Meramec, and Mississippi Rivers and their tributaries are the most naturally fertile soils in the county. Loamy and clayey deposits dominate the Mississippi River, and the major soils

are Haynie, Tice, and Waldron. Silty and loamy deposits dominate the Big and Meramec Rivers, and the major soils are Freeburg, Haymond, Horsecreek, Kaintuck, and Moniteau. The small flood plains have gravelly base materials in the upper tributaries of the small streams. Bloomsdale, Gladden, and Razort soils formed in these materials.

The Big River drains approximately 37 percent of the county; the Meramec River drains approximately 15 percent of the county; and smaller streams draining directly into the Mississippi River make up approximately 48 percent of the county.

Geology

There are 22 geologic formations exposed in Jefferson County, which range from Cambrian to Pennsylvanian systems in age (Missouri Geological Survey, 1961). The Cambrian system has the oldest rocks that crop out and are composed primarily of massive dolostone. Lead and zinc ores and barite were mined from Cambrian formations, which occur in areas bordering Big River and larger creeks in the southern part of the county. The Ordovician system is exposed in almost three-quarters of the county and has had a significant role in the economic growth and development. Quarries in limestone and dolostone have furnished building stones, aggregate, and cement for highways, bridges, and buildings. Sand mined in the St. Peter Sandstone is used by the glass industries. The Devonian system is represented by a narrow band of sandstone, shale, and limestone that crosses the northeastern part of the county. The Mississippian system is predominantly limestone and cherty limestone. These limestones weather easily and produce cherty soils that are very deep and are also in the northeastern part of the county. The Pennsylvanian system consists of reddish-brown sandstone and bluish-gray to purple shale, which is found in sink depressions or large vertical bedrock joints.

Geologic units consist of flat to gently dipping bedrock dominated by dolostone, sandstone, and limestone formations. A slight regional dip of 1 to 2 degrees to the northeast has been altered by northwest-southeast trending folds and faults where bedrock dip is over 10 degrees. Several zones of high-angle faults that are downthrown are considered to be extensions of the Ste. Genevieve Fault System. They are the Crystal City anticline, the Platin Creek anticline, the Roselle lineament, the Rugley School fault block, the Summit Park structure, and the Valles Mines-Vineland fault zone. A structure known as the Eureka-House Springs anticline has been traced from

the Mississippi River to near Wright City (McCracken, 1971).

The potential for landslide or slump occurs in areas of the Maquoketa and Warsaw shales. Sinkholes are numerous in the Kimmswick limestone.

The following spreadsheet gives a listing of bedrock and related soil types:

Geologic Formations and Related Soils for Jefferson County

System	Formation	Rock type	Thickness	Soil(s)
			<u>Ft</u>	
Quaternary	Alluvium	None	20-50	Haymond
Pennsylvanian	Undiffer-entiated	Sandstone, Shale	0-10	None
Mississippian	St. Louis	Limestone	0-50	Sonsac
	Salem	Limestone	20-40	Gasconade
	Warsaw	Shale	0-50	Menfro
	Burlington/Keokuk	Cherty limestone	0-100	Goss
	Fern Glen	Very cherty limestone	0-50	Wrengart
	Bachelor	Sandstone	1-3	None
Devonian	Bushberg	Sandstone	1-20	
	Sulfur Springs	Sandstone, Shale	1-10	Minnith

System	Formation	Rock type	Thickness	Soil(s)
			<u>Ft</u>	
Ordovician	Maquoketa	Shale	0-10	
	Kimmswick	Limestone	5-100	
	Decorah	Limestone, Shale	20-30	Sonsac Gasconade Useful
	Plattin	Limestone	140-180	
	Joachim	Dolostone	80-135	
	St. Peter	Sandstone	40-100	Minnith Pevely
	Everton	Limestone, Sandstone	0-70	Holstein Ramsey
	Jefferson City	Dolostone, Chert	100-400	Caneyville Sonsac
	Cotter	Dolostone	Unknown	Moko
	Roubidoux	Dolostone, Chert, Sandstone	120-200	Reuter Wrengart Sonsac
	Gasconade	Dolostone Chert	200	Moko
Cambrian	Eminence	Dolostone	150-225	
	Potosi	Dolostone	300-350	
	Derby-Doerun	Dolostone, Shale	125	Sonsac Goss Wrengart
	Davis	Shale, Sandstone, Dolostone	130	Moko
	Bonneterre	Dolostone	375	

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes

(units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Table 1.--Temperature and Precipitation
(Recorded in the period 1961-90 at Festus, Missouri)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>°F</u>	<u>Units</u>	<u>In</u>	<u>In</u>	<u>In</u>		<u>In</u>
January-----	40.3	17.5	28.9	73	-16	6	2.07	0.72	3.19	4	5.7
February----	45.9	21.9	33.9	79	-9	13	2.14	0.99	3.12	4	4.5
March-----	58.2	32.5	45.3	86	5	74	4.08	2.37	5.61	6	3.0
April-----	69.3	42.2	55.7	90	21	214	3.94	1.94	5.68	6	0.5
May-----	77.7	50.2	64.0	92	30	421	4.26	2.34	5.95	6	0.0
June-----	85.9	58.9	72.4	98	41	671	3.10	1.31	4.63	5	0.0
July-----	90.4	63.9	77.1	102	47	820	2.86	0.82	4.50	4	0.0
August-----	88.8	61.4	75.1	102	45	772	3.27	1.43	4.85	4	0.0
September---	81.7	54.0	67.9	99	34	530	3.36	1.46	5.25	5	0.0
October-----	71.8	41.1	56.4	92	20	233	2.45	0.78	3.82	4	0.0
November----	58.0	33.1	45.6	83	9	75	3.22	1.39	4.77	5	1.4
December----	46.0	25.1	35.5	74	-1	16	3.00	0.82	4.75	5	3.4
Yearly: Average	67.8	41.8	54.8	---	---	---	---	---	---	---	---
Extreme	110	-27	---	104	-19	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,846	37.75	24.78	44.52	58	18.7

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall
(Recorded in the period 1961-90 at Festus, Missouri)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 12	April 28	May 10
2 years in 10 later than--	April 8	April 23	May 5
5 years in 10 later than--	March 31	April 11	April 26
First freezing temperature in fall:			
1 year in 10 earlier than--	October 14	October 7	September 26
2 years in 10 earlier than--	October 18	October 11	October 1
5 years in 10 earlier than--	October 28	October 19	October 9

Table 3.--Growing Season
(Recorded in the period 1961-90 at Festus, Missouri)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<u>Days</u>	<u>Days</u>	<u>Days</u>
9 years in 10	196	173	147
8 years in 10	201	179	154
5 years in 10	211	191	167
2 years in 10	221	203	180
1 year in 10	226	210	186

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The descriptions, names, and delineations of the soils on the general soil map of this survey do not fully agree with those on the general soil map of surveys of adjacent counties published at a different date. Differences may be the result of additional soil data, variations in the intensity of mapping, and correlation decisions that reflect local conditions.

Soil Descriptions

1. Haynie-Tice-Waldron Association

Extent of the association:

1 percent of the survey area

Composition:

Haynie and similar soils—48 percent
Tice and similar soils—29 percent
Waldron and similar soils—20 percent
Minor soils—3 percent (Freeburg, Haymond, and Wilbur)

Landscape (fig. 2):

Haynie—convex natural levees
Tice—linear bottomlands
Waldron—concave old meanders and channel scars

Parent materials:

Mississippi River alluvium

Slope range:

0 to 2 percent

Slope configuration:

Linear and complex

2. Sonsac-Useful-Moko Association

Extent of the association:

58 percent of the survey area

Composition:

Sonsac and similar soils—44 percent
Useful and similar soils—30 percent
Moko and similar soils—15 percent
Minor soils—11 percent (Goss, Rueter, and Wrengart)

Landscape (fig. 3):

Sonsac—narrow ridgetops and backslopes
Useful—summits
Moko—backslopes

Parent materials:

Loess and residuum

Slope range:

3 to 55 percent

Slope configuration:

Convex and complex

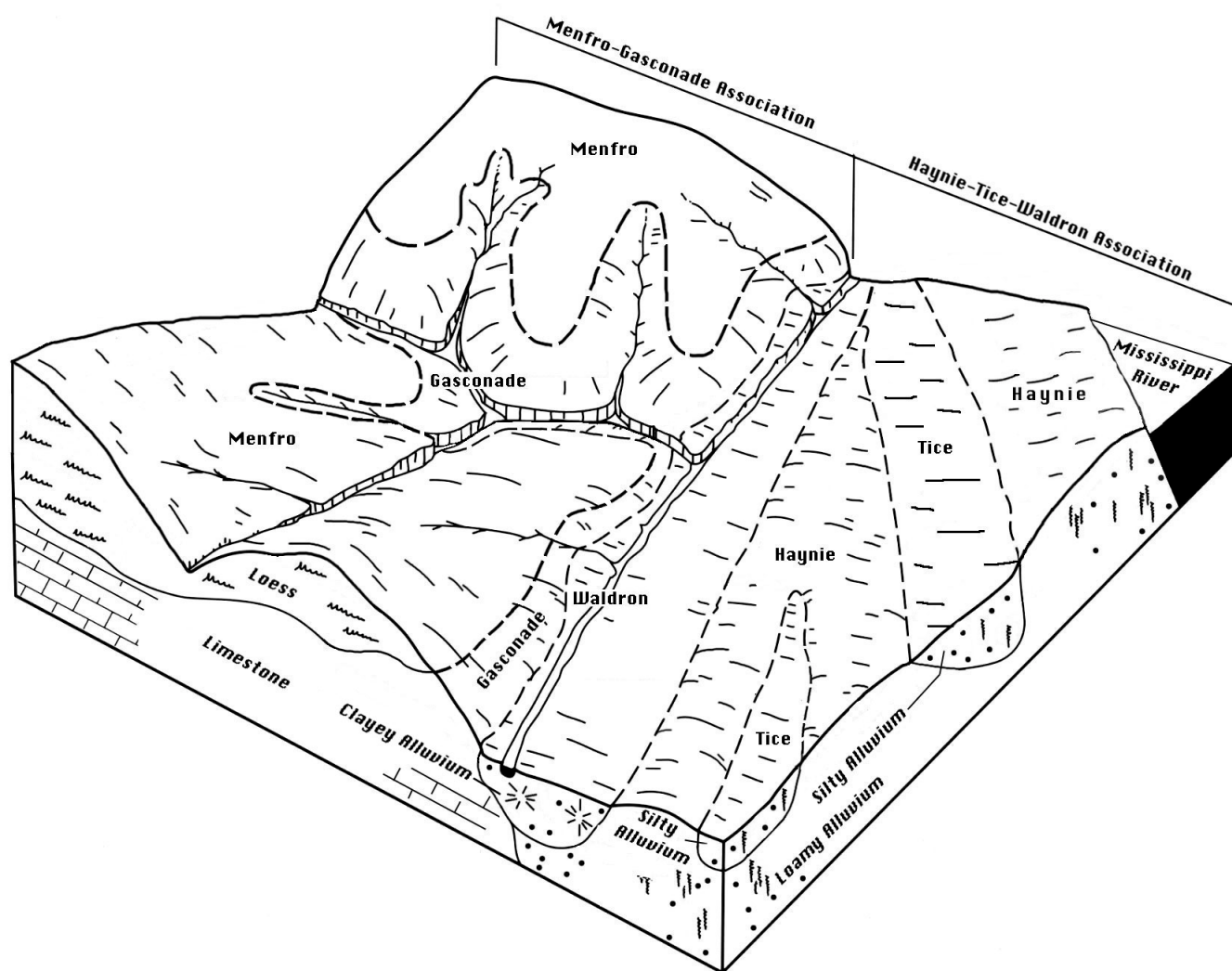


Figure 2.—Typical pattern of soils and parent material in the Haynie-Tice-Waldron and Menfro-Gasconade associations.

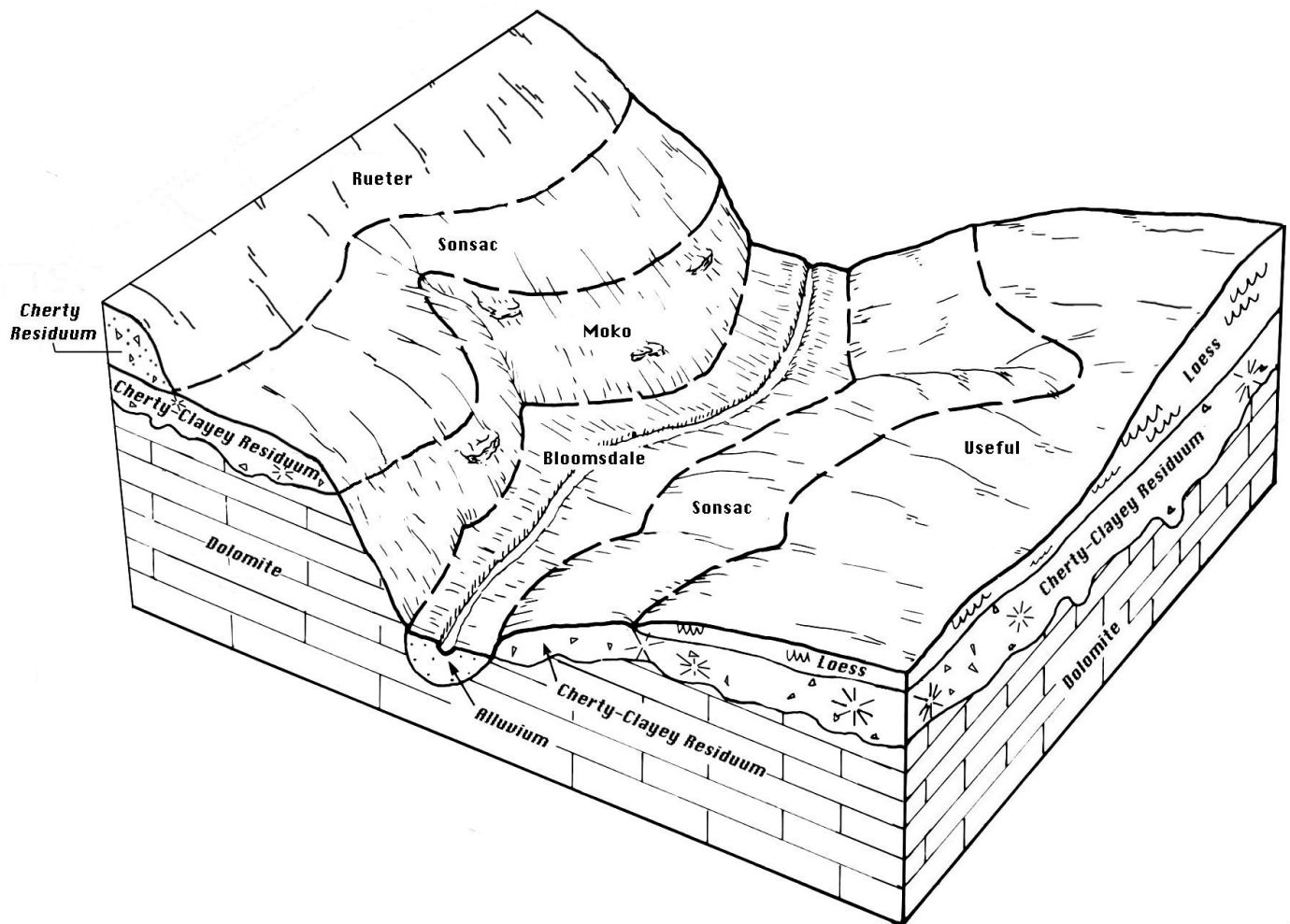


Figure 3.—Typical pattern of soils and parent material in the Sonsac-Useful-Moko association.

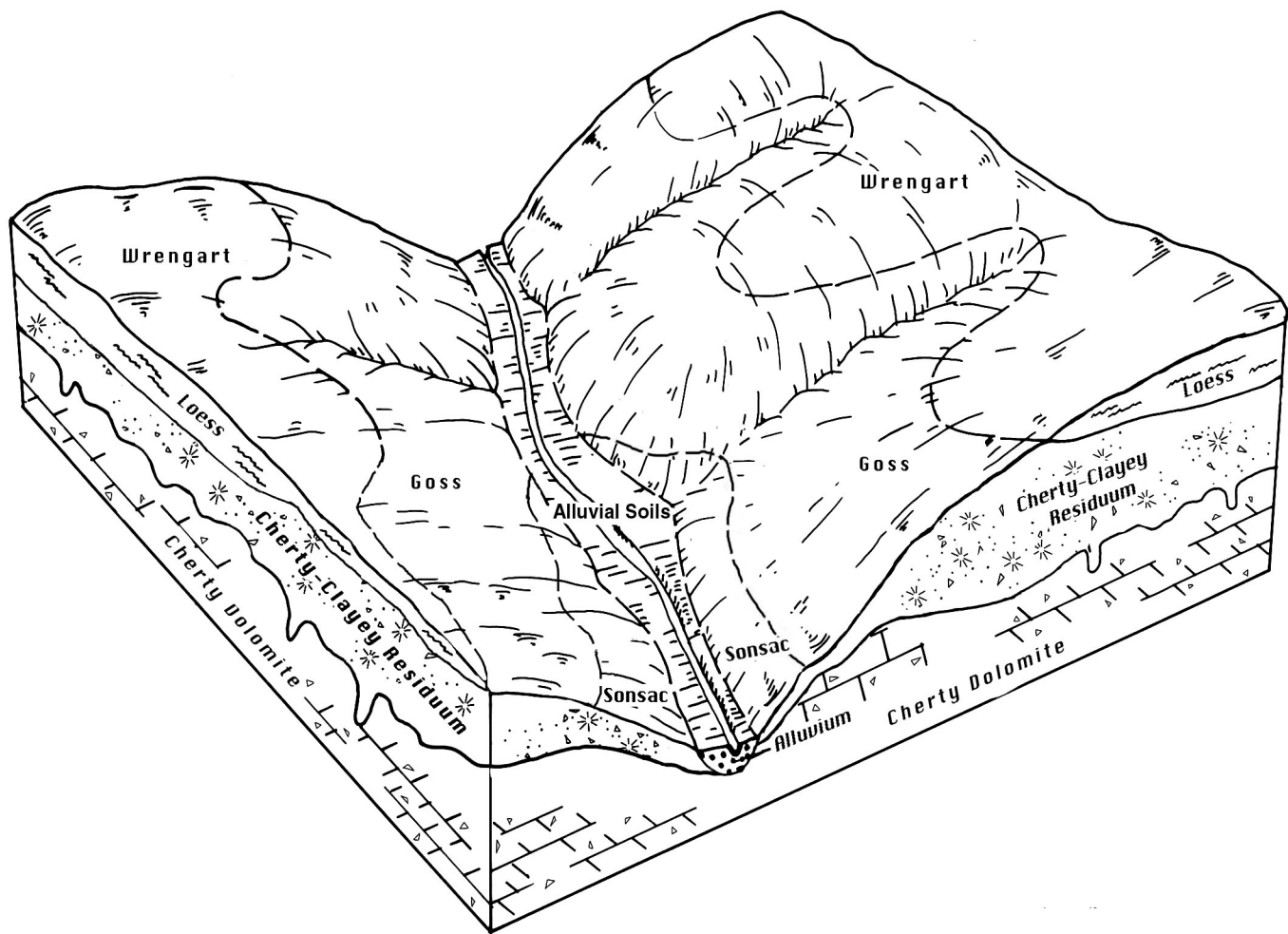


Figure 4.—Typical pattern of soils and parent material in the Wrengart-Goss association.

3. Wrengart-Goss Association

Extent of the association:

13 percent of the survey area

Composition:

Wrengart and similar soils—47 percent
 Goss and similar soils—45 percent
 Minor soils—8 percent (Moko, Sonsac, and Useful)

Landscape (fig. 4):

Wrengart—summits

Goss—narrow ridgetops and upper backslopes

Parent materials:

Loess and residuum

Slope range:

3 to 55 percent

Slope configuration:

Convex and complex

4. Menfro-Gasconade Association

Extent of the association:

5 percent of the survey area

Composition:

Menfro and similar soils—69 percent

Gasconade and similar soils—17 percent

Minor soils—14 percent (Brussels, Sonsac, and Useful)

Landscape (fig. 2):

Menfro—summits and upper backslopes

Gasconade—lower backslopes

Parent materials:

Loess and residuum

Slope range:

3 to 50 percent

Slope configuration:

Convex and complex

5. Minnith-Pevely Association

Extent of the association:

8 percent of the survey area

Composition:

Minnith and similar soils—51 percent

Pevely and similar soils—32 percent

Minor soils—17 percent (Freeburg, Ramsey, Sonsac, and Useful)

Landscape (fig. 5):

Minnith—Ridgetops and backslopes

Pevely—Narrow ridgetops and backslopes

Parent materials:

Loess and residuum

Slope range:

3 to 50 percent

Slope configuration:

Convex and complex

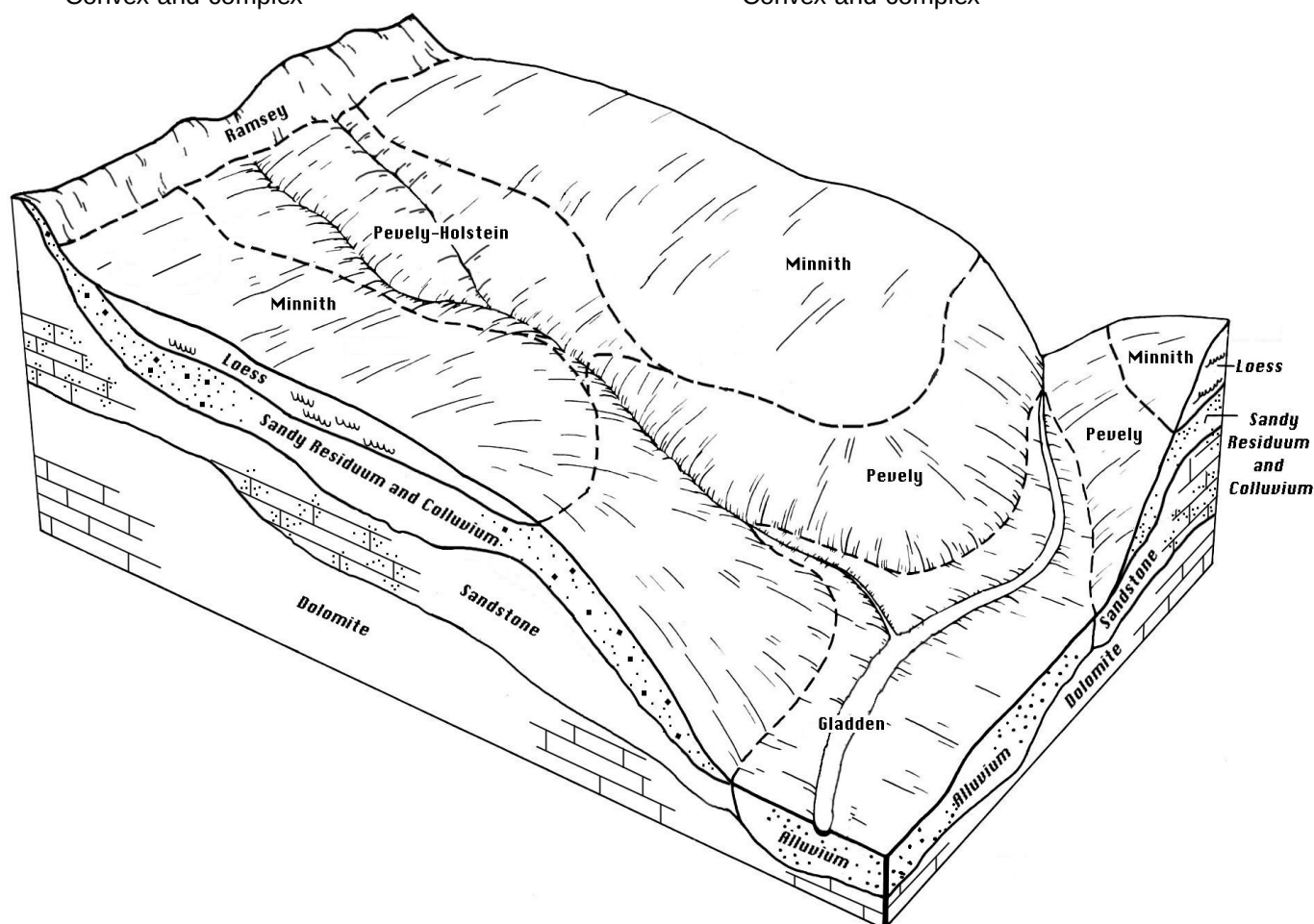


Figure 5.—Typical pattern of soils and parent material in the Minnith-Pevely association.

6. Haymond-Freeburg-Horsecreek-Bloomsdale Association

Extent of the association:

15 percent of the survey area

Composition:

Haymond and similar soils—26 percent

Freeburg and similar soils—25 percent

Horsecreek and similar soils—25 percent

Bloomsdale and similar soils—24 percent

Landscape (fig. 6):

Haymond—flood plains

Freeburg—terraces

Horsecreek—terraces

Bloomsdale—flood plains

Parent materials:

Alluvium

Slope range:

0 to 5 percent

Slope configuration:

Linear and complex

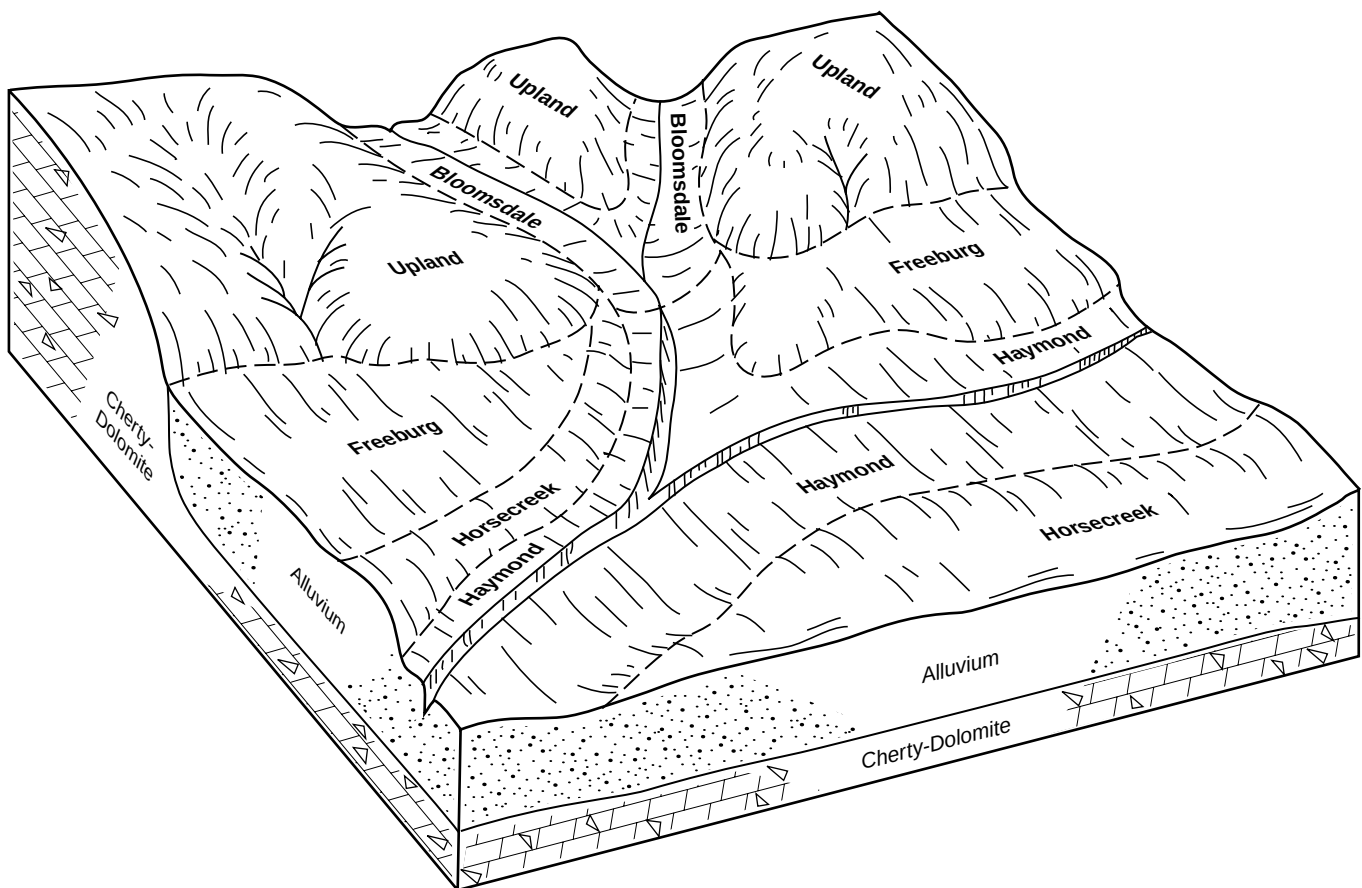


Figure 6.—Typical pattern of soils and parent material in the Haymond-Freeburg-Horsecreek-Bloomsdale association.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was

impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Menfro silt loam, 8 to 15 percent slopes, is a phase of the Menfro series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Rueter-Sonsac complex, 15 to 55 percent slopes, extremely stony, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarries, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Soil Descriptions

60003—Menfro silt loam, 8 to 15 percent slopes, eroded

Setting

Landform: Hill

Position on the landform: Summit and backslope

Parent material: Fine-silty loess

Composition

Menfro and similar soils—85 percent

Minor components—15 percent

Gasconade—lower backslopes with southwest aspects

Rueter—shoulders

Sonsac—lower backslopes

Typical Profile

Ap—0 to 8 inches; silt loam

Bt1—8 to 30 inches; silty clay loam

Bt2—30 to 60 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: None

Water table: None

60024—Menfro silt loam, 3 to 8 percent slopes, eroded

Setting

Landform: Hill

Position on the landform: Summit

Parent material: Fine-silty loess

Composition

Menfro and similar soils—90 percent

Minor components—10 percent

Rueter—saddles and shoulders

Sonsac—incised saddles and steeper southwest aspects

Typical Profile

Ap—0 to 8 inches; silt loam

Bt1—8 to 39 inches; silty clay loam

Bt2—39 to 80 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Low (0.5 to 1 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: None

Water table: None

60025—Urban land-Harvester complex, 3 to 8 percent slopes

Setting

Landform: Hill

Position on the landform: Summit

Parent material: Urban land—no data;

Harvester—fine-silty loess

Composition

Urban land—50 percent

Harvester and similar soils—40 percent

Minor components—10 percent

Menfro—undisturbed areas

Sonsac—incised saddles and steeper southwest aspects

Typical Profile**Harvester**

C1—0 to 7 inches; silt loam
 C2—7 to 31 inches; silty clay loam
 2C3—31 to 80 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Urban land—no data;
 Harvester—very deep (more than 60 inches)
 Drainage class: Urban land—no data;
 Harvester—moderately well drained
 Available water capacity: Urban land—no data;
 Harvester—moderate (6 to 9 inches)
 Organic matter content: Urban land—no data;
 Harvester—low (0.5 to 1 percent)
 Shrink-swell potential: Urban land—no data;
 Harvester—moderate (3 to 6 percent)
 Flooding: None
 Water table: Urban land—no data; Harvester—39 to 59 inches

60037—Wrengart silt loam, 8 to 15 percent slopes***Setting***

Landform: Hill
Position on the landform: Summit and backslope
Parent material: Fine-silty loess over gravelly residuum weathered from cherty limestone

Composition

Wrengart and similar soils—80 percent
 Minor components—20 percent
 Rueter—shoulders
 Sonsac—more sloping backslopes
 Wrengart—eroded areas with silty clay loam surfaces

Typical Profile

A—0 to 4 inches; silt loam
 E—4 to 7 inches; silt loam
 Bt—7 to 29 inches; silty clay loam
 2Btx—29 to 41 inches; silty clay loam
 3Bt—41 to 80 inches; extremely cobbly silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: 24 to 42 inches

60038—Pevely-Holstein complex, 8 to 30 percent slopes***Setting***

Landform: Hill
Position on the landform: Backslope
Parent material: Pevely—fine-loamy residuum weathered from sandstone; Holstein—fine-loamy colluvium derived from sandstone

Composition

Pevely and similar soils—50 percent
 Holstein and similar soils—40 percent
 Minor components—10 percent
 Minnith—less sloping areas
 Ramsey—more sloping dissected areas
 Sandstone bedrock outcrop—upper backslopes

Typical Profile**Pevely**

A—0 to 4 inches; loam
 E—4 to 10 inches; loam
 Bt—10 to 32 inches; sandy clay loam
 C—32 to 37 inches; very parachannery fine sand and very parachannery fine sandy loam
 R—37 to 60 inches; unweathered bedrock

Holstein

A—0 to 4 inches; fine sandy loam
 E—4 to 9 inches; fine sandy loam
 Bt1—9 to 52 inches; clay loam and sandy clay loam
 Bt2—52 to 65 inches; clay loam
 2R—65 to 80 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Pevely—moderately deep (20 to 40 inches); Holstein—very deep (more than 60 inches)
 Drainage class: Pevely—moderately well drained; Holstein—well drained
 Available water capacity: Pevely—low (3 to 6 inches); Holstein—high (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: Pevely—24 to 40 inches; Holstein—none

60039—Pevely silt loam, 3 to 15 percent slopes

Setting

Landform: Hill
Position on the landform: Summit
Parent material: Fine-loamy residuum weathered from sandstone

Composition

Pevely and similar soils—90 percent
 Minor components—10 percent
 Minnith—less sloping broader areas
 Ramsey—more sloping areas
 Sandstone bedrock outcrop—more sloping areas

Typical Profile

A—0 to 4 inches; silt loam
 E—4 to 10 inches; silt loam
 Bt—10 to 32 inches; sandy clay loam
 C—32 to 37 inches; very parachannery fine sand and very parachannery fine sandy loam
 R—37 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Moderately well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: 24 to 40 inches

60040—Pevely loam, 15 to 40 percent slopes

Setting

Landform: Hill
Position on the landform: Backslope
Parent material: Fine-loamy residuum weathered from sandstone

Composition

Pevely and similar soils—85 percent
 Minor components—15 percent
 Holstein—less sloping areas
 Minnith—less sloping north aspects
 Ramsey—steeper areas adjacent to drains
 Sandstone bedrock outcrop—more sloping areas adjacent to drains

Typical Profile

A—0 to 4 inches; loam
 E—4 to 10 inches; loam
 Bt—10 to 32 inches; sandy clay loam and parachannery sandy clay loam
 C—32 to 37 inches; very parachannery fine sand
 R—37 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Moderately well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: 24 to 40 inches

60041—Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony

Setting

Landform: Hill
Position on the landform: Backslope
Parent material: Brussels—colluvium weathered from limestone; Rock outcrop—no data

Composition

Brussels and similar soils—60 percent
 Rock outcrop—20 percent
 Minor components—20 percent
 Menfro—north and east aspects
 Sonsac—upper backslopes

Typical Profile**Brussels**

A—0 to 5 inches; very channery silty clay loam
 Bw1—5 to 35 inches; very flaggy silty clay and very flaggy silty clay loam
 Bw2—35 to 60 inches; extremely flaggy silty clay and very flaggy silty clay loam

Soil Properties and Qualities

Depth to bedrock: Brussels—very deep (more than 60 inches); Rock outcrop—no data
 Drainage class: Brussels—well drained; Rock outcrop—no data
 Available water capacity: Brussels—low (3 to 6 inches); Rock outcrop—no data
 Organic matter content: Brussels—moderate (2 to 4 percent); Rock outcrop—no data
 Shrink-swell potential: Brussels—moderate (3 to 6 percent); Rock outcrop—no data
 Flooding: None
 Water table: None

60042—Menfro silt loam, 15 to 30 percent slopes**Setting**

Landform: Hill
Position on the landform: Backslope
Parent material: Fine-silty loess

Composition

Menfro and similar soils—85 percent
 Minor components—15 percent
 Gasconade—lower backslopes with southwest aspects
 Rueter—upper backslopes
 Sonsac—lower backslopes

Typical Profile

A—0 to 8 inches; silt loam
 Bt1—8 to 20 inches; silt loam
 Bt2—20 to 47 inches; silty clay loam
 Bt3—47 to 80 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: Very high (more than 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

60043—Menfro silt loam, 30 to 50 percent slopes**Setting**

Landform: Hill
Position on the landform: Backslope
Parent material: Fine-silty loess

Composition

Menfro and similar soils—80 percent
 Minor components—20 percent
 Gasconade—lower backslopes with southwest aspects
 Rock outcrop—lower backslopes with southwest aspects
 Rueter—upper backslopes
 Sonsac—lower backslopes

Typical Profile

A—0 to 4 inches; silt loam
 E—4 to 10 inches; silt loam
 Bt1—10 to 40 inches; silty clay loam, silt loam
 Bt2—40 to 80 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Low (0.5 to 1 percent)

Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

60044—Minnith silt loam, 3 to 8 percent slopes, eroded

Setting

Landform: Hill
Position on the landform: Summit
Parent material: Fine-silty loess over loamy residuum weathered from sandstone

Composition

Minnith and similar soils—90 percent
 Minor components—10 percent
 Holstein—saddles
 Pevely—saddles and shoulders

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt1—5 to 35 inches; silty clay loam
 2Bt2—35 to 80 inches; loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: 36 to 72 inches

60045—Minnith silt loam, 8 to 15 percent slopes, eroded

Setting

Landform: Hill
Position on the landform: Summit and backslope
Parent material: Fine-silty loess over loamy residuum weathered from sandstone

Composition

Minnith and similar soils—85 percent
 Minor components—15 percent
 Holstein—lower backslopes
 Pevely—more dissected areas

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt1—5 to 35 inches; silty clay loam
 2Bt2—35 to 80 inches; loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: 36 to 72 inches

60046—Minnith silt loam, 15 to 30 percent slopes

Setting

Landform: Hill
Position on the landform: Backslope
Parent material: Fine-silty loess over loamy residuum weathered from sandstone

Composition

Minnith and similar soils—80 percent
 Minor components—20 percent
 Holstein—lower backslopes
 Pevely—more dissected areas
 Ramsey—more sloping areas adjacent to drains
 Rock outcrop—more sloping areas adjacent to drains

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt1—5 to 35 inches; silty clay loam
 2Bt2—35 to 80 inches; loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: 36 to 72 inches

**60047—Urban land-Harvester complex,
8 to 15 percent slopes*****Setting***

Landform: Hill
Position on the landform: Backslope
Parent material: Urban land—no data;
 Harvester—fine-silty loess

Composition

Urban land—50 percent
 Harvester and similar soils—45 percent
 Minor components—5 percent
 Rueter—shoulders and saddles
 Sonsac—lower backslopes

Typical Profile**Harvester**

C1—0 to 7 inches; silt loam
 C2—7 to 31 inches; silty clay loam
 2C3—31 to 80 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Urban land—no data;
 Harvester—very deep (more than 60 inches)
 Drainage class: Urban land—no data;
 Harvester—moderately well drained
 Available water capacity: Urban land—no data;
 Harvester—moderate (6 to 9 inches)
 Organic matter content: Urban land—no data;
 Harvester—low (0.5 to 1 percent)
 Shrink-swell potential: Urban land—no data;
 Harvester—moderate (3 to 6 percent)
 Flooding: None
 Water table: Urban land—no data; Harvester—39 to 59 inches

60048—Weingarten silt loam, 15 to 50 percent slopes***Setting***

Landform: Hill
Position on the landform: Backslope
Parent material: Fine-silty loess over gravelly residuum weathered from cherty limestone

Composition

Weingarten and similar soils—85 percent
 Minor components—15 percent
 Menfro—less sloping north aspects
 Rock outcrop—more sloping areas adjacent to drains
 Rueter—upper backslopes
 Sonsac—lower backslopes with southwest aspects
 Useful—lower backslopes

Typical Profile

A—0 to 3 inches; silt loam
 E—3 to 11 inches; silt loam
 Bt—11 to 32 inches; silty clay loam
 2Btx—32 to 68 inches; silt loam
 3Bt—68 to 80 inches; extremely gravelly silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Low (0 to 3 percent)
 Flooding: None
 Water table: None

**60049—Urban land-Horsecreek complex,
2 to 5 percent slopes*****Setting***

Landform: Stream terrace
Parent material: Urban land—no data;
 Horsecreek—fine-silty alluvium

Composition

Urban land—50 percent
 Horsecreek and similar soils—40 percent
 Minor components—10 percent
 Freeburg—less sloping areas

Typical Profile**Horsecreek**

A—0 to 9 inches; silt loam
 Bt—9 to 60 inches; silty clay loam and silt loam

Soil Properties and Qualities

Depth to bedrock: Urban land—no data;
 Horsecreek—very deep (more than 60 inches)
 Drainage class: Urban land—no data;
 Horsecreek—well drained
 Available water capacity: Urban land—no data;
 Horsecreek—high (9 to 12 inches)
 Organic matter content: Urban land—no data;
 Horsecreek—moderate (2 to 4 percent)
 Shrink-swell potential: Urban land—no data;
 Horsecreek—low (0 to 3 percent)
 Flooding: None
 Water table: None

60050—Urban land-Deible complex, 0 to 3 percent slopes**Setting**

Landform: Stream terrace
Parent material: Urban land—no data; Deible—clayey alluvium over colluvium

Composition

Urban land—50 percent
 Deible and similar soils—40 percent
 Minor components—10 percent
 Freeburg—more sloping areas

Typical Profile**Deible**

Ap—0 to 10 inches; silt loam
 E—10 to 15 inches; silt loam
 Btg1—15 to 37 inches; silty clay
 2Btg2—37 to 80 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Urban land—no data;
 Deible—very deep (more than 60 inches)
 Drainage class: Urban land—no data;
 Deible—poorly drained
 Available water capacity: Urban land—no data;
 Deible—high (9 to 12 inches)
 Organic matter content: Urban land—no data;
 Deible—moderately low (1 to 2 percent)
 Shrink-swell potential: Urban land—no data;
 Deible—high (6 to 9 percent)
 Flooding: None
 Water table: Urban land—no data; Deible—0 to 12 inches

64007—Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded**Setting**

Landform: Stream terrace
Parent material: Fine-silty alluvium

Composition

Freeburg and similar soils—85 percent
 Minor components—15 percent
 Horsecreek—convex areas
 Moniteau—depressional areas

Typical Profile

Ap—0 to 8 inches; silt loam
 E—8 to 18 inches; silt loam
 Bt—18 to 37 inches; silty clay loam
 Btg—37 to 65 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Somewhat poorly drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: Occasional (5 to 50 percent chance in any year)
 Water table: 12 to 30 inches

64008—Freeburg silt loam, 2 to 5 percent slopes***Setting****Landform:* Stream terrace*Parent material:* Fine-silty alluvium***Composition***

Freeburg and similar soils—90 percent

Minor components—10 percent

Deible—depressional areas

Freeburg—eroded areas

Horsecreek—convex areas

Typical Profile

Ap—0 to 8 inches; silt loam

E—8 to 18 inches; silt loam

Bt—18 to 37 inches; silty clay loam

Btg—37 to 65 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: None

Water table: 12 to 30 inches

64009—Freeburg silt loam, 5 to 9 percent slopes***Setting****Landform:* Hill*Position on the landform:* Footslope*Parent material:* Fine-silty alluvium***Composition***

Freeburg and similar soils—90 percent

Minor components—10 percent

Freeburg—eroded areas

Horsecreek—convex areas

Typical Profile

Ap—0 to 8 inches; silt loam

E—8 to 18 inches; silt loam

Bt—18 to 37 inches; silty clay loam

Btg—37 to 65 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: None

Water table: 12 to 30 inches

66000—Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded***Setting****Landform:* Stream terrace*Parent material:* Fine-silty alluvium***Composition***

Moniteau and similar soils—85 percent

Minor components—15 percent

Freeburg—higher areas

Horsecreek—convex areas

Sturkie—lower areas

Typical Profile

Ap—0 to 7 inches; silt loam

E—7 to 14 inches; silt loam

Btg—14 to 80 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Poorly drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: Occasional (5 to 50 percent chance in any year)

Water table: 0 to 12 inches

66014—Haymond silt loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform: Flood plain

Parent material: Coarse-silty alluvium

Composition

Haymond and similar soils—90 percent

Minor components—10 percent

Gravel bars—adjacent to stream channels

Kaintuck—adjacent to stream channels

Wilbur—depressional areas

Typical Profile

Ap—0 to 6 inches; silt loam

Bw—6 to 41 inches; silt loam

2C—41 to 80 inches; fine sandy loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderate (2 to 4 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: Frequent (more than a 50 percent chance in any year)

Water table: None

66020—Haynie silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plain

Parent material: Coarse-silty alluvium

Composition

Haynie and similar soils—90 percent

Minor components—10 percent

Tice—depressional areas

Typical Profile

Ap—0 to 9 inches; silt loam

C—9 to 80 inches; stratified very fine sandy loam to silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: Very high (more than 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: Frequent (more than a 50 percent chance in any year)

Water table: None

66024—Wilbur silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plain

Parent material: Coarse-silty alluvium

Composition

Wilbur and similar soils—85 percent

Minor components—15 percent

Haymond—convex areas

Kaintuck—adjacent to river channels

Ponded areas

Typical Profile

A—0 to 8 inches; silt loam

Bw—8 to 36 inches; silt loam

Cg—36 to 80 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Moderately well drained

Available water capacity: Very high (more than 12 inches)

Organic matter content: High (4 to 8 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: Frequent (more than a 50 percent chance in any year)

Water table: 18 to 24 inches

66050—Tice silty clay loam, 0 to 2 percent slopes, frequently flooded***Setting***

Landform: Flood plain

Parent material: Fine-silty alluvium

Composition

Tice and similar soils—90 percent

Minor components—10 percent

Haynie—convex areas

Typical Profile

Ap—0 to 16 inches; silty clay loam

Bw—16 to 80 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderate (2 to 4 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: Frequent (more than a 50 percent chance in any year)

Water table: 18 to 36 inches

66051—Perche silt loam, 0 to 2 percent slopes, occasionally flooded***Setting***

Landform: Flood plain

Parent material: Coarse-loamy alluvium

Composition

Perche and similar soils—85 percent

Minor components—15 percent

Gladden—areas adjacent to stream channels

Kaintuck—convex areas

Typical Profile

Ap—0 to 4 inches; silt loam

C—4 to 60 inches; stratified sand to silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Moderately well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: Occasional (5 to 50 percent chance in any year)

Water table: 24 to 42 inches

66052—Waldron silty clay loam, 0 to 2 percent slopes, frequently flooded***Setting***

Landform: Flood plain

Parent material: Clayey alluvium

Composition

Waldron and similar soils—85 percent

Minor components—15 percent

Haynie—convex areas

Tice—linear areas

Waldron—ponded areas

Typical Profile

Ap—0 to 6 inches; silty clay loam

C—6 to 60 inches; stratified silt loam, silty clay loam, and silty clay

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained

Available water capacity: Moderate (6 to 9 inches)

Organic matter content: Moderate (2 to 4 percent)

Shrink-swell potential: High (6 to 9 percent)

Flooding: Frequent (more than a 50 percent chance in any year)

Water table: 12 to 36 inches

66053—Fishpot-Urban land complex, 0 to 3 percent slopes

Setting

Landform: Stream terrace

Parent material: Fishpot—fine-loamy earth fill;
Urban land—no data

Composition

Fishpot and similar soils—50 percent

Urban land—40 percent

Minor components—10 percent

Fishpot—rarely flooded areas

Freeburg—undisturbed linear areas

Horsecreek—undisturbed convex areas

Typical Profile

Fishpot

C1—0 to 47 inches; stratified silt loam

C2—47 to 80 inches; stratified silt loam to silty clay loam

Soil Properties and Qualities

Depth to bedrock: Fishpot—very deep (more than 60 inches); Urban land—no data

Drainage class: Fishpot—somewhat poorly drained;
Urban land—no data

Available water capacity: Fishpot—moderate (6 to 9 inches); Urban land—no data

Organic matter content: Fishpot—moderately low (1 to 2 percent); Urban land—no data

Shrink-swell potential: Fishpot—moderate (3 to 6 percent); Urban land—no data

Flooding: None

Water table: Fishpot—24 to 60 inches;
Urban land—no data

73046—Wrengart silt loam, 3 to 8 percent slopes, eroded

Setting

Landform: Hill

Position on the landform: Summit

Parent material: Fine-silty loess over gravelly residuum weathered from limestone

Composition

Wrengart and similar soils—90 percent

Minor components—10 percent

Goss—saddles and shoulders

Rueter—saddles and shoulders

Sonsac—incised saddles and more sloping southwest aspects

Typical Profile

Ap—0 to 6 inches; silt loam

Bt—6 to 26 inches; silty clay loam

2Btx—26 to 45 inches; silt loam

3Bt1—45 to 60 inches; extremely gravelly silty clay loam

4Bt2—60 to 80 inches; gravelly silty clay

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Moderately well drained

Available water capacity: Moderate (6 to 9 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: Moderate (3 to 6 percent)

Flooding: None

Water table: 24 to 42 inches

73090—Useful silt loam, 3 to 8 percent slopes

Setting

Landform: Hill

Position on the landform: Summit

Parent material: Loess over clayey residuum weathered from dolostone

Composition

Useful and similar soils—90 percent

Minor components—10 percent

Caneyville—saddles and southwest-facing shoulders

Wrengart—less sloping broader areas

Typical Profile

Ap—0 to 7 inches; silt loam
 Bt—7 to 31 inches; silty clay
 2Bt—31 to 45 inches; silty clay
 2Bt/Cr—45 to 53 inches; silty clay loam
 2R—53 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Deep (40 to 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: Moderate (6 to 9 inches)
 Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: High (6 to 9 percent)
 Flooding: None
 Water table: 24 to 42 inches

73200—Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony**Setting**

Landform: Hill
Position on the landform: Summit
Parent material: Gravelly colluvium over clayey residuum weathered from cherty limestone

Composition

Sonsac and similar soils—80 percent
 Minor components—20 percent
 Caneyville—less sloping areas and north-facing shoulders
 Moko—saddles and southwest-facing shoulders
 Rock outcrop—saddles and southwest-facing shoulders

Typical Profile

A—0 to 3 inches; gravelly silt loam
 E—3 to 8 inches; very gravelly silt loam
 Bt1—8 to 11 inches; very gravelly silt loam
 2Bt2—11 to 32 inches; very gravelly clay
 2R—32 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Well drained

Available water capacity: Low (3 to 6 inches)
 Organic matter content: Low (0.5 to 1 percent)
 Shrink-swell potential: High (6 to 9 percent)
 Flooding: None
 Water table: None

73201—Sonsac gravelly silt loam, 15 to 40 percent slopes, very stony**Setting**

Landform: Hill
Position on the landform: Backslope
Parent material: Gravelly colluvium over clayey residuum weathered from cherty limestone

Composition

Sonsac and similar soils—80 percent
 Minor components—20 percent
 Moko—more sloping areas adjacent to drains
 Rock outcrop—more sloping areas adjacent to drains
 Rueter—upper backslopes
 Useful—less sloping areas and north aspects

Typical Profile

A—0 to 3 inches; gravelly silt loam
 E—3 to 8 inches; very gravelly silt loam
 Bt1—8 to 11 inches; very gravelly silt loam
 2Bt2—11 to 32 inches; very gravelly clay
 2R—32 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Low (0.5 to 1 percent)
 Shrink-swell potential: High (6 to 9 percent)
 Flooding: None
 Water table: None

73202—Rueter gravelly silt loam, 3 to 15 percent slopes, very stony

Setting

Landform: Hill

Position on the landform: Summit

Parent material: Gravelly colluvium over clayey residuum weathered from dolostone

Composition

Rueter and similar soils—90 percent

Minor components—10 percent

Sonsac—saddles

Wrengart—less sloping areas and north-facing shoulders

Typical Profile

A—0 to 2 inches; gravelly silt loam

E—2 to 13 inches; gravelly silt loam

Bt1—13 to 48 inches; extremely gravelly silt loam

2Bt2—48 to 80 inches; cobbly clay

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Somewhat excessively drained

Available water capacity: Low (3 to 6 inches)

Organic matter content: Very low (0 to 0.5 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: None

Water table: None

73203—Rueter-Sonsac complex, 15 to 55 percent slopes, extremely stony

Setting

Landform: Hill

Position on the landform: Backslope

Parent material: Rueter—gravelly colluvium over clayey residuum weathered from dolostone;
Sonsac—gravelly colluvium over clayey residuum weathered from cherty limestone

Composition

Rueter and similar soils—45 percent

Sonsac and similar soils—40 percent

Minor components—15 percent

Moko—lower backslopes and more sloping areas adjacent to drains

Rock outcrop—more sloping areas adjacent to drains

Wrengart—north aspects

Typical Profile

Rueter

A—0 to 2 inches; gravelly silt loam

E—2 to 13 inches; gravelly silt loam

Bt1—13 to 48 inches; extremely gravelly silt loam

2Bt2—48 to 80 inches; cobbly clay

Sonsac

A—0 to 3 inches; gravelly silt loam

E—3 to 8 inches; very gravelly silt loam

Bt1—8 to 11 inches; very gravelly silt loam

2Bt2—11 to 32 inches; very gravelly clay

2R—32 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Rueter—very deep (more than 60 inches); Sonsac—moderately deep (20 to 40 inches)

Drainage class: Rueter—somewhat excessively drained; Sonsac—well drained

Available water capacity: Low (3 to 6 inches)

Organic matter content: Rueter—very low (0 to 0.5 percent); Sonsac—low (0.5 to 1 percent)

Shrink-swell potential: Rueter—low (0 to 3 percent); Sonsac—high (6 to 9 percent)

Flooding: None

Water table: None

73204—Ramsey-Rock outcrop complex, 8 to 50 percent slopes

Setting

Landform: Hill

Position on the landform: Backslope

Parent material: Ramsey—loamy residuum weathered from sandstone; Rock outcrop—no data

Composition

Ramsey—60 percent
 Rock outcrop—25 percent
 Minor components—15 percent
 Holstein—less sloping backslopes
 Pevely—upper backslopes

Typical Profile**Ramsey**

A—0 to 1 inches; fine sandy loam
 E—1 to 4 inches; fine sandy loam
 Bw—4 to 10 inches; fine sandy loam
 C—10 to 17 inches; loamy fine sand
 R—17 to 60 inches; unweathered sandstone bedrock

Soil Properties and Qualities

Depth to bedrock: Ramsey—very shallow and shallow (4 to 20 inches); Rock outcrop—no data
 Drainage class: Ramsey—somewhat excessively drained; Rock outcrop—no data
 Available water capacity: Ramsey—very low (0 to 3 inches); Rock outcrop—no data
 Organic matter content: Ramsey—low (0.5 to 1 percent); Rock outcrop—no data
 Shrink-swell potential: Ramsey—low (0 to 3 percent); Rock outcrop—no data
 Flooding: None
 Water table: None

73205—Useful silt loam, 8 to 15 percent slopes**Setting**

Landform: Hill
Position on the landform: Backslope and summit
Parent material: Loess over clayey residuum weathered from limestone

Composition

Useful and similar soils—90 percent
 Minor components—10 percent
 Moko—more sloping areas adjacent to drains
 Sonsac—more sloping backslopes and southwest aspects
 Wrengart—less sloping areas and north aspects

Typical Profile

Ap—0 to 7 inches; silt loam
 Bt—7 to 31 inches; silty clay loam
 2Bt1—31 to 39 inches; very gravelly silty clay
 2Bt2—39 to 53 inches; silty clay and silty clay loam
 2R—53 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Deep (40 to 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: Moderate (6 to 9 inches)
 Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: High (6 to 9 percent)
 Flooding: None
 Water table: 24 to 42 inches

73206—Useful silt loam, 15 to 40 percent slopes**Setting**

Landform: Hill
Position on the landform: Backslope
Parent material: Loess over clayey residuum weathered from limestone

Composition

Useful and similar soils—85 percent
 Minor components—15 percent
 Moko—more sloping areas adjacent to drains and southwest aspects
 Rock outcrop—more sloping areas adjacent to drains
 Sonsac—lower backslopes and southwest aspects

Typical Profile

Ap—0 to 7 inches; silt loam
 Bt—7 to 31 inches; silty clay loam
 2Bt1—31 to 39 inches; very gravelly silty clay
 2Bt2—39 to 53 inches; silty clay and silty clay loam
 2R—53 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Deep (40 to 60 inches)
 Drainage class: Moderately well drained
 Available water capacity: Moderate (6 to 9 inches)

Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: High (6 to 9 percent)
 Flooding: None
 Water table: 24 to 42 inches

73207—Caneyville silt loam, 3 to 8 percent slopes

Setting

Landform: Hill
Position on the landform: Summit
Parent material: Clayey residuum weathered from dolostone

Composition

Caneyville and similar soils—80 percent
 Minor components—20 percent
 Caneyville—eroded areas
 Moko—more sloping southwest-facing shoulders
 Rock outcrop—more sloping southwest-facing shoulders
 Sonsac—saddles and southwest-facing shoulders
 Useful—less sloping areas and north aspect shoulders

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt1—5 to 21 inches; silty clay loam
 Bt2—21 to 32 inches; silty clay
 R—32 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

73208—Caneyville silt loam, 8 to 15 percent slopes

Setting

Landform: Hill
Position on the landform: Summit and backslope
Parent material: Clayey residuum weathered from dolostone

Composition

Caneyville and similar soils—80 percent
 Minor components—20 percent
 Caneyville—eroded areas
 Moko—more sloping areas adjacent to drains
 Rock outcrop—more sloping areas adjacent to drains
 Sonsac—lower backslopes and southwest aspects
 Useful—less sloping areas and north aspects

Typical Profile

A—0 to 3 inches; silt loam
 E—3 to 6 inches; silt loam
 Bt1—6 to 18 inches; silty clay
 Bt2—18 to 34 inches; gravelly clay
 R—34 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

73209—Caneyville silt loam, 15 to 30 percent slopes

Setting

Landform: Hill
Position on the landform: Backslope
Parent material: Clayey residuum weathered from dolostone

Composition

Caneyville and similar soils—80 percent
 Minor components—20 percent
 Moko—more sloping areas adjacent to drains
 Rock outcrop—more sloping areas adjacent to drains
 Sonsac—lower backslopes and southwest aspects
 Useful—less sloping areas and north aspects

Typical Profile

A—0 to 3 inches; silt loam
 E—3 to 6 inches; silt loam
 Bt1—6 to 18 inches; silty clay
 Bt2—18 to 34 inches; gravelly clay
 R—34 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
 Drainage class: Well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

73210—Goss very cobbly silt loam, 15 to 50 percent slopes, extremely stony**Setting**

Landform: Hill
Position on the landform: Backslope
Parent material: Clayey residuum weathered from cherty limestone

Composition

Goss and similar soils—80 percent
 Minor components—20 percent
 Crider—less sloping lower backslopes
 Moko—more sloping areas adjacent to drains
 Rock outcrop—more sloping areas adjacent to drains
 Rueter—upper backslopes
 Sonsac—lower backslopes and southwest aspects

Typical Profile

A—0 to 3 inches; very cobbly silt loam
 E—3 to 9 inches; very gravelly silt loam
 Bt—9 to 80 inches; cobbly clay

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

73211—Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly**Setting**

Landform: Hill
Position on the landform: Gasconade—summit and shoulder; Rock outcrop—shoulder
Parent material: Gasconade—clayey residuum weathered from limestone; Rock outcrop—no data

Composition

Gasconade and similar soils—60 percent
 Rock outcrop—20 percent
 Minor components—20 percent
 Caneyville—north aspect shoulders and saddles
 Sonsac—saddles and north aspect shoulders
 Useful—broader less sloping areas

Typical Profile**Gasconade**

A—0 to 10 inches; very channery silty clay
 Bw—10 to 13 inches; channery silty clay
 R—13 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Gasconade—very shallow and shallow (4 to 20 inches); Rock outcrop—no data

Drainage class: Gasconade—somewhat excessively drained; Rock outcrop—no data
 Available water capacity: Gasconade—very low (0 to 3 inches); Rock outcrop—no data
 Organic matter content: Gasconade—moderate (2 to 4 percent); Rock outcrop—no data
 Shrink-swell potential: Gasconade—high (6 to 9 percent); Rock outcrop—no data
 Flooding: None
 Water table: None

73212—Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly

Setting

Landform: Hill
Position on the landform: Backslope
Parent material: Gasconade—clayey residuum weathered from limestone; Rock outcrop—no data

Composition

Gasconade and similar soils—55 percent
 Rock outcrop—25 percent
 Minor components—20 percent
 Caneyville—upper backslopes on north aspects
 Menfro—north aspects adjacent to Mississippi River
 Sonsac—upper backslopes

Typical Profile

Gasconade

A—0 to 10 inches; very channery silty clay
 Bw—10 to 13 inches; channery silty clay
 R—13 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Gasconade—very shallow and shallow (4 to 20 inches); Rock outcrop—no data
 Drainage class: Gasconade—somewhat excessively drained; Rock outcrop—no data
 Available water capacity: Gasconade—very low (0 to 3 inches); Rock outcrop—no data
 Organic matter content: Gasconade—moderate (2 to 4 percent); Rock outcrop—no data

Shrink-swell potential: Gasconade—high (6 to 9 percent); Rock outcrop—no data
 Flooding: None
 Water table: None

73213—Moko-Rock outcrop complex, 3 to 15 percent slopes, extremely stony

Setting

Landform: Hill
Position on the landform: Shoulder
Parent material: Moko—loamy residuum weathered from dolostone; Rock outcrop—no data

Composition

Moko and similar soils—65 percent
 Rock outcrop—20 percent
 Minor components—15 percent
 Caneyville—north aspect shoulders and saddles
 Sonsac—saddles and north aspect shoulders
 Useful—less sloping broader areas

Typical Profile

Moko

A1—0 to 5 inches; gravelly loam
 A2—5 to 10 inches; extremely channery silt loam
 R—10 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moko—very shallow and shallow (4 to 20 inches); Rock outcrop—no data
 Drainage class: Moko—well drained;
 Rock outcrop—no data
 Available water capacity: Moko—very low (0 to 3 inches); Rock outcrop—no data
 Organic matter content: Moko—high (4 to 8 percent);
 Rock outcrop—no data
 Shrink-swell potential: Moko—low (0 to 3 percent);
 Rock outcrop—no data
 Flooding: None
 Water table: None

73214—Moko-Rock outcrop complex, 15 to 50 percent slopes, extremely stony

Setting

Landform: Hill

Position on the landform: Backslope

Parent material: Moko—loamy residuum weathered from dolostone; Rock outcrop—no data

Composition

Moko and similar soils—60 percent

Rock outcrop—25 percent

Minor components—15 percent

Caneyville—upper backslopes on north aspects

Sonsac—upper backslopes

Typical Profile

Moko

A1—0 to 5 inches; gravelly loam

A2—5 to 10 inches; extremely channery silt loam

R—10 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Moko—very shallow and shallow (4 to 20 inches); Rock outcrop—no data

Drainage class: Moko—well drained;

Rock outcrop—no data

Available water capacity: Moko—very low (0 to 3 inches); Rock outcrop—no data

Organic matter content: Moko—high (4 to 8 percent);

Rock outcrop—no data

Shrink-swell potential: Moko—low (0 to 3 percent);

Rock outcrop—no data

Flooding: None

Water table: None

73215—Crider silt loam, 3 to 8 percent slopes

Setting

Landform: Hill

Position on the landform: Footslope

Parent material: Fine-silty loess over clayey residuum

Composition

Crider and similar soils—85 percent

Minor components—15 percent

Caneyville—more sloping areas adjacent to drains

Crider—eroded areas

Freeburg—less sloping areas

Goss—more dissected areas

Typical Profile

Ap—0 to 11 inches; silt loam

Bt1—11 to 37 inches; silty clay loam

2Bt2—37 to 60 inches; silty clay and silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderate (2 to 4 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: None

Water table: None

73216—Crider silt loam, 8 to 15 percent slopes

Setting

Landform: Hill

Position on the landform: Backslope

Parent material: Fine-silty loess over clayey residuum

Composition

Crider and similar soils—85 percent

Minor components—15 percent

Caneyville—more sloping areas adjacent to drains

Crider—eroded areas

Goss—more dissected areas

Typical Profile

Ap—0 to 11 inches; silt loam

Bt1—11 to 37 inches; silty clay loam

2Bt2—37 to 60 inches; silty clay and silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: Low (0 to 3 percent)
 Flooding: None
 Water table: None

73217—Useful-Sonsac complex, 15 to 50 percent slopes, very stony***Setting***

Landform: Hill

Position on the landform: Backslope

Parent material: Useful—loess over clayey residuum weathered from dolostone; Sonsac—gravelly colluvium over clayey residuum weathered from limestone

Composition

Useful and similar soils—55 percent
 Sonsac and similar soils—35 percent
 Minor components—10 percent
 Rock outcrop—more sloping backslopes and southwest aspects
 Weingarten—north aspects

Typical Profile**Useful**

Ap—0 to 7 inches; silt loam
 Bt—7 to 31 inches; silty clay loam
 2Bt1—31 to 39 inches; very gravelly silty clay
 2Bt2—39 to 53 inches; silty clay and silty clay loam
 2R—53 to 60 inches; unweathered bedrock

Sonsac

A—0 to 3 inches; gravelly silt loam
 E—3 to 8 inches; very gravelly silt loam
 Bt1—8 to 11 inches; very gravelly silt loam
 2Bt2—11 to 32 inches; very gravelly clay
 2R—32 to 60 inches; unweathered bedrock

Soil Properties and Qualities

Depth to bedrock: Useful—deep (40 to 60 inches); Sonsac—moderately deep (20 to 40 inches)
 Drainage class: Useful—moderately well drained; Sonsac—well drained
 Available water capacity: Useful—moderate (6 to 9 inches); Sonsac—low (3 to 6 inches)
 Organic matter content: Useful—moderate (2 to 4 percent); Sonsac—low (0.5 to 1 percent)
 Shrink-swell potential: High (6 to 9 percent)
 Flooding: None
 Water table: Useful—24 to 42 inches; Sonsac—None

73218—Tiff gravelly clay, 1 to 20 percent slopes, very rocky***Setting***

Landform: Hill

Position on the landform: Backslope

Parent material: Truncated clayey residuum weathered from dolostone

Composition

Tiff and similar soils—80 percent
 Rock outcrop—3 percent
 Minor components—17 percent
 Goss—non-excavated areas
 Wrengart—non-excavated less sloping areas
 Soils less than 60 inches to bedrock

Typical Profile

Bt1—0 to 3 inches; gravelly clay
 Bt2—3 to 80 inches; very cobbly clay and gravelly clay

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: Low (3 to 6 inches)
 Organic matter content: Very low (0 to 0.5 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: None
 Water table: None

73219—Rueter gravelly silt loam, 15 to 55 percent slopes, extremely stony

Setting

Landform: Hill

Position on the landform: Backslope

Parent material: Gravelly colluvium over clayey residuum weathered from dolostone

Composition

Rueter and similar soils—90 percent

Minor components—10 percent

Sonsac—lower backslopes

Weingarten—north aspects

Typical Profile

A—0 to 2 inches; gravelly silt loam

E—2 to 13 inches; gravelly silt loam

Bt1—13 to 48 inches; extremely gravelly silt loam

2Bt2—48 to 80 inches; cobbly clay

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Somewhat excessively drained

Available water capacity: Low (3 to 6 inches)

Organic matter content: Very low (0 to 0.5 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: None

Water table: None

74644—Deible silt loam, 1 to 3 percent slopes

Setting

Landform: Stream terrace

Parent material: Clayey alluvium over colluvium

Composition

Deible and similar soils—90 percent

Minor components—10 percent

Freeburg—more sloping edges of units

Typical Profile

Ap—0 to 10 inches; silt loam

E—10 to 15 inches; silt loam

Btg1—15 to 37 inches; silty clay

2Btg2—37 to 80 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Poorly drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderately low (1 to 2 percent)

Shrink-swell potential: High (6 to 9 percent)

Flooding: None

Water table: 0 to 12 inches

74675—Horsecreek silt loam, 2 to 5 percent slopes

Setting

Landform: Stream terrace

Parent material: Fine-silty alluvium

Composition

Horsecreek and similar soils—90 percent

Minor components—10 percent

Freeburg—less sloping areas

Horsecreek—eroded areas

Typical Profile

A—0 to 9 inches; silt loam

Bt—9 to 60 inches; silt loam and silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderate (2 to 4 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: None

Water table: None

**74676—Urban land-Freeburg complex,
2 to 5 percent slopes**

Setting

Landform: Stream terrace

Parent material: Fine-silty alluvium

Composition

Urban land—50 percent

Freeburg and similar soils—40 percent

Minor components—10 percent

Deible—depressional areas

Horsecreek—convex areas

Typical Profile

Ap—0 to 8 inches; silt loam

E—8 to 18 inches; silt loam

Bt—18 to 37 inches; silty clay loam

Btg—37 to 65 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Urban land—no data;

Freeburg—very deep (more than 60 inches)

Drainage class: Urban land—no data;

Freeburg—somewhat poorly drained

Available water capacity: Urban land—no data;

Freeburg—high (9 to 12 inches)

Organic matter content: Urban land—no data;

Freeburg—moderately low (1 to 2 percent)

Shrink-swell potential: Urban land—no data;

Freeburg—moderate (3 to 6 percent)

Flooding: None

Water table: Urban land—no data; Freeburg—12 to 30 inches

**75375—Horsecreek silt loam, 0 to 2
percent slopes, occasionally flooded**

Setting

Landform: Stream terrace

Parent material: Fine-silty alluvium

Composition

Horsecreek and similar soils—88 percent

Minor components—12 percent

Moniteau—depressional areas

Sturkie—lower areas

Typical Profile

Ap—0 to 9 inches; silt loam

A—9 to 19 inches; silt loam

Bt—19 to 60 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Well drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderate (2 to 4 percent)

Shrink-swell potential: Low (0 to 3 percent)

Flooding: Occasional (5 to 50 percent chance in any year)

Water table: None

**75385—Gabriel silt loam, 0 to 2 percent
slopes, occasionally flooded**

Setting

Landform: Stream terrace

Parent material: Fine-silty alluvium

Composition

Gabriel and similar soils—90 percent

Minor components—10 percent

Freeburg—more sloping edges of units

Horsecreek—convex areas

Moniteau—similar landforms

Typical Profile

A—0 to 14 inches; silt loam

Btg1—14 to 29 inches; silty clay loam

Btg2—29 to 80 inches; silty clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Drainage class: Poorly drained

Available water capacity: High (9 to 12 inches)

Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: Occasional (5 to 50 percent chance in any year)
 Water table: 12 to 30 inches

75390—Razort silt loam, 0 to 3 percent slopes, rarely flooded

Setting

Landform: Stream terrace
Parent material: Fine-loamy alluvium over gravelly alluvium

Composition

Razort and similar soils—85 percent
 Minor components—15 percent
 Bloomsdale—adjacent to creek channels
 Freeburg—depressional areas
 Gladden—adjacent to creek channels

Typical Profile

Ap—0 to 7 inches; silt loam
 Bt1—7 to 34 inches; silt loam
 2Bt2—34 to 80 inches; gravelly loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: Moderate (6 to 9 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Low (0 to 3 percent)
 Flooding: Rare (1 to 5 percent chance in any year)
 Water table: None

75398—Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform: Flood plain
Parent material: Coarse-loamy alluvium

Composition

Kaintuck and similar soils—85 percent
 Minor components—15 percent
 Haymond—similar landforms

Typical Profile

Ap—0 to 6 inches; fine sandy loam
 C—6 to 80 inches; stratified fine sand, loamy fine sand, fine sandy loam, loam, or silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: Moderate (6 to 9 inches)
 Organic matter content: Low (0.5 to 1 percent)
 Shrink-swell potential: Low (0 to 3 percent)
 Flooding: Frequent (more than a 50 percent chance in any year)
 Water table: None

75450—Bloomsdale silt loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform: Flood plain
Parent material: Gravelly alluvium

Composition

Bloomsdale and similar soils—85 percent
 Minor components—15 percent
 Gladden—similar landforms
 Haymond—similar landforms
 Razort—slightly higher areas

Typical Profile

A—0 to 20 inches; silt loam
 2Bw—20 to 32 inches; stratified very gravelly coarse sandy loam, very gravelly loam, or very gravelly clay loam
 3Bt—32 to 80 inches; extremely gravelly clay loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained

Available water capacity: Low (3 to 6 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Moderate (3 to 6 percent)
 Flooding: Frequent (more than a 50 percent chance in any year)
 Water table: None

75452—Gladden fine sandy loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform: Flood plain
Parent material: Loamy alluvium over gravelly alluvium

Composition

Gladden and similar soils—90 percent
 Minor components—10 percent
 Kaintuck—similar landforms
 Perche—depressional areas
 Razort—slightly higher areas

Typical Profile

A—0 to 7 inches; fine sandy loam
 Bw—7 to 40 inches; sandy loam
 2C—40 to 80 inches; stratified extremely gravelly coarse sand, extremely gravelly sandy loam, or very gravelly loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: Moderate (6 to 9 inches)
 Organic matter content: Moderately low (1 to 2 percent)
 Shrink-swell potential: Low (0 to 3 percent)
 Flooding: Frequent (more than a 50 percent chance in any year)
 Water table: None

75453—Sturkie silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform: Stream terrace
Parent material: Fine-silty alluvium

Composition

Sturkie and similar soils—90 percent
 Minor components—10 percent
 Haymond—adjacent to river channels
 Horsecreek—higher convex areas

Typical Profile

Ap—0 to 8 inches; silt loam
 A—8 to 28 inches; silt loam
 Bw—28 to 80 inches; silt loam

Soil Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
 Drainage class: Well drained
 Available water capacity: High (9 to 12 inches)
 Organic matter content: Moderate (2 to 4 percent)
 Shrink-swell potential: Low (0 to 3 percent)
 Flooding: Occasional (5 to 50 percent chance in any year)
 Water table: None

75454—Urban land-Razort complex, 1 to 3 percent slopes, rarely flooded

Setting

Landform: Stream terrace
Parent material: Urban land—no data; Razort—fine-loamy alluvium over gravelly alluvium

Composition

Urban land—60 percent
 Razort and similar soils—30 percent
 Minor components—10 percent
 Bloomsdale—adjacent to creek channels
 Freeburg—undisturbed depressional areas
 Gladden—adjacent to creek channels

Typical Profile**Razort**

Ap—0 to 7 inches; silt loam
 Bt1—7 to 34 inches; silt loam
 2Bt2—34 to 80 inches; gravelly loam

Soil Properties and Qualities

Depth to bedrock: Urban land—no data;
 Razort—very deep (more than 60 inches)
 Drainage class: Urban land—no data; Razort—well drained
 Available water capacity: Urban land—no data;
 Razort—moderate (6 to 9 inches)
 Organic matter content: Urban land—no data;
 Razort—moderately low (1 to 2 percent)
 Shrink-swell potential: Urban land—no data;
 Razort—low (0 to 3 percent)
 Flooding: Rare (1 to 5 percent chance in any year)
 Water table: None

99000—Pits, quarries**Setting**

Landform: None assigned
Parent material: No data

Composition

Pits, quarries—95 percent
 Minor components—5 percent
 Processed/stockpiled stone

99001—Water**Setting**

Landform: None assigned
Parent material: No data

Composition

Water—100 percent
 Minor components—0 percent

99003—Miscellaneous water**Setting**

Landform: None assigned
Parent material: No data

Composition

Waste stabilization lagoons—100 percent
 Minor components—0 percent

99005—Landfills**Setting**

Landform: None assigned
Parent material: No data

Composition

Landfill pits—85 percent
 Reshaped and seeded soils—10 percent
 Minor components—5 percent
 Udorthents

99009—Udorthents-Pits complex**Setting**

Landform: Udorthents—stream terrace; Pits—none assigned
Parent material: No data

Composition

Udorthents—65 percent
 Pits—25 percent
 Reshaped and seeded soils—10 percent
 Minor components—0 percent

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
60003	Menfro silt loam, 8 to 15 percent slopes, eroded-----	4,413	1.0
60024	Menfro silt loam, 3 to 8 percent slopes, eroded-----	2,200	0.5
60025	Urban land-Harvester complex, 3 to 8 percent slopes-----	3,212	0.8
60037	Wrengart silt loam, 8 to 15 percent slopes-----	12,922	3.0
60038	Pevely-Holstein complex, 8 to 30 percent slopes-----	7,749	1.8
60039	Pevely silt loam, 3 to 15 percent slopes-----	1,139	0.3
60040	Pevely loam, 15 to 40 percent slopes-----	4,769	1.1
60041	Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony--	2,137	0.5
60042	Menfro silt loam, 15 to 30 percent slopes-----	3,987	0.9
60043	Menfro silt loam, 30 to 50 percent slopes-----	3,581	0.8
60044	Minnith silt loam, 3 to 8 percent slopes, eroded-----	5,276	1.2
60045	Minnith silt loam, 8 to 15 percent slopes, eroded-----	6,412	1.5
60046	Minnith silt loam, 15 to 30 percent slopes-----	1,185	0.3
60047	Urban land-Harvester complex, 8 to 15 percent slopes-----	1,203	0.3
60048	Weingarten silt loam, 15 to 50 percent slopes-----	6,813	1.6
60049	Urban land-Horsecreek complex, 2 to 5 percent slopes-----	198	*
60050	Urban land-Deible complex, 0 to 3 percent slopes-----	382	*
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded-----	3,615	0.9
64008	Freeburg silt loam, 2 to 5 percent slopes-----	3,317	0.8
64009	Freeburg silt loam, 5 to 9 percent slopes-----	1,794	0.4
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded-----	3,517	0.8
66014	Haymond silt loam, 0 to 3 percent slopes, frequently flooded-----	8,140	1.9
66020	Haynie silt loam, 0 to 2 percent slopes, frequently flooded-----	1,847	0.4
66024	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded-----	3,572	0.8
66050	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded-----	1,158	0.3
66051	Perche silt loam, 0 to 2 percent slopes, occasionally flooded-----	927	0.2
66052	Waldron silty clay loam, 0 to 2 percent slopes, frequently flooded-----	830	0.2
66053	Fishpot-Urban land complex, 0 to 3 percent slopes-----	1,452	0.3
73046	Wrengart silt loam, 3 to 8 percent slopes, eroded-----	17,688	4.2
73090	Useful silt loam, 3 to 8 percent slopes-----	14,300	3.4
73200	Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony-----	2,718	0.6
73201	Sonsac gravelly silt loam, 15 to 40 percent slopes, very stony-----	81,830	19.2
73202	Rueter gravelly silt loam, 3 to 15 percent slopes, very stony-----	5,238	1.2
73203	Rueter-Sonsac complex, 15 to 55 percent slopes, extremely stony-----	8,171	1.9
73204	Ramsey-Rock outcrop complex, 8 to 50 percent slopes-----	1,227	0.3
73205	Useful silt loam, 8 to 15 percent slopes-----	15,805	3.7
73206	Useful silt loam, 15 to 40 percent slopes-----	31,681	7.4
73207	Caneyville silt loam, 3 to 8 percent slopes-----	1,844	0.4
73208	Caneyville silt loam, 8 to 15 percent slopes-----	2,324	0.5
73209	Caneyville silt loam, 15 to 30 percent slopes-----	24,362	5.7
73210	Goss very cobbly silt loam, 15 to 50 percent slopes, extremely stony-----	16,189	3.8
73211	Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly-----	1,190	0.3
73212	Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly-----	13,749	3.2
73213	Moko-Rock outcrop complex, 3 to 15 percent slopes, extremely stony-----	821	0.2
73214	Moko-Rock outcrop complex, 15 to 50 percent slopes, extremely stony-----	26,081	6.1
73215	Crider silt loam, 3 to 8 percent slopes-----	2,092	0.5
73216	Crider silt loam, 8 to 15 percent slopes-----	1,271	0.3
73217	Useful-Sonsac complex, 15 to 50 percent slopes, very stony-----	2,561	0.6
73218	Tiff gravelly clay, 1 to 20 percent slopes, very rocky-----	857	0.2
73219	Rueter gravelly silt loam, 15 to 55 percent slopes, extremely stony-----	10,043	2.4
74644	Deible silt loam, 1 to 3 percent slopes-----	1,267	0.3
74675	Horsecreek silt loam, 2 to 5 percent slopes-----	1,429	0.3
74676	Urban land-Freeburg complex, 2 to 5 percent slopes-----	807	0.2
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded-----	4,583	1.1
75385	Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded-----	1,044	0.2
75390	Razort silt loam, 0 to 3 percent slopes, rarely flooded-----	6,872	1.6
75398	Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	4,692	1.1
75450	Bloomsdale silt loam, 0 to 3 percent slopes, frequently flooded-----	12,783	3.0
75452	Gladden fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	4,337	1.0

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
75453	Sturkie silt loam, 0 to 2 percent slopes, occasionally flooded-----	2,533	0.6
75454	Urban land-Razort complex, 1 to 3 percent slopes, rarely flooded-----	927	0.2
99000	Pits, quarries-----	1,468	0.3
99001	Water-----	2,176	0.5
99003	Miscellaneous water-----	163	*
99005	Landfills-----	106	*
99009	Udorthents-Pits complex-----	304	*
	Total-----	425,280	100.0

* Less than 0.1 percent.

Prime Farmland

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

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

About 66,463 acres in the survey area, or nearly 16 percent of the total acreage, meets the soil requirements for prime farmland. This land is mainly on the flood plains and broad uplands of soil associations 3, 4, 5, and 6, which are described under the heading "General Soil Map Units." Most of the prime farmland is used for hayland and cultivated crops. The main crops grown on this land are fescue, clover, corn, and wheat.

A recent trend in land use in some parts of the survey area has been the loss of some prime

farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed below. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Some soils that have a seasonal high water table and all soils that are frequently flooded during the growing season qualify as prime farmland only in areas where these limitations have been overcome by drainage measures or flood control. The need for these measures is indicated after the map unit name below. Onsite evaluation is needed to determine whether or not these limitations have been overcome by corrective measures.

The soils identified as prime farmland in Jefferson County are:

- 64007 Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded
- 64008 Freeburg silt loam, 2 to 5 percent slopes
- 66000 Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded (where drained)
- 66014 Haymond silt loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
- 66020 Haynie silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)

- | | | | |
|-------|---|-------|---|
| 66024 | Wilbur silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season) | 75385 | Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded (where drained) |
| 66050 | Tice silty clay loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season) | 75390 | Razort silt loam, 0 to 3 percent slopes, rarely flooded |
| 66051 | Perche silt loam, 0 to 2 percent slopes, occasionally flooded | 75398 | Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season) |
| 66052 | Waldron silty clay loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season) | 75450 | Bloomsdale silt loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season) |
| 74644 | Deible silt loam, 1 to 3 percent slopes (where drained) | 75452 | Gladden fine sandy loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season) |
| 74675 | Horsecreek silt loam, 2 to 5 percent slopes | 75453 | Sturkie silt loam, 0 to 2 percent slopes, occasionally flooded |
| 75375 | Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded | | |

Use and Management of the Soils

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 for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. 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.

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

Contractors can use this survey to locate sources of sand and gravel, 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.

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 or not limited by all of the soil features that affect a specified use. Terms for the limitation classes are *not limited*, *slightly limited*, *moderately limited*, *limited*, and *very limited*.

Numerical Ratings

Numerical ratings in the tables indicate the severity of individual limitations. They also indicate the overall degree to which a soil is limited or not limited for a specific use. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

In tables that use limitation class terms, such as *very limited* or *limited*, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service

is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

According to Missouri Department of Agriculture, approximately 31,874 acres in Jefferson County was used as cropland in 1997 and an estimated 107,050 acres was used as pasture and hayland (Missouri Department of Agriculture, 1999).

Field crops, though not extensive, are very significant in Jefferson County. In 1997, corn was planted on about 4,037 acres, soybeans on 6,357 acres, grain sorghum on 404 acres, and wheat on 2,235 acres. Oats, barley, and rye were grown on small acreages (Missouri Department of Agriculture, 1999).

Most of the corn and soybeans are grown on the flood plains in the county (fig. 7). Many areas of the more droughty soils, primarily in the uplands, are used for grain sorghum, wheat, grass, or grass-legume pasture and hay.

The potential for increased crop production in Jefferson County is good. Production can be increased by use of the latest agricultural technology



Figure 7.—Corn stubble in an area of Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded.

on all cropland in the county. This survey can facilitate the application of such technology. About 66,463 acres in the county is prime farmland that generally is suitable for intensive cultivation. Trees have been cleared from most of this acreage.

Cropland erosion. Soil erosion is the major hazard on nearly all sloping cropland and overgrazed pastureland in Jefferson County. All soils with slopes greater than 2 percent are susceptible to damage from erosion.

Soil erosion leads to the loss of the surface layer, which reduces productivity. Erosion is especially damaging on soils that have a clayey subsoil, which then becomes mixed with the plow layer. Good seedbed preparation and germination rates become increasingly difficult to achieve. Useful soils are commonly tilled, are erodible, and have a clayey subsoil. Erosion also reduces the productivity of soils that have rooting depths that are restricted by fragic layers or bedrock, such as Wrengart, Useful, and Caneyville soils, by effectively decreasing the volume of soil available to supply water and nutrients.

Soil erosion on farmland and urban development areas results in sediment entering streams, lakes, ponds, and road ditches. Controlling erosion minimizes sediment pollution, thereby improving the quality of water for recreation, wildlife, and municipal uses. It also prolongs the useful life of ponds, lakes, and roadside ditches by preventing sediment from filling them.

Erosion-control practices. Erosion-control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover or residue on the soil surface can hold erosion losses to amounts that will not reduce the productive capacity of the soil. Growing grasses and legumes for pasture and hay is very effective in controlling erosion. Including grasses and legumes in the crop rotation improves tilth, and the legumes provide nitrogen for the following crop.

Significant reductions in soil loss can be accomplished by basic management techniques. Farming on the contour reduces soil loss by as much as 50 percent. Conservation tillage is a management practice in which the amount of tillage is reduced or changed so that at least 30 percent of the soil surface is covered with residue after the crop is planted. The residue controls erosion by reducing the impact of raindrops, which can dislodge unprotected topsoil. Also, runoff is reduced, and soil particles are not as likely to be removed from the field. This system becomes more effective with increasing

amounts of residue on the soil surface. All of the upland soils that are commonly used for row crops are well suited to conservation tillage. No-till farming is a practice that eliminates tillage operations entirely and leaves nearly the entire crop residue on the soil surface. Some farmers in the county are finding this to be a cornerstone of their conservation efforts. Other benefits of no-till farming include less expenditure for equipment, less soil compaction, time savings at planting, conservation of soil moisture, and fuel savings.

The large amounts of residue left as a result of no-till farming also shield the soil from sunshine, which slows evaporation. This is an asset in the summer during droughty periods, but tends to delay warming and drying of the soil in the spring. Therefore, no-till farming is best suited to deep or very deep, moderately well drained or well drained soils that are not frequently flooded, which include Horsecreek, Menfro, Minnith, Razort, Sturkie, Useful, and Wrengart soils (fig. 8).

Contour stripcropping reduces erosion by maintenance of contoured strips of permanent vegetation. Such grass or legume strips are usually used for hay. The areas between the strips are cultivated, and row crops are planted on the contour. The grass or legume strips minimize erosion and help filter the sediment from runoff that would otherwise leave the field.

Terraces reduce the length of slopes and reduce runoff and erosion. Broad-base terraces are most practical on uneroded upland soils that have smooth slopes less than 8 percent. Construction of grassed backslope or narrow-base terraces reduces the steepness of the slope because construction cuts are made from the downslope side. Construction of broad-base terraces actually increases the slope and makes additional erosion control practices crucial. On the Useful and Caneyville soils, topsoiling may be required in areas where terracing exposes the clayey subsoil. Wrengart soils have similar intensive management needs because of a dense layer in the subsoil.

Grade stabilization structures are small water bodies that cover up gullied areas and prevent further uphill encroachment. These structures provide a stable place into which tile terrace outlets or grassed waterways can empty runoff from terraced fields.

Soil wetness. Wetness is a management concern in the county. Deible, Gabriel, and Moniteau soils are naturally so wet that planting or harvesting is delayed or crop production is reduced in most years. Land grading or surface drainage may be needed to some extent on these soils.



Figure 8.—No-till corn in an area of Horsecreek silt loam, 0 to 2 percent slopes.

In the past, drainage of wetland areas was unregulated and, therefore, occurred at the discretion of individual landowners. In recent years, however, legislation has been enacted recognizing the importance of wetlands to the total environment. The effect of these laws is to protect most existing wetlands from further degradation and to encourage redevelopment of areas that were formerly wetlands. Before altering any area that might be considered a wetland, the Natural Resources Conservation

Service should be contacted in order to ensure compliance with existing laws.

Flooding is a hazard on the Bloomsdale, Freeburg, Gabriel, Gladden, Haymond, Haynie, Horsecreek, Kaintuck, Moniteau, Sturkie, Tice, Waldron, and Wilbur soils. Flooding is most common during the period from November to May.

Soil fertility. Soil fertility is naturally low in most of the eroded and shallow soils in the survey area. However, all of the soils need additional plant

nutrients for maximum production. Most of the soils, with the exception of Haynie, Tice, and Waldron, are naturally acid in the upper part of the rooting zone and require applications of lime to raise the pH and calcium levels sufficiently for optimum growth of legumes. Additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the production level desired. The Cooperative Extension Service can help in determining these values. Soil samples can be organized using the soil survey to identify contrasting soil types.

Soil tilth. Soil tilth affects seedbed preparation, seed germination, and water infiltration. Soils that have good tilth are granular and porous. Regular additions of organic matter help to maintain good tilth.

Most of the cultivated soils in the county have a surface layer of silt loam. If these soils are frequently cultivated, soil structure becomes weak and intense rainfall can cause the formation of a crust on the surface. The crust is hard when dry, thereby reducing water infiltration and increasing runoff. Returning crop residue to the soil or regularly adding other organic material improves fertility, minimizes crusting, and increases the rate of water infiltration.

The bearing weight of machinery as it travels over the soil surface tends to compact the soil if it is moist or wet. This compaction reduces infiltration of water into the soil and makes the resulting seedbed less favorable for root penetration. Operation of machinery when soil moisture is optimum will reduce the effects of compaction. Periodic deep tillage can improve existing compacted areas.

Fall cultivation of the more sloping soils in the uplands results in excessive soil losses. Such losses can be catastrophic when intense spring rains follow partial thawing of the bare, frozen surface layer.

Pasture and Hayland

A combination of different kinds of grasses and legumes is necessary to obtain maximum forage production for the climate in Jefferson County. Cool temperatures in the spring and fall are favorable for the production of cool-season grasses. The hot summer months are more favorable for production of warm-season grasses. Many of the soils of the survey area are suited to both kinds of grasses, and some of the soils are suited to legumes. A management system that includes cool-season grasses, warm-season grasses, and legumes takes advantage of the entire growing season for forage production.

Cool-season grasses. The cool-season grass most commonly grown in Jefferson County is tall

fescue. Orchardgrass, timothy, smooth brome grass, reed canarygrass, and Kentucky bluegrass are grown on limited acreages. All of these grasses are commonly grown on upland soils, except for reed canarygrass, which is planted primarily on wetter bottomland sites. These cool-season grasses can provide top production only when properly managed (fig. 9). Rotational grazing systems help to keep forages at an optimum height for highest production. Supplemental fertilization and timely weed control are also essential for top production.

Cool-season grasses grow vigorously when temperatures are cool (between 50 and 85 degrees F). These grasses generally start growing in late March and can be grazed by late April. Timothy and brome grass will not produce tillers unless a seedhead is allowed to develop. Therefore, overgrazing or haying too early in the growing season will reduce total production of these forages. Orchardgrass will regrow vigorously with or without development of a seedhead, so the timing of grazing or haying is less critical. Bluegrass is generally less productive than the other cool-season grasses, but can better withstand overgrazing and poor management. Fescue can also withstand abuse and severe site conditions, but endophyte-infested stands are widespread and produce less than optimum weight gains, especially during summer months. Reestablishment of existing stands with endophyte-free seed is an option some managers are selecting. Careful grazing management and interseeding of legumes can minimize the effects and reduce the spread of the infestation. Poor palatability can also be a problem with fescue stands. Reed canarygrass is moderately palatable and is highly productive in areas that would be too wet for other grasses or row crops.

Because of increasing temperatures and day length, cool-season grass production decreases significantly by mid-June. As fall brings cooler temperatures and shorter days, growth increases accordingly. Production continues until the first killing frost occurs, usually in late October. One exception to this growth pattern is tall fescue, which continues growth until sometime in December.

Warm-season grasses. Warm-season grasses that are commonly grown in Jefferson County include big bluestem, indiangrass, switchgrass, and little bluestem. Gammagrass is grown on limited acreages and requires high or very high available water capacity. This soil survey is a useful tool for locating sites that have such specific requirements.

Warm-season grasses were native to many areas of the county before the arrival of early pioneers.



Figure 9.—Hayland on Wrengart silt loam, 8 to 15 percent slopes.

These grasses were native because of their adaptation to the soils and climate of the county. Their suitability for the climate is vividly demonstrated during the hot summer months of June, July, and August. As their name implies, these grasses peak in production when the temperature reaches 90 degrees F. Growth slows when the temperature falls below 70 degrees F. An important advantage for summer forage production is that warm-season grasses need only 40 percent as much water as cool-season grasses to produce the same amount of forage (fig. 10).

Strict management techniques are necessary for optimum production and longevity. Rotational grazing patterns must be used so these grasses can be

utilized when growing vigorously and to eliminate overgrazing during dormant periods. Minimum grazing height guidelines and prescribed burn plans must be followed. Supplemental fertilizer needs for warm-season grasses are small compared to cool-season grasses. Usually nitrogen is the only supplement necessary for top production.

Legumes. Legumes are included in many forage systems in Jefferson County. They improve overall forage quality and quantity. When included with grasses in a seeding mixture, legumes stimulate growth of the grasses because of nitrogen fixation by bacteria on the roots of the legumes.

Pure legume stands provide sources of high protein forage. Some legumes, such as alfalfa and

ladino clover, can cause bloating if unrestricted grazing is allowed; therefore, most pure legume stands are used for hay. Alfalfa is the legume most commonly used for hay production. Other legumes, such as red clover, birdsfoot trefoil, and ladino clover, are used in pasture mixes. Crown-vetch is used to stabilize steep banks and critically eroding areas.

Use and management of legumes involves selecting soils that are compatible with the growth characteristics of the various plants. Most legumes require well drained or moderately well drained very deep soils with high or very high available water capacity for healthy productive stands. Horsecreek, Menfro, Minnith, Sturkie, and Wrengart soils have



Figure 10.—Warm-season grasses grow well in areas of Useful silt loam, 3 to 8 percent slopes.

such characteristics. Some legumes, such as alsike clover, will tolerate wetter soils. This soil survey can help in fitting the most productive forages to appropriate soils.

Legumes do not need supplemental nitrogen because of the natural fixation that occurs in the root system. When used for hay, legumes often require large amounts of phosphorus and potassium. Heavy applications of limestone are also needed for optimum production on most soils.

Balanced management. Cool-season grasses, warm-season grasses, and legumes have different periods of the growing season when their production peaks. Management plans that include all three kinds of forage will make optimum use of the entire season. Such a system with rotational grazing or haying of these different crops can help to increase production and profit while protecting the topsoil with permanent cover.

Certain management practices are needed on all soils in the survey area. Timely mowing or chemical weed control reduces competition from undesirable plants and encourages uniform grazing. Overgrazing reduces production of grasses and legumes and increases weed growth. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture and soil in good condition.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements

for each crop; effective use of crop residue, 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.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of 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 rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

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

Class 1 soils have slight limitations that restrict their use.

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

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

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

Class 5 soils are subject to little or no erosion but

have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

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

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

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

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

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

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

Pasture and Hayland Suitability Groups

The soils in Jefferson County are assigned to a pasture and hayland group according to their suitability for pasture management.

Many different pasture and hayland suitability groups are in the survey area. Over time, the combination of plants best suited to a particular soil and climate has or will become dominant. Plant communities are not static but vary slightly from year to year and place to place.

The relationship between soils and vegetation was ascertained during this survey. Thus, pasture and hayland suitability groups generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have

the greatest influence on the productivity of each plant species. Soil reaction, salt content, and a seasonal high water table are also important. The "Field Office Technical Guide," which is available at local offices of the Natural Resources Conservation Service, can provide specific information about pasture and hayland suitability groups.

Table 6 shows, for each soil, the assigned pasture and hayland suitability group. Specific concerns and recommendations for pasture and hayland management for each group are discussed below.

Group WLB—Wet Loamy Bottom. A seasonal high water table and flooding are the main management problems. Plants should be selected accordingly. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

Group WCB—Wet Clayey Bottom. Wetness and flooding are the main management problems. The soils in this group are poorly suited to hay. The hazard of flooding should be considered when a grazing system is designed. Maintaining stands of desirable species is difficult in depressional areas. A drainage system can improve the growth of deep-rooted species.

Group WLO—Wet Loamy Overflow. Wetness and flooding are the main management problems. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

Group LyO—Loamy Overflow. Flooding is the main management problem. The hazard of flooding should be considered when a grazing system is designed.

Group LyU—Loamy Upland. No serious problems affect pasture and hayland management. Erosion is a hazard in newly seeded areas. Timely seedbed preparation is needed to ensure a good ground cover.

Group CyU—Clayey Upland. Pasture and hay crops are effective in controlling erosion. Erosion during seedbed preparation is the main problem. Timely tillage and a quickly established ground cover reduce the hazard of erosion. The forage species that are tolerant of wetness grow best. The production of deep-rooted legumes is limited because of wetness and a restricted rooting depth.

Group GrU—Gravelly Upland. The soils in this group generally are not suited to cultivated crops. Droughtiness and erosion are the main management problems. Seedbeds should be prepared on the contour. Timely seedbed preparation helps to ensure rapid plant growth and a protective ground cover.

Group MDU—Moderately Deep Upland. Shallow-rooted species that are tolerant of droughtiness should be selected for planting. Erosion is a serious hazard in newly seeded areas. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

Group LyP—Loamy Pan. A few small areas of this group are used for cultivated crops, and some areas are wooded. A dense layer in the subsoil can restrict the rooting depth and result in insufficient soil moisture in dry years. Erosion during seedbed preparation is a hazard. Seedbeds should be prepared on the contour. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

Group GrO—Gravelly Overflow. Most areas of this group have been cleared of trees and are used for pasture and hay. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during periods of flooding help to keep the pasture in good condition.

Group ShU—Shallow Upland. Most areas of this group are used for native pasture and are best suited to shallow-rooted species. In some areas tillage is nearly impossible. Broadcast seeding may be necessary. The slope and rock outcrop can hinder mowing in places.

Group GNS—Generally Not Suited. The soils in this group generally are not suited to pasture and hay. The suitability for forage species and the use of equipment are limited by the slope, by a high content of rock fragments, or by both of these.

Woodland Management and Productivity

Approximately 53 percent, or 223,450 acres, of Jefferson County is forested according to 1997 Missouri Census of Agriculture. Upland woodland tracts in the county range from small to medium (10 to 500 acres) in the north to large (1,000 plus acres) in the south. Most wooded tracts are essentially unmanaged (Geissman and others, 1986). In the flood plains, forests are restricted to long, narrow bands bordering streams and rivers.

Tree species and growth rates in the county vary, depending on soil properties, site characteristics, and past management.

Soil properties that affect the growth of trees include reaction (pH), fertility, drainage, texture, structure, and soil depth. The soil also serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients. Soils that do not have extremes of these properties and have effective rooting depths greater than 40 inches

provide the best growth conditions for wood production.

Site characteristics that affect tree growth include aspect and topographic position. These site characteristics influence the amount of available sunlight, air drainage, soil temperature, soil moisture, and relative humidity. Generally, north and east aspects and lower slope positions, which are cooler and have better moisture conditions, are the best upland sites for tree growth. The most productive bottomland sites are generally deep, moderately well drained, occasionally flooded soils.

Management activities can influence woodland productivity and should be aimed at eliminating factors causing tree stress. Generally, this involves thinning overstocked young stands; harvesting old, mature trees; and eliminating destructive fire and grazing. Fire and grazing have very negative impacts on forest growth and quality. While forest fires are no longer a major problem in the county, some areas are subject to grazing by livestock. Grazing destroys the leaf layer on the surface, compacts the soil, and eliminates or damages tree seedlings. Woodland sites that are ungrazed and unburned have the highest potential for optimum woodland production.

Caneyville, Goss, Holstein, Menfro, Pevely, Rueter, Sonsac, Useful, and Weingarten soils are associated with the largest acreages of upland forests. Typical tree species associated with these soils are white oak, northern red oak, black oak, and post oak. Post oak, black oak, eastern red cedar, shagbark hickory, and blackjack oak predominate on the lesser productive Caneyville and Sonsac soils located on steeply dissected, weathered dolostone and limestone slopes of the county.

Along watercourses, Bloomsdale, Freeburg, Gabriel, Gladden, Haymond, Haynie, Horsecreek, Moniteau, Razort, Sturkie, Tice, and Waldron soils support bottomland hardwoods adapted to seasonally saturated or flooded soil conditions. Most of these areas have been cleared for crop and forage production. The uncleared wooded sites typically contain silver maple, green ash, hackberry, American elm, swamp white oak, sycamore, and pin oak. Bur oak, shellbark hickory, and black walnut are common along narrower stream bottoms and stream terraces of the major streams. The potential for excellent forest growth exists on these sites. Besides timber production, streamside forests are crucial to the protection and enhancement of the water resources of Jefferson County. Used as a component of an integrated management system, including nutrient management and sediment and erosion control practices, streamside forests can produce a number

of beneficial effects on the quality of land and water resources (Welsch, 1991).

Special use tree plantings (Christmas trees, nut trees, and fuelwood trees) utilizing adapted tree species can be very successful. Christmas tree plantings can be established on any soil that is not poorly drained or very poorly drained. Species of trees suited for Jefferson County are Scotch pine, Austrian pine, white pine and Douglas fir. Nut trees, such as black walnut and pecan, are best suited to deep, loamy, moderately well drained to well drained soils, such as Bloomsdale, Gladden, Horsecreek, Razort, and Sturkie on the bottomlands. Other soils are also suited, but may be less productive.

Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. Potential productivity of the soils for wood crops is provided in table 7. Interpretative ratings are provided for various aspects of forest management in tables 8a and 8b.

Forest Productivity

In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or in electronic form (<http://nssc.nssc.nrcs.usda.gov/nfm/>).

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In tables 8a and 8b, interpretative ratings are given for various aspects of forest management. 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 the specified aspect of forest management. *Not limited* indicates that the soil has features that are very favorable for the specified aspect of management. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified aspect of management. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified aspect of management. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified aspect of management. The limitations can be overcome, but generally require special design, special planning, soil reclamation, specialized equipment, or other procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified aspect of management. The limitations generally cannot be overcome without major soil reclamation, special design, specialized equipment, or other expensive procedures. Poor performance, unsafe conditions, or high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited*, etc., and numerical ratings are shown for

each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation class for the soil component is based on the most severe limitation.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management factors. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or in electronic form (<http://nsscnt.nssc.nrcs.usda.gov/nfm/>).

Ratings in the column *hand planting suitability* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, a water table, and ponding. Ratings indicate the expected difficulty of hand planting, which includes the proper placement of root systems of tree seedlings to a depth of up to 12 inches, using standard hand planting tools. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *mechanical planting suitability* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, a water table, and ponding. Ratings indicate the expected difficulty using a mechanical planter, which includes proper placement of root systems of tree seedlings to a depth up to 12 inches. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *harvest equipment operability* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, and ponding. Ratings indicate the suitability for operating harvest equipment for off-road transport or harvest of logs and/or wood products by ground-based wheeled or tracked equipment.

Ratings in the column *mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, a water table, and ponding. The part of the soil from the surface to a depth of about 12 inches is considered in the ratings. Ratings indicate the suitability of using surface-altering soil tillage equipment to prepare the site for planting or seeding.

Ratings in the column *road suitability (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for

roads on which trucks transport logs and other wood products from the site.

Ratings in the column *potential erosion hazard (road/trail)* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails.

Ratings in the column *potential erosion hazard (off-road/off-trail)* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

Ratings in the column *soil rutting hazard* are based on a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ratings indicate the hazard or risk of ruts in the uppermost soil surface layers by operation of forest equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting.

Ratings in the column *log landing suitability* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, a water table, ponding, flooding, and the hazard of soil slippage. Ratings indicate the suitability of the soil at the forest site to serve as a log landing and allows the efficient and effective use of equipment for the temporary storage and handling of logs.

Ratings in the column *potential seedling mortality* are based on flooding, ponding, a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. Ratings indicate the impact of soil, physiographic, and climatic conditions on the survivability of newly established tree seedlings.

Windbreaks and Environmental Plantings

Living plants play an important role in supporting our life and improving its condition. When properly used and maintained, plants help to provide positive solutions to many problems existing in our contemporary environment. In Jefferson County, windbreaks and environmental plantings can be utilized throughout the landscape for a variety of engineering, climatological, and aesthetic needs.

Windbreaks can be grown successively in most areas of Jefferson County. Some important considerations for managing farmstead and feedlot windbreaks are design and layout; species selection; site preparation; seedling handling; weed management; irrigation; and protection from diseases, insects, and livestock.

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 9 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreational Development

The soils of the survey area are rated in table 10 according to limitations that affect their suitability for recreational use. Soils are rated for camp areas, picnic areas, playgrounds, and paths and trails.

The ratings in the table 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 ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect recreation site development. *Not limited* indicates that the soil has features that are very

favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited*, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

The information in table 10 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and

installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The 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, 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, 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, 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 cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, a water table, ponding, flooding, slope, and texture of the surface layer. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to frequent flooding during the period

of use. They have moderate slopes and few or no stones or boulders on the surface.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 13 and interpretations for dwellings without basements and for local roads and streets in table 12.

Wildlife Habitat

Jefferson County includes the transition between the Ozark Highland, Ozark Border, and the Central Mississippi River Wooded Slopes. As a result, the county is blessed with a tremendous diversity of habitat for fish and wildlife. A mix of row crops, pastureland, and woodland is drained by sluggish meandering transition streams and clear flowing Ozarks streams. Steep forested uplands dissected by temporary and permanent flowing Ozarks streams dominate the landscape as you head southwest. This combination of diverse landforms provides a rich store of wildlife resources.

Several factors played a part in the makeup of the wildlife habitat and population. Over time, the native savanna plants have largely been replaced with introduced cool-season grasses, predominantly tall fescue. In the northern part of the county, urban development and clearing of timber for pasture have resulted in a fragmented forest.

Historically, this area ranged from open savanna (open woodland with grasses and forbs dominating the understory) to dense forestland on the northern slopes and river bottoms. Periodic fires maintained the savannas and prairies. Native Americans and, later, early settlers carried on the tradition of seasonally burning the land to provide forage and reduce the brushy understory.

Sites dominated by Gasconade, Moko, and Ramsey soils usually have numerous rock outcrops and are commonly referred to as glades (fig. 11). Areas of these glades currently support xeric, prairie-like flora that is not found in other habitats in the county. Glades provide habitat for small populations of the state-listed collard lizard. Other wildlife species found in restored barrens are similar to that found in edge habitat. To restore the grassland component of the Gasconade, Moko, and Ramsey sites, management generally includes the use of prescribed fire and a reduction in the amount of cover. These sites also offer the potential to grow marketable eastern redcedar. An excellent example of this can be viewed at Missouri Department of Conservation's Valley View Glades.

Wildlife adapted to the presettlement forest/



Figure 11.—Sandstone glade on Ramsey-Rock outcrop complex, 8 to 50 percent slopes.

savanna region included black bear, elk, white-tailed deer, raccoons, wolves, opossum, beaver, gray fox, panther, bobcat, wild turkey, pileated woodpecker, and an abundant bird community.

Today, wildlife in Jefferson County is abundant and diverse. Deer and turkey are plentiful. Wildlife species that benefit from “edge” (the area where habitat types change), such as bobwhite quail, cottontail rabbits, white-tailed deer, brown thrashers, striped skunks, coyotes, red foxes, and doves, have expanded their range. Observation and hunting of these species is available at the Missouri Department of Conservation’s Pacific Palisades area.

Bobwhite quail, wild turkey, cottontail rabbits, and white-tailed deer have readily accepted agriculture. Some of the best habitats are found where cropping, timber, and livestock operations coexist. This combination of crops, grassland, and woody fencerow cover provides good habitat.

Streams across the county provide a rich aquatic resource. A fish species list would include minnows like the red-bellied dace, wide silver chub, large-scale stone roller, redbfin and rosyface shiners. Darters, small members of the perch family, are common in these Ozark Border streams. Most Missouri catfish are present in the streams, including

flatheads and blue and channel catfish. Slender madtoms, which are small, secretive, and seldom seen catfish, are common in the Ozark Border streams. Largemouth bass, smallmouth bass, spotted bass, crappie, sauger, and walleye are all found in the region's streams and rivers.

The county has numerous farm ponds that provide recreational fishing opportunity as well as wildlife watering sources and habitat for reptiles and amphibians. Many large impoundments provide recreational opportunities and support populations of largemouth bass, crappie, catfish, and others (fig. 12).

Wetland habitat in the county is limited primarily to shallow areas provided by large and small impoundments, streams, oxbows, and sloughs along streams. The Big, Meramec, and Mississippi Rivers provide habitat for seasonal use by waterfowl for resting and feeding. Wading birds and shorebirds take advantage of shallow areas and mud flats created by periodic fluctuations in water levels.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the



Figure 12.—One of many small development lakes used as a recreational area.

amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In tables 11a and 11b, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

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 the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Habitat is easily established, improved, or maintained. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Habitat can be established, improved, or maintained. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. Habitat can be established, improved, or maintained in most places. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. Habitat is difficult to create, improve, or maintain in most places. Management is difficult and must be very intensive. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. Habitat is usually impractical or impossible to create, improve, or maintain. Management would be very difficult and unsatisfactory results can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited, etc.*, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation class for the soil component is based on the most severe limitation.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

Upland wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Selection should be made from a list of locally adapted species.

Upland shrubs and vines are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture. Selection should be made from a list of locally adapted species.

Upland deciduous trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

Upland mixed deciduous-conifer trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds and foliage. Soil

properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

Riparian herbaceous plants are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

Riparian shrubs, vines, and trees are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

Freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to springs, seeps, depressions, bottomlands, marshes, or backwater areas of flood plains. Most areas are ponded for some period of time during the year. Soil properties and features affecting these plants are surface texture, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

Irrigated freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, previously cropped areas, and marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. These areas are generally suitable for restoring wetland features temporarily or permanently. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

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, water management, and waste management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

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 within a depth of 5 or 6 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 grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, 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, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; 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.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 12 shows the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

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 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 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 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, 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, 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, a water table, and ponding.

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; 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, a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for sanitary facilities. Soils are rated for septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect sanitary facilities. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require

special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

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, 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 be contaminated. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent,

surfacing of effluent, hillside seepage, and contamination of ground water, can affect public health.

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, 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, 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, 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, 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, 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.

Construction Materials and Excavating

The soils of the survey area are rated in Table 14 as a source of roadfill, sand, gravel, or topsoil. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are also rated according to limitations that affect their suitability for shallow excavations. The ratings in the table are both verbal and numerical.

The soils are rated as a *probable*, *possible* or *improbable* source of sand and gravel. A rating of *probable* means that the source material is likely to be in or below the soil. A rating of *possible* means that the source material may be in or below the soil and further investigation is warranted. A rating of *improbable* means that the source material is unlikely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. A numerical rating of 1.00 indicates that the soil is an improbable source. A numerical rating of less than 1.00 indicates the degree to which the soil is a possible or probable source of sand or gravel.

Other rating class terms, as follows, are used to indicate the extent to which the soils are limited by soil features that affect use as a source for roadfill or topsoil or suitability for shallow excavations. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation.

Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited*, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

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, 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, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, 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.

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

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, 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.

Water Management

The soils of the survey area are rated in table 15 according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use is also provided in the table.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited, etc.*, limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock, or other permeable material. Slope can affect the storage capacity of the reservoir area.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, permeability, depth to a water table, ponding, slope, and flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the likelihood that cutbanks will cave. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. The availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a water table, ponding, flooding, available water capacity, intake rate, permeability, erodibility, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, reaction, and the amount of salts, sodium, sulfur, lime, or gypsum.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, a water table, ponding, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, erodibility, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, a water table, slope, and depth to bedrock affect the construction of grassed waterways. Erodibility, soil moisture regime, available water capacity, restricted rooting depth, restricted permeability, and toxic substances, such as salts and

sodium, affect the growth and maintenance of the grass after construction.

Waste Management

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.

Table 16 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 mg/l. 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 mg/l. 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 (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater through irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the

specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations 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.

Limitation class terms, such as *very limited* or *limited*, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

Land application of manure and food-processing waste not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid,

slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Land application of municipal sewage sludge not only disposes of waste material but also improves 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, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water

erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also improves 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, 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, 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.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water percolates to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth,

microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil, eventually reaching the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. A water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance.

Table 5.--Land Capability and Yields per Acre of Crops and 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	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>
60003: Menfro-----	3e	90.00	88.00	5.60	33.00	5.00	5.30	36.00
60024: Menfro-----	3e	100.00	88.00	5.60	39.00	5.00	5.30	41.00
60025: Urban land. Harvester.								
60037: Wrengart-----	4e	90.00	80.00	3.60	33.00	3.60	3.80	36.00
60038: Pevely-----	6e	---	---	4.40	---	4.00	4.60	---
Holstein-----	6e	---	---	5.60	---	5.00	5.30	---
60039: Pevely-----	4e	---	---	4.40	---	4.00	4.60	---
60040: Pevely-----	6e	---	---	4.40	---	4.00	4.60	---
60041: Brussels-----	7e	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
60042: Menfro-----	6e	---	---	5.60	---	5.00	5.30	---
60043: Menfro-----	7e	---	---	---	---	---	---	---
60044: Minnith-----	3e	95.00	84.00	5.60	35.00	5.00	5.30	38.00
60045: Minnith-----	3e	87.00	76.00	5.60	32.00	5.00	5.30	35.00
60046: Minnith-----	6e	---	---	5.60	---	5.00	5.30	---
60047: Urban land. Harvester.								
60048: Weingarten----	7e	---	---	---	---	---	---	---
60049: Urban land. Horsecreek----	2e	115.00	100.00	6.60	40.00	5.00	6.40	45.00

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>
60050: Urban land.								
Deible-----	4w	91.00	81.00	5.80	34.00	5.30	7.30	37.00
64007: Freeburg-----	2w	100.00	88.00	6.40	39.00	5.00	6.60	41.00
64008: Freeburg-----	2e	119.00	104.00	6.40	44.00	5.00	6.60	48.00
64009: Freeburg-----	3e	105.00	91.00	5.60	41.00	5.00	5.30	44.00
66000: Moniteau-----	3w	96.00	89.00	5.80	32.00	5.30	7.40	38.00
66014: Haymond-----	2w	---	---	6.60	---	5.00	6.40	---
66020: Haynie-----	5w	---	---	6.40	---	5.00	6.60	---
66024: Wilbur-----	5w	---	---	6.40	---	5.00	6.60	---
66050: Tice-----	5w	---	---	6.40	---	5.00	6.60	---
66051: Perche-----	2w	85.00	73.00	6.40	31.00	5.00	6.60	34.00
66052: Waldron-----	5w	---	---	5.80	---	5.30	7.30	---
66053: Fishpot. Urban land.								
73046: Wrengart-----	3e	100.00	92.00	3.60	33.00	3.60	3.80	39.00
73090: Useful-----	3e	84.00	73.00	5.60	31.00	5.30	5.50	34.00
73200: Sonsac-----	6s	---	---	4.40	---	4.00	4.60	---
73201: Sonsac-----	7e	---	---	4.40	---	4.00	4.60	---
73202: Rueter-----	4s	---	---	4.40	---	4.00	4.60	---
73203: Rueter-----	7e	---	---	---	---	---	---	---
Sonsac-----	7e	---	---	---	---	---	---	---

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>
73204: Ramsey-----	7s	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73205: Useful-----	4e	80.00	70.00	5.60	30.00	5.30	5.50	33.00
73206: Useful-----	6e	---	---	5.60	---	5.30	5.50	---
73207: Caneyville----	3e	---	---	4.40	---	4.00	4.60	---
73208, 73209: Caneyville----	6e	---	---	4.40	---	4.00	4.60	---
73210: Goss-----	7e	---	---	---	---	---	---	---
73211: Gasconade----	7s	---	---	---	---	1.00	1.40	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73212: Gasconade----	7s	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73213: Moko-----	7s	---	---	---	---	1.00	1.40	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73214: Moko-----	7s	---	---	---	---	---	---	---
Rock outcrop--	8s	---	---	---	---	---	---	---
73215: Crider-----	3e	100.00	88.00	5.60	39.00	5.00	5.30	41.00
73216: Crider-----	4e	90.00	80.00	5.60	33.00	5.00	5.30	36.00
73217: Useful-----	6e	---	---	---	---	---	---	---
Sonsac-----	7e	---	---	---	---	---	---	---
73218: Tiff-----	6e	---	---	2.20	---	2.00	2.30	---
73219: Rueter-----	7e	---	---	---	---	---	---	---
74644: Deible-----	4w	91.00	81.00	5.80	34.00	5.30	7.30	37.00

See footnotes at end of table.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchardgrass- red clover*	Soybeans	Tall fescue	Warm season grasses**	Winter wheat
		<u>Bu</u>	<u>Bu</u>	<u>Tons</u>	<u>Bu</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>
74675: Horsecreek----	2e	115.00	100.00	6.60	40.00	5.00	6.40	45.00
74676: Urban land.								
Freeburg-----	2e	119.00	104.00	6.40	44.00	5.00	6.60	48.00
75375: Horsecreek----	2w	110.00	88.00	6.60	37.00	5.00	6.40	44.00
75385: Gabriel-----	2w	109.00	102.00	5.80	36.00	5.30	7.40	44.00
75390: Razort-----	2e	100.00	88.00	6.60	39.00	5.00	6.40	41.00
75398: Kaintuck-----	5w	---	---	6.60	---	5.00	6.40	---
75450: Bloomsdale----	4w	---	---	1.00	---	2.00	2.50	---
75452: Gladden-----	3w	---	---	6.60	---	5.00	6.40	---
75453: Sturkie-----	2w	115.00	100.00	6.60	40.00	5.00	6.40	40.00
75454: Urban land.								
Razort-----	2e	100.00	88.00	6.60	39.00	5.00	6.40	41.00
99000. Pits, quarries								
99001. Water								
99003. Miscellaneous water								
99005: Landfills-----	8s	---	---	---	---	---	---	---
99009: Udorthents. Pits.								

* Alsike clover should be substituted for red clover on somewhat poorly drained and poorly drained soils.

** Average yield of all suitable native warm season grasses.

Table 6.--Pasture and Hayland Suitability Groups

Map symbol	Soil name	Component name	Pasture and hayland suitability group
60003	Menfro silt loam, 8 to 15 percent slopes, eroded-----	Menfro	LyU
60024	Menfro silt loam, 3 to 8 percent slopes, eroded-----	Menfro	LyU
60025	Urban land-Harvester complex, 3 to 8 percent slopes-----	Urban land	---
		Harvester	LyU
60037	Wrengart silt loam, 8 to 15 percent slopes-----	Wrengart	LyP
60038	Pevely-Holstein complex, 8 to 30 percent slopes-----	Pevely	MDU
		Holstein	LyU
60039	Pevely silt loam, 3 to 15 percent slopes-----	Pevely	MDU
60040	Pevely loam, 15 to 40 percent slopes-----	Pevely	MDU
60041	Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony--	Brussels	GNS
		Rock outcrop	---
60042	Menfro silt loam, 15 to 30 percent slopes-----	Menfro	LyU
60043	Menfro silt loam, 30 to 50 percent slopes-----	Menfro	GNS
60044	Minnith silt loam, 3 to 8 percent slopes, eroded-----	Minnith	LyU
60045	Minnith silt loam, 8 to 15 percent slopes, eroded-----	Minnith	LyU
60046	Minnith silt loam, 15 to 30 percent slopes-----	Minnith	LyU
60047	Urban land-Harvester complex, 8 to 15 percent slopes-----	Urban land	---
		Harvester	LyU
60048	Weingarten silt loam, 15 to 50 percent slopes-----	Weingarten	GNS
60049	Urban land-Horsecreek complex, 2 to 5 percent slopes-----	Urban land	---
		Horsecreek	LyO
60050	Urban land-Deible complex, 0 to 3 percent slopes-----	Urban land	---
		Deible	WCB
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded-----	Freeburg	WLO
64008	Freeburg silt loam, 2 to 5 percent slopes-----	Freeburg	WLO
64009	Freeburg silt loam, 5 to 9 percent slopes-----	Freeburg	LyU
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded-----	Moniteau	WLB
66014	Haymond silt loam, 0 to 3 percent slopes, frequently flooded-----	Haymond	LyO
66020	Haynie silt loam, 0 to 2 percent slopes, frequently flooded-----	Haynie	WLO
66024	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded-----	Wilbur	WLO
66050	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded-----	Tice	WLO
66051	Perche silt loam, 0 to 2 percent slopes, occasionally flooded-----	Perche	WLO
66052	Waldron silty clay loam, 0 to 2 percent slopes, frequently flooded-----	Waldron	WCB
66053	Fishpot-Urban land complex, 0 to 3 percent slopes-----	Fishpot	WLO
		Urban land	---
73046	Wrengart silt loam, 3 to 8 percent slopes, eroded-----	Wrengart	LyP
73090	Useful silt loam, 3 to 8 percent slopes-----	Useful	CyU
73200	Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony-----	Sonsac	MDU
73201	Sonsac gravelly silt loam, 15 to 40 percent slopes, very stony-----	Sonsac	MDU
73202	Rueter gravelly silt loam, 3 to 15 percent slopes, very stony-----	Rueter	GrU
73203	Rueter-Sonsac complex, 15 to 55 percent slopes, extremely stony-----	Rueter	GNS
		Sonsac	GNS
73204	Ramsey-Rock outcrop complex, 8 to 50 percent slopes-----	Ramsey	GNS
		Rock outcrop	---
73205	Useful silt loam, 8 to 15 percent slopes-----	Useful	CyU
73206	Useful silt loam, 15 to 40 percent slopes-----	Useful	CyU
73207	Caneyville silt loam, 3 to 8 percent slopes-----	Caneyville	MDU
73208	Caneyville silt loam, 8 to 15 percent slopes-----	Caneyville	MDU
73209	Caneyville silt loam, 15 to 30 percent slopes-----	Caneyville	MDU
73210	Goss very cobbly silt loam, 15 to 50 percent slopes, extremely stony-----	Goss	GNS
73211	Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly-----	Gasconade	ShU
		Rock outcrop	---
73212	Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly-----	Gasconade	GNS
		Rock outcrop	---
73213	Moko-Rock outcrop complex, 3 to 15 percent slopes, extremely stony-----	Moko	ShU
		Rock outcrop	---
73214	Moko-Rock outcrop complex, 15 to 50 percent slopes, extremely stony-----	Moko	GNS
		Rock outcrop	---
73215	Crider silt loam, 3 to 8 percent slopes-----	Crider	LyU
73216	Crider silt loam, 8 to 15 percent slopes-----	Crider	LyU

Table 6.--Pasture and Hayland Suitability Groups--Continued

Map symbol	Soil name	Component name	Pasture and hayland suitability group
73217	Useful-Sonsac complex, 15 to 50 percent slopes, very stony-----	Useful	GNS
		Sonsac	GNS
73218	Tiff gravelly clay, 1 to 20 percent slopes, very rocky-----	Tiff	GrU
73219	Rueter gravelly silt loam, 15 to 55 percent slopes, extremely stony-----	Rueter	GNS
74644	Deible silt loam, 1 to 3 percent slopes-----	Deible	WCB
74675	Horsecreek silt loam, 2 to 5 percent slopes-----	Horsecreek	Ly0
74676	Urban land-Freeburg complex, 2 to 5 percent slopes-----	Urban land	---
		Freeburg	WLO
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded-----	Horsecreek	Ly0
75385	Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded-----	Gabriel	WLB
75390	Razort silt loam, 0 to 3 percent slopes, rarely flooded-----	Razort	Ly0
75398	Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	Kaintuck	Ly0
75450	Bloomsdale silt loam, 0 to 3 percent slopes, frequently flooded-----	Bloomsdale	Gr0
75452	Gladden fine sandy loam, 0 to 3 percent slopes, frequently flooded-----	Gladden	Ly0
75453	Sturkie silt loam, 0 to 2 percent slopes, occasionally flooded-----	Sturkie	Ly0
75454	Urban land-Razort complex, 1 to 3 percent slopes, rarely flooded-----	Urban land	---
		Razort	Ly0
99000	Pits, quarries-----	Pits, quarries	---
99001	Water-----	Water	---
99003	Miscellaneous water-----	Miscellaneous water	---
99005	Landfills-----	Landfill pits	GNS
99009	Udorthents-Pits complex-----	Udorthents	---
		Pits	---

Table 7.--Forest Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Potential productivity		Volume of wood fiber cu ft/ac	Trees to manage
	Common trees	Site index		
60003, 60024: Menfro-----	black oak----- northern red oak---- sugar maple----- white ash----- white oak-----	73 81 68 70 59	57 57 43 43 43	black walnut, northern red oak, sugar maple, white ash, white oak
60037: Wrengart-----	black oak----- northern red oak---- shagbark hickory---- white oak-----	63 --- --- 53	43 --- --- 43	black oak, northern red oak, white oak
60038: Pevely-----	black oak----- northern red oak---- post oak----- white oak-----	58 54 --- 47	29 29 --- 29	northern red oak, white ash, white oak
Holstein-----	black oak----- northern red oak---- white oak-----	75 75 65	57 57 43	black cherry, black oak, black walnut, northern red oak, white oak
60039, 60040: Pevely-----	black oak----- northern red oak---- post oak----- white oak-----	58 54 --- 47	29 29 --- 29	northern red oak, white ash, white oak
60041: Brussels-----	black oak----- black walnut----- northern red oak---- shagbark hickory---- white oak-----	--- --- 65 --- 60	--- --- 43 --- 43	black walnut, northern red oak, white oak
Rock outcrop.				
60042, 60043: Menfro-----	black oak----- northern red oak---- sugar maple----- white ash----- white oak-----	73 81 68 70 59	57 57 43 43 43	black walnut, northern red oak, sugar maple, white ash, white oak
60044, 60045, 60046: Minnith-----	black oak----- northern red oak---- white oak-----	--- 70 45	--- 57 29	northern red oak, white oak
60048: Weingarten-----	black oak----- northern red oak---- shagbark hickory---- white oak-----	63 --- --- 53	43 --- --- 43	black oak, northern red oak, white oak

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Volume of wood fiber cu ft/ac	Trees to manage
	Common trees	Site index		
60049: Urban land.				
Horsecreek-----	American elm-----	---	---	black walnut,
	American sycamore---	---	---	cherrybark oak,
	Shumard's oak-----	93	57	eastern cottonwood,
	common hackberry----	---	---	white ash
	green ash-----	---	---	
	hickory-----	---	---	
	pin oak-----	94	57	
	red maple-----	---	---	
60050: Urban land.				
Deible-----	green ash-----	---	---	eastern cottonwood,
	northern red oak----	---	---	green ash, pin oak,
	pin oak-----	76	57	silver maple
	silver maple-----	---	---	
64007, 64008, 64009: Freeburg-----	white oak-----	65	43	black oak, green ash, pecan, pin oak, white oak
66000: Moniteau-----	pin oak-----	70	57	black willow, eastern cottonwood, green ash, pin oak, silver maple
66014: Haymond-----	American sycamore---	---	---	black walnut,
	black walnut-----	70	---	northern red oak,
	white oak-----	90	72	white ash, white oak
66020: Haynie-----	American sycamore---	110	157	black walnut,
	black walnut-----	---	---	eastern cottonwood,
	eastern cottonwood--	110	157	green ash
	green ash-----	---	---	
66024: Wilbur-----	American sycamore---	---	---	black cherry, bur
	pin oak-----	---	---	oak, green ash, pin oak, red maple
66050: Tice-----	eastern cottonwood--	---	---	American sycamore,
	green ash-----	---	---	cherrybark oak,
	pin oak-----	96	72	eastern cottonwood, green ash, red maple
66051: Perche-----	green ash-----	85	---	green ash, pecan,
	northern red oak----	66	43	pin oak
	sugar maple-----	---	---	
66052: Waldron-----	eastern cottonwood--	110	157	black willow,
	pin oak-----	80	57	eastern cottonwood, green ash, pecan, pin oak, silver maple

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Volume of wood fiber cu ft/ac	Trees to manage
	Common trees	Site index		
73046: Wrengart-----	black oak-----	63	43	black oak, northern red oak, white oak
	northern red oak----	---	---	
	shagbark hickory----	---	---	
	white oak-----	53	43	
73090: Useful-----	black oak-----	---	---	black oak, northern red oak, white oak
	northern red oak----	---	---	
	post oak-----	---	---	
	white oak-----	61	43	
73200, 73201: Sonsac-----	black oak-----	54	43	black oak, eastern redcedar, post oak
	post oak-----	45	29	
	white oak-----	42	29	
73202: Rueter-----	black oak-----	61	43	northern red oak, white oak
	northern red oak----	61	43	
	white oak-----	58	43	
73203: Rueter-----	black oak-----	61	43	northern red oak, white oak
	northern red oak----	61	43	
	white oak-----	58	43	
Sonsac-----	black oak-----	54	43	black oak, eastern redcedar, post oak
	post oak-----	45	29	
	white oak-----	42	29	
73204: Ramsey-----	black oak-----	---	---	black oak, post oak
	northern red oak----	50	29	
Rock outcrop.				
73205, 73206: Useful-----	black oak-----	---	---	black oak, white oak
	northern red oak----	---	---	
	post oak-----	---	---	
	white oak-----	61	43	
73207: Caneyville-----	black oak-----	65	43	black oak, eastern redcedar, white oak
	chinkapin oak-----	51	29	
	eastern redcedar----	36	43	
	hickory-----	---	---	
	scarlet oak-----	53	43	
	white oak-----	60	43	
73208, 73209: Caneyville-----	black oak-----	66	43	black oak, eastern redcedar, white oak
	chinkapin oak-----	51	29	
	eastern redcedar----	36	---	
	hickory-----	---	---	
	scarlet oak-----	53	43	
	white oak-----	52	29	
73210: Goss-----	black oak-----	---	---	black oak, shortleaf pine, white oak
	shortleaf pine-----	60	43	
	white oak-----	---	---	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Site index	Volume of wood fiber cu ft/ac	Trees to manage
	Common trees				
73211, 73212: Gasconade-----	blackjack oak-----	---	---	---	eastern redcedar, post oak
	chinkapin oak-----	41	29	29	
	eastern redcedar----	30	29	29	
	post oak-----	---	---	---	
Rock outcrop.					
73213, 73214: Moko-----	eastern redcedar----	27	29	29	---
Rock outcrop.					
73215, 73216: Crider-----	black oak-----	87	72	72	black walnut, northern red oak, white ash, white oak
	black walnut-----	80	---	---	
	hickory-----	---	---	---	
	northern red oak----	84	72	72	
	sugar maple-----	---	---	---	
	white ash-----	---	---	---	
	white oak-----	72	57	57	
73217: Useful-----	black oak-----	---	---	---	black oak, white oak
	northern red oak----	---	---	---	
	post oak-----	---	---	---	
	white oak-----	61	43	43	
Sonsac-----	black oak-----	54	43	43	black oak, eastern redcedar, white oak
	post oak-----	45	29	29	
	white oak-----	42	29	29	
73218: Tiff-----	black oak-----	---	---	---	black oak, white oak
	blackjack oak-----	---	---	---	
	post oak-----	---	---	---	
	white oak-----	60	43	43	
73219: Rueter-----	black oak-----	61	43	43	northern red oak, white oak
	northern red oak----	61	43	43	
	white oak-----	58	43	43	
74644: Deible-----	green ash-----	---	---	---	eastern cottonwood, green ash, pin oak, silver maple
	northern red oak----	---	---	---	
	pin oak-----	76	57	57	
	silver maple-----	---	---	---	
74675: Horsecreek-----	American elm-----	---	---	---	black walnut, cherrybark oak, eastern cottonwood, white ash
	American sycamore---	---	---	---	
	Shumard's oak-----	93	57	57	
	common hackberry----	---	---	---	
	green ash-----	---	---	---	
	hickory-----	---	---	---	
	pin oak-----	94	57	57	
	red maple-----	---	---	---	

Table 7.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity		Volume of wood fiber cu ft/ac	Trees to manage
	Common trees	Site index		
74676: Urban land.				
Freeburg-----	white oak-----	65	43	black oak, green ash, pecan, pin oak, white oak
75375: Horsecreek-----	American sycamore---	---	---	black walnut, eastern cottonwood, white ash
	Shumard's oak-----	93	57	
	common hackberry----	---	---	
	pin oak-----	94	57	
	red maple-----	---	---	
75390: Razort-----	American sycamore---	85	86	black walnut, northern red oak, white oak
	eastern cottonwood--	90	100	
	northern red oak----	80	57	
	white oak-----	75	57	
75398: Kaintuck-----	American basswood---	---	---	American sycamore, black walnut, green ash, white ash
	American sycamore---	90	100	
	black walnut-----	---	---	
	river birch-----	---	---	
75450: Bloomsdale-----	American sycamore---	---	---	American sycamore, eastern cottonwood, northern red oak, white oak
	black oak-----	---	---	
	eastern cottonwood--	94	114	
	northern red oak----	68	57	
	white oak-----	---	---	
75452: Gladden-----	American sycamore---	85	86	black walnut, white oak
	black walnut-----	---	---	
	white oak-----	75	57	
75453: Sturkie-----	American sycamore---	80	86	American sycamore, black walnut, eastern cottonwood, northern red oak, white oak
	eastern cottonwood--	100	129	
	northern red oak----	80	57	
	white oak-----	70	57	
75454: Urban land.				
Razort-----	American sycamore---	85	86	black walnut, northern red oak, white oak
	eastern cottonwood--	90	100	
	northern red oak----	80	57	
	white oak-----	75	57	

Table 8a.--Forestland Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003: Menfro-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50
60024: Menfro-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
60037: Wrengart-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.11	Slightly limited ~seasonal wetness (slightly limited)	0.11	Limited ~slope (limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.76 0.50 0.11
60038: Pevely-----	Slightly limited ~slope (slightly limited)	0.07	Limited ~slope (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.30	Moderately limited ~slope (moderately limited)	0.30	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
Holstein-----	Slightly limited ~slope (slightly limited)	0.07	Limited ~slope (limited)	0.80	Moderately limited ~slope (moderately limited)	0.30	Moderately limited ~slope (moderately limited)	0.30	Very limited ~slope (very limited)	1.00

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60039: Pevely-----	Not limited		Moderately limited ~slope (moderately limited)	0.34	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.45
60040: Pevely-----	Slightly limited ~slope (slightly limited)	0.14	Limited ~slope (limited)	0.99	Moderately limited ~slope (moderately limited) ~low strength (moderately limited)	0.60 0.50	Moderately limited ~slope (moderately limited)	0.60	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
60041: Brussels-----	Limited ~large stones (limited) ~slope (limited) ~stickiness (surface) (moderately limited)	0.77 0.72 0.50	Very limited ~slope (very limited) ~large stones >35% (very limited) ~surface stones (limited)	1.00 1.00 0.80	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~stickiness (surface) (moderately limited)	1.00 1.00 0.60 0.50	Very limited ~slope (very limited) ~large stones (limited) ~large surface stones (moderately limited)	1.00 1.00 0.77 0.60	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~stickiness (surface) (moderately limited)	1.00 1.00 0.60 0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042: Menfro-----	Slightly limited ~slope (slightly limited)	0.10	Limited ~slope (limited)	0.87	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.42	Moderately limited ~slope (moderately limited)	0.42	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
60043: Menfro-----	Moderately limited ~slope (moderately limited)	0.37	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 1.00 0.50	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
60044: Minnith-----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
60045: Minnith-----	Not limited		Moderately limited		Moderately limited		Not limited		Limited	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60046: Minnith-----	Slightly limited ~slope (slightly limited)	0.14	Limited ~slope (limited)	0.99	Moderately limited ~slope (moderately limited) ~low strength (moderately limited)	0.60 0.50	Moderately limited ~slope (moderately limited)	0.60	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50
60048: Weingarten-----	Slightly limited ~slope (slightly limited)	0.29	Very limited ~slope (very limited)	1.00	Limited ~slope (limited) ~low strength (moderately limited)	0.99 0.50	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50
64007: Freeburg-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.34	Moderately limited ~seasonal wetness (moderately limited)	0.34	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.60 0.50 0.34

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
64008: Freeburg-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.34	Moderately limited ~seasonal wetness (moderately limited)	0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.34
64009: Freeburg-----	Not limited		Slightly limited ~slope (slightly limited)	0.20	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.34	Moderately limited ~seasonal wetness (moderately limited)	0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited) ~slope (slightly limited)	0.50 0.34 0.15
66000: Moniteau-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited) ~flooding (moderately limited) ~low strength (moderately limited)	0.91 0.60 0.50
66014: Haymond-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50
66020: Haynie-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50
66024: Wilbur-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.29	Slightly limited ~seasonal wetness (slightly limited)	0.29	Very limited ~flooding (very limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	1.00 0.50 0.29

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66050: Tice-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~low strength	0.50	~stickiness (surface)	0.50	~flooding	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
					~stickiness (surface)	0.50	~seasonal wetness	0.25	~low strength	0.50
					(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.25			~stickiness (surface)	0.50
					(slightly limited)				(moderately limited)	
66051: Perche-----	Not limited		Not limited		Moderately limited		Slightly limited		Moderately limited	
					~low strength	0.50	~seasonal wetness	0.13	~flooding	0.60
					(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.13			~low strength	0.50
					(slightly limited)				(moderately limited)	
									~seasonal wetness	0.13
									(slightly limited)	
66052: Waldron-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~flooding	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
					~low strength	0.50	~seasonal wetness	0.20	~stickiness (surface)	0.50
					(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.20			~low strength	0.50
					(slightly limited)				(moderately limited)	
66053: Fishpot-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Not limited		Slightly limited		Moderately limited		Slightly limited		Moderately limited	
			~slope	0.10	~low strength	0.50	~seasonal wetness	0.11	~low strength	0.50
			(slightly limited)		(moderately limited)		(slightly limited)		(moderately limited)	
					~seasonal wetness	0.11			~seasonal wetness	0.11
					(slightly limited)				(slightly limited)	
73090: Useful-----	Not limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
			~slope	0.10	~low strength	0.50			~low strength	0.50
			(slightly limited)		(moderately limited)				(moderately limited)	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73200: Sonsac-----	Slightly limited ~small stones (slightly limited)	0.03	Moderately limited ~surface stones (moderately limited) ~slope (slightly limited) ~small stones (slightly limited)	0.45 0.30 0.03	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.30
73201: Sonsac-----	Slightly limited ~slope (slightly limited) ~small stones (slightly limited)	0.20 0.03	Very limited ~slope (very limited) ~surface stones (moderately limited) ~small stones (slightly limited)	1.00 0.45 0.03	Limited ~slope (limited) ~low strength (moderately limited)	0.80 0.50	Limited ~slope (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
73202: Rueter-----	Slightly limited ~small stones (slightly limited)	0.07	Moderately limited ~slope (moderately limited) ~small stones (slightly limited) ~large stones (slightly limited)	0.34 0.07 0.03	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.45
73203: Rueter-----	Slightly limited ~slope (slightly limited) ~small stones (slightly limited)	0.29 0.07	Very limited ~slope (very limited) ~small stones (slightly limited) ~large stones (slightly limited)	1.00 0.07 0.03	Limited ~slope (limited) ~low strength (moderately limited)	0.99 0.50	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
Sonsac-----	Slightly limited ~slope (slightly limited) ~small stones (slightly limited)	0.29 0.03	Very limited ~slope (very limited) ~surface stones (moderately limited) ~small stones (slightly limited)	1.00 0.45 0.03	Limited ~slope (limited) ~low strength (moderately limited)	0.99 0.50	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73204: Ramsey-----	Slightly limited ~slope (slightly limited)	0.29	Very limited ~slope (very limited)	1.00	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~slope (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50
73206: Useful-----	Slightly limited ~slope (slightly limited)	0.20	Very limited ~slope (very limited)	1.00	Limited ~slope (limited) ~low strength (moderately limited)	0.80 0.50	Limited ~slope (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50
73207: Caneyville----	Not limited		Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
73208: Caneyville----	Not limited		Moderately limited ~slope (moderately limited)	0.47	Moderately limited ~low strength (moderately limited)	0.50	Not limited		Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50
73209: Caneyville----	Slightly limited ~slope (slightly limited)	0.10	Limited ~slope (limited)	0.87	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.42	Moderately limited ~slope (moderately limited)	0.42	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73210: Goss-----	Moderately limited		Very limited		Limited		Limited		Very limited	
	~surface stones (moderately limited)	0.42	~slope (very limited)	1.00	~slope (limited)	0.87	~slope (limited)	0.87	~slope (very limited)	1.00
	~slope (slightly limited)	0.23	~surface stones (limited)	0.80	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~large stones (slightly limited)	0.17	~large stones (moderately limited)	0.45			~large stones (slightly limited)	0.17	~surface stones (moderately limited)	0.42
73211: Gasconade-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.82	~surface stones >15% (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00
	~stickiness (surface) (moderately limited)	0.50	~stickiness (surface) (moderately limited)	0.50	~stickiness (surface) (moderately limited)	0.50	~stickiness (surface) (moderately limited)	0.50	~surface stones (limited)	0.82
	~small stones (slightly limited)	0.15	~slope (moderately limited)	0.34					~stickiness (surface) (moderately limited)	0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~surface stones (limited)	0.82	~slope (very limited)	1.00	~large surface stones (very limited)	1.00	~large surface stones (very limited)	1.00	~slope (very limited)	1.00
	~stickiness (surface) (moderately limited)	0.50	~surface stones >15% (very limited)	1.00	~slope (limited)	0.91	Very limited	1.00	~large surface stones (very limited)	1.00
	~slope (slightly limited)	0.25	Very limited	1.00	~stickiness (surface) (moderately limited)	0.50	~slope (limited)	0.91	~surface stones (limited)	0.82
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73213: Moko-----	Moderately limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~surface stones (moderately limited)	0.42	~surface stones (limited)	0.80	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60	~large surface stones (moderately limited)	0.60
	~small stones (slightly limited)	0.03	~slope (moderately limited)	0.34	~low strength (moderately limited)	0.50			~slippage potential (moderately limited)	0.50
			~small stones (slightly limited)	0.03					~low strength (moderately limited)	0.50
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73214: Moko-----	Moderately limited		Very limited		Limited		Limited		Very limited	
	~surface stones	0.42	~slope	1.00	~slope	0.87	~slope	0.87	~slope	1.00
	(moderately limited)		(very limited)		(limited)		(limited)		(very limited)	
	~slope	0.23	~surface stones	0.80	~large surface stones	0.60	~large surface stones	0.60	~large surface stones	0.60
	(slightly limited)		(limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	0.03	~small stones	0.03	~low strength	0.50			~slippage potential	0.50
	(slightly limited)		(slightly limited)		(moderately limited)				(moderately limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Not limited		Slightly limited		Moderately limited		Not limited		Moderately limited	
			~slope	0.10	~low strength	0.50			~low strength	0.50
			(slightly limited)		(moderately limited)				(moderately limited)	
73216: Crider-----	Not limited		Moderately limited		Moderately limited		Not limited		Limited	
			~slope	0.47	~low strength	0.50			~slope	0.76
			(moderately limited)		(moderately limited)				(limited)	
									~low strength	0.50
									(moderately limited)	
73217: Useful-----	Slightly limited		Very limited		Limited		Limited		Very limited	
	~slope	0.29	~slope	1.00	~slope	0.99	~slope	0.99	~slope	1.00
	(slightly limited)		(very limited)		(limited)		(limited)		(very limited)	
					~low strength	0.50			~low strength	0.50
					(moderately limited)				(moderately limited)	
Sonsac-----	Slightly limited		Very limited		Limited		Limited		Very limited	
	~slope	0.29	~slope	1.00	~slope	0.99	~slope	0.99	~slope	1.00
	(slightly limited)		(very limited)		(limited)		(limited)		(very limited)	
	~small stones	0.03	~surface stones	0.45	~low strength	0.50			~low strength	0.50
	(slightly limited)		(moderately limited)		(moderately limited)				(moderately limited)	
			~small stones	0.03						
			(slightly limited)							
73218: Tiff-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Moderately limited	
	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~stickiness (surface)	0.50	~slope	0.60
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~small stones	0.08	~slope	0.39					~stickiness (surface)	0.50
	(slightly limited)		(moderately limited)						(moderately limited)	
			~small stones	0.08						
			(slightly limited)							

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73219: Rueter-----	Slightly limited ~slope (slightly limited) ~small stones (slightly limited)	0.29	Very limited ~slope (very limited) ~small stones (slightly limited) ~large stones (slightly limited)	1.00	Limited ~slope (limited) ~low strength (moderately limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00
74644: Deible-----	Moderately limited ~seasonal wetness (moderately limited)	0.60	Moderately limited ~seasonal wetness (moderately limited)	0.60	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91	Limited ~seasonal wetness (limited)	0.91	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91
74675: Horsecreek-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50	Moderately limited ~seasonal wetness (moderately limited)	0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50
75375: Horsecreek-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60
75385: Gabriel-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50	Moderately limited ~seasonal wetness (moderately limited)	0.49	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.60

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75390: Razort-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
75398: Kaintuck-----	Not limited		Not limited		Not limited		Not limited		Very limited ~flooding (very limited)	1.00
75450: Bloomsdale-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50
75452: Gladden-----	Not limited		Not limited		Not limited		Not limited		Very limited ~flooding (very limited)	1.00
75453: Sturkie-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Not limited		Not limited		Moderately limited ~low strength (moderately limited)	0.50	Not limited		Moderately limited ~low strength (moderately limited)	0.50
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8a.--Forestland Management--Continued

Map symbol and soil name	Hand planting suitability		Mechanical planting suitability		Harvest equipment operability		Mechanical site preparation (surface)		Road suitability (natural surface)	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Not limited		Not limited		Not limited		Not limited		Not Limited	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003: Menfro-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
60024: Menfro-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
60037: Wrengart-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.11	Limited ~slope (limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.76 0.50 0.11	Not limited	
60038: Pevely-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.39	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
Holstein-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.39	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~slope (very limited)	1.00	Not limited	

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60039: Pevely-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.18	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.45	Not limited	
60040: Pevely-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.49	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
60041: Brussels-----	Very limited ~slope/erodibility (very limited)	1.00	Very limited ~slope/erodibility (very limited)	1.00	Not limited		Very limited ~slope (very limited) ~large surface stones (moderately limited) ~stickiness (surface) (moderately limited)	1.00 0.60 0.50	Slightly limited ~droughty (slightly limited)	0.03
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042: Menfro-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.54	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
60043: Menfro-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.98	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
60044: Minnith-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60045: Minnith-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
60046: Minnith-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.61	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
60048: Weingarten-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.85	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Moderately limited ~slope/erodibility (moderately limited)	0.44	Slightly limited ~slope/erodibility (slightly limited)	0.10	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91 0.80	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
64007: Freeburg-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.34	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.60 0.50 0.34	Moderately limited ~flooding (moderately limited) ~seasonal wetness (slightly limited)	0.60 0.11
64008: Freeburg-----	Moderately limited ~slope/erodibility (moderately limited)	0.33	Slightly limited ~slope/erodibility (slightly limited)	0.07	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.34	Slightly limited ~seasonal wetness (slightly limited)	0.11
64009: Freeburg-----	Limited ~slope/erodibility (limited)	0.78	Slightly limited ~slope/erodibility (slightly limited)	0.17	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited) ~slope (slightly limited)	0.50 0.34 0.15	Slightly limited ~seasonal wetness (slightly limited)	0.11
66000: Moniteau-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91 0.80	Limited ~seasonal wetness (limited) ~flooding (moderately limited) ~low strength (moderately limited)	0.91 0.60 0.50	Limited ~seasonal wetness (limited) ~flooding (moderately limited)	0.91 0.60
66014: Haymond-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50	Limited ~flooding (limited)	0.90
66020: Haynie-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50	Limited ~flooding (limited)	0.90

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66024: Wilbur-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.29	Very limited ~flooding (very limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	1.00 0.50 0.29	Limited ~flooding (limited)	0.90
66050: Tice-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.25	Very limited ~flooding (very limited) ~low strength (moderately limited) ~stickiness (surface) (moderately limited)	1.00 0.50 0.50	Limited ~flooding (limited)	0.90
66051: Perche-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.13	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.60 0.50 0.13	Moderately limited ~flooding (moderately limited)	0.60
66052: Waldron-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.20	Very limited ~flooding (very limited) ~stickiness (surface) (moderately limited) ~low strength (moderately limited)	1.00 0.50 0.50	Limited ~flooding (limited)	0.90
66053: Fishpot-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Not limited		Not limited		Not limited	
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73046: Wrengart-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited) ~seasonal wetness (slightly limited)	0.80 0.11	Moderately limited ~low strength (moderately limited) ~seasonal wetness (slightly limited)	0.50 0.11	Not limited	
73090: Useful-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
73200: Sonsac-----	Limited ~slope/erodibility (limited)	0.89	Slightly limited ~slope/erodibility (slightly limited)	0.16	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.30	Not limited	
73201: Sonsac-----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.59	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
73202: Rueter-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.18	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited) ~slope (moderately limited)	0.50 0.45	Not limited	
73203: Rueter-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.69	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
73203: Sonsac-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.69	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73204: Ramsey-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.69	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~slope (very limited)	1.00	Slightly limited ~droughty (slightly limited)	0.03
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
73206: Useful-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.73	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
73207: Caneyville----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.15	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
73208: Caneyville----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.29	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
73209: Caneyville----	Very limited ~slope/erodibility (very limited)	1.00	Moderately limited ~slope/erodibility (moderately limited)	0.54	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
73210: Goss-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.63	Not limited		Very limited ~slope (very limited) ~large surface stones (moderately limited) ~surface stones (moderately limited)	1.00 0.60 0.42	Moderately limited ~droughty (moderately limited)	0.31

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73211: Gasconade-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.18	Not limited		Very limited ~large surface stones (very limited) ~surface stones (limited) ~stickiness (surface) (moderately limited)	1.00 0.82 0.50	Very limited ~droughty (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.65	Not limited		Very limited ~large surface stones (very limited) ~slope (very limited) ~surface stones (limited)	1.00 1.00 0.82	Very limited ~droughty (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73213: Moko-----	Moderately limited ~slope/erodibility (moderately limited)	0.56	Slightly limited ~slope/erodibility (slightly limited)	0.18	Limited ~low strength (limited)	0.80	Moderately limited ~large surface stones (moderately limited) ~slippage potential (moderately limited) ~low strength (moderately limited)	0.60 0.50 0.50	Limited ~droughty (limited)	0.95
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73214: Moko-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.63	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~large surface stones (moderately limited) ~slippage potential (moderately limited)	1.00 0.60 0.50	Limited ~droughty (limited)	0.95
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73215: Crider-----	Limited ~slope/erodibility (limited)	0.67	Slightly limited ~slope/erodibility (slightly limited)	0.12	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
73216: Crider-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.24	Limited ~low strength (limited)	0.80	Limited ~slope (limited) ~low strength (moderately limited)	0.76 0.50	Not limited	
73217: Useful-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.85	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
Sonsac-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.69	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
73218: Tiff-----	Very limited ~slope/erodibility (very limited)	1.00	Slightly limited ~slope/erodibility (slightly limited)	0.20	Not limited		Moderately limited ~slope (moderately limited) ~stickiness (surface) (moderately limited)	0.60 0.50	Slightly limited ~droughty (slightly limited)	0.14
73219: Rueter-----	Very limited ~slope/erodibility (very limited)	1.00	Limited ~slope/erodibility (limited)	0.69	Limited ~low strength (limited)	0.80	Very limited ~slope (very limited) ~low strength (moderately limited)	1.00 0.50	Not limited	
74644: Deible-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~seasonal wetness (limited) ~low strength (limited)	0.91 0.80	Limited ~seasonal wetness (limited) ~low strength (moderately limited)	0.91 0.50	Limited ~seasonal wetness (limited)	0.91

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74675: Horsecreek-----	Moderately limited ~slope/erodibility (moderately limited)	0.33	Slightly limited ~slope/erodibility (slightly limited)	0.07	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Moderately limited ~slope/erodibility (moderately limited)	0.33	Slightly limited ~slope/erodibility (slightly limited)	0.07	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.34	Moderately limited ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.50 0.34	Slightly limited ~seasonal wetness (slightly limited)	0.11
75375: Horsecreek-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50	Moderately limited ~flooding (moderately limited)	0.60
75385: Gabriel-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited) ~seasonal wetness (moderately limited)	0.80 0.49	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited) ~seasonal wetness (moderately limited)	0.60 0.50 0.49	Moderately limited ~flooding (moderately limited) ~seasonal wetness (moderately limited)	0.60 0.39
75390: Razort-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.05	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
75398: Kaintuck-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~flooding (very limited)	1.00	Limited ~flooding (limited)	0.90
75450: Bloomsdale-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.04	Limited ~low strength (limited)	0.80	Very limited ~flooding (very limited) ~low strength (moderately limited)	1.00 0.50	Limited ~flooding (limited)	0.90

Table 8b.--Forestland Management--Continued

Map symbol and soil name	Potential erosion hazard (road/trail)		Potential erosion hazard (off-road/off-trail)		Soil rutting hazard		Log landing suitability		Potential seedling mortality	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75452: Gladden-----	Slightly limited ~slope/erodibility (slightly limited)	0.22	Slightly limited ~slope/erodibility (slightly limited)	0.04	Moderately limited ~low strength (moderately limited)	0.50	Very limited ~flooding (very limited)	1.00	Limited ~flooding (limited)	0.90
75453: Sturkie-----	Slightly limited ~slope/erodibility (slightly limited)	0.11	Slightly limited ~slope/erodibility (slightly limited)	0.02	Limited ~low strength (limited)	0.80	Moderately limited ~flooding (moderately limited) ~low strength (moderately limited)	0.60 0.50	Moderately limited ~flooding (moderately limited)	0.60
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Moderately limited ~slope/erodibility (moderately limited)	0.33	Slightly limited ~slope/erodibility (slightly limited)	0.07	Limited ~low strength (limited)	0.80	Moderately limited ~low strength (moderately limited)	0.50	Not limited	
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Slightly limited ~slope/erodibility (slightly limited)	0.25	Slightly limited ~slope/erodibility (slightly limited)	0.08	Not limited		Not limited		Not limited	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9.--Windbreaks and Environmental Plantings

(Only the soils suitable for windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
60003: Menfro-----	fragrant sumac	American plum, southern arrowwood, gray dogwood	Washington hawthorn, eastern redbud, eastern redcedar	tuliptree, northern red oak, green ash, white fir	eastern white pine, Douglas fir
60024: Menfro-----	fragrant sumac	American plum, gray dogwood, southern arrowwood	Washington hawthorn, eastern redbud, eastern redcedar	white fir, green ash, northern red oak, tuliptree	eastern white pine, Douglas Fir
60025: Urban land.					
Harvester-----	fragrant sumac	American plum, gray dogwood, southern arrowwood	Washington hawthorn, eastern redbud, eastern redcedar	white fir, green ash, northern red oak, tuliptree	eastern white pine, Douglas Fir
60038: Pevely-----	common lilac, fragrant sumac, American plum	Washington hawthorn, gray dogwood, Amur maple	common hackberry, thornless honeylocust, Virginia pine, Austrian pine, eastern redcedar	---	---
Holstein-----	fragrant sumac, American plum, American cranberrybush	southern arrowwood, gray dogwood	eastern redcedar	Washington hawthorn, green ash, northern red oak, white fir	thornless honeylocust, eastern white pine
60039, 60040 Pevely-----	common lilac, fragrant sumac, American plum	Washington hawthorn, gray dogwood, Amur maple	common hackberry, thornless honeylocust, Virginia pine, Austrian pine, eastern redcedar	---	---
60042, 60043: Menfro-----	fragrant sumac	American plum, gray dogwood, southern arrowwood	Washington hawthorn, eastern redbud, eastern redcedar	white fir, green ash, northern red oak, tuliptree	eastern white pine, Douglas fir
60047: Urban land.					
Harvester-----	fragrant sumac	American plum, gray dogwood, southern arrowwood	Washington hawthorn, eastern redbud, eastern redcedar	white fir, green ash, northern red oak, tuliptree	eastern white pine
60050: Urban land.					
Deible-----	fragrant sumac, American plum	blackhaw, gray dogwood	nannyberry, Washington hawthorn, eastern redcedar	sweetgum, green ash, baldcypress	pin oak, eastern white pine

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
64007: Freeburg-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
64008, 64009: Freeburg-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
66000: Moniteau-----	buttonbush	possumhaw	nannyberry, eastern arborvitae, eastern redcedar	common hackberry, baldcypress, pin oak	eastern cottonwood
66014: Haymond-----	fragrant sumac, American plum	blackhaw, gray dogwood	nannyberry, Washington hawthorn, eastern redcedar	sweetgum, green ash, white fir	pin oak, eastern white pine
66020: Haynie-----	American plum	American holly, common chokecherry	Washington hawthorn, autumn olive, nannyberry, eastern redcedar	bur oak, white fir, white spruce	green ash, eastern cottonwood
66024: Wilbur-----	fragrant sumac, American plum	blackhaw, gray dogwood	nannyberry, Washington hawthorn, eastern redcedar	sweetgum, green ash, white fir	pin oak, eastern white pine
66050: Tice-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
66051: Perche-----	fragrant sumac	silky dogwood, American plum, gray dogwood	Washington hawthorn, nannyberry	sweetgum, green ash, white fir, Norway spruce	eastern white pine, pin oak
66053: Fishpot-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
Urban land.					
73046: Wrengart-----	fragrant sumac, redosier dogwood, silky dogwood	American plum, southern arrowwood	Washington hawthorn, eastern redcedar	white fir, green ash, northern red oak	eastern white pine
73210: Goss-----	fragrant sumac	American plum, gray dogwood, southern arrowwood	Washington hawthorn, eastern redbud, eastern redcedar	white fir, green ash, northern red oak, tuliptree	eastern white pine

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73218: Tiff-----	fragrant sumac	American plum, gray dogwood, southern arrowwood	Washington hawthorn, eastern redbud, eastern redcedar	white fir, green ash, northern red oak, tuliptree	eastern white pine
74644: Deible-----	fragrant sumac, American plum	blackhaw, gray dogwood	nannyberry, Washington hawthorn, eastern redcedar	sweetgum, green ash, baldcypress	pin oak, eastern white pine
74676: Urban land.					
Freeburg-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75385: Gabriel-----	American plum, fragrant sumac, silky dogwood	blackhaw, gray dogwood	Washington hawthorn, eastern arborvitae	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75398: Kaintuck-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75450: Bloomsdale-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak
75452: Gladden-----	American plum, fragrant sumac	blackhaw, gray dogwood	Washington hawthorn, nannyberry, eastern redcedar	baldcypress, green ash, sweetgum	eastern white pine, pin oak

Table 10.--Recreational Site Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
60003: Menfro-----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Very limited ~erodes easily (very limited)	1.00
60024: Menfro-----	Not limited		Not limited		Limited ~slope (limited)	0.98	Not limited	
60025: Urban land---	Not rated		Not rated		Not rated		Not rated	
Harvester----	Slightly limited ~percs slowly (slightly limited)	0.19	Slightly limited ~percs slowly (slightly limited)	0.19	Limited ~slope (limited) ~percs slowly (slightly limited)	0.98 0.19	Not limited	
60037: Wrengart-----	Limited ~slope (limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	0.63 0.15 0.13	Limited ~slope (limited) ~percs slowly (slightly limited) ~wetness (slightly limited)	0.63 0.13 0.04	Very limited ~slope (very limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	1.00 0.15 0.13	Very limited ~erodes easily (very limited) ~wetness (slightly limited)	1.00 0.04
60038: Pevely-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~depth to bedrock (slightly limited)	1.00 0.09	Moderately limited ~slope (moderately limited)	0.50
Holstein-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Moderately limited ~slope (moderately limited)	0.50

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60039: Pevely-----	Slightly limited ~slope (slightly limited)	0.04	Slightly limited ~slope (slightly limited)	0.04	Very limited ~slope (very limited) ~depth to bedrock (slightly limited)	1.00 0.09	Not limited	
60040: Pevely-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~depth to bedrock (slightly limited)	1.00 0.09	Limited ~slope (limited)	0.92
60041: Brussels-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00 1.00 0.77	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00 1.00 0.77	Very limited ~large stones >25% (very limited) ~slope (very limited) ~too clayey (moderately limited)	1.00 1.00 0.60	Very limited ~slope (very limited) ~large surface stones (very limited) ~large stones (limited)	1.00 1.00 0.77
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
60042: Menfro-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~erodes easily (very limited) ~slope (limited)	1.00 0.67
60043: Menfro-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (very limited)	1.00 1.00
60044: Minnith-----	Not limited		Not limited		Limited ~slope (limited)	0.98	Not limited	

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60045: Minnith-----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Very limited ~erodes easily (very limited)	1.00
60046: Minnith-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~erodes easily (very limited) ~slope (limited)	1.00 0.92
60047: Urban land---	Not rated		Not rated		Not rated		Not rated	
Harvester----	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63 0.19	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63 0.19	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.19	Not limited	
60048: Weingarten---	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~erodes easily (very limited) ~slope (very limited)	1.00 1.00
60049: Urban land---	Not rated		Not rated		Not rated		Not rated	
Horsecreek---	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.40	Not limited	
60050: Urban land---	Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
64007: Freeburg-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 1.00 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	 0.68 0.13	Very limited ~wetness (very limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	 1.00 0.60 0.13	Limited ~wetness (limited)	 0.68
64008, 64009: Freeburg-----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	 0.68 0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited) ~slope (slightly limited)	 1.00 0.13 0.10	Limited ~wetness (limited)	 0.68
66000: Moniteau-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 1.00 0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Very limited ~wetness (very limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	 1.00 0.60 0.13	Very limited ~wetness (very limited)	 1.00
66014: Haymond-----	Very limited ~flooding (very limited)	 1.00	Moderately limited ~flooding (moderately limited)	 0.60	Very limited ~flooding (very limited)	 1.00	Moderately limited ~flooding (moderately limited)	 0.60
66020: Haynie-----	Very limited ~flooding (very limited)	 1.00	Moderately limited ~flooding (moderately limited)	 0.60	Very limited ~flooding (very limited)	 1.00	Moderately limited ~flooding (moderately limited)	 0.60
66024: Wilbur-----	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.97	Limited ~wetness (limited) ~flooding (moderately limited)	 0.60 0.60	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.97	Limited ~wetness (limited) ~flooding (moderately limited)	 0.60 0.60

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66050: Tice-----	Very limited ~flooding (very limited) ~wetness (limited) ~too clayey (moderately limited)	 1.00 0.80 0.60	Moderately limited ~flooding (moderately limited) ~too clayey (moderately limited) ~wetness (moderately limited)	 0.60 0.60 0.45	Very limited ~flooding (very limited) ~wetness (limited) ~too clayey (moderately limited)	 1.00 0.80 0.60	Moderately limited ~flooding (moderately limited) ~too clayey (moderately limited) ~wetness (moderately limited)	 0.60 0.60 0.45
66051: Perche-----	Very limited ~flooding (very limited) ~wetness (moderately limited)	 1.00 0.33	Slightly limited ~wetness (slightly limited)	 0.09	Moderately limited ~flooding (moderately limited) ~wetness (moderately limited)	 0.60 0.33	Slightly limited ~wetness (slightly limited)	 0.09
66052: Waldron-----	Very limited ~flooding (very limited) ~wetness (limited) ~too clayey (moderately limited)	 1.00 0.60 0.60	Moderately limited ~flooding (moderately limited) ~too clayey (moderately limited) ~percs slowly (moderately limited)	 0.60 0.60 0.39	Very limited ~flooding (very limited) ~wetness (limited) ~too clayey (moderately limited)	 1.00 0.60 0.60	Moderately limited ~flooding (moderately limited) ~too clayey (moderately limited) ~wetness (slightly limited)	 0.60 0.60 0.28
66053: Fishpot-----	Slightly limited ~percs slowly (slightly limited)	 0.13	Slightly limited ~percs slowly (slightly limited)	 0.13	Slightly limited ~percs slowly (slightly limited)	 0.13	Not limited	
Urban land---	Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Slightly limited ~wetness (slightly limited)	 0.15	Slightly limited ~wetness (slightly limited)	 0.04	Limited ~slope (limited) ~wetness (slightly limited)	 0.98 0.15	Slightly limited ~wetness (slightly limited)	 0.04
73090: Useful-----	Slightly limited ~percs slowly (slightly limited)	 0.13	Slightly limited ~percs slowly (slightly limited)	 0.13	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.98 0.13	Not limited	

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
73200: Sonsac-----	Limited ~large surface stones (limited) ~percs slowly (moderately limited) ~small stones (moderately limited)	0.80 0.40 0.30	Limited ~large surface stones (limited) ~percs slowly (moderately limited) ~small stones (moderately limited)	0.80 0.40 0.30	Very limited ~slope (very limited) ~small stones (very limited) ~percs slowly (moderately limited)	1.00 1.00 1.00 0.40	Limited ~large surface stones (limited)	0.80
73201: Sonsac-----	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 0.80 0.40	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 0.80 0.40	Very limited ~slope (very limited) ~small stones (very limited) ~percs slowly (moderately limited)	1.00 1.00 1.00 0.40	Very limited ~slope (very limited) ~large surface stones (limited)	1.00 0.80
73202: Rueter-----	Moderately limited ~small stones (moderately limited) ~slope (slightly limited)	0.44 0.04	Moderately limited ~small stones (moderately limited) ~slope (slightly limited)	0.44 0.04	Very limited ~slope (very limited) ~small stones (very limited) ~large stones (limited)	1.00 1.00 0.64	Not limited	
73203: Rueter-----	Very limited ~slope (very limited) ~small stones (moderately limited)	1.00 0.44	Very limited ~slope (very limited) ~small stones (moderately limited)	1.00 0.44	Very limited ~slope (very limited) ~small stones (very limited) ~large stones (limited)	1.00 1.00 1.00 0.64	Very limited ~slope (very limited)	1.00
Sonsac-----	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 0.80 0.40	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 0.80 0.40	Very limited ~slope (very limited) ~small stones (very limited) ~percs slowly (moderately limited)	1.00 1.00 1.00 0.40	Very limited ~slope (very limited) ~large surface stones (limited)	1.00 0.80

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73204: Ramsey-----	Very limited ~slope (very limited) ~shallow to bedrock (limited) ~too acid (slightly limited)	 1.00 0.90 0.24	Very limited ~slope (very limited) ~shallow to bedrock (limited) ~too acid (slightly limited)	 1.00 0.90 0.24	Very limited ~slope (very limited) ~bedrock <20 in. (very limited) ~too acid (slightly limited)	 1.00 1.00 0.24	Very limited ~slope (very limited)	 1.00
Rock outcrop----	Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.63 0.13	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.63 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Very limited ~erodes easily (very limited)	 1.00
73206: Useful-----	Very limited ~slope (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Very limited ~erodes easily (very limited) ~slope (very limited)	 1.00 1.00
73207: Caneyville---	Slightly limited ~percs slowly (slightly limited)	 0.13	Slightly limited ~percs slowly (slightly limited)	 0.13	Limited ~slope (limited) ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	 0.98 0.24 0.13	Not limited	
73208: Caneyville---	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.63 0.13	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.63 0.13	Very limited ~slope (very limited) ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	 1.00 0.18 0.13	Very limited ~erodes easily (very limited)	 1.00

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73209: Caneyville----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~erodes easily	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.13	~percs slowly	0.13	~depth to bedrock	0.18	~slope	0.67
	(slightly limited)		(slightly limited)		(slightly limited)		(limited)	
					~percs slowly	0.13		
					(slightly limited)			
73210: Goss-----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large stones >25%	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~small stones	0.37	~small stones	0.37	~small stones	1.00	~large stones	0.17
	(moderately limited)		(moderately limited)		(very limited)		(slightly limited)	
73211: Gasconade----	Very limited		Very limited		Very limited		Very limited	
	~large surface stones	1.00	~large surface stones	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~too clayey	1.00	~too clayey	1.00	~slope	1.00	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~shallow to bedrock	0.90	~shallow to bedrock	0.90	~small stones	1.00		
	(limited)		(limited)		(very limited)			
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
73212: Gasconade----	Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~large surface stones	1.00	~slope	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~slope	1.00	~bedrock <20 in.	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
	~too clayey	1.00	~too clayey	1.00	~small stones	1.00	~too clayey	1.00
	(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73213: Moko-----	Very limited ~large surface stones (very limited) ~shallow to bedrock (limited) ~percs slowly (moderately limited)	1.00 0.90 0.57	Very limited ~large surface stones (very limited) ~shallow to bedrock (limited) ~percs slowly (moderately limited)	1.00 0.90 0.57	Very limited ~bedrock <20 in. (very limited) ~slope (very limited) ~small stones (very limited)	1.00 1.00 1.00	Very limited ~large surface stones (very limited)	1.00
Rock outcrop----	Not rated		Not rated		Not rated		Not rated	
73214: Moko-----	Very limited ~slope (very limited) ~large surface stones (very limited) ~shallow to bedrock (limited)	1.00 1.00 0.90	Very limited ~slope (very limited) ~large surface stones (very limited) ~shallow to bedrock (limited)	1.00 1.00 0.90	Very limited ~slope (very limited) ~bedrock <20 in. (very limited) ~small stones (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~large surface stones (very limited)	1.00 1.00
Rock outcrop----	Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Not limited		Not limited		Limited ~slope (limited)	0.98	Not limited	
73216: Crider-----	Limited ~slope (limited)	0.63	Limited ~slope (limited)	0.63	Very limited ~slope (very limited)	1.00	Not limited	
73217: Useful-----	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~erodes easily (very limited) ~slope (very limited)	1.00 1.00
Sonsac-----	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 0.80 0.40	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 0.80 0.40	Very limited ~slope (very limited) ~small stones (very limited) ~percs slowly (moderately limited)	1.00 1.00 0.40	Very limited ~slope (very limited) ~large surface stones (limited)	1.00 0.80

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73218: Tiff-----	Very limited ~too clayey (very limited) ~small stones (moderately limited) ~slope (slightly limited)	 1.00 0.48 0.16	Very limited ~too clayey (very limited) ~small stones (moderately limited) ~slope (slightly limited)	 1.00 0.48 0.16	Very limited ~too clayey (very limited) ~small stones (very limited) ~slope (very limited)	 1.00 1.00 1.00	Very limited ~too clayey (very limited)	 1.00
73219: Rueter-----	Very limited ~slope (very limited) ~small stones (moderately limited)	 1.00 0.44	Very limited ~slope (very limited) ~small stones (moderately limited)	 1.00 0.44	Very limited ~slope (very limited) ~small stones (very limited) ~large stones (limited)	 1.00 1.00 0.64	Very limited ~slope (very limited)	 1.00
74644: Deible-----	Very limited ~wetness (very limited)	 1.00	Very limited ~wetness (very limited)	 1.00	Very limited ~wetness (very limited)	 1.00	Very limited ~wetness (very limited)	 1.00
74675: Horsecreek---	Not limited		Not limited		Slightly limited ~slope (slightly limited)	 0.10	Not limited	
74676: Urban land---	Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	 0.68 0.13	Very limited ~wetness (very limited) ~percs slowly (slightly limited) ~slope (slightly limited)	 1.00 0.13 0.10	Limited ~wetness (limited)	 0.68
75375: Horsecreek---	Very limited ~flooding (very limited)	 1.00	Not limited		Moderately limited ~flooding (moderately limited)	 0.60	Not limited	

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75385: Gabriel-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (slightly limited)	1.00 0.86 1.00 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.86 0.13	Very limited ~wetness (very limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	1.00 0.60 0.13	Limited ~wetness (limited)	0.86
75390: Razort-----	Limited ~flooding (rare) (limited)	0.90	Not limited		Slightly limited ~small stones (slightly limited)	0.08	Not limited	
75398: Kaintuck-----	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60
75450: Bloomsdale---	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60
75452: Gladden-----	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60	Very limited ~flooding (very limited)	1.00	Moderately limited ~flooding (moderately limited)	0.60
75453: Sturkie-----	Very limited ~flooding (very limited)	1.00	Not limited		Moderately limited ~flooding (moderately limited)	0.60	Not limited	
75454: Urban land---	Not rated		Not rated		Not rated		Not rated	
Razort-----	Limited ~flooding (rare) (limited)	0.90	Not limited		Slightly limited ~slope (slightly limited) ~small stones (slightly limited)	0.10 0.08	Not limited	

Table 10.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
99000: Pits, quarries----	Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated	
99005: Landfills----	Not rated		Not rated		Not rated		Not rated	
99009: Udorthents---	Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited) ~slope (moderately limited)	1.00 0.40	Not limited	
Pits-----	Not rated		Not rated		Not rated		Not rated	

Table 11a.--Wildlife Habitat Suitability

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003, 60024: Menfro-----	Not limited		Not limited		Not limited		Not limited		Not limited	
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Slightly limited ~percs slowly (slightly limited) ~droughty (slightly limited)	0.19 0.01	Slightly limited ~percs slowly (slightly limited)	0.19	Not limited		Not limited		Not limited	
60037: Wrengart-----	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited) ~droughty (slightly limited)	0.31 0.13 0.02	Moderately limited ~wetness (moderately limited) ~percs slowly (slightly limited)	0.31 0.13	Moderately limited ~wetness (moderately limited)	0.31	Moderately limited ~wetness (moderately limited)	0.31	Moderately limited ~wetness (moderately limited)	0.46
60038: Pevely-----	Limited ~high erodibility (limited) ~slope (moderately limited) ~wetness (slightly limited)	0.80 0.30 0.19	Limited ~high erodibility (limited) ~slope (moderately limited) ~wetness (slightly limited)	0.80 0.30 0.19	Slightly limited ~wetness (slightly limited)	0.19	Slightly limited ~wetness (slightly limited) ~depth to bedrock (slightly limited)	0.19 0.09	Moderately limited ~wetness (moderately limited) ~depth to bedrock (slightly limited)	0.40 0.09
Holstein-----	Limited ~high erodibility (limited) ~slope (moderately limited)	0.80 0.30	Limited ~high erodibility (limited) ~slope (moderately limited)	0.80 0.30	Not limited		Not limited		Not limited	

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60039: Pevely-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~wetness (slightly limited)	0.19	~wetness (slightly limited)	0.19	~wetness (moderately limited)	0.40
	~wetness (slightly limited)	0.19	~wetness (slightly limited)	0.19			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
	~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09						
60040: Pevely-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~wetness (slightly limited)	0.19	~wetness (slightly limited)	0.19	~wetness (moderately limited)	0.40
	~slope (moderately limited)	0.60	~slope (moderately limited)	0.60			~depth to bedrock (slightly limited)	0.09	~depth to bedrock (slightly limited)	0.09
	~wetness (slightly limited)	0.19	~wetness (slightly limited)	0.19						
60041: Brussels-----	Very limited		Very limited		Limited		Limited		Limited	
	~droughty (very limited)	1.00	~large stones >35% (very limited)	1.00	~large stones (limited)	0.77	~large stones (limited)	0.77	~large stones (limited)	0.77
	~large stones >35% (very limited)	1.00	~slope (very limited)	1.00	~too clayey (slightly limited)	0.12	~too clayey (slightly limited)	0.12	~droughty (slightly limited)	0.12
	~slope (very limited)	1.00	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.12	~droughty (slightly limited)	0.12		
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042: Menfro-----	Limited		Limited		Not limited		Not limited		Not limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80						
	~slope (moderately limited)	0.42	~slope (moderately limited)	0.42						
60043: Menfro-----	Very limited		Very limited		Not limited		Not limited		Not limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00						
60044: Minnith-----	Not limited		Not limited		Not limited		Not limited		Slightly limited	
									~wetness (slightly limited)	0.30

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
60045: Minnith-----	Not limited		Not limited		Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.30
60046: Minnith-----	Moderately limited ~slope (moderately limited)	0.60	Moderately limited ~slope (moderately limited)	0.60	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	0.30
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Slightly limited ~percs slowly (slightly limited) ~droughty (slightly limited)	0.19 0.01	Slightly limited ~percs slowly (slightly limited)	0.19	Not limited		Not limited		Not limited	
60048: Weingarten-----	Limited ~slope (limited) ~high erodibility (limited) ~percs slowly (slightly limited)	0.99 0.80 0.13	Limited ~slope (limited) ~high erodibility (limited) ~percs slowly (slightly limited)	0.99 0.80 0.13	Not limited		Not limited		Not limited	
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Not limited		Not limited		Not limited		Not limited		Not limited	
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited ~wetness (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
64007: Freeburg-----	Limited ~wetness (limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	 0.68 0.60 0.13	Limited ~wetness (limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	 0.68 0.60 0.13	Limited ~wetness (limited)	 0.68	Limited ~wetness (limited)	 0.68	Very limited ~wetness (very limited)	 1.00
64008, 64009: Freeburg-----	Limited ~wetness (limited) ~percs slowly (slightly limited)	 0.68 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	 0.68 0.13	Limited ~wetness (limited)	 0.68	Limited ~wetness (limited)	 0.68	Very limited ~wetness (very limited)	 1.00
66000: Moniteau-----	Very limited ~wetness (very limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	 1.00 0.60 0.13	Very limited ~wetness (very limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	 1.00 0.60 0.13	Very limited ~wetness (very limited)	 1.00	Very limited ~wetness (very limited)	 1.00	Very limited ~wetness (very limited)	 1.00
66014: Haymond-----	Limited ~flooding (limited)	 0.90	Limited ~flooding (limited)	 0.90	Not limited		Not limited		Not limited	
66020: Haynie-----	Limited ~flooding (limited)	 0.90	Limited ~flooding (limited)	 0.90	Slightly limited ~flooding (prolonged) (slightly limited)	 0.20	Slightly limited ~flooding (prolonged) (slightly limited)	 0.20	Slightly limited ~flooding (prolonged) (slightly limited)	 0.20
66024: Wilbur-----	Limited ~flooding (limited) ~wetness (moderately limited)	 0.90 0.60	Limited ~flooding (limited) ~wetness (moderately limited)	 0.90 0.60	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited)	 0.60 0.20	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited)	 0.60 0.20	Limited ~wetness (limited) ~flooding (prolonged) (slightly limited)	 0.99 0.20

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66050: Tice-----	Limited ~flooding (limited) ~wetness (moderately limited) ~too clayey (slightly limited)	 0.90 0.53 0.03	Limited ~flooding (limited) ~wetness (moderately limited) ~too clayey (slightly limited)	 0.90 0.53 0.03	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited) ~too clayey (slightly limited)	 0.53 0.20 0.03	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited) ~too clayey (slightly limited)	 0.53 0.20 0.03	Limited ~wetness (limited) ~flooding (prolonged) (slightly limited)	 0.80 0.20
66051: Perche-----	Moderately limited ~flooding (moderately limited) ~wetness (moderately limited)	 0.60 0.34	Moderately limited ~flooding (moderately limited) ~wetness (moderately limited)	 0.60 0.34	Moderately limited ~wetness (moderately limited)	 0.34	Moderately limited ~wetness (moderately limited)	 0.34	Moderately limited ~wetness (moderately limited)	 0.49
66052: Waldron-----	Limited ~flooding (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	 0.90 0.44 0.39	Limited ~flooding (limited) ~wetness (moderately limited) ~percs slowly (moderately limited)	 0.90 0.44 0.39	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited) ~too clayey (slightly limited)	 0.44 0.20 0.16	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited) ~too clayey (slightly limited)	 0.44 0.20 0.16	Moderately limited ~wetness (moderately limited) ~flooding (prolonged) (slightly limited)	 0.59 0.20
66053: Fishpot-----	Slightly limited ~percs slowly (slightly limited) ~droughty (slightly limited)	 0.13 0.09	Slightly limited ~percs slowly (slightly limited)	 0.13	Not limited		Not limited		Slightly limited ~wetness (slightly limited)	 0.15
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Moderately limited ~moderate erodibility (moderately limited) ~droughty (moderately limited) ~wetness (moderately limited)	 0.50 0.39 0.31	Moderately limited ~moderate erodibility (moderately limited) ~wetness (moderately limited)	 0.50 0.31	Moderately limited ~wetness (moderately limited)	 0.31	Moderately limited ~wetness (moderately limited)	 0.31	Moderately limited ~wetness (moderately limited)	 0.46

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73090: Useful-----	Limited		Limited		Slightly limited		Slightly limited		Moderately limited	
	~high erodibility (limited)	0.80	~high erodibility (limited)	0.80	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~wetness (moderately limited)	0.37
	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13						
	~percs slowly (slightly limited)	0.13	~percs slowly (slightly limited)	0.13						
73200: Sonsac-----	Very limited		Limited		Slightly limited		Slightly limited		Slightly limited	
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.12	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~high erodibility (limited)	0.80	~percs slowly (moderately limited)	0.40	~small stones (slightly limited)	0.03	~droughty (slightly limited)	0.12	~droughty (slightly limited)	0.12
	~percs slowly (moderately limited)	0.40	~small stones (moderately limited)	0.30						
73201: Sonsac-----	Very limited		Limited		Slightly limited		Slightly limited		Slightly limited	
	~droughty (very limited)	1.00	~high erodibility (limited)	0.80	~droughty (slightly limited)	0.12	~depth to bedrock (slightly limited)	0.29	~depth to bedrock (slightly limited)	0.29
	~high erodibility (limited)	0.80	~slope (limited)	0.80	~small stones (slightly limited)	0.03	~droughty (slightly limited)	0.12	~droughty (slightly limited)	0.12
	~slope (limited)	0.80	~percs slowly (moderately limited)	0.40						
73202: Rueter-----	Limited		Moderately limited		Slightly limited		Not limited		Not limited	
	~droughty (very limited)	0.99	~small stones (moderately limited)	0.44	~small stones (slightly limited)	0.07				
	~small stones (moderately limited)	0.44	~large stones (slightly limited)	0.03						
	~large stones (slightly limited)	0.03								
73203: Rueter-----	Limited		Limited		Slightly limited		Not limited		Not limited	
	~droughty (very limited)	0.99	~slope (limited)	0.99	~small stones (slightly limited)	0.07				
	~slope (limited)	0.99	~high erodibility (limited)	0.80						
	~high erodibility (limited)	0.80	~small stones (moderately limited)	0.44						

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73203: Sonsac-----	Very limited ~droughty (very limited) ~slope (limited) ~high erodibility (limited)	1.00 0.99 0.80	Limited ~slope (limited) ~high erodibility (limited) ~percs slowly (moderately limited)	0.99 0.80 0.40	Slightly limited ~droughty (slightly limited) ~small stones (slightly limited)	0.12 0.03	Slightly limited ~depth to bedrock (slightly limited) ~droughty (slightly limited)	0.29 0.12	Slightly limited ~depth to bedrock (slightly limited) ~droughty (slightly limited)	0.29 0.12
73204: Ramsey-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~slope (limited)	1.00 1.00 0.99	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited) ~slope (limited)	1.00 1.00 0.99	Very limited ~droughty (very limited)	1.00	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited)	1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Limited ~high erodibility (limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	0.80 0.13 0.13	Limited ~high erodibility (limited) ~wetness (slightly limited) ~percs slowly (slightly limited)	0.80 0.13 0.13	Slightly limited ~wetness (slightly limited)	0.13	Slightly limited ~wetness (slightly limited)	0.13	Moderately limited ~wetness (moderately limited)	0.37
73206: Useful-----	Limited ~high erodibility (limited) ~slope (limited) ~wetness (slightly limited)	0.80 0.80 0.13	Limited ~high erodibility (limited) ~slope (limited) ~wetness (slightly limited)	0.80 0.80 0.13	Slightly limited ~wetness (slightly limited)	0.13	Slightly limited ~wetness (slightly limited)	0.13	Moderately limited ~wetness (moderately limited)	0.37
73207: Caneyville----	Slightly limited ~depth to bedrock (slightly limited) ~percs slowly (slightly limited) ~droughty (slightly limited)	0.24 0.13 0.10	Slightly limited ~depth to bedrock (slightly limited) ~percs slowly (slightly limited)	0.24 0.13	Not limited		Slightly limited ~depth to bedrock (slightly limited)	0.24	Slightly limited ~depth to bedrock (slightly limited)	0.24

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73208: Caneyville-----	Limited		Limited		Not limited		Slightly limited		Slightly limited	
	~droughty (limited)	0.97	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.18	~depth to bedrock (slightly limited)	0.18
	~high erodibility (limited)	0.80	~depth to bedrock (slightly limited)	0.18						
	~depth to bedrock (slightly limited)	0.18	~percs slowly (slightly limited)	0.13						
73209: Caneyville-----	Limited		Limited		Not limited		Slightly limited		Slightly limited	
	~droughty (limited)	0.97	~high erodibility (limited)	0.80			~depth to bedrock (slightly limited)	0.18	~depth to bedrock (slightly limited)	0.18
	~high erodibility (limited)	0.80	~slope (moderately limited)	0.42						
	~slope (moderately limited)	0.42	~depth to bedrock (slightly limited)	0.18						
73210: Goss-----	Very limited		Limited		Moderately limited		Moderately limited		Moderately limited	
	~droughty (very limited)	1.00	~slope (limited)	0.87	~droughty (moderately limited)	0.34	~droughty (moderately limited)	0.34	~droughty (moderately limited)	0.34
	~slope (limited)	0.87	~high erodibility (limited)	0.80	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17	~large stones (slightly limited)	0.17
	~high erodibility (limited)	0.80	~large stones (moderately limited)	0.45	~small stones (slightly limited)	0.05				
73211: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~bedrock <20 in. (very limited)	1.00	~bedrock <20 in. (very limited)	1.00	~too clayey (moderately limited)	0.60	~bedrock <20 in. (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~small stones (limited)	0.73	~small stones (limited)	0.73	~small stones (slightly limited)	0.15	~too clayey (moderately limited)	0.60		
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00
	~bedrock <20 in. (very limited)	1.00	~bedrock <20 in. (very limited)	1.00	~too clayey (moderately limited)	0.60	~bedrock <20 in. (very limited)	1.00	~bedrock <20 in. (very limited)	1.00
	~slope (limited)	0.91	~slope (limited)	0.91	~small stones (slightly limited)	0.15	~too clayey (moderately limited)	0.60		

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73212: Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73213: Moko-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~high erodibility (limited)	1.00 1.00 1.00 0.80	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~high erodibility (limited)	1.00 1.00 1.00 0.80	Very limited ~droughty (very limited) ~small stones (slightly limited)	1.00 1.00 0.03	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73214: Moko-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~slope (limited)	1.00 1.00 1.00 0.87	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited) ~slope (limited)	1.00 1.00 1.00 0.87	Very limited ~droughty (very limited) ~small stones (slightly limited)	1.00 1.00 0.03	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Not limited		Not limited		Not limited		Not limited		Not limited	
73216: Crider-----	Limited ~high erodibility (limited)	0.80	Limited ~high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
73217: Useful-----	Limited ~slope (limited) ~high erodibility (limited) ~wetness (slightly limited)	0.99 0.80 0.13	Limited ~slope (limited) ~high erodibility (limited) ~wetness (slightly limited)	0.99 0.80 0.13	Slightly limited ~wetness (slightly limited)	0.13	Slightly limited ~wetness (slightly limited)	0.13	Moderately limited ~wetness (moderately limited)	0.37

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73217: Sonsac-----	Very limited ~droughty (very limited) ~slope (limited) ~high erodibility (limited)	1.00 0.99 0.80	Limited ~slope (limited) ~high erodibility (limited) ~percs slowly (moderately limited)	0.99 0.80 0.40	Slightly limited ~droughty (slightly limited) ~small stones (slightly limited)	0.12 0.03	Slightly limited ~depth to bedrock (slightly limited) ~droughty (slightly limited)	0.29 0.12	Slightly limited ~depth to bedrock (slightly limited) ~droughty (slightly limited)	0.29 0.12
73218: Tiff-----	Very limited ~droughty (very limited) ~too clayey (limited) ~small stones (moderately limited)	1.00 0.76 0.48	Limited ~too clayey (limited) ~small stones (moderately limited) ~droughty (slightly limited)	0.76 0.48 0.24	Limited ~too clayey (limited) ~droughty (slightly limited) ~small stones (slightly limited)	0.76 0.24 0.08	Limited ~too clayey (limited) ~droughty (slightly limited)	0.76 0.24	Slightly limited ~droughty (slightly limited)	0.24
73219: Rueter-----	Limited ~droughty (very limited) ~slope (limited) ~high erodibility (limited)	0.99 0.99 0.80	Limited ~slope (limited) ~high erodibility (limited) ~small stones (moderately limited)	0.99 0.80 0.44	Slightly limited ~small stones (slightly limited)	0.07	Not limited		Not limited	
74644: Deible-----	Very limited ~wetness (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20
74675: Horsecreek----	Not limited		Not limited		Not limited		Not limited		Not limited	
74676: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.68 0.13	Limited ~wetness (limited) ~percs slowly (slightly limited)	0.68 0.13	Limited ~wetness (limited)	0.68	Limited ~wetness (limited)	0.68	Very limited ~wetness (very limited)	1.00

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75375: Horsecreek-----	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	
75385: Gabriel-----	Limited ~wetness (limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	0.86 0.60 0.13	Limited ~wetness (limited) ~flooding (moderately limited) ~percs slowly (slightly limited)	0.86 0.60 0.13	Limited ~wetness (limited)	0.86	Limited ~wetness (limited)	0.86	Very limited ~wetness (very limited)	1.00
75390: Razort-----	Not limited		Not limited		Not limited		Not limited		Not limited	
75398: Kaintuck-----	Limited ~flooding (limited) ~droughty (moderately limited)	0.90 0.34	Limited ~flooding (limited)	0.90	Not limited		Not limited		Not limited	
75450: Bloomsdale-----	Limited ~flooding (limited) ~droughty (limited)	0.90 0.72	Limited ~flooding (limited)	0.90	Not limited		Not limited		Not limited	
75452: Gladden-----	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Not limited		Not limited		Not limited	
75453: Sturkie-----	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Not limited		Not limited		Not limited		Not limited		Not limited	

Table 11a.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Very limited ~percs slowly (very limited)	1.00	Very limited ~percs slowly (very limited)	1.00	Not limited		Not limited		Not limited	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11b.--Wildlife Habitat Suitability

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003: Menfro-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	1.00 1.00 0.45
60024: Menfro-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (limited) ~seepage (moderately limited)	1.00 0.91 0.45
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Moderately limited ~deep to water (moderately limited)	0.36	Very limited ~deep to water (very limited)	1.00	Limited ~slope (limited) ~deep to water (moderately limited) ~seepage (slightly limited)	0.91 0.36 0.13
60037: Wrengart-----	Moderately limited ~wetness (moderately limited)	0.46	Limited ~infrequent flooding (limited) ~deep to water (moderately limited)	0.80 0.58	Not limited		Moderately limited ~deep to water (moderately limited)	0.58	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.18

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60038: Pevely-----	Moderately limited ~wetness (moderately limited) ~depth to bedrock (slightly limited)	0.40 0.09	Limited ~infrequent flooding (limited) ~deep to water (limited)	0.80 0.74	Not limited		Limited ~deep to water (limited)	0.74	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
Holstein-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	1.00 1.00 0.45
60039, 60040: Pevely-----	Moderately limited ~wetness (moderately limited) ~depth to bedrock (slightly limited)	0.40 0.09	Limited ~infrequent flooding (limited) ~deep to water (limited)	0.80 0.74	Not limited		Limited ~deep to water (limited)	0.74	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.45
60041: Brussels-----	Limited ~large stones (limited) ~droughty (slightly limited)	0.77 0.12	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~large stones (limited)	1.00 0.80 0.77	Very limited ~deep to water (very limited) ~large stones (limited) ~droughty (slightly limited)	1.00 0.77 0.12	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (slightly limited)	1.00 1.00 0.18
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042, 60043: Menfro-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	1.00 1.00 0.45

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60044: Minnith-----	Slightly limited ~wetness (slightly limited)	0.30	Limited ~infrequent flooding (limited)	0.80	Slightly limited ~deep to water (slightly limited)	0.01	Not limited		Limited ~slope (limited) ~seepage (moderately limited) ~deep to water (slightly limited)	0.91 0.42 0.01
60045, 60046: Minnith-----	Slightly limited ~wetness (slightly limited)	0.30	Limited ~infrequent flooding (limited)	0.80	Slightly limited ~deep to water (slightly limited)	0.01	Not limited		Very limited ~slope (very limited) ~seepage (moderately limited) ~deep to water (slightly limited)	1.00 0.42 0.01
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Moderately limited ~deep to water (moderately limited)	0.36	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (moderately limited)	1.00 0.36
60048: Weingarten-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (slightly limited)	1.00 1.00 0.18
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited) ~slope (moderately limited)	1.00 0.45 0.31

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited		Limited		Slightly limited		Not limited		Moderately limited	
	~wetness	1.00	~infrequent flooding	0.80	~droughty	0.20			~seepage	0.45
	(very limited)		(limited)		(slightly limited)				(moderately limited)	
	~droughty	0.20								
	(slightly limited)									
64007: Freeburg-----	Very limited		Moderately limited		Not limited		Slightly limited		Slightly limited	
	~wetness	1.00	~infrequent flooding	0.50			~deep to water	0.24	~seepage	0.18
	(very limited)		(moderately limited)				(slightly limited)		(slightly limited)	
			~deep to water	0.24						
			(slightly limited)							
64008: Freeburg-----	Very limited		Limited		Not limited		Slightly limited		Slightly limited	
	~wetness	1.00	~infrequent flooding	0.80			~deep to water	0.24	~seepage	0.18
	(very limited)		(limited)				(slightly limited)		(slightly limited)	
			~deep to water	0.24					~slope	0.08
			(slightly limited)						(slightly limited)	
64009: Freeburg-----	Very limited		Limited		Not limited		Slightly limited		Very limited	
	~wetness	1.00	~infrequent flooding	0.80			~deep to water	0.24	~slope	1.00
	(very limited)		(limited)				(slightly limited)		(very limited)	
			~deep to water	0.24					~seepage	0.18
			(slightly limited)						(slightly limited)	
66000: Moniteau-----	Very limited		Moderately limited		Not limited		Not limited		Slightly limited	
	~wetness	1.00	~infrequent flooding	0.50					~seepage	0.18
	(very limited)		(moderately limited)						(slightly limited)	
66014: Haymond-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.50					~seepage	0.45
			(moderately limited)						(moderately limited)	
66020: Haynie-----	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~flooding (prolonged)	0.20	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(slightly limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~flooding (prolonged)	0.20	~flooding (prolonged)	0.20			~seepage	0.45
			(slightly limited)		(slightly limited)				(moderately limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66024: Wilbur-----	Limited		Moderately limited		Slightly limited		Slightly limited		Moderately limited	
	~wetness	0.99	~infrequent flooding	0.50	~flooding (prolonged)	0.20	~deep to water	0.30	~seepage	0.45
	(limited)		(moderately limited)		(slightly limited)		(slightly limited)		(moderately limited)	
	~flooding (prolonged)	0.20	~deep to water	0.30						
	(slightly limited)		(slightly limited)							
			~flooding (prolonged)	0.20						
			(slightly limited)							
66050: Tice-----	Limited		Moderately limited		Slightly limited		Moderately limited		Moderately limited	
	~wetness	0.80	~deep to water	0.37	~flooding (prolonged)	0.20	~deep to water	0.37	~seepage	0.45
	(limited)		(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)	
	~flooding (prolonged)	0.20	~flooding (prolonged)	0.20						
	(slightly limited)		(slightly limited)							
66051: Perche-----	Moderately limited		Moderately limited		Not limited		Moderately limited		Moderately limited	
	~wetness	0.49	~deep to water	0.55			~deep to water	0.55	~seepage	0.45
	(moderately limited)		(moderately limited)				(moderately limited)		(moderately limited)	
			~infrequent flooding	0.50						
			(moderately limited)							
66052: Waldron-----	Moderately limited		Moderately limited		Slightly limited		Moderately limited		Not limited	
	~wetness	0.59	~deep to water	0.45	~flooding (prolonged)	0.20	~deep to water	0.45		
	(moderately limited)		(moderately limited)		(slightly limited)		(moderately limited)			
	~flooding (prolonged)	0.20	~flooding (prolonged)	0.20						
	(slightly limited)		(slightly limited)							
66053: Fishpot-----	Slightly limited		Very limited		Slightly limited		Very limited		Slightly limited	
	~wetness	0.15	~deep to water	1.00	~deep to water	0.16	~deep to water	1.00	~seepage	0.18
	(slightly limited)		(very limited)		(slightly limited)		(very limited)		(slightly limited)	
			~infrequent flooding	0.80					~deep to water	0.16
			(limited)						(slightly limited)	
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Moderately limited		Limited		Not limited		Moderately limited		Limited	
	~wetness	0.46	~infrequent flooding	0.80			~deep to water	0.58	~slope	0.91
	(moderately limited)		(limited)				(moderately limited)		(limited)	
			~deep to water	0.58					~seepage	0.45
			(moderately limited)						(moderately limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73090: Useful-----	Moderately limited ~wetness (moderately limited)	0.37	Limited ~deep to water (limited) ~infrequent flooding (limited)	0.82	Not limited		Limited ~deep to water (limited)	0.82	Limited ~slope (limited) ~seepage (slightly limited)	0.91 0.18
73200, 73201: Sonsac-----	Slightly limited ~depth to bedrock (slightly limited) ~droughty (slightly limited)	0.29 0.12	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited) ~droughty (slightly limited)	1.00 0.12	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (very limited)	1.00 1.00
73202: Rueter-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (very limited) ~seepage (limited)	1.00 1.00 0.80
73203: Rueter-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (limited)	1.00 1.00 0.80
Sonsac-----	Slightly limited ~depth to bedrock (slightly limited) ~droughty (slightly limited)	0.29 0.12	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited) ~droughty (slightly limited)	1.00 0.12	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited)	1.00 1.00
73204: Ramsey-----	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited) ~droughty (very limited)	1.00 1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73205, 73206: Useful-----	Moderately limited ~wetness (moderately limited)	0.37	Limited ~deep to water (limited) ~infrequent flooding (limited)	0.82 0.80	Not limited		Limited ~deep to water (limited)	0.82	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 0.18
73207: Caneyville-----	Slightly limited ~depth to bedrock (slightly limited)	0.24	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (limited) ~seepage (slightly limited)	1.00 0.91 0.18
73208, 73209: Caneyville-----	Slightly limited ~depth to bedrock (slightly limited)	0.18	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (slightly limited)	1.00 1.00 0.18
73210: Goss-----	Moderately limited ~droughty (moderately limited) ~large stones (slightly limited)	0.34 0.17	Very limited ~deep to water (very limited) ~infrequent flooding (limited) ~large stones (slightly limited)	1.00 0.80 0.17	Very limited ~deep to water (very limited) ~droughty (moderately limited) ~large stones (slightly limited)	1.00 0.34 0.17	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	1.00 1.00 0.45
73211: Gasconade-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~droughty (very limited) ~deep to water (very limited)	1.00 1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (very limited) ~seepage (slightly limited)	1.00 1.00 0.18
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73212: Gasconade-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 1.00 0.80	Very limited ~droughty (very limited) ~deep to water (very limited)	1.00 1.00 1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	1.00 1.00 1.00 0.45
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73213, 73214: Moko-----	Very limited ~droughty (very limited) ~bedrock <20 in. (very limited)	1.00 1.00 1.00	Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 1.00 0.80	Very limited ~droughty (very limited) ~deep to water (very limited)	1.00 1.00 1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (very limited)	1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (limited) ~seepage (moderately limited)	1.00 1.00 0.91 0.45
73216: Crider-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~slope (very limited) ~deep to water (very limited) ~seepage (moderately limited)	1.00 1.00 1.00 0.45
73217: Useful-----	Moderately limited ~wetness (moderately limited)	0.37	Limited ~deep to water (limited) ~infrequent flooding (limited)	0.82 0.82 0.80	Not limited		Limited ~deep to water (limited)	0.82	Very limited ~slope (very limited) ~seepage (slightly limited)	1.00 1.00 0.18

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73217: Sonsac-----	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	0.29	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
	(slightly limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.12	~infrequent flooding	0.80	~droughty	0.12			~deep to water	1.00
	(slightly limited)		(limited)		(slightly limited)				(very limited)	
73218: Tiff-----	Slightly limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	0.24	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
	(slightly limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80	~droughty	0.24			~slope	1.00
			(limited)		(slightly limited)				(very limited)	
									~seepage	0.16
									(slightly limited)	
73219: Rueter-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~slope	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80					~deep to water	1.00
			(limited)						(very limited)	
									~seepage	0.80
									(limited)	
74644: Deible-----	Very limited		Limited		Slightly limited		Not limited		Moderately limited	
	~wetness	1.00	~infrequent flooding	0.80	~droughty	0.20			~seepage	0.45
	(very limited)		(limited)		(slightly limited)				(moderately limited)	
	~droughty	0.20								
	(slightly limited)									
74675: Horsecreek-----	Not limited		Very limited		Very limited		Very limited		Very limited	
			~deep to water	1.00	~deep to water	1.00	~deep to water	1.00	~deep to water	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~infrequent flooding	0.80					~seepage	0.45
			(limited)						(moderately limited)	
									~slope	0.08
									(slightly limited)	

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited ~wetness (very limited)	1.00	Limited ~infrequent flooding (limited) ~deep to water (slightly limited)	0.80 0.24	Not limited		Slightly limited ~deep to water (slightly limited)	0.24	Slightly limited ~seepage (slightly limited) ~slope (slightly limited)	0.18 0.08
75375: Horsecreek-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00 0.50	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited)	1.00 0.45
75385: Gabriel-----	Very limited ~wetness (very limited)	1.00	Moderately limited ~infrequent flooding (moderately limited) ~deep to water (slightly limited)	0.50 0.11	Not limited		Slightly limited ~deep to water (slightly limited)	0.11	Slightly limited ~seepage (slightly limited)	0.18
75390: Razort-----	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited)	1.00 0.45
75398: Kaintuck-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00 0.50	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (limited)	1.00 0.80
75450: Bloomsdale-----	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited)	1.00 0.45

Table 11b.--Wildlife Habitat Suitability--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75452: Gladden-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00 0.50	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited)	1.00 0.45
75453: Sturkie-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (moderately limited)	1.00 0.50	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited)	1.00 0.45
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Not limited		Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~seepage (moderately limited) ~slope (slightly limited)	1.00 0.45 0.08
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Not limited		Very limited ~deep to water (very limited) ~infrequent flooding (limited)	1.00 0.80	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited)	1.00	Very limited ~deep to water (very limited) ~slope (moderately limited)	1.00 0.31
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Building Site Development

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
60003: Menfro-----	Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.76 0.45	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	Very limited ~low strength (very limited) ~slope (limited) ~shrink-swell (moderately limited)	 1.00 0.63 0.45	Limited ~slope (limited)	 0.63
60024: Menfro-----	Moderately limited ~shrink-swell (moderately limited)	 0.45	Moderately limited ~shrink-swell (moderately limited)	 0.45	Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.68 0.45	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	Not limited	
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Moderately limited ~shrink-swell (moderately limited)	 0.45	Moderately limited ~wetness (moderately limited) ~shrink-swell (moderately limited)	 0.56 0.45	Limited ~slope (limited) ~shrink-swell (moderately limited)	 0.68 0.45	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	Slightly limited ~too acid (slightly limited)	 0.24
60037: Wrengart-----	Limited ~slope (limited) ~shrink-swell (moderately limited) ~wetness (slightly limited)	 0.76 0.45 0.04	Very limited ~wetness (very limited) ~slope (limited) ~shrink-swell (moderately limited)	 1.00 0.76 0.45	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	 1.00 0.45	Very limited ~low strength (very limited) ~slope (limited) ~shrink-swell (moderately limited)	 1.00 0.63 0.45	Limited ~slope (limited) ~too acid (slightly limited) ~wetness (slightly limited)	 0.63 0.18 0.04
60038: Pevely-----	Very limited ~slope (very limited) ~shrink-swell (moderately limited) ~hard bedrock (slightly limited)	 1.00 0.45 0.18	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~wetness (limited)	 1.00 1.00 0.99	Very limited ~slope (very limited) ~shrink-swell (moderately limited) ~depth to bedrock (slightly limited)	 1.00 0.45 0.18	Very limited ~slope (very limited) ~shrink-swell (moderately limited) ~low strength (slightly limited)	 1.00 0.45 0.22	Very limited ~slope (very limited) ~depth to bedrock (slightly limited)	 1.00 0.09

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60038: Holstein-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	0.45	~shrink-swell	0.32	~shrink-swell	0.45	~low strength	0.78		
	(moderately limited)		(moderately limited)		(moderately limited)		(limited)			
							~shrink-swell	0.45		
							(moderately limited)			
60039: Pevely-----	Moderately limited		Very limited		Very limited		Moderately limited		Slightly limited	
	~slope	0.45	~hard bedrock <40"	1.00	~slope	1.00	~shrink-swell	0.45	~depth to bedrock	0.09
	(moderately limited)		(very limited)		(very limited)		(moderately limited)		(slightly limited)	
	~shrink-swell	0.45	~wetness	0.99	~shrink-swell	0.45	~low strength	0.22	~slope	0.04
	(moderately limited)		(limited)		(moderately limited)		(slightly limited)		(slightly limited)	
	~hard bedrock	0.18	~slope	0.45	~depth to bedrock	0.18	~depth to bedrock	0.18		
	(slightly limited)		(moderately limited)		(slightly limited)		(slightly limited)			
60040: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	0.45	~slope	1.00	~shrink-swell	0.45	~shrink-swell	0.45	~depth to bedrock	0.09
	(moderately limited)		(very limited)		(moderately limited)		(moderately limited)		(slightly limited)	
	~hard bedrock	0.18	~wetness	0.99	~depth to bedrock	0.18	~low strength	0.22		
	(slightly limited)		(limited)		(slightly limited)		(slightly limited)			
60041: Brussels-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large stones	1.00	~large stones	1.00	~slope	1.00	~low strength	1.00	~large stones >30%	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~large stones	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~large stones	1.00	~too clayey	0.60
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)		(moderately limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042, 60043: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~low strength	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~slope	1.00		
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)			
							~shrink-swell	0.45		
							(moderately limited)			

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60044: Minnith-----	Moderately limited ~shrink-swell (moderately limited)	0.45	Limited ~wetness (limited) ~shrink-swell (slightly limited)	0.95	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.68	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00	Not limited	
60045: Minnith-----	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.76	Limited ~wetness (limited) ~slope (limited) ~shrink-swell (slightly limited)	0.95	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~low strength (very limited) ~slope (limited) ~shrink-swell (moderately limited)	1.00	Limited ~slope (limited)	0.63
60046: Minnith-----	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited) ~wetness (limited) ~shrink-swell (slightly limited)	1.00	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited) ~low strength (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited)	1.00
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited ~slope (limited) ~shrink-swell (moderately limited)	0.76	Limited ~slope (limited) ~wetness (moderately limited) ~shrink-swell (moderately limited)	0.76	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~low strength (very limited) ~slope (limited) ~shrink-swell (moderately limited)	1.00	Limited ~slope (limited) ~too acid (slightly limited)	0.63
60048: Weingarten-----	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited) ~low strength (very limited) ~shrink-swell (moderately limited)	1.00	Very limited ~slope (very limited)	1.00

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60049:										
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.15	Very limited ~low strength (very limited)	1.00	Not limited	
60050:										
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20
64007:										
Freeburg-----	Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.68 0.45	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (slightly limited)	1.00 1.00 0.30	Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.68 0.45	Very limited ~low strength (very limited) ~flooding (very limited) ~wetness (limited)	1.00 1.00 0.68	Limited ~wetness (limited) ~flooding (moderately limited)	0.68 0.60
64008:										
Freeburg-----	Limited ~wetness (limited) ~shrink-swell (moderately limited)	0.68 0.45	Very limited ~wetness (very limited) ~shrink-swell (slightly limited)	1.00 0.30	Limited ~wetness (limited) ~shrink-swell (moderately limited)	0.68 0.45	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.68 0.45	Limited ~wetness (limited)	0.68
64009:										
Freeburg-----	Limited ~wetness (limited) ~shrink-swell (moderately limited) ~slope (slightly limited)	0.68 0.45 0.15	Very limited ~wetness (very limited) ~shrink-swell (slightly limited) ~slope (slightly limited)	1.00 0.30 0.15	Limited ~slope (limited) ~wetness (limited) ~shrink-swell (moderately limited)	0.83 0.68 0.45	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.68 0.45	Limited ~wetness (limited)	0.68

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66000:										
Moniteau-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~flooding	1.00	~flooding	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	1.00	~wetness	1.00	~wetness	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.37	~shrink-swell	0.45	~low strength	1.00		
	(moderately limited)		(moderately limited)		(moderately limited)		(very limited)			
66014:										
Haymond-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
66020:										
Haynie-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
66024:										
Wilbur-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	0.60	~wetness	1.00	~wetness	0.60	~wetness	0.60	~wetness	0.60
	(limited)		(very limited)		(limited)		(limited)		(limited)	
66050:										
Tice-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	0.45	~wetness	1.00	~wetness	0.45	~low strength	1.00	~too clayey	0.60
	(moderately limited)		(very limited)		(moderately limited)		(very limited)		(moderately limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~wetness	0.45	~wetness	0.45
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
66051:										
Perche-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~wetness	0.09	~wetness	1.00	~wetness	0.09	~wetness	0.09	~wetness	0.09
	(slightly limited)		(very limited)		(slightly limited)		(slightly limited)		(slightly limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66052:										
Waldron-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~low strength	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~wetness	1.00	~shrink-swell	1.00	~flooding	1.00	~too clayey	0.60
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~wetness	0.28	~shrink-swell	1.00	~wetness	0.28	~shrink-swell	1.00	~wetness	0.28
	(slightly limited)		(very limited)		(slightly limited)		(very limited)		(slightly limited)	
66053:										
Fishpot-----	Moderately limited		Limited		Moderately limited		Very limited		Not limited	
	~shrink-swell	0.45	~wetness	0.82	~shrink-swell	0.45	~low strength	1.00		
	(moderately limited)		(limited)		(moderately limited)		(very limited)			
			~shrink-swell	0.45			~shrink-swell	0.45		
			(moderately limited)				(moderately limited)			
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046:										
Wrengart-----	Moderately limited		Very limited		Limited		Very limited		Slightly limited	
	~shrink-swell	0.45	~wetness	1.00	~slope	0.68	~low strength	1.00	~wetness	0.04
	(moderately limited)		(very limited)		(limited)		(very limited)		(slightly limited)	
	~wetness	0.04	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45		
	(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)			
					~wetness	0.04	~wetness	0.04		
					(slightly limited)		(slightly limited)			
73090:										
Useful-----	Very limited		Very limited		Very limited		Very limited		Not limited	
	~shrink-swell	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~low strength	1.00		
	(very limited)		(very limited)		(very limited)		(very limited)			
			~wetness	0.99	~slope	0.68	~shrink-swell	1.00		
			(limited)		(limited)		(very limited)			
			~depth to bedrock	0.35						
			(moderately limited)							
73200:										
Sonsac-----	Very limited		Very limited		Very limited		Very limited		Moderately limited	
	~shrink-swell	1.00	~hard bedrock <40"	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~small stones	0.30
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~hard bedrock	0.44	~shrink-swell	1.00	~slope	0.99	~depth to bedrock	0.44	~depth to bedrock	0.29
	(moderately limited)		(very limited)		(limited)		(moderately limited)		(slightly limited)	
	~slope	0.30	~slope	0.30	~depth to bedrock	0.44			~too acid	0.24
	(moderately limited)		(moderately limited)		(moderately limited)				(slightly limited)	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73201: Sonsac-----	Very limited ~shrink-swell (very limited) ~slope (very limited) ~hard bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~hard bedrock <40" (very limited) ~shrink-swell (very limited) ~slope (very limited)	 1.00 1.00 1.00	Very limited ~slope (very limited) ~shrink-swell (very limited) ~depth to bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~slope (very limited) ~shrink-swell (very limited) ~depth to bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~slope (very limited) ~small stones (moderately limited) ~depth to bedrock (slightly limited)	 1.00 0.30 0.29
73202: Rueter-----	Moderately limited ~slope (moderately limited)	 0.45	Moderately limited ~slope (moderately limited)	 0.45	Very limited ~slope (very limited)	 1.00	Slightly limited ~slope (slightly limited)	 0.04	Moderately limited ~large stones (moderately limited) ~small stones (moderately limited) ~too acid (slightly limited)	 0.48 0.44 0.24
73203: Rueter-----	Very limited ~slope (very limited)	 1.00	Very limited ~slope (very limited)	 1.00	Very limited ~slope (very limited)	 1.00	Very limited ~slope (very limited)	 1.00	Very limited ~slope (very limited) ~large stones (moderately limited) ~small stones (moderately limited)	 1.00 0.48 0.44
Sonsac-----	Very limited ~shrink-swell (very limited) ~slope (very limited) ~hard bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~hard bedrock <40" (very limited) ~shrink-swell (very limited) ~slope (very limited)	 1.00 1.00 1.00	Very limited ~slope (very limited) ~shrink-swell (very limited) ~depth to bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~slope (very limited) ~shrink-swell (very limited) ~depth to bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~slope (very limited) ~small stones (moderately limited) ~depth to bedrock (slightly limited)	 1.00 0.30 0.29
73204: Ramsey-----	Very limited ~hard bedrock <20" (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~hard bedrock <40" (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~hard bedrock <20" (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~hard bedrock <20" (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited) ~slope (very limited)	 1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73205: Useful-----	Very limited ~shrink-swell (very limited) ~slope (limited)	1.00 0.76	Very limited ~shrink-swell (very limited) ~wetness (limited) ~slope (limited)	1.00 0.99 0.76	Very limited ~slope (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~low strength (very limited) ~shrink-swell (very limited) ~slope (limited)	1.00 1.00 0.63	Limited ~slope (limited)	0.63
73206: Useful-----	Very limited ~shrink-swell (very limited) ~slope (very limited)	1.00 1.00	Very limited ~shrink-swell (very limited) ~slope (very limited) ~wetness (limited)	1.00 1.00 0.99	Very limited ~slope (very limited) ~shrink-swell (very limited)	1.00 1.00	Very limited ~low strength (very limited) ~slope (very limited) ~shrink-swell (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited)	1.00
73207: Caneyville-----	Moderately limited ~shrink-swell (moderately limited) ~hard bedrock (moderately limited)	0.45 0.39	Very limited ~hard bedrock <40" (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Limited ~slope (limited) ~shrink-swell (moderately limited) ~depth to bedrock (moderately limited)	0.68 0.45 0.39	Very limited ~low strength (very limited) ~shrink-swell (moderately limited) ~depth to bedrock (moderately limited)	1.00 0.45 0.39	Slightly limited ~depth to bedrock (slightly limited)	0.24
73208: Caneyville-----	Limited ~slope (limited) ~hard bedrock (moderately limited) ~shrink-swell (moderately limited)	0.76 0.33 0.30	Very limited ~hard bedrock <40" (very limited) ~slope (limited) ~shrink-swell (moderately limited)	1.00 0.76 0.30	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	1.00 0.33 0.30	Very limited ~low strength (very limited) ~slope (limited) ~depth to bedrock (moderately limited)	1.00 0.63 0.33	Limited ~slope (limited) ~depth to bedrock (slightly limited)	0.63 0.18
73209: Caneyville-----	Very limited ~slope (very limited) ~hard bedrock (moderately limited) ~shrink-swell (moderately limited)	1.00 0.33 0.30	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~shrink-swell (moderately limited)	1.00 1.00 0.30	Very limited ~slope (very limited) ~depth to bedrock (moderately limited) ~shrink-swell (moderately limited)	1.00 0.33 0.30	Very limited ~low strength (very limited) ~slope (very limited) ~depth to bedrock (moderately limited)	1.00 1.00 0.33	Very limited ~slope (very limited) ~depth to bedrock (slightly limited)	1.00 0.18

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73210: Goss-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.70	~large stones	0.70	~large stones	0.70	~large stones	0.70	~large stones	0.99
	(limited)		(limited)		(limited)		(limited)		(limited)	
	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~shrink-swell	0.45	~small stones	0.37
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)	
73211: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~hard bedrock <20"	1.00	~hard bedrock <40"	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~shrink-swell	1.00	~slope	1.00	~shrink-swell	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.45	~slope	0.45	~shrink-swell	1.00	~slope	0.04	~too clayey	1.00
	(moderately limited)		(moderately limited)		(very limited)		(slightly limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~hard bedrock <20"	1.00	~hard bedrock <40"	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~shrink-swell	1.00	~shrink-swell	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~slope	1.00	~shrink-swell	1.00	~shrink-swell	1.00	~bedrock <20 in.	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73213: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~hard bedrock <20"	1.00	~hard bedrock <40"	1.00	~hard bedrock <20"	1.00	~hard bedrock <20"	1.00	~droughty	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.45	~slope	0.45	~slope	1.00	~large stones	0.16	~bedrock <20 in.	1.00
	(moderately limited)		(moderately limited)		(very limited)		(slightly limited)		(very limited)	
	~large stones	0.16	~large stones	0.16	~large stones	0.16	~slope	0.04	~small stones	0.27
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73214: Moko-----	Very limited ~hard bedrock <20" (very limited) ~slope (very limited) ~large stones (slightly limited)	 1.00 1.00 0.16	Very limited ~hard bedrock <40" (very limited) ~slope (very limited) ~large stones (slightly limited)	 1.00 1.00 0.16	Very limited ~slope (very limited) ~hard bedrock <20" (very limited) ~large stones (slightly limited)	 1.00 1.00 0.16	Very limited ~slope (very limited) ~hard bedrock <20" (very limited) ~large stones (slightly limited)	 1.00 1.00 0.16	Very limited ~slope (very limited) ~droughty (very limited) ~bedrock <20 in. (very limited)	 1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Not limited		Not limited		Limited ~slope (limited)	0.68	Very limited ~low strength (very limited)	1.00	Not limited	
73216: Crider-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Very limited ~slope (very limited)	1.00	Very limited ~low strength (very limited) ~slope (limited)	1.00 0.63	Limited ~slope (limited)	0.63
73217: Useful-----	Very limited ~shrink-swell (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~shrink-swell (very limited) ~slope (very limited) ~wetness (limited)	 1.00 1.00 0.99	Very limited ~slope (very limited) ~shrink-swell (very limited)	 1.00 1.00	Very limited ~low strength (very limited) ~slope (very limited) ~shrink-swell (very limited)	 1.00 1.00 1.00	Very limited ~slope (very limited)	 1.00
Sonsac-----	Very limited ~shrink-swell (very limited) ~slope (very limited) ~hard bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~hard bedrock <40" (very limited) ~shrink-swell (very limited) ~slope (very limited)	 1.00 1.00 1.00	Very limited ~slope (very limited) ~shrink-swell (very limited) ~depth to bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~slope (very limited) ~shrink-swell (very limited) ~depth to bedrock (moderately limited)	 1.00 1.00 0.44	Very limited ~slope (very limited) ~small stones (moderately limited) ~depth to bedrock (slightly limited)	 1.00 0.30 0.29
73218: Tiff-----	Moderately limited ~slope (moderately limited) ~shrink-swell (moderately limited) ~large stones (slightly limited)	 0.60 0.45 0.10	Moderately limited ~slope (moderately limited) ~shrink-swell (moderately limited) ~large stones (slightly limited)	 0.60 0.45 0.10	Very limited ~slope (very limited) ~shrink-swell (moderately limited) ~large stones (slightly limited)	 1.00 0.45 0.10	Very limited ~low strength (very limited) ~shrink-swell (moderately limited) ~slope (slightly limited)	 1.00 0.45 0.16	Very limited ~too clayey (very limited) ~small stones (moderately limited) ~droughty (slightly limited)	 1.00 0.48 0.24

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73219: Rueter-----	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~large stones (moderately limited) ~small stones (moderately limited)	1.00 0.48 0.44
74644: Deible-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20
74675: Horsecreek-----	Not limited		Not limited		Not limited		Very limited ~low strength (very limited)	1.00	Not limited	
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Limited ~wetness (limited) ~shrink-swell (moderately limited)	0.68 0.45	Very limited ~wetness (very limited) ~shrink-swell (slightly limited)	1.00 0.30	Limited ~wetness (limited) ~shrink-swell (moderately limited)	0.68 0.45	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.68 0.45	Limited ~wetness (limited)	0.68
75375: Horsecreek-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~low strength (very limited)	1.00 1.00	Moderately limited ~flooding (moderately limited)	0.60

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75385: Gabriel-----	Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.86 0.45	Very limited ~flooding (very limited) ~wetness (very limited) ~shrink-swell (moderately limited)	1.00 1.00 0.37	Very limited ~flooding (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 1.00 0.86 0.45	Very limited ~flooding (very limited) ~low strength (very limited) ~wetness (limited)	1.00 1.00 1.00 0.86	Limited ~wetness (limited) ~flooding (moderately limited)	0.86 0.60
75390: Razort-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Limited ~flooding (rare) (limited)	0.90	Not limited	
75398: Kaintuck-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00
75450: Bloomsdale-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~shrink-swell (slightly limited)	1.00 0.07	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00
75452: Gladden-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00
75453: Sturkie-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~low strength (very limited)	1.00 1.00	Moderately limited ~flooding (moderately limited)	0.60
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Limited ~flooding (rare) (limited)	0.90	Not limited	

Table 12.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.15	Very limited ~low strength (very limited)	1.00	Not limited	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Sanitary Facilities

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003: Menfro-----	Limited ~slope (limited) ~percs slowly (slightly limited)	0.63 0.25	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Limited ~slope (limited) ~too clayey (slightly limited)	0.63 0.19	Limited ~slope (limited)	0.63	Limited ~slope (limited) ~too clayey (slightly limited)	0.63 0.06
60024: Menfro-----	Slightly limited ~percs slowly (slightly limited)	0.25	Limited ~slope (limited) ~seepage (moderately limited)	0.91 0.50	Slightly limited ~too clayey (slightly limited)	0.20	Not limited		Slightly limited ~too clayey (slightly limited)	0.07
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited ~percs slowly (limited) ~wetness (moderately limited)	0.76 0.57	Limited ~slope (limited) ~wetness (limited) ~seepage (moderately limited)	0.91 0.60 0.50	Slightly limited ~wetness (slightly limited) ~too acid (slightly limited) ~too clayey (slightly limited)	0.29 0.12 0.11	Not limited		Slightly limited ~too acid (slightly limited)	0.12
60037: Wrengart-----	Very limited ~wetness (very limited) ~percs slowly (limited) ~slope (limited)	1.00 0.71 0.63	Very limited ~slope (very limited) ~wetness (very limited) ~seepage (moderately limited)	1.00 1.00 0.50	Limited ~wetness (limited) ~slope (limited) ~too clayey (slightly limited)	0.82 0.63 0.23	Limited ~slope (limited) ~wetness (limited)	0.63 0.63	Limited ~slope (limited) ~wetness (moderately limited) ~too clayey (slightly limited)	0.63 0.41 0.09
60038: Pevely-----	Very limited ~depth to bedrock (very limited) ~wetness (very limited) ~slope (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~wetness (very limited) ~seepage (very limited)	1.00 1.00 1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~seepage (very limited)	1.00 1.00 1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~seepage (very limited)	1.00 1.00 1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~wetness (moderately limited)	1.00 1.00 0.37

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60038: Holstein-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~percs slowly	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~seepage	0.50	~too clayey	0.27			~too acid	0.18
	(very limited)		(moderately limited)		(slightly limited)				(slightly limited)	
					~too acid	0.18			~too clayey	0.12
					(slightly limited)				(slightly limited)	
60039: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~seepage	1.00	~seepage	1.00	~seepage	1.00	~wetness	0.37
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
	~poor filter	1.00	~depth to bedrock	1.00	~wetness	0.73	~wetness	0.50	~too acid	0.24
	(very limited)		(very limited)		(limited)		(moderately limited)		(slightly limited)	
60040: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~wetness	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~seepage	1.00	~seepage	1.00	~seepage	1.00	~wetness	0.37
	(very limited)		(very limited)		(very limited)		(very limited)		(moderately limited)	
60041: Brussels-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	1.00	~large stones	1.00	~large stones	1.00			~large stones >35%	1.00
	(very limited)		(very limited)		(very limited)				(very limited)	
	~percs slowly	0.71			~too clayey	0.65			~too clayey	0.38
	(limited)				(limited)				(moderately limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too clayey	0.09				
	(slightly limited)		(moderately limited)		(slightly limited)					

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60043: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	0.50	~too acid	0.18			~too acid	0.18
	(slightly limited)		(moderately limited)		(slightly limited)				(slightly limited)	
					~too clayey	0.09				
					(slightly limited)					
60044: Minnith-----	Limited		Very limited		Limited		Limited		Moderately limited	
	~wetness	0.99	~seepage	1.00	~seepage	0.74	~seepage	0.70	~seepage	0.31
	(limited)		(very limited)		(limited)		(limited)		(moderately limited)	
	~percs slowly	0.30	~slope	0.91	~wetness	0.60	~wetness	0.30	~wetness	0.30
	(slightly limited)		(limited)		(moderately limited)		(slightly limited)		(moderately limited)	
			~wetness	0.69	~too clayey	0.04				
			(limited)		(slightly limited)					
60045: Minnith-----	Limited		Very limited		Limited		Limited		Limited	
	~wetness	0.99	~slope	1.00	~seepage	0.74	~seepage	0.70	~slope	0.63
	(limited)		(very limited)		(limited)		(limited)		(limited)	
	~slope	0.63	~seepage	1.00	~slope	0.63	~slope	0.63	~seepage	0.31
	(limited)		(very limited)		(limited)		(limited)		(moderately limited)	
	~percs slowly	0.30	~wetness	0.69	~wetness	0.60	~wetness	0.30	~wetness	0.30
	(slightly limited)		(limited)		(moderately limited)		(slightly limited)		(moderately limited)	
60046: Minnith-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	0.99	~seepage	1.00	~seepage	0.74	~seepage	0.70	~seepage	0.31
	(limited)		(very limited)		(limited)		(limited)		(moderately limited)	
	~percs slowly	0.30	~wetness	0.69	~wetness	0.60	~wetness	0.30	~wetness	0.30
	(slightly limited)		(limited)		(moderately limited)		(slightly limited)		(moderately limited)	
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited		Very limited		Limited		Limited		Limited	
	~percs slowly	0.76	~slope	1.00	~slope	0.63	~slope	0.63	~slope	0.63
	(limited)		(very limited)		(limited)		(limited)		(limited)	
	~slope	0.63	~wetness	0.60	~wetness	0.29			~too acid	0.12
	(limited)		(limited)		(slightly limited)				(slightly limited)	
	~wetness	0.57	~seepage	0.50	~too acid	0.12				
	(moderately limited)		(moderately limited)		(slightly limited)					

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60048: Weingarten-----	Very limited ~slope (very limited) ~percs slowly (limited)	1.00 0.71	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited) ~too acid (slightly limited) ~too clayey (slightly limited)	1.00 0.24 0.23	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~too acid (slightly limited) ~too clayey (slightly limited)	1.00 0.24 0.09
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Slightly limited ~percs slowly (slightly limited)	0.25	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	0.50 0.31	Not limited		Not limited		Not limited	
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too clayey (limited)	1.00 0.80	Very limited ~wetness (very limited)	1.00	Very limited ~wetness (very limited) ~too clayey (moderately limited)	1.00 0.60
64007: Freeburg-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00 1.00 0.71	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~too clayey (slightly limited)	1.00 1.00 0.11	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Limited ~wetness (limited)	0.68
64008: Freeburg-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00 0.71	Very limited ~wetness (very limited) ~slope (slightly limited)	1.00 0.08	Very limited ~wetness (very limited) ~too clayey (slightly limited)	1.00 0.11	Very limited ~wetness (very limited)	1.00	Limited ~wetness (limited)	0.68

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
64009: Freeburg-----	Very limited ~wetness (very limited) ~percs slowly (limited)	 1.00 0.71	Very limited ~wetness (very limited) ~slope (very limited)	 1.00 1.00	Very limited ~wetness (very limited) ~too clayey (slightly limited)	 1.00 0.11	Very limited ~wetness (very limited)	 1.00	Limited ~wetness (limited)	 0.68
66000: Moniteau-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	 1.00 1.00 0.71	Very limited ~flooding (very limited) ~wetness (very limited)	 1.00 1.00	Very limited ~wetness (very limited) ~flooding (very limited) ~too acid (slightly limited)	 1.00 1.00 0.24	Very limited ~flooding (very limited) ~wetness (very limited)	 1.00 1.00	Very limited ~wetness (very limited) ~too acid (slightly limited)	 1.00 0.24
66014: Haymond-----	Very limited ~flooding (very limited) ~poor filter (very limited) ~percs slowly (slightly limited)	 1.00 1.00 0.25	Very limited ~flooding (very limited) ~seepage (very limited)	 1.00 1.00	Very limited ~flooding (very limited) ~seepage (very limited)	 1.00 1.00	Very limited ~flooding (very limited)	 1.00	Not limited	
66020: Haynie-----	Very limited ~flooding (very limited) ~percs slowly (slightly limited)	 1.00 0.25	Very limited ~flooding (very limited) ~seepage (moderately limited)	 1.00 0.50	Very limited ~flooding (very limited)	 1.00	Very limited ~flooding (very limited)	 1.00	Not limited	
66024: Wilbur-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (slightly limited)	 1.00 1.00 0.25	Very limited ~flooding (very limited) ~wetness (very limited) ~seepage (moderately limited)	 1.00 1.00 0.50	Very limited ~flooding (very limited) ~wetness (very limited)	 1.00 1.00	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.99	Moderately limited ~wetness (moderately limited)	 0.60

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66050: Tice-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 1.00 0.25	Very limited ~flooding (very limited) ~wetness (very limited) ~seepage (moderately limited)	 1.00 1.00 0.50	Very limited ~flooding (very limited) ~wetness (very limited) ~too clayey (slightly limited)	 1.00 1.00 0.11	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.90	Moderately limited ~wetness (moderately limited)	 0.55
66051: Perche-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 1.00 0.25	Very limited ~flooding (very limited) ~wetness (very limited) ~seepage (moderately limited)	 1.00 1.00 0.50	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.86	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.66	Moderately limited ~wetness (moderately limited)	 0.43
66052: Waldron-----	Very limited ~flooding (very limited) ~wetness (very limited) ~percs slowly (limited)	 1.00 1.00 0.93	Very limited ~flooding (very limited) ~wetness (very limited)	 1.00 1.00	Very limited ~flooding (very limited) ~wetness (limited) ~too clayey (limited)	 1.00 0.99 0.65	Very limited ~flooding (very limited) ~wetness (limited)	 1.00 0.80	Limited ~hard to pack (limited) ~wetness (moderately limited) ~too clayey (moderately limited)	 0.70 0.50 0.38
66053: Fishpot-----	Limited ~wetness (limited) ~percs slowly (limited)	 0.79 0.71	Very limited ~wetness (very limited)	 1.00	Moderately limited ~wetness (moderately limited)	 0.45	Slightly limited ~wetness (slightly limited)	 0.15	Not limited	
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Very limited ~wetness (very limited) ~percs slowly (slightly limited)	 1.00 0.25	Very limited ~wetness (very limited) ~slope (limited) ~seepage (moderately limited)	 1.00 0.91 0.50	Very limited ~too clayey (very limited) ~wetness (limited)	 1.00 0.82	Limited ~wetness (limited)	 0.63	Moderately limited ~wetness (moderately limited) ~too clayey (slightly limited)	 0.41 0.08

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73090: Useful-----	Very limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~wetness	0.44	~too clayey	0.51
	(very limited)		(very limited)		(very limited)		(moderately limited)		(moderately limited)	
	~percs slowly	0.71	~slope	0.91	~too clayey	0.74	~depth to bedrock	0.10	~wetness	0.35
	(limited)		(limited)		(limited)		(slightly limited)		(moderately limited)	
	~depth to bedrock	0.35	~seepage	0.50	~wetness	0.69			~too acid	0.12
	(moderately limited)		(moderately limited)		(limited)				(slightly limited)	
73200: Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~slope	1.00	~too clayey	1.00			~small stones >35%	1.00
			(very limited)		(limited)				(very limited)	
									~too clayey	0.99
									(limited)	
73201: Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	1.00			~small stones >35%	1.00
					(limited)				(very limited)	
73202: Rueter-----	Slightly limited		Very limited		Very limited		Limited		Very limited	
	~percs slowly	0.25	~seepage	1.00	~too clayey	1.00	~seepage	0.75	~small stones >35%	1.00
	(slightly limited)		(very limited)		(very limited)		(limited)		(very limited)	
	~slope	0.04	~slope	1.00	~too acid	0.30	~slope	0.04	~too clayey	1.00
	(slightly limited)		(very limited)		(slightly limited)		(slightly limited)		(very limited)	
					~slope	0.04			~seepage	0.50
					(slightly limited)				(moderately limited)	
73203: Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	1.00	~too clayey	1.00	~seepage	0.75	~small stones >35%	1.00
	(slightly limited)		(very limited)		(very limited)		(limited)		(very limited)	
					~too acid	0.30			~too clayey	1.00
					(slightly limited)				(very limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73203: Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	1.00			~small stones >35%	1.00
					(limited)				(very limited)	
73204: Ramsey-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~slope	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~seepage	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~depth to bedrock	1.00	~seepage	1.00	~slope	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~slope	1.00			~slope	1.00
					(very limited)				(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Very limited		Very limited		Very limited		Limited		Limited	
	~wetness	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	0.63	~slope	0.63
	(very limited)		(very limited)		(very limited)		(limited)		(limited)	
	~percs slowly	0.71	~wetness	1.00	~too clayey	0.74	~wetness	0.44	~too clayey	0.51
	(limited)		(very limited)		(limited)		(moderately limited)		(moderately limited)	
	~slope	0.63	~seepage	0.50	~wetness	0.69	~depth to bedrock	0.10	~wetness	0.35
	(limited)		(moderately limited)		(limited)		(slightly limited)		(moderately limited)	
73206: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	1.00	~wetness	1.00	~depth to bedrock	1.00	~wetness	0.44	~too clayey	0.51
	(very limited)		(very limited)		(very limited)		(moderately limited)		(moderately limited)	
	~percs slowly	0.71	~seepage	0.50	~too clayey	0.74	~depth to bedrock	0.10	~wetness	0.35
	(limited)		(moderately limited)		(limited)		(slightly limited)		(moderately limited)	
73207: Caneyville----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.71	~slope	0.91	~too clayey	0.84			~hard to pack	0.70
	(limited)		(limited)		(limited)				(limited)	
									~too clayey	0.68
									(limited)	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73208: Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.71	~depth to bedrock (very limited)	1.00	~too clayey (limited)	0.96	~slope (limited)	0.63	~too clayey (limited)	0.91
	~slope (limited)	0.63			~slope (limited)	0.63			~hard to pack (limited)	0.70
73209: Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~percs slowly (limited)	0.71			~too clayey (limited)	0.96			~too clayey (limited)	0.91
73210: Goss-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (limited)	0.70	~large stones (limited)	0.83	~too clayey (very limited)	1.00			~too clayey (very limited)	1.00
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.50	~large stones (limited)	0.86			~large stones (limited)	0.72
73211: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (slightly limited)	0.04	~slope (very limited)	1.00	~too clayey (limited)	0.82	~slope (slightly limited)	0.04	~hard to pack (limited)	0.70
					~slope (slightly limited)	0.04			~small stones (limited)	0.64
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
					~too acid (very limited)	1.00			~too acid (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73213: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~large stones (slightly limited)	0.16	~slope (very limited)	1.00	~slope (slightly limited)	0.04	~slope (slightly limited)	0.04	~slope (slightly limited)	0.04
	~slope (slightly limited)	0.04	~large stones (slightly limited)	0.08					~large stones (slightly limited)	0.08
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73214: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.16	~large stones (slightly limited)	0.08					~large stones (slightly limited)	0.08
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Slightly limited		Limited		Moderately limited		Not limited		Slightly limited	
	~percs slowly (slightly limited)	0.25	~slope (limited)	0.91	~too clayey (moderately limited)	0.54			~too clayey (slightly limited)	0.27
			~seepage (moderately limited)	0.50						
73216: Crider-----	Limited		Very limited		Limited		Limited		Limited	
	~slope (limited)	0.63	~slope (very limited)	1.00	~slope (limited)	0.63	~slope (limited)	0.63	~slope (limited)	0.63
	~percs slowly (slightly limited)	0.25	~seepage (moderately limited)	0.50	~too clayey (moderately limited)	0.54			~too clayey (slightly limited)	0.27
73217: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~wetness (very limited)	1.00	~wetness (very limited)	1.00	~depth to bedrock (very limited)	1.00	~wetness (moderately limited)	0.44	~too clayey (moderately limited)	0.51
	~percs slowly (limited)	0.71	~seepage (moderately limited)	0.50	~too clayey (limited)	0.74	~depth to bedrock (slightly limited)	0.10	~wetness (moderately limited)	0.35

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73217: Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	1.00			~small stones >35%	1.00
					(limited)				(very limited)	
73218: Tiff-----	Limited		Very limited		Limited		Slightly limited		Limited	
	~percs slowly	0.73	~slope	1.00	~too clayey	1.00	~slope	0.16	~too clayey	0.99
	(limited)		(very limited)		(limited)		(slightly limited)		(limited)	
	~slope	0.16	~large stones	0.18	~slope	0.16			~hard to pack	0.70
	(slightly limited)		(slightly limited)		(slightly limited)				(limited)	
	~large stones	0.10			~large stones	0.13			~slope	0.16
	(slightly limited)				(slightly limited)				(slightly limited)	
73219: Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.25	~seepage	1.00	~too clayey	1.00	~seepage	0.75	~small stones >35%	1.00
	(slightly limited)		(very limited)		(very limited)		(limited)		(very limited)	
					~too acid	0.30			~too clayey	1.00
					(slightly limited)				(very limited)	
74644: Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
					~too clayey	0.80			~too clayey	0.60
					(limited)				(moderately limited)	
74675: Horsecreek-----	Slightly limited		Moderately limited		Not limited		Not limited		Not limited	
	~percs slowly	0.25	~seepage	0.50						
	(slightly limited)		(moderately limited)							
			~slope	0.08						
			(slightly limited)							
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74676: Freeburg-----	Very limited ~wetness (very limited) ~percs slowly (limited)	1.00 0.71	Very limited ~wetness (very limited) ~slope (slightly limited)	1.00 0.08	Very limited ~wetness (very limited) ~too clayey (slightly limited)	1.00 0.11	Very limited ~wetness (very limited)	1.00	Limited ~wetness (limited)	0.68
75375: Horsecreek-----	Very limited ~flooding (very limited) ~percs slowly (slightly limited)	1.00 0.25	Very limited ~flooding (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Not limited	
75385: Gabriel-----	Very limited ~wetness (very limited) ~flooding (very limited) ~percs slowly (limited)	1.00 1.00 0.71	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~wetness (very limited) ~too clayey (slightly limited)	1.00 1.00 0.04	Very limited ~flooding (very limited) ~wetness (very limited)	1.00 1.00	Limited ~wetness (limited)	0.86
75390: Razort-----	Moderately limited ~flooding (rare) (moderately limited) ~percs slowly (slightly limited)	0.60 0.25	Very limited ~seepage (very limited)	1.00	Limited ~seepage (limited) ~flooding (rare) (moderately limited)	0.79 0.60	Limited ~seepage (limited) ~flooding (rare) (moderately limited)	0.75 0.60	Moderately limited ~seepage (moderately limited) ~small stones (slightly limited)	0.50 0.01
75398: Kaintuck-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited) ~seepage (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~seepage (limited)	1.00 0.79	Very limited ~flooding (very limited) ~seepage (limited)	1.00 0.75	Moderately limited ~seepage (moderately limited)	0.50
75450: Bloomsdale-----	Very limited ~flooding (very limited) ~percs slowly (slightly limited)	1.00 0.25	Very limited ~flooding (very limited) ~seepage (very limited)	1.00 1.00	Very limited ~flooding (very limited) ~too clayey (slightly limited) ~large stones (slightly limited)	1.00 0.11 0.08	Very limited ~flooding (very limited) ~seepage (limited)	1.00 0.75	Moderately limited ~small stones (moderately limited)	0.49

Table 13.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption field		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75452: Gladden-----	Very limited ~flooding (very limited) ~poor filter (very limited) ~percs slowly (slightly limited)	1.00 1.00 1.00 0.25	Very limited ~flooding (very limited) ~seepage (very limited)	1.00 1.00 1.00	Very limited ~flooding (very limited) ~seepage (very limited)	1.00 1.00 1.00	Very limited ~flooding (very limited)	1.00	Very limited ~seepage (very limited)	1.00
75453: Sturkie-----	Very limited ~flooding (very limited) ~percs slowly (slightly limited)	1.00 0.25	Very limited ~flooding (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Not limited	
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Moderately limited ~flooding (rare) (moderately limited) ~percs slowly (slightly limited)	0.60 0.25	Very limited ~seepage (very limited) ~slope (slightly limited)	1.00 0.08	Limited ~seepage (limited) ~flooding (rare) (moderately limited)	0.79 0.60	Limited ~seepage (limited) ~flooding (rare) (moderately limited)	0.75 0.60	Moderately limited ~seepage (moderately limited) ~small stones (slightly limited)	0.50 0.01
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Not limited		Very limited ~seepage (very limited) ~slope (moderately limited)	1.00 0.31	Not limited		Not limited		Not limited	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
60003: Menfro-----	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~slope (limited) ~too clayey (limited)	0.63 0.61	Limited ~slope (limited) ~cutbanks cave (slightly limited) ~too clayey (slightly limited)	0.63 0.29 0.06
60024: Menfro-----	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~too clayey (limited) ~too acid (slightly limited)	0.63 0.18	Slightly limited ~cutbanks cave (slightly limited) ~too clayey (slightly limited)	0.29 0.07
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Very limited ~low strength (very limited) ~shrink-swell (moderately limited)	1.00 0.45	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Moderately limited ~too clayey (moderately limited) ~too acid (slightly limited)	0.50 0.24	Moderately limited ~wetness (moderately limited) ~cutbanks cave (slightly limited)	0.56 0.29
60037: Wrengart-----	Very limited ~low strength (very limited) ~shrink-swell (moderately limited) ~wetness (slightly limited)	1.00 0.45 0.15	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer) ~small stones (bottom layer)	1.00 1.00 0.83	Limited ~excess fines (thickest layer) ~small stones (bottom layer) ~excess fines (bottom layer)	1.00 1.00 0.83 0.75	Limited ~too clayey (limited) ~slope (limited) ~wetness (slightly limited)	0.66 0.63 0.15	Very limited ~wetness (very limited) ~slope (limited) ~cutbanks cave (slightly limited)	1.00 0.63 0.29
60038: Pevely-----	Very limited ~depth to bedrock (very limited) ~slope (moderately limited) ~shrink-swell (slightly limited)	1.00 0.50 0.28	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Very limited ~slope (very limited) ~depth to bedrock (limited) ~too clayey (slightly limited)	1.00 0.62 0.25	Very limited ~cutbanks cave (very limited) ~hard bedrock <40" (very limited) ~slope (very limited)	1.00 1.00 1.00

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60038: Holstein-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (limited)	0.78	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (moderately limited)	0.50	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (moderately limited)	0.55	~cutbanks cave (slightly limited)	0.29
	~shrink-swell (moderately limited)	0.32					~too acid (slightly limited)	0.18	~too clayey (slightly limited)	0.12
60039: Pevely-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (limited)	0.62	~hard bedrock <40" (very limited)	1.00
	~shrink-swell (slightly limited)	0.28	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (slightly limited)	0.25	~wetness (limited)	0.99
	~low strength (slightly limited)	0.22					~too acid (slightly limited)	0.24	~cutbanks cave (slightly limited)	0.29
60040: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.92	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~depth to bedrock (limited)	0.62	~cutbanks cave (very limited)	1.00
	~shrink-swell (slightly limited)	0.28					~too clayey (slightly limited)	0.25	~hard bedrock <40" (very limited)	1.00
60041: Brussels-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~small stones (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (thickest layer)	1.00	~large stones >25% (very limited)	1.00	~large stones (very limited)	1.00
	~large stones (very limited)	1.00	~excess fines (bottom layer)	1.00	~small stones (bottom layer)	1.00	~too clayey (very limited)	1.00	~too clayey (moderately limited)	0.38
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (limited)	0.67	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (moderately limited)	0.46	~cutbanks cave (slightly limited)	0.29
	~shrink-swell (moderately limited)	0.45								

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
60043: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	0.46	~cutbanks cave	0.29
	(very limited)		(bottom layer)		(thickest layer)		(moderately limited)		(slightly limited)	
	~shrink-swell	0.45					~too acid	0.18		
	(moderately limited)						(slightly limited)			
60044: Minnith-----	Very limited		Very limited		Very limited		Moderately limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	0.33	~wetness	0.95
	(very limited)		(thickest layer)		(bottom layer)		(moderately limited)		(limited)	
	~shrink-swell	0.04	~excess fines	1.00	~excess fines	1.00	~too acid	0.24	~cutbanks cave	0.29
	(slightly limited)		(bottom layer)		(thickest layer)		(slightly limited)		(slightly limited)	
60045: Minnith-----	Very limited		Very limited		Very limited		Limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	0.63	~wetness	0.95
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(limited)	
	~shrink-swell	0.04	~excess fines	1.00	~excess fines	1.00	~too clayey	0.33	~slope	0.63
	(slightly limited)		(bottom layer)		(thickest layer)		(moderately limited)		(limited)	
							~too acid	0.24	~cutbanks cave	0.29
							(slightly limited)		(slightly limited)	
60046: Minnith-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	0.92	~excess fines	1.00	~excess fines	1.00	~too clayey	0.33	~wetness	0.95
	(limited)		(bottom layer)		(thickest layer)		(moderately limited)		(limited)	
	~shrink-swell	0.04					~too acid	0.24	~cutbanks cave	0.29
	(slightly limited)						(slightly limited)		(slightly limited)	
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Very limited		Very limited		Very limited		Limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	0.63	~slope	0.63
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(limited)	
	~shrink-swell	0.45	~excess fines	1.00	~excess fines	1.00	~too clayey	0.50	~wetness	0.56
	(moderately limited)		(bottom layer)		(thickest layer)		(moderately limited)		(moderately limited)	
							~too acid	0.24	~cutbanks cave	0.29
							(slightly limited)		(slightly limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60048: Weingarten-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(very limited)	
	~slope	1.00	~excess fines	1.00	~possible source	0.25	~too clayey	0.66	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.40					~too acid	0.24	~too clayey	0.09
	(moderately limited)						(slightly limited)		(slightly limited)	
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Very limited		Very limited		Very limited		Not limited		Slightly limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
	(very limited)		(thickest layer)		(bottom layer)				(slightly limited)	
			~excess fines	1.00	~excess fines	1.00				
			(bottom layer)		(thickest layer)					
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00			~too clayey	0.60
			(bottom layer)		(thickest layer)				(moderately limited)	
									~cutbanks cave	0.29
									(slightly limited)	
64007: Freeburg-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.91	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~wetness	0.91	~excess fines	1.00	~excess fines	1.00	~too clayey	0.50	~flooding	0.60
	(limited)		(bottom layer)		(thickest layer)		(moderately limited)		(moderately limited)	
	~shrink-swell	0.30					~too acid	0.36	~cutbanks cave	0.29
	(slightly limited)						(moderately limited)		(slightly limited)	
64008, 64009: Freeburg-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.91	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~wetness	0.91	~excess fines	1.00	~excess fines	1.00	~too clayey	0.50	~cutbanks cave	0.29
	(limited)		(bottom layer)		(thickest layer)		(moderately limited)		(slightly limited)	
	~shrink-swell	0.30					~too acid	0.36		
	(slightly limited)						(moderately limited)			

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66000: Moniteau-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	0.25	~flooding	0.60
	(very limited)		(bottom layer)		(thickest layer)		(slightly limited)		(moderately limited)	
	~shrink-swell	0.37					~too acid	0.24	~cutbanks cave	0.29
	(moderately limited)						(slightly limited)		(slightly limited)	
66014: Haymond-----	Not limited		Very limited		Very limited		Not limited		Moderately limited	
			~excess fines	1.00	~excess fines	1.00			~flooding	0.60
			(thickest layer)		(bottom layer)				(moderately limited)	
			~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
			(bottom layer)		(thickest layer)				(slightly limited)	
66020: Haynie-----	Not limited		Very limited		Very limited		Slightly limited		Moderately limited	
			~excess fines	1.00	~excess fines	1.00	~excess lime	0.03	~flooding	0.60
			(thickest layer)		(bottom layer)		(slightly limited)		(moderately limited)	
			~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
			(bottom layer)		(thickest layer)				(slightly limited)	
66024: Wilbur-----	Limited		Very limited		Very limited		Limited		Very limited	
	~wetness	0.86	~excess fines	1.00	~excess fines	1.00	~wetness	0.86	~wetness	1.00
	(limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00			~flooding	0.60
			(bottom layer)		(thickest layer)				(moderately limited)	
									~cutbanks cave	0.29
									(slightly limited)	
66050: Tice-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.71	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~wetness	0.71	~excess fines	1.00	~excess fines	1.00			~flooding	0.60
	(limited)		(bottom layer)		(thickest layer)				(moderately limited)	
	~shrink-swell	0.45							~cutbanks cave	0.29
	(moderately limited)								(slightly limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66051: Perche-----	Slightly limited		Very limited		Very limited		Slightly limited		Very limited	
	~wetness	0.21	~excess fines	1.00	~excess fines	1.00	~wetness	0.21	~cutbanks cave	1.00
	(slightly limited)		(thickest layer)		(bottom layer)		(slightly limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00	~too sandy	0.20	~wetness	1.00
			(bottom layer)		(thickest layer)		(slightly limited)		(very limited)	
									~flooding	0.60
									(moderately limited)	
66052: Waldron-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.48	~flooding	0.60
	(very limited)		(bottom layer)		(thickest layer)		(moderately limited)		(moderately limited)	
	~wetness	0.48							~too clayey	0.38
	(moderately limited)								(moderately limited)	
66053: Fishpot-----	Very limited		Very limited		Very limited		Not limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00			~wetness	0.82
	(very limited)		(thickest layer)		(bottom layer)				(limited)	
	~shrink-swell	0.45	~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
	(moderately limited)		(bottom layer)		(thickest layer)				(slightly limited)	
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	0.65	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(limited)		(very limited)	
	~shrink-swell	0.45	~excess fines	1.00	~excess fines	1.00	~wetness	0.15	~wetness	1.00
	(moderately limited)		(bottom layer)		(thickest layer)		(slightly limited)		(very limited)	
	~wetness	0.15							~too clayey	0.08
	(slightly limited)								(slightly limited)	
73090: Useful-----	Very limited		Very limited		Very limited		Slightly limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too acid	0.12	~wetness	0.99
	(very limited)		(thickest layer)		(bottom layer)		(slightly limited)		(limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	0.03	~too clayey	0.51
	(very limited)		(bottom layer)		(thickest layer)		(slightly limited)		(moderately limited)	
	~depth to bedrock	0.10							~depth to bedrock	0.35
	(slightly limited)								(moderately limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73200: Sonsac-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~possible source	0.42	~too clayey	1.00	~hard bedrock <40"	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~depth to bedrock	0.97	~too clayey	0.99
							(limited)		(limited)	
73201: Sonsac-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	1.00	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~too clayey	1.00	~hard bedrock <40"	1.00
	(very limited)						(very limited)		(very limited)	
73202: Rueter-----	Not limited		Very limited		Possible source		Very limited		Very limited	
			~excess fines	1.00	~possible source	0.50	~small stones	1.00	~cutbanks cave	1.00
			(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~possible source	0.25	~area reclaim	1.00	~too clayey	1.00
			(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~large stones	0.64	~slope	0.04
							(limited)		(slightly limited)	
73203: Rueter-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~possible source	0.50	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~possible source	0.25	~small stones	1.00	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~area reclaim	1.00	~too clayey	1.00
							(very limited)		(very limited)	
Sonsac-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	1.00	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~too clayey	1.00	~hard bedrock <40"	1.00
	(very limited)						(very limited)		(very limited)	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73204: Ramsey-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (thickest layer)	0.99	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
							~too sandy (limited)	0.87	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (limited)	0.63	~cutbanks cave (very limited)	1.00
	~shrink-swell (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (slightly limited)	0.12	~wetness (limited)	0.99
	~depth to bedrock (slightly limited)	0.10					~wetness (slightly limited)	0.03	~slope (limited)	0.63
73206: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (slightly limited)	0.12	~cutbanks cave (very limited)	1.00
	~shrink-swell (very limited)	1.00					~wetness (slightly limited)	0.03	~wetness (limited)	0.99
73207: Caneyville----	Very limited		Very limited		Very limited		Limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (limited)	0.89	~hard bedrock <40" (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (limited)	0.83	~too clayey (limited)	0.68
	~shrink-swell (moderately limited)	0.45							~cutbanks cave (slightly limited)	0.29
73208: Caneyville----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~small stones (very limited)	1.00	~cutbanks cave (very limited)	1.00
	~depth to bedrock (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~shrink-swell (moderately limited)	0.30					~depth to bedrock (limited)	0.79	~too clayey (limited)	0.91

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73209: Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~slope	0.67					~too clayey	1.00	~hard bedrock <40"	1.00
	(limited)						(very limited)		(very limited)	
73210: Goss-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~large stones	0.70	~excess fines	1.00	~small stones	0.83	~too clayey	1.00	~too clayey	1.00
	(limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	0.45	~small stones	0.83	~small stones	0.83	~large surface stones	1.00	~large stones	0.70
	(moderately limited)		(thickest layer)		(bottom layer)		(very limited)		(limited)	
73211: Gasconade-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~shrink-swell	1.00	~excess fines	1.00	~excess fines	0.99	~small stones	1.00	~too clayey	0.64
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(limited)	
							~large surface stones	1.00	~cutbanks cave	0.29
							(very limited)		(slightly limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Very limited		Very limited		Limited		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~depth to bedrock	1.00	~hard bedrock <40"	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	1.00	~excess fines	1.00	~excess fines	0.99	~slope	1.00	~slope	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~small stones	1.00	~too clayey	0.64
	(very limited)						(very limited)		(limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73213: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~large stones (slightly limited)	0.16	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
							~large surface stones (very limited)	1.00	~large stones (slightly limited)	0.16
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73214: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~depth to bedrock (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~depth to bedrock (very limited)	1.00	~hard bedrock <40" (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~large stones (slightly limited)	0.16					~small stones (very limited)	1.00	~cutbanks cave (slightly limited)	0.29
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Very limited		Very limited		Very limited		Limited		Slightly limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~too clayey (limited)	0.61	~cutbanks cave (slightly limited)	0.29
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00			~too clayey (slightly limited)	0.27
73216: Crider-----	Very limited		Very limited		Very limited		Limited		Limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (limited)	0.63	~slope (limited)	0.63
			~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too clayey (limited)	0.61	~cutbanks cave (slightly limited)	0.29
									~too clayey (slightly limited)	0.27
73217: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~low strength (very limited)	1.00	~excess fines (thickest layer)	1.00	~excess fines (bottom layer)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~slope (very limited)	1.00	~excess fines (bottom layer)	1.00	~excess fines (thickest layer)	1.00	~too acid (slightly limited)	0.12	~cutbanks cave (very limited)	1.00
	~shrink-swell (very limited)	1.00					~wetness (slightly limited)	0.03	~wetness (limited)	0.99

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
73217: Sonsac-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~depth to bedrock	1.00	~excess fines	1.00	~excess fines	1.00	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
	~slope	1.00	~excess fines	1.00	~possible source	0.42	~small stones	1.00	~cutbanks cave	1.00
	(very limited)		(bottom layer)		(thickest layer)		(very limited)		(very limited)	
	~shrink-swell	1.00					~too clayey	1.00	~hard bedrock <40"	1.00
	(very limited)						(very limited)		(very limited)	
73218: Tiff-----	Very limited		Very limited		Very limited		Very limited		Limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00	~too clayey	1.00	~too clayey	0.99
	(very limited)		(thickest layer)		(thickest layer)		(very limited)		(limited)	
	~shrink-swell	0.45	~excess fines	1.00	~excess fines	1.00	~small stones	1.00	~cutbanks cave	0.29
	(moderately limited)		(bottom layer)		(bottom layer)		(very limited)		(slightly limited)	
	~large stones	0.10	~small stones	0.10	~small stones	0.10	~area reclaim	0.68	~slope	0.16
	(slightly limited)		(thickest layer)		(thickest layer)		(limited)		(slightly limited)	
73219: Rueter-----	Very limited		Very limited		Possible source		Very limited		Very limited	
	~slope	1.00	~excess fines	1.00	~possible source	0.50	~slope	1.00	~slope	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~possible source	0.25	~small stones	1.00	~cutbanks cave	1.00
			(bottom layer)		(thickest layer)		(very limited)		(very limited)	
							~area reclaim	1.00	~too clayey	1.00
							(very limited)		(very limited)	
74644: Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~excess fines	1.00	~excess fines	1.00	~wetness	1.00	~wetness	1.00
	(very limited)		(thickest layer)		(bottom layer)		(very limited)		(very limited)	
			~excess fines	1.00	~excess fines	1.00			~too clayey	0.60
			(bottom layer)		(thickest layer)				(moderately limited)	
									~cutbanks cave	0.29
									(slightly limited)	
74675: Horsecreek-----	Very limited		Very limited		Very limited		Not limited		Slightly limited	
	~low strength	1.00	~excess fines	1.00	~excess fines	1.00			~cutbanks cave	0.29
	(very limited)		(thickest layer)		(bottom layer)				(slightly limited)	
			~excess fines	1.00	~excess fines	1.00				
			(bottom layer)		(thickest layer)					
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74676: Freeburg-----	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (slightly limited)	1.00 0.91 0.30	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~wetness (limited) ~too clayey (moderately limited) ~too acid (moderately limited)	0.91 0.50 0.36	Very limited ~wetness (very limited) ~cutbanks cave (slightly limited)	1.00 0.29
75375: Horsecreek-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Not limited		Moderately limited ~flooding (moderately limited) ~cutbanks cave (slightly limited)	0.60 0.29
75385: Gabriel-----	Very limited ~low strength (very limited) ~wetness (limited) ~shrink-swell (moderately limited)	1.00 0.98 0.37	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Limited ~wetness (limited) ~too clayey (moderately limited)	0.98 0.33	Very limited ~wetness (very limited) ~flooding (moderately limited) ~cutbanks cave (slightly limited)	1.00 0.60 0.29
75390: Razort-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~area reclaim (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
75398: Kaintuck-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Moderately limited ~too sandy (moderately limited)	0.40	Very limited ~cutbanks cave (very limited) ~flooding (moderately limited)	1.00 0.60
75450: Bloomsdale-----	Slightly limited ~shrink-swell (slightly limited)	0.07	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer) ~small stones (thickest layer)	1.00 1.00 0.10	Possible source ~excess fines (thickest layer) ~possible source (bottom layer) ~small stones (thickest layer)	1.00 0.33 0.10	Very limited ~area reclaim (very limited)	1.00	Very limited ~cutbanks cave (very limited) ~flooding (moderately limited)	1.00 0.60

Table 14.--Construction Materials and Excavating--Continued

Map symbol and soil name	Source for roadfill		Source for sand		Source for gravel		Source for topsoil		Shallow excavations	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75452: Gladden-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00 1.00	Possible source ~excess fines (thickest layer) ~possible source (bottom layer)	1.00 1.00 0.42	Very limited ~area reclaim (very limited) ~too sandy (moderately limited)	1.00 1.00 0.40	Very limited ~cutbanks cave (very limited) ~flooding (moderately limited)	1.00 1.00 0.60
75453: Sturkie-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00 1.00	Not limited		Moderately limited ~flooding (moderately limited) ~cutbanks cave (slightly limited)	0.60 0.29
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Not limited		Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00 1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00 1.00	Very limited ~area reclaim (very limited)	1.00	Very limited ~cutbanks cave (very limited)	1.00
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Very limited ~low strength (very limited)	1.00	Very limited ~excess fines (thickest layer) ~excess fines (bottom layer)	1.00 1.00	Very limited ~excess fines (bottom layer) ~excess fines (thickest layer)	1.00 1.00	Not limited		Not limited	
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Water Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003: Menfro-----	Limited ~slope (limited) ~seepage (moderately limited)	 0.99 0.50	Very limited ~slope (very limited)	 1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	 1.00 0.60	Limited ~slope (limited) ~erodes easily (moderately limited)	 0.99 0.60	Limited ~slope (limited) ~erodes easily (moderately limited)	 0.99 0.60
60024: Menfro-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	 0.50 0.30	Limited ~slope (limited)	 0.98	Limited ~slope (limited) ~erodes easily (moderately limited)	 0.98 0.60	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	 0.60 0.30	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	 0.60 0.30
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Moderately limited ~seepage (moderately limited) ~slope (moderately limited)	 0.50 0.30	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.98 0.19	Limited ~slope (limited) ~percs slowly (slightly limited)	 0.98 0.19	Moderately limited ~slope (moderately limited)	 0.30	Moderately limited ~slope (moderately limited)	 0.30
60037: Wrengart-----	Limited ~slope (limited) ~seepage (moderately limited)	 0.99 0.50	Very limited ~slope (very limited) ~percs slowly (slightly limited)	 1.00 0.13	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	 1.00 0.60 0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	 0.99 0.60 0.31	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (moderately limited)	 0.99 0.60 0.31
60038: Pevely-----	Very limited ~seepage (very limited) ~slope (very limited) ~depth to bedrock (limited)	 1.00 1.00 0.75	Very limited ~slope (very limited) ~large stones (moderately limited) ~depth to bedrock (slightly limited)	 1.00 0.60 0.09	Very limited ~slope (very limited) ~depth to bedrock (slightly limited) ~large stones (slightly limited)	 1.00 0.09 0.01	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~large stones (very limited)	 1.00 1.00 1.00	Very limited ~large stones (very limited) ~slope (very limited) ~depth to bedrock (limited)	 1.00 1.00 0.75

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60038: Holstein-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50								
	(moderately limited)									
60039: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~seepage	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.75	~large stones	0.51	~depth to bedrock	0.09	~large stones	1.00	~depth to bedrock	0.75
	(limited)		(moderately limited)		(slightly limited)		(very limited)		(limited)	
	~slope	0.70	~depth to bedrock	0.09	~large stones	0.00	~slope	0.70	~slope	0.70
	(limited)		(slightly limited)		(slightly limited)		(limited)		(limited)	
60040: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large stones	0.51	~depth to bedrock	0.09	~depth to bedrock	1.00	~large stones	1.00
	(very limited)		(moderately limited)		(slightly limited)		(very limited)		(very limited)	
	~depth to bedrock	0.75	~depth to bedrock	0.09	~large stones	0.00	~large stones	1.00	~depth to bedrock	0.75
	(limited)		(slightly limited)		(slightly limited)		(very limited)		(limited)	
60041: Brussels-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~large stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	1.00	~large stones	1.00	~large stones	1.00	~slope	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
			(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042, 60043: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50			~erodes easily	0.60	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)				(moderately limited)		(moderately limited)		(moderately limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60044: Minnith-----	Very limited ~seepage (very limited) ~slope (moderately limited)	1.00 0.30	Limited ~slope (limited)	0.98	Limited ~slope (limited) ~erodes easily (moderately limited)	0.98 0.60	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60 0.30	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60 0.30
60045: Minnith-----	Very limited ~seepage (very limited) ~slope (limited)	1.00 0.99	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Limited ~slope (limited) ~erodes easily (moderately limited)	0.99 0.60	Limited ~slope (limited) ~erodes easily (moderately limited)	0.99 0.60
60046: Minnith-----	Very limited ~slope (very limited) ~seepage (very limited)	1.00 1.00	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited ~slope (limited) ~seepage (moderately limited)	0.99 0.50	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.19	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.19	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99
60048: Weingarten-----	Very limited ~slope (very limited) ~seepage (moderately limited)	1.00 0.50	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 0.13	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	1.00 0.60 0.13	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~slope (very limited) ~erodes easily (moderately limited)	1.00 0.60
60049: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Moderately limited ~seepage (moderately limited) ~slope (slightly limited)	0.50 0.10	Moderately limited ~slope (moderately limited)	0.40	Moderately limited ~erodes easily (moderately limited) ~slope (moderately limited)	0.60 0.40	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60 0.10	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60 0.10

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60050: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Not limited		Not limited		Moderately limited		Very limited		Very limited	
					-erodes easily	0.60	-wetness	1.00	-wetness	1.00
					(moderately limited)		(very limited)		(very limited)	
					-droughty	0.20	-erodes easily	0.60	-erodes easily	0.60
					(slightly limited)		(moderately limited)		(moderately limited)	
									-droughty	0.20
									(slightly limited)	
64007: Freeburg-----	Not limited		Moderately limited		Moderately limited		Limited		Limited	
			-flooding	0.60	-flooding	0.60	-wetness	0.68	-wetness	0.68
			(moderately limited)		(moderately limited)		(limited)		(limited)	
			-percs slowly	0.13	-erodes easily	0.60	-erodes easily	0.60	-erodes easily	0.60
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					-percs slowly	0.13				
					(slightly limited)					
64008: Freeburg-----	Not limited		Slightly limited		Moderately limited		Limited		Limited	
			-percs slowly	0.13	-erodes easily	0.60	-wetness	0.68	-wetness	0.68
			(slightly limited)		(moderately limited)		(limited)		(limited)	
			-slope	0.10	-percs slowly	0.13	-erodes easily	0.60	-erodes easily	0.60
			(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)	
					-slope	0.10				
					(slightly limited)					
64009: Freeburg-----	Moderately limited		Very limited		Very limited		Limited		Limited	
	-slope	0.45	-slope	1.00	-slope	1.00	-wetness	0.68	-wetness	0.68
	(moderately limited)		(very limited)		(very limited)		(limited)		(limited)	
			-percs slowly	0.13	-erodes easily	0.60	-erodes easily	0.60	-erodes easily	0.60
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					-percs slowly	0.13	-slope	0.45	-slope	0.45
					(slightly limited)		(moderately limited)		(moderately limited)	
66000: Moniteau-----	Not limited		Moderately limited		Moderately limited		Very limited		Very limited	
			-flooding	0.60	-flooding	0.60	-wetness	1.00	-wetness	1.00
			(moderately limited)		(moderately limited)		(very limited)		(very limited)	
			-percs slowly	0.13	-erodes easily	0.60	-erodes easily	0.60	-erodes easily	0.60
			(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
					-percs slowly	0.13				
					(slightly limited)					

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66014: Haymond-----	Very limited ~seepage (very limited)	1.00	Limited ~flooding (limited)	0.90	Limited ~flooding (limited) ~erodes easily (moderately limited)	0.90 0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
66020: Haynie-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Not limited		Not limited	
66024: Wilbur-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~flooding (limited)	0.90	Limited ~flooding (limited) ~erodes easily (moderately limited)	0.90 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.60
66050: Tice-----	Moderately limited ~seepage (moderately limited)	0.50	Limited ~flooding (limited)	0.90	Limited ~flooding (limited) ~slow intake (moderately limited)	0.90 0.60	Moderately limited ~wetness (moderately limited)	0.53	Moderately limited ~wetness (moderately limited)	0.53
66051: Perche-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited) ~erodes easily (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.34	Moderately limited ~erodes easily (moderately limited) ~wetness (moderately limited)	0.60 0.34
66052: Waldron-----	Not limited		Limited ~flooding (limited) ~percs slowly (moderately limited)	0.90 0.39	Limited ~flooding (limited) ~slow intake (moderately limited) ~percs slowly (moderately limited)	0.90 0.60 0.39	Moderately limited ~wetness (moderately limited)	0.44	Moderately limited ~wetness (moderately limited)	0.44

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66053: Fishpot-----	Not limited		Slightly limited -percs slowly (slightly limited)	0.13	Moderately limited -erodes easily (moderately limited) -percs slowly (slightly limited)	0.60	Moderately limited -erodes easily (moderately limited)	0.60	Moderately limited -erodes easily (moderately limited)	0.60
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Moderately limited -seepage (moderately limited) -slope (moderately limited)	0.50 0.30	Limited -slope (limited)	0.98	Limited -slope (limited) -erodes easily (moderately limited)	0.98 0.60	Moderately limited -erodes easily (moderately limited) -wetness (moderately limited) -slope (moderately limited)	0.60 0.31 0.30	Moderately limited -erodes easily (moderately limited) -wetness (moderately limited) -slope (moderately limited)	0.60 0.31 0.30
73090: Useful-----	Moderately limited -seepage (moderately limited) -depth to bedrock (moderately limited) -slope (moderately limited)	0.50 0.34 0.30	Limited -slope (limited) -percs slowly (slightly limited)	0.98 0.13	Limited -slope (limited) -erodes easily (moderately limited) -percs slowly (slightly limited)	0.98 0.60 0.13	Moderately limited -erodes easily (moderately limited) -slope (moderately limited) -wetness (slightly limited)	0.60 0.30 0.13	Moderately limited -erodes easily (moderately limited) -depth to bedrock (moderately limited) -slope (moderately limited)	0.60 0.34 0.30
73200: Sonsac-----	Limited -depth to bedrock (limited) -slope (moderately limited)	0.85 0.60	Very limited -slope (very limited) -large surface stones (limited) -percs slowly (moderately limited)	1.00 0.80 0.40	Very limited -slope (very limited) -large surface stones (limited) -percs slowly (moderately limited)	1.00 0.80 0.40	Very limited -depth to bedrock (very limited) -large surface stones (limited) -slope (moderately limited)	1.00 0.80 0.60	Limited -depth to bedrock (limited) -large surface stones (limited) -slope (moderately limited)	0.85 0.80 0.60
73201: Sonsac-----	Very limited -slope (very limited) -depth to bedrock (limited)	1.00 0.85	Very limited -slope (very limited) -large surface stones (limited) -percs slowly (moderately limited)	1.00 0.80 0.40	Very limited -slope (very limited) -large surface stones (limited) -percs slowly (moderately limited)	1.00 0.80 0.40	Very limited -slope (very limited) -depth to bedrock (very limited) -large surface stones (limited)	1.00 1.00 0.80	Very limited -slope (very limited) -depth to bedrock (limited) -large surface stones (limited)	1.00 0.85 0.80

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73202: Rueter-----	Very limited ~seepage (very limited) ~slope (limited)	1.00 1.00 0.70	Very limited ~slope (very limited) ~large stones (slightly limited)	1.00 1.00 0.30	Very limited ~slope (very limited)	1.00	Limited ~large stones (limited) ~slope (limited)	0.93 0.93 0.70	Limited ~large stones (limited) ~slope (limited)	0.93 0.93 0.70
73203: Rueter-----	Very limited ~slope (very limited) ~seepage (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~large stones (slightly limited)	1.00 1.00 0.30	Very limited ~slope (very limited)	1.00	Very limited ~slope (very limited) ~large stones (limited)	1.00 1.00 0.93	Very limited ~slope (very limited) ~large stones (limited)	1.00 1.00 0.93
Sonsac-----	Very limited ~slope (very limited) ~depth to bedrock (limited)	1.00 1.00 0.85	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 1.00 0.80 0.40	Very limited ~slope (very limited) ~large surface stones (limited) ~percs slowly (moderately limited)	1.00 1.00 0.80 0.40	Very limited ~slope (very limited) ~depth to bedrock (very limited) ~large surface stones (limited)	1.00 1.00 1.00 0.80	Very limited ~slope (very limited) ~depth to bedrock (limited) ~large surface stones (limited)	1.00 1.00 0.85 0.80
73204: Ramsey-----	Very limited ~bedrock <20 in. (very limited) ~slope (very limited)	1.00 1.00 1.00	Very limited ~slope (very limited) ~bedrock <20 in. (very limited) ~cutbanks cave (limited)	1.00 1.00 1.00 0.90	Very limited ~slope (very limited) ~bedrock <20 in. (very limited) ~droughty (very limited)	1.00 1.00 1.00 1.00	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~too sandy (moderately limited)	1.00 1.00 1.00 0.60	Very limited ~bedrock <20 in. (very limited) ~droughty (very limited) ~slope (very limited)	1.00 1.00 1.00 1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205: Useful-----	Limited ~slope (limited) ~seepage (moderately limited) ~depth to bedrock (moderately limited)	0.99 0.99 0.50 0.34	Very limited ~slope (very limited) ~percs slowly (slightly limited)	1.00 1.00 0.13	Very limited ~slope (very limited) ~erodes easily (moderately limited) ~percs slowly (slightly limited)	1.00 1.00 0.60 0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~wetness (slightly limited)	0.99 0.99 0.60 0.13	Limited ~slope (limited) ~erodes easily (moderately limited) ~depth to bedrock (moderately limited)	0.99 0.99 0.60 0.34

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73206: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~percs slowly	0.13	~erodes easily	0.60	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~depth to bedrock	0.34			~percs slowly	0.13	~wetness	0.13	~depth to bedrock	0.34
	(moderately limited)				(slightly limited)		(slightly limited)		(moderately limited)	
73207: Caneyville-----	Limited		Limited		Limited		Very limited		Limited	
	~depth to bedrock	0.83	~slope	0.98	~slope	0.98	~depth to bedrock	1.00	~depth to bedrock	0.83
	(limited)		(limited)		(limited)		(very limited)		(limited)	
	~slope	0.30	~depth to bedrock	0.24	~erodes easily	0.60	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
			~percs slowly	0.13	~depth to bedrock	0.24	~slope	0.30	~slope	0.30
			(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)	
73208: Caneyville-----	Limited		Very limited		Very limited		Very limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~depth to bedrock	1.00	~slope	0.99
	(limited)		(very limited)		(very limited)		(very limited)		(limited)	
	~depth to bedrock	0.80	~depth to bedrock	0.18	~erodes easily	0.60	~slope	0.99	~depth to bedrock	0.80
	(limited)		(slightly limited)		(moderately limited)		(limited)		(limited)	
			~percs slowly	0.13	~depth to bedrock	0.18	~erodes easily	0.60	~erodes easily	0.60
			(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)	
73209: Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.80	~depth to bedrock	0.18	~erodes easily	0.60	~depth to bedrock	1.00	~depth to bedrock	0.80
	(limited)		(slightly limited)		(moderately limited)		(very limited)		(limited)	
			~percs slowly	0.13	~depth to bedrock	0.18	~erodes easily	0.60	~erodes easily	0.60
			(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)	
73210: Goss-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~large stones	1.00	~large surface stones	1.00	~large stones	1.00	~large stones	1.00
	(moderately limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large surface stones	1.00	~large stones	0.70	~large surface stones	1.00	~large surface stones	1.00
			(very limited)		(limited)		(very limited)		(very limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
73211:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~-bedrock <20 in. (very limited)	1.00	~-large surface stones (very limited)	1.00	~-droughty (very limited)	1.00	~-large surface stones (very limited)	1.00	~-droughty (very limited)	1.00
	~-slope (limited)	0.70	~-bedrock <20 in. (very limited)	1.00	~-large surface stones (very limited)	1.00	~-depth to bedrock (very limited)	1.00	~-large surface stones (very limited)	1.00
			~-slope (very limited)	1.00	~-bedrock <20 in. (very limited)	1.00	~-large stones (limited)	0.98	~-bedrock <20 in. (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212:										
Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~-slope (very limited)	1.00	~-slope (very limited)	1.00	~-droughty (very limited)	1.00	~-slope (very limited)	1.00	~-slope (very limited)	1.00
	~-bedrock <20 in. (very limited)	1.00	~-large surface stones (very limited)	1.00	~-slope (very limited)	1.00	~-large surface stones (very limited)	1.00	~-droughty (very limited)	1.00
			~-bedrock <20 in. (very limited)	1.00	~-large surface stones (very limited)	1.00	~-depth to bedrock (very limited)	1.00	~-large surface stones (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73213:										
Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~-bedrock <20 in. (very limited)	1.00	~-bedrock <20 in. (very limited)	1.00	~-droughty (very limited)	1.00	~-depth to bedrock (very limited)	1.00	~-droughty (very limited)	1.00
	~-slope (limited)	0.70	~-slope (very limited)	1.00	~-bedrock <20 in. (very limited)	1.00	~-large stones (very limited)	1.00	~-large stones (very limited)	1.00
			~-large surface stones (very limited)	1.00	~-slope (very limited)	1.00	~-large surface stones (very limited)	1.00	~-bedrock <20 in. (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73214:										
Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~-slope (very limited)	1.00	~-slope (very limited)	1.00	~-droughty (very limited)	1.00	~-slope (very limited)	1.00	~-slope (very limited)	1.00
	~-bedrock <20 in. (very limited)	1.00	~-bedrock <20 in. (very limited)	1.00	~-slope (very limited)	1.00	~-depth to bedrock (very limited)	1.00	~-droughty (very limited)	1.00
			~-large surface stones (very limited)	1.00	~-bedrock <20 in. (very limited)	1.00	~-large stones (very limited)	1.00	~-large stones (very limited)	1.00
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73215: Crider-----	Moderately limited		Limited		Limited		Moderately limited		Moderately limited	
	~seepage	0.50	~slope	0.98	~slope	0.98	~slope	0.30	~slope	0.30
	(moderately limited)		(limited)		(limited)		(moderately limited)		(moderately limited)	
	~slope	0.30								
	(moderately limited)									
73216: Crider-----	Limited		Very limited		Very limited		Limited		Limited	
	~slope	0.99	~slope	1.00	~slope	1.00	~slope	0.99	~slope	0.99
	(limited)		(very limited)		(very limited)		(limited)		(limited)	
	~seepage	0.50								
	(moderately limited)									
73217: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	0.50	~percs slowly	0.13	~erodes easily	0.60	~erodes easily	0.60	~erodes easily	0.60
	(moderately limited)		(slightly limited)		(moderately limited)		(moderately limited)		(moderately limited)	
	~depth to bedrock	0.34			~percs slowly	0.13	~wetness	0.13	~depth to bedrock	0.34
	(moderately limited)				(slightly limited)		(slightly limited)		(moderately limited)	
Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~depth to bedrock	0.85	~large surface stones	0.80	~large surface stones	0.80	~depth to bedrock	1.00	~depth to bedrock	0.85
	(limited)		(limited)		(limited)		(very limited)		(limited)	
			~percs slowly	0.40	~percs slowly	0.40	~large surface stones	0.80	~large surface stones	0.80
			(moderately limited)		(moderately limited)		(limited)		(limited)	
73218: Tiff-----	Limited		Very limited		Very limited		Very limited		Very limited	
	~slope	0.80	~slope	1.00	~slope	1.00	~large stones	1.00	~large stones	1.00
	(limited)		(very limited)		(very limited)		(very limited)		(very limited)	
			~large stones	0.99	~slow intake	0.99	~slope	0.80	~slope	0.80
			(limited)		(limited)		(limited)		(limited)	
			~percs slowly	0.15	~droughty	0.24			~droughty	0.24
			(slightly limited)		(slightly limited)				(slightly limited)	
73219: Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~seepage	1.00	~large stones	0.30			~large stones	0.93	~large stones	0.93
	(very limited)		(slightly limited)				(limited)		(limited)	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74644: Deible-----	Not limited		Not limited		Moderately limited ~erodes easily (moderately limited) ~droughty (slightly limited)	0.60 0.20	Very limited ~wetness (very limited) ~erodes easily (moderately limited)	1.00 0.60	Very limited ~wetness (very limited) ~erodes easily (moderately limited) ~droughty (slightly limited)	1.00 0.60 0.20
74675: Horsecreek----	Moderately limited ~seepage (moderately limited)	0.50	Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60 0.10	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Not limited		Slightly limited ~percs slowly (slightly limited) ~slope (slightly limited)	0.13 0.10	Moderately limited ~erodes easily (moderately limited) ~percs slowly (slightly limited) ~slope (slightly limited)	0.60 0.13 0.10	Limited ~wetness (limited) ~erodes easily (moderately limited)	0.68 0.60	Limited ~wetness (limited) ~erodes easily (moderately limited)	0.68 0.60
75375: Horsecreek----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited) ~erodes easily (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
75385: Gabriel-----	Not limited		Moderately limited ~flooding (moderately limited) ~percs slowly (slightly limited)	0.60 0.13	Moderately limited ~flooding (moderately limited) ~percs slowly (slightly limited)	0.60 0.13	Limited ~wetness (limited)	0.86	Limited ~wetness (limited)	0.86
75390: Razort-----	Very limited ~seepage (very limited)	1.00	Not limited		Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75398: Kaintuck-----	Very limited ~seepage (very limited)	1.00	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Not limited		Not limited	
75450: Bloomsdale-----	Very limited ~seepage (very limited)	1.00	Limited ~large stones (limited ~flooding (limited)	0.99 0.90	Limited ~flooding (limited)	0.90	Moderately limited ~large stones (moderately limited)	0.30	Moderately limited ~large stones (moderately limited)	0.30
75452: Gladden-----	Very limited ~seepage (very limited)	1.00	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Not limited		Not limited	
75453: Sturkie-----	Moderately limited ~seepage (moderately limited)	0.50	Moderately limited ~flooding (moderately limited)	0.60	Moderately limited ~flooding (moderately limited) ~erodes easily (moderately limited)	0.60 0.60	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Very limited ~seepage (very limited)	1.00	Slightly limited ~slope (slightly limited)	0.10	Moderately limited ~erodes easily (moderately limited) ~slope (slightly limited)	0.60 0.10	Moderately limited ~erodes easily (moderately limited)	0.60	Moderately limited ~erodes easily (moderately limited)	0.60
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>	<u>Limitation</u>	<u>Value</u>
99005: Landfills-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Very limited		Very limited		Very limited		Moderately limited		Moderately limited	
	~seepage	1.00	~percs slowly	1.00	~percs slowly	1.00	~erodes easily	0.60	~erodes easily	0.60
	(very limited)		(very limited)		(very limited)		(moderately limited)		(moderately limited)	
	~slope	0.10	~slope	0.40	~erodes easily	0.60	~slope	0.10	~slope	0.10
	(slightly limited)		(moderately limited)		(moderately limited)		(slightly limited)		(slightly limited)	
					~slope	0.40				
					(moderately limited)					
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Waste Management

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60003: Menfro-----	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.76	Limited ~slope (limited)	0.99	Limited ~slope (limited)	0.99	Very limited ~percs slowly (very limited) ~slope (very limited)	1.00 1.00
60024: Menfro-----	Not limited		Not limited		Moderately limited ~slope (moderately limited)	0.30	Moderately limited ~slope (moderately limited)	0.30	Very limited ~percs slowly (very limited) ~slope (limited)	1.00 0.91
60025: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited ~percs slowly (limited) ~too acid (slightly limited)	0.76 0.24	Limited ~percs slowly (limited) ~too acid (slightly limited)	0.76 0.24	Limited ~percs slowly (limited) ~slope (moderately limited) ~too acid (slightly limited)	0.76 0.30 0.24	Limited ~percs slowly (limited) ~slope (moderately limited) ~too acid (slightly limited)	0.76 0.30 0.24	Very limited ~percs slowly (very limited) ~wetness (limited) ~slope (limited)	1.00 0.95 0.91
60037: Wrengart-----	Limited ~slope (limited) ~wetness (moderately limited) ~too acid (slightly limited)	0.76 0.31 0.18	Limited ~slope (limited) ~wetness (moderately limited) ~too acid (slightly limited)	0.76 0.31 0.18	Limited ~slope (limited) ~wetness (moderately limited) ~too acid (slightly limited)	0.99 0.31 0.18	Limited ~slope (limited) ~wetness (moderately limited) ~too acid (slightly limited)	0.99 0.31 0.18	Very limited ~percs slowly (very limited) ~slope (very limited) ~wetness (very limited)	1.00 1.00 1.00
60038: Pevely-----	Very limited ~slope (very limited) ~poor filter (very limited) ~wetness (slightly limited)	1.00 1.00 0.19	Very limited ~slope (very limited) ~poor filter (very limited) ~wetness (slightly limited)	1.00 1.00 0.19	Very limited ~slope (very limited) ~poor filter (very limited) ~wetness (slightly limited)	1.00 1.00 0.19	Very limited ~depth to bedrock (very limited) ~slope (very limited) ~poor filter (very limited)	1.00 1.00 1.00	Very limited ~percs slowly (very limited) ~slope (very limited) ~depth to bedrock (very limited)	1.00 1.00 1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60038: Holstein-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~slope	1.00
									(very limited)	
60039: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	0.45	~slope	0.45	~slope	0.70	~poor filter	1.00	~depth to bedrock	1.00
	(moderately limited)		(moderately limited)		(limited)		(very limited)		(very limited)	
	~wetness	0.19	~wetness	0.19	~wetness	0.19	~slope	0.70	~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(limited)		(very limited)	
60040: Pevely-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	0.19	~wetness	0.19	~wetness	0.19	~poor filter	1.00	~depth to bedrock	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(very limited)		(very limited)	
60041: Brussels-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones >35%	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large stones >35%	1.00	~large stones >35%	1.00	~large stones >35%	1.00	~too cobbly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
60042, 60043: Menfro-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~slope	1.00
									(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60044: Minnith-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (very limited)	1.00
					~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~wetness (very limited)	1.00
									~slope (limited)	0.91
60045: Minnith-----	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00
									~wetness (very limited)	1.00
60046: Minnith-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00
									~wetness (very limited)	1.00
60047: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~slope (limited)	0.76	~slope (limited)	0.76	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~slope (very limited)	1.00
	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~wetness (limited)	0.95
60048: Weingarten-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
									~slope (very limited)	1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
60049:										
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Horsecreek-----	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10	Very limited ~percs slowly (very limited) ~slope (moderately limited)	1.00 0.31
60050:										
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Deible-----	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited) ~droughty (slightly limited)	1.00 0.20	Very limited ~wetness (very limited)	1.00	Very limited ~percs slowly (very limited) ~wetness (very limited)	1.00 1.00
64007:										
Freeburg-----	Limited ~flooding (limited) ~wetness (limited) ~percs slowly (limited)	0.90 0.68 0.60	Limited ~flooding (limited) ~wetness (limited) ~percs slowly (limited)	0.90 0.68 0.60	Limited ~flooding (limited) ~wetness (limited) ~percs slowly (limited)	0.90 0.68 0.60	Limited ~flooding (limited) ~wetness (limited) ~percs slowly (limited)	0.90 0.68 0.60	Very limited ~percs slowly (very limited) ~wetness (very limited) ~flooding (moderately limited)	1.00 1.00 0.60
64008:										
Freeburg-----	Limited ~wetness (limited) ~percs slowly (limited)	0.68 0.60	Limited ~wetness (limited) ~percs slowly (limited)	0.68 0.60	Limited ~wetness (limited) ~percs slowly (limited)	0.68 0.60	Limited ~wetness (limited) ~percs slowly (limited)	0.68 0.60	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (slightly limited)	1.00 1.00 0.08
64009:										
Freeburg-----	Limited ~wetness (limited) ~percs slowly (limited) ~slope (slightly limited)	0.68 0.60 0.15	Limited ~wetness (limited) ~percs slowly (limited) ~slope (slightly limited)	0.68 0.60 0.15	Limited ~wetness (limited) ~percs slowly (limited) ~slope (moderately limited)	0.68 0.60 0.45	Limited ~wetness (limited) ~percs slowly (limited) ~slope (moderately limited)	0.68 0.60 0.45	Very limited ~percs slowly (very limited) ~wetness (very limited) ~slope (very limited)	1.00 1.00 1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66000:										
Moniteau-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.90	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~flooding	0.60
									(moderately limited)	
66014:										
Haymond-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~poor filter	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
66020:										
Haynie-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~flooding	1.00
									(very limited)	
66024:										
Wilbur-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	0.60	~wetness	0.60	~wetness	0.60	~wetness	0.60	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
									~flooding	1.00
									(very limited)	
66050:										
Tice-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~wetness	0.53	~wetness	0.53	~wetness	0.53	~wetness	0.53	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
									~flooding	1.00
									(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
66051: Perche-----	Limited		Limited		Limited		Limited		Very limited	
	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.90	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.34	~wetness	0.34	~wetness	0.34	~wetness	0.34	~wetness	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
									~flooding	0.60
									(moderately limited)	
66052: Waldron-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.44	~wetness	0.44	~wetness	0.44	~wetness	0.44	~flooding	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
66053: Fishpot-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~wetness	1.00
									(very limited)	
Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
73046: Wrengart-----	Moderately limited		Moderately limited		Moderately limited		Moderately limited		Very limited	
	~wetness	0.31	~wetness	0.31	~wetness	0.31	~wetness	0.31	~percs slowly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
					~slope	0.30	~slope	0.30	~wetness	1.00
					(moderately limited)		(moderately limited)		(very limited)	
									~slope	0.91
									(limited)	
73090: Useful-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.13	~wetness	0.13	~slope	0.30	~slope	0.30	~depth to bedrock	1.00
	(slightly limited)		(slightly limited)		(moderately limited)		(moderately limited)		(very limited)	
					~wetness	0.13	~wetness	0.13	~wetness	1.00
					(slightly limited)		(slightly limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73200: Sonsac-----	Limited		Limited		Limited		Very limited		Very limited	
	~large surface stones (limited)	0.80	~large surface stones (limited)	0.80	~large surface stones (limited)	0.80	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~large surface stones (limited)	0.80	~depth to bedrock (very limited)	1.00
	~slope (moderately limited)	0.30	~slope (moderately limited)	0.30	~slope (moderately limited)	0.60	~percs slowly (limited)	0.76	~slope (very limited)	1.00
73201: Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (limited)	0.80	~large surface stones (limited)	0.80	~large surface stones (limited)	0.80	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~large surface stones (limited)	0.80	~depth to bedrock (very limited)	1.00
73202: Rueter-----	Moderately limited		Moderately limited		Limited		Limited		Very limited	
	~slope (moderately limited)	0.45	~slope (moderately limited)	0.45	~slope (limited)	0.70	~slope (limited)	0.70	~slope (very limited)	1.00
	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~percs slowly (moderately limited)	0.32
	~large stones (slightly limited)	0.03	~large stones (slightly limited)	0.03	~large stones (slightly limited)	0.03	~large stones (slightly limited)	0.03	~too acid (slightly limited)	0.07
73203: Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00
	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~too acid (slightly limited)	0.24	~percs slowly (moderately limited)	0.32
	~large stones (slightly limited)	0.03	~large stones (slightly limited)	0.03	~large stones (slightly limited)	0.03	~large stones (slightly limited)	0.03	~too acid (slightly limited)	0.07
Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~large surface stones (limited)	0.80	~large surface stones (limited)	0.80	~large surface stones (limited)	0.80	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~percs slowly (limited)	0.76	~large surface stones (limited)	0.80	~depth to bedrock (very limited)	1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73204:										
Ramsey-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~bedrock <20 in. (very limited)	1.00	~bedrock <20 in. (very limited)	1.00	~bedrock <20 in. (very limited)	1.00	~depth to bedrock (very limited)	1.00	~slope (very limited)	1.00
	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~droughty (very limited)	1.00	~slope (very limited)	1.00	~depth to bedrock (very limited)	1.00
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~poor filter (very limited)	1.00	~too acid (slightly limited)	0.14
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73205:										
Useful-----	Limited		Limited		Limited		Limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~slope (limited)	0.99	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00
	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~depth to bedrock (very limited)	1.00
73206:										
Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~slope (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (very limited)	1.00
	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~wetness (slightly limited)	0.13	~depth to bedrock (very limited)	1.00
73207:										
Caneyville----	Limited		Limited		Limited		Very limited		Very limited	
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~depth to bedrock (slightly limited)	0.24	~depth to bedrock (slightly limited)	0.24	~slope (moderately limited)	0.30	~percs slowly (limited)	0.60	~depth to bedrock (very limited)	1.00
					~depth to bedrock (slightly limited)	0.24	~slope (moderately limited)	0.30	~slope (limited)	0.91
73208:										
Caneyville----	Limited		Limited		Limited		Very limited		Very limited	
	~slope (limited)	0.76	~slope (limited)	0.76	~slope (limited)	0.99	~depth to bedrock (very limited)	1.00	~percs slowly (very limited)	1.00
	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~percs slowly (limited)	0.60	~slope (limited)	0.99	~slope (very limited)	1.00
	~depth to bedrock (slightly limited)	0.18	~depth to bedrock (slightly limited)	0.18	~depth to bedrock (slightly limited)	0.18	~percs slowly (limited)	0.60	~depth to bedrock (very limited)	1.00

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73209: Caneyville-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~depth to bedrock	1.00	~slope	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~depth to bedrock	0.18	~depth to bedrock	0.18	~depth to bedrock	0.18	~percs slowly	0.60	~depth to bedrock	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(limited)		(very limited)	
73210: Goss-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~large surface stones	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~slope	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large stones	0.45	~large stones	0.45	~large stones	0.45	~large stones	0.45	~too cobbly	1.00
	(moderately limited)		(moderately limited)		(moderately limited)		(moderately limited)		(very limited)	
73211: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	0.70	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73212: Gasconade-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~large surface stones	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	1.00	~large surface stones	1.00	~slope	1.00	~slope	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73213: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	1.00	~large surface stones	1.00	~large surface stones	1.00	~slope	0.70	~slope	1.00
	(very limited)		(very limited)		(very limited)		(limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73214: Moko-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~droughty	1.00	~droughty	1.00	~droughty	1.00	~depth to bedrock	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~bedrock <20 in.	1.00	~bedrock <20 in.	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~slope	1.00	~large surface stones	1.00	~bedrock <20 in.	1.00	~large surface stones	1.00	~depth to bedrock	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
Rock outcrop---	Not rated		Not rated		Not rated		Not rated		Not rated	
73215: Crider-----	Not limited		Not limited		Moderately limited		Moderately limited		Very limited	
					~slope	0.30	~slope	0.30	~percs slowly	1.00
					(moderately limited)		(moderately limited)		(very limited)	
									~slope	0.91
									(limited)	
73216: Crider-----	Limited		Limited		Limited		Limited		Very limited	
	~slope	0.76	~slope	0.76	~slope	0.99	~slope	0.99	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~slope	1.00
									(very limited)	
73217: Useful-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~slope	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.13	~wetness	0.13	~wetness	0.13	~wetness	0.13	~depth to bedrock	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
73217: Sonsac-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~large surface stones	0.80	~large surface stones	0.80	~large surface stones	0.80	~depth to bedrock	1.00	~slope	1.00
	(limited)		(limited)		(limited)		(very limited)		(very limited)	
	~percs slowly	0.76	~percs slowly	0.76	~percs slowly	0.76	~large surface stones	0.80	~depth to bedrock	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
73218: Tiff-----	Limited		Limited		Limited		Limited		Very limited	
	~percs slowly	0.60	~percs slowly	0.60	~slope	0.80	~slope	0.80	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~slope	0.60	~slope	0.60	~percs slowly	0.60	~percs slowly	0.60	~slope	1.00
	(moderately limited)		(moderately limited)		(limited)		(limited)		(very limited)	
	~droughty	0.24	~droughty	0.24	~droughty	0.24			~too cobbly	0.39
	(slightly limited)		(slightly limited)		(slightly limited)				(moderately limited)	
73219: Rueter-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00	~slope	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~too acid	0.24	~too acid	0.24	~too acid	0.24	~too acid	0.24	~percs slowly	0.32
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(moderately limited)	
	~large stones	0.03	~large stones	0.03	~large stones	0.03	~large stones	0.03	~too acid	0.07
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)	
74644: Deible-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~wetness	1.00	~wetness	1.00	~wetness	1.00	~wetness	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
	~droughty	0.20	~droughty	0.20	~droughty	0.20			~wetness	1.00
	(slightly limited)		(slightly limited)		(slightly limited)				(very limited)	
74675: Horsecreek-----	Not limited		Not limited		Not limited		Not limited		Very limited	
									~percs slowly	1.00
									(very limited)	
									~slope	0.08
									(slightly limited)	
74676: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
74676: Freeburg-----	Limited		Limited		Limited		Limited		Very limited	
	~wetness	0.68	~wetness	0.68	~wetness	0.68	~wetness	0.68	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~slope	0.08
									(slightly limited)	
75375: Horsecreek-----	Limited		Limited		Limited		Limited		Very limited	
	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.90	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
									~flooding	0.60
									(moderately limited)	
75385: Gabriel-----	Limited		Limited		Limited		Limited		Very limited	
	~flooding	0.90	~flooding	0.90	~flooding	0.90	~flooding	0.90	~percs slowly	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~wetness	0.86	~wetness	0.86	~wetness	0.86	~wetness	0.86	~wetness	1.00
	(limited)		(limited)		(limited)		(limited)		(very limited)	
	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~percs slowly	0.60	~flooding	0.60
	(limited)		(limited)		(limited)		(limited)		(moderately limited)	
75390: Razort-----	Slightly limited		Slightly limited		Slightly limited		Slightly limited		Very limited	
	~flooding	0.30	~flooding	0.30	~flooding	0.30	~flooding	0.30	~percs slowly	1.00
	(slightly limited)		(slightly limited)		(slightly limited)		(slightly limited)		(very limited)	
75398: Kaintuck-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~percs slowly	0.32
									(moderately limited)	
75450: Bloomsdale-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	~flooding	1.00	~flooding	1.00	~flooding	1.00	~flooding	1.00	~percs slowly	1.00
	(very limited)		(very limited)		(very limited)		(very limited)		(very limited)	
									~flooding	1.00
									(very limited)	
									~too cobbly	0.01
									(slightly limited)	

Table 16.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value	Limitation	Value
75452: Gladden-----	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~flooding (very limited)	1.00	Very limited ~percs slowly (very limited) ~flooding (very limited)	1.00 1.00
75453: Sturkie-----	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Limited ~flooding (limited)	0.90	Very limited ~percs slowly (very limited) ~flooding (moderately limited)	1.00 0.60
75454: Urban land-----	Not rated		Not rated		Not rated		Not rated		Not rated	
Razort-----	Slightly limited ~flooding (slightly limited)	0.30	Slightly limited ~flooding (slightly limited)	0.30	Slightly limited ~flooding (slightly limited)	0.30	Slightly limited ~flooding (slightly limited)	0.30	Very limited ~percs slowly (very limited) ~slope (slightly limited)	1.00 0.08
99000: Pits, quarries-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99003: Miscellaneous water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99005: Landfill pits--	Not rated		Not rated		Not rated		Not rated		Not rated	
99009: Udorthents-----	Not limited		Not limited		Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (slightly limited)	0.10	Slightly limited ~slope (moderately limited)	0.31
Pits-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

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 grain-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 shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 17 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

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 (fig. 13). "Loam," for example,

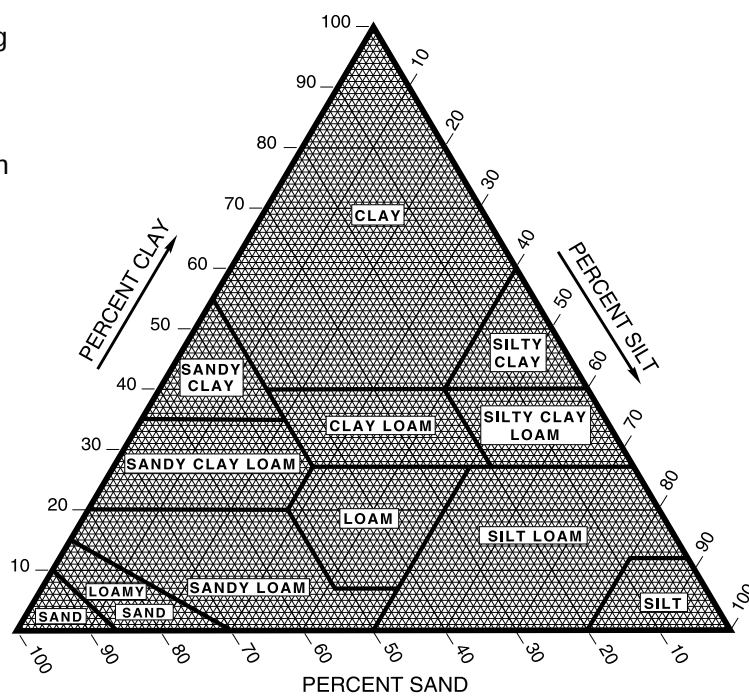


Figure 13.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

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 as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-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 grain-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 oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 18 shows estimates of some characteristics and features that affect soil behavior. These

estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major 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 greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $\frac{1}{3}$ -bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in micrometers per second ($\mu\text{m}/\text{sec}$), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in

inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. 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 $\frac{1}{3}$ - or $\frac{1}{10}$ -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.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

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

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Erosion factor Kw (formerly K factor) indicates the susceptibility of a soil to sheet and rill erosion by water. Factor Kw is one of six factors used in the Universal Soil Loss Equation (USLE), and may be used in the Revised Universal Soil Loss Equation (RUSLE), to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Factor Kw is adjusted for the effect of rock fragments. Values of Kw range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size. Factor Kf is one of the factors that may be used in 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.

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 resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Water Features

Table 19 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 two hydrologic groups in the table, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding 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 flooding 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 flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

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.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched, apparent, or

artesian; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone. An *artesian* water table is under hydrostatic head, generally below an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential 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 mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves 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 in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel 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 is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Table 17.--Engineering Index Properties

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10	3-10	sieve number--				limit	ticity
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
60003: Menfro-----	0-8	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	8-30	SICL	CL	A-7-6, A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	30-60	SIL, SICL	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
60024: Menfro-----	0-8	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	8-39	SICL, SIL	CL	A-7-6, A-6, A-7	0	0	100	100	90-100	70-95	35-45	15-20
	39-80	SIL, SICL	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
60025: Urban land.												
Harvester----	0-7	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	7-31	SICL, SIL	CL	A-6, A-7-6	0	0	100	100	90-100	70-95	35-45	15-25
	31-80	SICL, CL	CL	A-6, A-7-6	0	0	100	95-100	90-95	70-90	35-45	15-25
60037: Wrengart-----	0-4	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-35	5-15
	4-7	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-35	5-15
	7-29	SICL	CL	A-7-6, A-6	0	0	100	95-100	90-100	85-95	35-45	15-25
	29-41	SICL, SIL	CL	A-6	0	0	85-100	80-100	80-100	65-90	30-45	10-20
	41-80	CBX-SIL, GRV- SICL	GC	A-2-4	0-5	10-75	35-55	30-50	30-50	20-45	25-40	5-20
60038: Pevely-----	0-4	L	CL-ML, CL	A-4	0	0-5	95-100	90-100	80-95	55-75	15-35	5-15
	4-10	L, FSL, SIL	SC, CL, SC-SM	A-4, A-6	0	0-5	95-100	90-100	65-100	40-90	15-35	5-15
	10-32	SCL, L, CL, CN- SCL	SC, CL, SC-SM	A-6, A-7, A-4	0	0-35	95-100	90-100	75-100	30-75	25-50	5-25
	32-37	PCNV-FSL, PCNV- FS	SC, SC-SM, SM	A-2-4, A-1-b	0	15-60	35-60	30-55	20-45	10-25	10-30	NP-10
	37-60	UWB			---	---	---	---	---	---	---	---
Holstein-----	0-4	FSL	CL, ML, CL- ML, SC	A-4	0	0	95-100	90-100	70-80	45-50	15-30	NP-10
	4-9	FSL, L	ML, SC	A-4	0	0	95-100	90-100	70-90	45-65	15-30	NP-10
	9-52	SCL, CL	CL	A-6	0	0	90-100	85-100	70-95	40-75	30-45	10-20
	52-65	CL, SCL	CL	A-6	0	0	90-100	85-100	70-95	40-75	30-45	10-20
	65-80	UWB			---	---	---	---	---	---	---	---
60039: Pevely-----	0-4	SIL	CL-ML, CL	A-4	0	0-5	95-100	90-100	80-100	65-90	15-35	5-15
	4-10	SIL, L	CL, SC, SC-SM	A-4, A-6	0	0-5	95-100	90-100	65-100	40-90	15-35	5-15
	10-32	SCL, CL, CN-SCL	CL, SC, SC-SM	A-7, A-6, A-4	0	0-35	95-100	90-100	75-100	30-75	25-50	5-25
	32-37	PCNV-FSL, PCNV- FS	SC, SC-SM, SM	A-2-4, A-1-b	0	15-60	35-60	30-55	20-45	10-25	10-30	NP-10
	37-60	UWB			---	---	---	---	---	---	---	---
60040: Pevely-----	0-4	L	CL-ML, CL	A-4	0	0-5	95-100	90-100	80-95	55-75	15-35	5-15
	4-10	L, FSL	CL, SC-SM, SC	A-4, A-6	0	0-5	95-100	90-100	65-100	40-90	15-35	5-15
	10-32	SCL, PCN-SCL, L	SC, CL, SC-SM	A-6, A-7, A-4	0	0-35	95-100	90-100	75-100	30-75	25-50	5-25
	32-37	PCNV-FS, CN-FS	SC-SM, SM, SC	A-1-b, A-2-4	0	15-60	35-60	30-55	20-45	10-25		
	37-60	UWB			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth In	USDA texture	Classification		Fragments		Percentage Passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches					Pct	
							4	10	40	200		
60041: Brussels-----	0-5	CLNV-SICL	CL	A-6, A-7-6, A-7	0-10	50-75	90-100	85-100	80-95	70-90	35-50	15-25
	5-35	FLV-SIC, FLV-SICL	CL	A-7-6, A-7	5-15	50-75	90-100	85-100	80-95	70-95	45-60	20-35
	35-60	FLX-SIC, FLV-SICL	CL	A-7, A-7-6	10-25	65-80	90-100	85-100	80-95	70-95	45-60	20-35
Rock outcrop.												
60042: Menfro-----	0-8	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	8-20	SIL, SICL	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
	20-47	SICL	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	47-80	SIL, SICL	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
60043: Menfro-----	0-4	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	4-10	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	10-40	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	25-45	15-20
	40-80	SIL, SICL	CL	A-6	0	0	100	100	90-100	70-90	30-40	10-20
60044, 60045, 60046: Minnith-----	0-5	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	5-35	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	25-45	5-20
	35-80	L	CL	A-6, A-4	0	0-5	95-100	90-100	80-95	60-75	20-35	5-15
60047: Urban land.												
Harvester----	0-7	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	7-31	SICL, SIL	CL	A-6, A-7-6	0	0	100	100	90-100	70-95	35-45	15-25
	31-80	SICL, CL	CL	A-6, A-7-6	0	0	100	95-100	90-95	70-90	35-45	15-25
60048: Weingarten---	0-3	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-35	5-15
	3-11	SIL	CL	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	11-32	SICL	ML, CL	A-6, A-7-6	0	0	100	100	95-100	85-95	35-45	10-20
	32-68	SIL, GRV-SIL	CL	A-6	0	0	55-100	50-100	45-95	40-85	30-40	10-15
	68-80	GRV-SIL, GRV-SIL	GC	A-2, A-2-6	0	0-30	15-35	10-30	10-30	5-25	30-40	10-15
60049: Urban land.												
Horsecreek---	0-9	SIL	CL-ML, CL	A-4	0	0	95-100	90-100	85-100	70-90	20-35	5-15
	9-60	SIL, SICL	CL	A-6, A-7	0	0	95-100	90-100	85-100	65-95	25-45	10-20
60050: Urban land.												
Deible-----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	10-15	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	15-37	SIC, C	CH	A-7-6, A-7	0	0	100	100	90-100	85-95	50-70	25-40
	37-80	SICL, SIL	CL	A-6, A-7	0	0	85-100	80-100	80-95	65-90	30-50	10-25
64007, 64008, 64009: Freeburg----	0-8	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	8-18	SIL	CL	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	18-37	SICL	CL	A-7-6, A-7, A-6	0	0	100	100	95-100	85-95	35-45	15-20
	37-65	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	30-45	10-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--				limit	ticity index
	In				Pct	Pct	4	10	40	200	Pct	
66000: Moniteau-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	7-14	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	14-80	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	75-95	30-45	10-20
66014: Haymond-----	0-6	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	6-41	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	41-80	FSL, L	SC, SC-SM, SM	A-4	0	0	95-100	90-100	70-80	40-60	10-30	NP-10
66020: Haynie-----	0-9	SIL	CL-ML	A-4	0	0	100	100	90-100	70-90	5-25	5-15
	9-80	SR- VFSL SIL	CL-ML	A-4	0	0	100	100	85-100	50-90	5-25	5-15
66024: Wilbur-----	0-8	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	8-36	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	36-80	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
66050: Tice-----	0-16	SICL	CL	A-6	0	0	100	100	95-100	85-95	35-45	15-20
	16-80	SIL, SICL	CL	A-7, A-6	0	0	100	100	90-100	70-95	30-45	10-20
66051: Perche-----	0-4	SIL	ML	A-4	0	0	100	100	90-100	70-90	5-25	NP-5
	4-60	SR- S SIL	ML, SC-SM, CL, SM, SC	A-4	0	0	100	100	60-100	10-85	5-30	NP-10
66052: Waldron-----	0-6	SICL	CL	A-7, A-7-6	0	0	100	100	95-100	85-95	45-55	25-35
	6-60	SR- SIL SICL SIC	CH	A-7, A-7-6	0	0	100	100	95-100	85-95	50-65	30-40
66053: Fishpot-----	0-47	SR- SIL	CL	A-6	0	0	100	100	90-100	70-90	30-35	10-15
	47-80	SR- SIL SICL	CL	A-6, A-7-6	0	0	100	100	90-100	70-95	30-45	10-20
Urban land.												
73046: Wrengart-----	0-6	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	6-26	SICL, SIL	CL	A-6	0	0	100	95-100	90-100	70-90	30-45	10-20
	26-45	SIL, SICL	CL	A-6	0	0	100	95-100	90-100	70-95	25-40	10-20
	45-60	GRX-SICL, GRV- SICL	GC	A-2, A-6, A- 2-7	0-5	0-10	25-55	20-50	20-45	15-40	35-45	15-20
	60-80	GR-SIC, SIC, GR-C	CH, CL, GC	A-7, A-7-6	0-5	0-15	55-95	50-90	50-90	45-85	45-80	25-50
73090: Useful-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-15
	7-31	SIC, SICL	CL	A-7-6, A-7	0	0-10	90-100	85-100	80-100	75-95	40-50	20-30
	31-45	SIC, GRV-SIC, C, GRV-C	CL, CH, GC	A-7-6, A-7	0	0-10	55-100	50-100	50-95	45-95	45-65	25-40
	45-53	SICL, SIC	CH, CL	A-7, A-7-6	0	0	90-100	85-100	80-95	75-95	40-60	20-30
	53-60	UWB			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10	3-10	sieve number--				limit	ticity
					inches	inches	4	10	40	200		index
	In				Pct	Pct					Pct	
73200, 73201: Sonsac-----	0-3	GR-SIL	CL, GC, CL-ML	A-4, A-6	0-10	0-10	55-80	50-75	50-70	40-60	20-35	5-15
	3-8	GRV-SIL, GRX-SIL	SC, GC	A-2, A-2-4	0-15	0-10	15-55	10-50	10-50	5-40	20-35	5-15
	8-11	GRV-SIL, GRX-SIL, GRV-SICL, CBV-SICL	GC	A-2-6, A-6, A-2	0-10	0-15	15-55	10-50	10-50	5-45	30-45	10-25
	11-32	GRV-C, GRV-SIC	GC	A-7, A-2-7	0-5	0-10	30-55	25-50	25-50	20-45	60-80	30-50
	32-60	UWB			---	---	---	---	---	---	---	---
73202: Rueter-----	0-2	GR-SIL	CL, SC-SM, GC, GC-GM, SC	A-4, A-6	0-5	5-20	55-80	50-75	50-70	40-60	15-35	5-15
	2-13	GR-SIL	CL, SC-SM, GC-GM, SC, GC	A-4, A-6	0-5	5-20	55-80	50-75	50-70	40-60	15-35	5-15
	13-48	GRX-SIL, GRX-SICL, GRX-L	GC	A-2-6	0-5	5-15	15-30	10-25	10-25	10-20	30-45	10-20
	48-80	CB-C, GRX-SIC, GRV-SIC	GC, SC	A-2-7, A-7	0-5	5-15	15-65	10-60	10-60	10-55	50-75	25-45
73203: Rueter-----	0-2	GR-SIL	GC, CL, GC-GM, SC-SM, SC	A-4, A-6	0-5	5-20	55-80	50-75	50-70	40-60	15-35	5-15
	2-13	GR-SIL	CL, SC-SM, GC-GM, SC, GC	A-4, A-6	0-5	5-20	55-80	50-75	50-70	40-60	15-35	5-15
	13-48	GRX-SIL, GRX-SICL, GRX-L	GC	A-2-6	0-5	5-15	15-30	10-25	10-25	10-20	30-45	10-20
	48-80	CB-C, GRX-SIC, GRV-SIC	GC, SC	A-2-7, A-7	0-5	5-15	15-65	10-60	10-60	10-55	50-75	25-45
Sonsac-----	0-3	GR-SIL	CL, GC, CL-ML	A-4, A-6	0-10	0-10	55-80	50-75	50-70	40-60	20-35	5-15
	3-8	GRV-SIL, GRX-SIL	SC, GC	A-2, A-2-4	0-15	0-10	15-55	10-50	10-50	5-40	20-35	5-15
	8-11	GRV-SIL, GRX-SIL, GRV-SICL, CBV-SICL	GC	A-6, A-2-6, A-2	0-10	0-15	15-55	10-50	10-50	5-45	30-45	10-25
	11-32	GRV-C, GRV-SIC	GC	A-7, A-2-7	0-5	0-10	30-55	25-50	25-50	20-45	60-80	30-50
	32-60	UWB			---	---	---	---	---	---	---	---
73204: Ramsey-----	0-1	FSL	ML, CL-ML, SC-SM, SM	A-2, A-4	0	0-10	80-100	75-100	55-80	30-50	10-30	NP-10
	1-4	FSL, L, SL	CL-ML, SM, ML, SC-SM	A-2, A-4	0	0-10	80-100	75-95	50-80	25-60	10-35	NP-10
	4-10	CB-FSL	SC, SM, SC-SM	A-4, A-2	0	10-30	80-100	75-95	55-80	30-50	0-30	NP-10
	10-17	LFS	SC, SM, SC-SM	A-2	0	0-10	80-95	75-90	45-60	15-20	0-25	NP-10
	17-60	UWB			---	---	---	---	---	---	---	---
Rock outcrop.												
73205, 73206: Useful-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-15
	7-31	SICL, SIC	CL	A-7, A-7-6	0	0-5	90-100	85-100	80-100	75-95	40-50	20-30
	31-39	GRV-SIC, GRV-C	GC	A-2-7, A-7	0	0-10	35-55	30-50	30-50	25-45	50-65	25-40
	39-53	SIC, SICL, C	CH, CL	A-7, A-7-6	0	0	90-100	85-100	80-100	70-95	40-65	20-40
	53-60	UWB			---	---	---	---	---	---	---	---

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification			Fragments		Percentage Passing				Liquid	Plas-
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--				limit	ticity	
							4	10	40	200		index	
	In				Pct	Pct					Pct		
73207: Caneyville---	0-5	SIL	CL, CL-ML	A-4, A-6	0	0-3	90-100	85-100	80-95	65-85	20-35	5-15	
	5-21	SICL, SIC	CH, CL	A-7, A-7-6	0	0-3	90-100	85-100	80-95	75-95	40-65	20-40	
	21-32	SIC, C	CH	A-7, A-7-6	0	0-15	90-100	85-100	80-95	70-90	50-65	25-40	
	32-60	UWB			---	---	---	---	---	---	---	---	
73208, 73209: Caneyville---	0-3	SIL	CL, CL-ML	A-4, A-6	0	0-10	90-100	85-100	80-95	65-85	20-35	5-15	
	3-6	SIL	CL	A-4, A-6	0	0-10	90-100	85-100	80-95	65-85	20-35	5-15	
	6-18	SIC	CH	A-7, A-7-6	0	0-10	85-100	80-100	80-95	75-95	50-60	25-35	
	18-34	GR-C, GR-SIC	CH	A-7, A-7-6	0	0-10	60-80	55-75	55-75	50-70	50-65	25-40	
	34-60	UWB			---	---	---	---	---	---	---	---	
73210: Goss-----	0-3	CBV-SIL	GC, GC-GM	A-4	0-5	20-45	50-75	45-70	45-65	35-55	20-35	5-15	
	3-9	GRV-SIL, CB-SIL	GC, GC-GM	A-2, A-4	0-5	0-25	30-65	25-60	25-60	20-50	20-35	5-15	
	9-80	CBV-C, CB-C, GR-C	CH, CL	A-7, A-7-6	0-5	15-65	65-90	60-85	60-85	55-75	45-80	25-50	
73211, 73212: Gasconade----	0-10	CNV-SIC	CL	A-7, A-7-6	0-10	10-35	40-60	35-55	35-55	35-50	45-60	20-35	
	10-13	CN-SIC, FL-C, FLV-SIC	CH	A-7	0-15	10-35	65-85	60-80	60-80	55-75	50-65	25-40	
	13-60	UWB			---	---	---	---	---	---	---	---	
Rock outcrop.													
73213, 73214: Moko-----	0-5	GR-L	CL, SC, GC	A-6	0-10	0-10	65-80	60-75	55-70	40-50	30-40	10-20	
	5-10	CNV-SIL, CNV- CL, CNV-SICL	CL, SC, GC	A-6, A-7	0-10	40-80	65-90	60-85	60-80	45-75	30-45	10-25	
	10-60	UWB			---	---	---	---	---	---	---	---	
Rock outcrop.													
73215, 73216: Crider-----	0-11	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15	
	11-37	SICL, SIL	CL	A-6, A-7, A- 7-6	0	0	100	100	95-100	85-95	30-45	10-20	
	37-60	SICL, SIC, C	CH, CL	A-7, A-6, A- 7-6	0	0-5	80-100	75-100	70-95	65-95	40-65	20-40	
73217: Useful-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-15	
	7-31	SICL, SIC	CL	A-7, A-7-6	0	0-5	90-100	85-100	80-100	75-95	40-50	20-30	
	31-39	GRV-SIC, GRV-C	GC	A-2-7, A-7	0	0-10	35-55	30-50	30-50	25-45	50-65	25-40	
	39-53	SIC, SICL, C	CH, CL	A-7, A-7-6	0	0	90-100	85-100	80-100	70-95	40-65	20-40	
	53-60	UWB			---	---	---	---	---	---	---	---	
Sonsac-----	0-3	GR-SIL	CL, CL-ML, GC	A-4, A-6	0-10	0-10	55-80	50-75	50-70	40-60	20-35	5-15	
	3-8	GRV-SIL, GRX- SIL	SC, GC	A-2, A-2-4	0-15	0-10	15-55	10-50	10-50	5-40	20-35	5-15	
	8-11	GRV-SIL, GRX- SIL, GRV-SICL, CBV-SICL	GC	A-2-6, A-6, A-2	0-10	0-15	15-55	10-50	10-50	5-45	30-45	10-25	
	11-32	GRV-C, GRV-SIC	GC	A-7, A-2-7	0-5	0-10	30-55	25-50	25-50	20-45	60-80	30-50	
	32-60	UWB			---	---	---	---	---	---	---	---	
73218: Tiff-----	0-3	GR-C	MH, GC-GM	A-7	0	0-10	55-80	50-75	50-70	45-65	55-90	25-45	
	3-80	CBV-C, GR-C, GRV-C, CB-C	MH, GC-GM, GM	A-7, A-2	0-15	0-50	40-85	35-80	30-75	30-70	55-90	25-45	

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage Passing				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--					
							4	10	40	200		
	In				Pct	Pct					Pct	
73219: Rueter-----	0-2	GR-SIL	CL, GC, SC- SM, GC-GM, SC	A-4, A-6	0-5	5-20	55-80	50-75	50-70	40-60	15-35	5-15
	2-13	GR-SIL	GC-GM, SC, CL, GC, SC- SM	A-4, A-6	0-5	5-20	55-80	50-75	50-70	40-60	15-35	5-15
	13-48	GRX-SIL, GRX- SICL, GRX-L	GC	A-2-6	0-5	5-15	15-30	10-25	10-25	10-20	30-45	10-20
	48-80	CB-C, GRX-SIC, GRV-SIC	GC, SC	A-2-7, A-7	0-5	5-15	15-65	10-60	10-60	10-55	50-75	25-45
74644: Deible-----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	10-15	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	15-37	SIC, C	CH	A-7-6, A-7	0	0	100	100	90-100	85-95	50-70	25-40
	37-80	SICL, SIL	CL	A-6, A-7	0	0	85-100	80-100	80-95	65-90	30-50	10-25
74675: Horsecreek---	0-9	SIL	CL-ML, CL	A-4	0	0	95-100	90-100	85-100	70-90	20-35	5-15
	9-60	SIL, SICL	CL	A-6, A-7	0	0	95-100	90-100	85-100	65-95	25-45	10-20
74676: Urban land.												
Freeburg-----	0-8	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	8-18	SIL	CL	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	18-37	SICL	CL	A-7, A-6, A- 7-6	0	0	100	100	95-100	85-95	35-45	15-20
	37-65	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	30-45	10-20
75375: Horsecreek---	0-9	SIL	CL	A-4	0	0	95-100	95-100	85-100	70-100	20-35	5-15
	9-19	SIL	CL	A-4	0	0	95-100	90-100	80-100	65-100	20-35	5-15
	19-60	SIL, SICL	CL	A-4, A-6, A-7	0	0	95-100	90-100	80-100	65-100	25-45	5-25
75385: Gabriel-----	0-14	SIL	CL	A-6, A-4	0	0	100	100	90-100	70-90	20-35	5-15
	14-29	SICL	CL	A-7, A-6	0	0	100	100	95-100	85-95	30-45	10-25
	29-80	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	30-45	10-25
75390: Razort-----	0-7	SIL	CL, CL-ML	A-4	0	0	85-100	80-100	80-95	65-85	20-35	5-15
	7-34	SIL, L, CL	CL	A-6	0	0	85-100	80-100	75-95	65-85	30-45	10-20
	34-80	GR-L, L, GRV-L	SC, CL, CL-ML	A-6, A-4	0	0	30-80	25-75	25-70	20-50	20-35	5-15
75398: Kaintuck-----	0-6	FSL	CL-ML, ML, SM, SC-SM	A-4	0	0	80-100	75-100	60-80	35-50	10-30	NP-10
	6-80	SR- FS LFS FSL L SIL	CL-ML, SM, SC-SM, ML	A-4	0	0-5	80-100	75-100	55-95	20-85	10-30	NP-10
75450: Bloomsdale---	0-20	SIL	CL, CL-ML	A-4	0	0-5	100	95-100	85-95	75-85	20-30	5-10
	20-32	SR- GRV-COSL GRV-L GRV-CL	GC, GC-GM	A-2, A-2-4	0	0-20	35-55	30-50	20-50	10-40	25-40	5-20
	32-80	GRX-CL, GRV-C, GRV-CL	GC	A-2, A-2-7	0	10-40	20-40	15-35	15-35	10-30	40-65	20-40

Table 17.--Engineering Index Properties--Continued

[illegible]

Table 18.--Physical and Chemical 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	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T
60003: Menfro-----	0-8	18-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	8.0-16	5.0-12	5.1-7.3	.37	.37	5
	8-30	28-35	1.30-1.45	4.00-14.00	0.18-0.20	3.0-5.9	0.3-1.0	15-26	12-22	5.1-7.3	.37	.37	6
	30-60	20-30	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	12-22	9.0-19	5.6-7.3	.37	.37	48
60024: Menfro-----	0-8	18-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	8.0-16	5.0-12	5.1-7.3	.37	.37	5
	8-39	25-35	1.35-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.1-0.8	15-26	12-22	5.1-7.3	.37	.37	6
	39-80	20-30	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	12-22	9.0-19	5.6-7.3	.37	.37	48
60025: Urban land.													
Harvester-----	0-7	18-27	1.40-1.60	4.00-14.00	0.10-0.20	0.1-2.9	0.5-1.0	18-28	13-23	5.1-6.5	.32	.32	5
	7-31	25-35	1.35-1.60	1.00-4.00	0.10-0.20	3.0-5.9	0.1-1.0	18-28	13-23	5.1-6.5	.32	.32	6
	31-80	25-35	1.35-1.50	4.00-14.00	0.12-0.16	3.0-5.9	0.1-1.0	14-22	10-17	5.1-6.5	.32	.32	48
60037: Wrengart-----	0-4	8-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	9.0-17	6.0-13	5.1-6.5	.37	.37	4
	4-7	8-27	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	8.0-15	5.0-12	4.5-6.5	.37	.37	5
	7-29	27-35	1.30-1.50	1.40-4.00	0.18-0.20	3.0-5.9	0.1-0.9	14-22	11-19	4.5-6.5	.43	.43	56
	29-41	18-32	1.50-1.70	1.40-4.00	0.18-0.20	3.0-5.9	0.1-0.5	11-19	8.0-16	4.5-6.5	.43	.43	
	41-80	13-30	1.25-1.45	4.00-14.00	0.08-0.12	3.0-5.9	0.1-0.5	5.0-11	3.0-9.0	4.5-7.3	.10	.43	
60038: Pevely-----	0-4	7-27	1.20-1.45	4.00-14.00	0.16-0.24	0.1-2.9	1.0-3.0	7.0-15	5.0-11	5.1-7.3	.28	.28	2
	4-10	7-27	1.20-1.40	4.00-14.00	0.15-0.20	0.1-2.9	0.5-1.0	4.0-10	2.0-8.0	4.5-7.3	.32	.32	5
	10-32	18-40	1.25-1.40	4.00-14.00	0.10-0.18	3.0-5.9	0.1-0.5	8.0-16	6.0-14	4.5-6.5	.32	.32	56
	32-37	4-18	1.25-1.45	42.00-140.00	0.05-0.12	0.1-2.9	0.1-0.5	1.0-5.0	1.0-4.0	4.5-7.3	.10	.15	
	37-60	---	---	0.00-0.14	---	---	---	---	---	---	---	---	
Holstein-----	0-4	5-18	1.20-1.45	4.00-14.00	0.16-0.22	0.1-2.9	0.5-4.0	5.0-13	4.0-12	5.6-6.5	.32	.32	5
	4-9	5-18	1.20-1.40	4.00-14.00	0.15-0.19	0.1-2.9	0.5-1.0	2.0-6.0	1.0-4.0	5.1-6.0	.32	.32	6
	9-52	20-35	1.25-1.40	4.00-14.00	0.15-0.19	3.0-5.9	0.1-0.5	10-18	6.0-13	4.5-6.0	.32	.32	48
	52-65	18-35	1.30-1.60	4.00-14.00	0.15-0.19	0.1-2.9	0.1-0.5	10-20	7.0-17	4.5-6.5	.32	.32	
	65-80	---	---	0.00-0.14	---	---	---	---	---	---	---	---	

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors	Wind erodi- bility	Wind erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T
60039, 60040: Pevely-----	0-4	7-27	1.20-1.45	4.00-14.00	0.16-0.24	0.1-2.9	1.0-3.0	7.0-15	5.0-11	5.1-7.3	.28	.28	2
	4-10	7-27	1.20-1.40	4.00-14.00	0.18-0.22	0.1-2.9	0.5-1.0	4.0-10	2.0-8.0	4.5-7.3	.32	.32	5
	10-32	18-40	1.25-1.40	4.00-14.00	0.10-0.18	3.0-5.9	0.4-0.8	8.0-16	6.0-14	4.5-6.5	.32	.32	
	32-37	4-18	1.25-1.45	42.00-140.00	0.05-0.12	0.1-2.9	0.0-0.5	1.0-5.0	1.0-4.0	4.5-7.3	.10	.15	
	37-60	---	---	0.00-0.14	---	---	---	---	---	---	---	---	
60041: Brussels-----	0-5	27-40	1.30-1.50	1.40-4.00	0.09-0.14	3.0-5.9	2.0-4.0	15-35	41-60	6.1-7.8	.15	.28	5
	5-35	35-50	1.35-1.55	1.40-4.00	0.06-0.12	3.0-5.9	1.0-2.0	20-30	45-55	6.1-8.4	.20	.28	8
	35-60	35-50	1.35-1.55	1.40-4.00	0.02-0.09	3.0-5.9	0.5-1.0	20-30	35-49	6.1-8.4	.20	---	
Rock outcrop-----	---	---	---	---	---	---	---	---	---	---	---	---	8
60042: Menfro-----	0-8	18-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	9.0-16	4.0-10	5.1-7.3	.37	.37	5
	8-20	20-30	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.3-1.0	8.0-17	5.0-11	5.1-7.3	.37	.37	6
	20-47	27-33	1.35-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.0-0.5	15-25	10-20	5.1-7.3	.37	.37	
	47-80	20-30	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.0-0.5	14-24	11-21	5.6-7.3	.37	.37	
60043: Menfro-----	0-4	18-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	9.0-16	4.0-10	5.1-7.3	.37	.37	5
	4-10	15-27	1.25-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.3-1.0	7.0-16	2.0-11	5.1-7.3	.37	.37	6
	10-40	15-33	1.30-1.45	4.00-14.00	0.18-0.20	3.0-5.9	0.0-0.5	12-22	8.0-18	5.1-7.3	.37	.37	
	40-80	20-30	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.0-0.5	13-23	10-20	5.1-7.3	.37	.37	
60044, 60045, 60046: Minnith-----	0-5	10-27	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	1.0-2.0	7.0-17	5.0-13	5.1-7.3	.37	.37	5
	5-35	15-35	1.30-1.60	1.40-14.00	0.18-0.20	3.0-5.9	0.5-1.0	15-25	12-23	4.5-7.3	.37	.37	5
	35-80	12-27	1.40-1.60	1.40-42.00	0.14-0.19	0.1-2.9	0.0-0.5	5.0-11	12-18	4.5-7.3	.37	.37	
60047: Urban land.													
Harvester-----	0-7	18-27	1.40-1.60	4.00-14.00	0.10-0.20	0.1-2.9	0.5-1.0	18-28	13-23	5.1-6.5	.32	.32	5
	7-31	25-35	1.35-1.60	1.00-4.00	0.10-0.20	3.0-5.9	0.1-1.0	18-28	13-23	5.1-6.5	.32	.32	6
	31-80	25-35	1.35-1.50	4.00-14.00	0.12-0.16	3.0-5.9	0.1-1.0	14-22	10-17	5.1-6.5	.32	.32	
60048: Weingarten-----	0-3	12-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-4.0	18-25	17-24	5.6-7.3	.37	.37	4
	3-11	12-25	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.3	8.0-18	5.0-14	4.5-6.5	.43	.43	5
	11-32	27-35	1.30-1.50	1.40-4.00	0.18-0.20	3.0-5.9	0.0-0.5	18-28	13-23	5.1-6.5	.43	.43	
	32-68	18-27	1.50-1.70	1.40-4.00	0.14-0.20	0.1-2.9	0.0-0.5	12-20	10-19	4.5-6.0	.32	.43	
	68-80	20-27	1.30-1.50	4.00-14.00	0.08-0.10	0.1-2.9	0.0-0.5	12-20	9.0-17	5.1-6.5	.10	.43	

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T		
60049: Urban land.															
Horsecreek-----	0-9	10-27	1.20-1.40	4.00-14.00	0.18-0.23	0.1-2.9	2.0-4.0	8.0-16	6.0-15	5.6-7.3	.43	.43	5	5	56
	9-60	18-35	1.20-1.50	4.00-14.00	0.16-0.23	0.1-2.9	0.5-2.0	8.0-16	6.0-15	5.6-7.3	.43	.43			
60050: Urban land.															
Deible-----	0-10	10-27	1.30-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-4.0	6.0-20	4.0-18	4.5-7.8	.43	.43	3	5	56
	10-15	10-25	1.30-1.45	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.0	6.0-20	4.0-18	4.5-7.8	.43	.43			
	15-37	40-60	1.35-1.50	0.01-0.42	0.09-0.13	6.0-8.9	0.1-1.0	22-32	16-25	4.5-7.8	.32	.32			
	37-80	20-40	1.35-1.50	1.40-4.00	0.18-0.22	3.0-5.9	0.1-0.5	12-20	9.0-15	5.1-8.4	.37	.37			
64007, 64008, 64009: Freeburg-----	0-8	12-27	1.20-1.45	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	8.0-15	6.0-14	4.5-7.3	.37	.37	5	6	48
	8-18	10-20	1.40-1.50	4.00-14.00	0.18-0.20	0.1-2.9	0.2-1.0	6.0-14	4.0-12	4.5-6.5	.37	.37			
	18-37	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.1-0.5	10-25	8.0-23	4.5-5.5	.37	.37			
	37-65	20-35	1.35-1.50	1.40-4.00	0.16-0.20	3.0-5.9	0.1-0.5	10-22	8.0-20	4.5-7.3	.37	.37			
66000: Moniteau-----	0-7	15-27	1.20-1.40	4.00-14.00	0.21-0.23	0.1-2.9	1.0-2.0	10-14	7.0-12	5.1-6.5	.37	.37	5	6	48
	7-14	12-25	1.20-1.40	4.00-14.00	0.18-0.22	0.1-2.9	0.5-1.0	6.0-12	4.0-10	5.1-6.5	.37	.37			
	14-80	22-35	1.30-1.50	1.40-4.00	0.17-0.20	3.0-5.9	0.1-0.8	12-20	10-17	4.5-6.0	.43	.43			
66014: Haymond-----	0-6	10-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	8.0-18	5.0-15	6.1-7.8	.37	.37	5	5	56
	6-41	10-27	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	8.0-18	5.0-15	6.1-7.8	.37	.37			
	41-80	5-20	1.25-1.40	42.00-140.00	0.14-0.16	1.0-2.9	0.2-0.5	4.0-10	3.0-7.0	6.1-7.8	.28	.28			
66020: Haynie-----	0-9	3-15	1.20-1.35	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	10-20	15-25	6.6-8.4	.32	.32	5	4L	86
	9-80	3-15	1.20-1.35	4.00-14.00	0.17-0.22	0.1-2.9	0.1-1.0	10-20	15-25	7.4-8.4	.43	.43			
66024: Wilbur-----	0-8	10-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-6.0	18-25	13-23	5.6-7.3	.49	.49	5	5	56
	8-36	10-18	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.0	8.0-15	5.0-13	5.6-7.8	.55	.55			
	36-80	10-18	1.30-1.50	4.00-14.00	0.20-0.22	0.1-2.9	0.0-0.5	8.0-15	5.0-12	5.6-7.8	.49	.49			
66050: Tice-----	0-16	27-35	1.25-1.45	4.00-14.00	0.21-0.23	3.0-5.9	2.0-3.0	20-27	20-30	6.1-7.8	.32	.32	5	7	38
	16-80	22-35	1.30-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.0-1.0	16-23	26-30	5.6-7.8	.32	.32			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T		
66051: Perche-----	0-4 4-60	5-15 5-18	1.20-1.40 1.30-1.50	4.00-14.00 4.00-14.00	0.20-0.24 0.14-0.18	0.1-2.9 0.1-2.9	2.0-4.0 0.5-2.0	8.0-17 3.0-12	6.0-15 1.0-8.0	5.6-7.3 5.1-7.3	.37 .28	.37 .28	5	5	56
66052: Waldron-----	0-6 6-60	30-40 35-50	1.35-1.50 1.45-1.60	1.40-4.00 0.42-1.40	0.21-0.23 0.08-0.20	3.0-5.9 6.0-8.9	2.0-4.0 0.5-2.0	20-28 25-37	18-26 25-37	6.6-7.8 7.4-8.4	.32 .32	.32 .32	5	7	38
66053: Fishpot-----	0-47 47-80	18-27 18-35	1.40-1.60 1.30-1.45	1.40-4.00 1.40-4.00	0.07-0.22 0.18-0.20	3.0-5.9 3.0-5.9	0.5-2.0 0.5-2.0	10-20 10-17	7.0-15 7.0-13	5.6-7.3 5.6-7.3	.37 .37	.37 .37	5	6	48
Urban land.															
73046: Wrengart-----	0-6 6-26 26-45 45-60 60-80	12-27 20-35 18-32 28-34 40-80	1.30-1.50 1.30-1.50 1.50-1.70 1.30-1.50 1.30-1.50	4.00-14.00 4.00-14.00 1.40-4.00 4.00-14.00 1.40-4.00	0.20-0.22 0.18-0.20 0.10-0.15 0.05-0.10 0.08-0.12	0.1-2.9 3.0-5.9 0.1-2.9 3.0-5.9 6.0-8.9	1.0-2.0 0.5-1.0 0.1-0.5 0.1-0.5 0.1-0.5	8.0-15 11-20 11-22 11-22 25-40	5.0-12 10-19 7.0-18 7.0-18 23-38	5.6-7.3 4.5-6.5 4.5-7.3 4.5-7.3 5.1-7.8	.37 .43 .43 .10 .17	.37 .43 .43 .43 .28	4	5	56
73090: Useful-----	0-7 7-31 31-45 45-53 53-60	15-27 35-45 40-60 35-55 ---	1.35-1.45 1.25-1.35 1.25-1.55 1.25-1.50 ---	4.00-14.00 4.00-14.00 1.40-4.00 1.40-4.00 0.07-0.42	0.22-0.24 0.11-0.18 0.05-0.12 0.05-0.12 ---	0.1-2.9 6.0-8.9 6.0-8.9 6.0-8.9 ---	2.0-4.0 0.5-1.0 0.1-0.5 0.1-0.5 ---	10-17 18-23 18-30 18-30 ---	7.0-14 15-20 15-27 15-27 ---	5.1-6.5 4.5-6.0 5.6-7.8 5.6-7.8 ---	.37 .32 .32 .32 ---	.37 .32 .32 .43 ---	4	6	48
73200, 73201: Sonsac-----	0-3 3-8 8-11 11-32 32-60	9-27 9-27 18-39 50-85 ---	1.10-1.40 1.10-1.40 1.10-1.40 1.30-1.50 ---	4.00-14.00 4.00-14.00 1.00-4.00 0.40-1.40 0.07-0.42	0.12-0.17 0.12-0.17 0.09-0.15 0.08-0.12 ---	0.1-2.9 0.1-2.9 6.0-9.0 6.0-9.0 ---	0.5-2.0 0.5-1.0 0.5-1.0 0.5-1.0 ---	8.0-17 3.0-10 7.0-15 25-42 ---	6.0-12 2.0-8.0 5.0-13 20-54 ---	4.5-6.5 4.5-6.5 4.5-6.5 6.6-7.8 ---	.28 .32 .32 .20 ---	.37 .43 .32 .20 ---	3	8	0
73202: Rueter-----	0-2 2-13 13-48 48-80	4-27 4-25 20-35 40-75	1.20-1.40 1.20-1.40 1.30-1.45 1.20-1.40	14.00-42.00 14.00-42.00 14.00-42.00 4.00-14.00	0.12-0.17 0.12-0.17 0.06-0.10 0.05-0.08	0.1-2.9 0.1-2.9 0.1-2.9 6.0-8.9	0.5-2.0 0.0-0.5 0.0-0.5 0.0-0.5	8.0-23 2.0-8.0 8.0-12 30-45	6.0-15 1.0-6.0 6.0-10 29-44	3.5-6.0 3.5-6.0 3.5-5.5 3.5-5.5	.28 .28 .32 .20	.37 .37 .43 .28	3	8	0

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors			Wind erodi- bility	Wind erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T	group	index
73203: Rueter-----	0-2	4-27	1.20-1.40	14.00-42.00	0.12-0.17	0.1-2.9	0.5-2.0	8.0-23	6.0-15	3.5-6.0	.28	.37	3	8	0
	2-13	4-25	1.20-1.40	14.00-42.00	0.12-0.17	0.1-2.9	0.0-0.5	2.0-8.0	1.0-6.0	3.5-6.0	.28	.37			
	13-48	20-35	1.30-1.45	14.00-42.00	0.06-0.10	0.1-2.9	0.0-0.5	8.0-12	6.0-10	3.5-5.5	.32	.43			
	48-80	40-75	1.20-1.40	4.00-14.00	0.05-0.08	6.0-8.9	0.0-0.5	30-45	29-44	3.5-5.5	.20	.28			
Sonsac-----	0-3	9-27	1.10-1.40	4.00-14.00	0.12-0.17	0.1-2.9	0.5-2.0	8.0-17	6.0-12	4.5-6.5	.28	.37	3	8	0
	3-8	9-27	1.10-1.40	4.00-14.00	0.12-0.17	0.1-2.9	0.5-1.0	3.0-10	2.0-8.0	4.5-6.5	.32	.43			
	8-11	18-39	1.10-1.40	1.00-4.00	0.09-0.15	6.0-9.0	0.5-1.0	7.0-15	5.0-13	4.5-6.5	.32	.32			
	11-32	50-85	1.30-1.50	0.40-1.40	0.08-0.12	6.0-9.0	0.5-1.0	25-42	20-54	6.6-7.8	.20	.20			
	32-60	---	---	0.07-0.42	---	---	---	---	---	---	---	---			
73204: Ramsey-----	0-1	5-20	1.25-1.50	42.00-141.00	0.09-0.18	0.1-2.9	2.0-4.0	5.0-15	2.0-11	4.5-5.5	.20	.20	1	3	86
	1-4	5-25	1.20-1.40	42.00-141.00	0.09-0.16	0.1-2.9	0.5-1.5	3.0-15	1.0-13	4.5-5.5	.17	.20			
	4-10	3-20	1.25-1.40	42.00-141.00	0.09-0.12	0.1-2.9	0.1-0.5	2.0-15	1.0-14	4.5-5.5	.17	.20			
	10-17	2-15	1.25-1.40	42.00-141.00	0.09-0.12	0.1-2.9	0.1-0.5	1.0-10	0.2-5.0	4.5-5.5	.17	.20			
	17-60	---	---	0.00-0.14	---	---	---	---	---	---	---	---			
Rock outcrop.															
73205, 73206: Useful-----	0-7	15-27	1.20-1.45	4.00-14.00	0.20-0.24	0.1-2.9	2.0-4.0	10-17	7.0-14	5.1-6.5	.37	.37	4	6	48
	7-31	35-45	1.25-1.35	4.00-14.00	0.10-0.18	6.0-8.9	0.5-1.0	18-23	15-20	4.5-6.0	.32	.32			
	31-39	40-60	1.25-1.55	1.40-4.00	0.08-0.10	6.0-8.9	0.0-0.5	18-30	15-27	5.6-7.8	.32	.43			
	39-53	35-60	1.25-1.50	1.40-4.00	0.10-0.18	6.0-8.9	0.0-0.5	18-30	15-27	5.6-7.8	.32	.32			
	53-60	---	---	0.07-0.42	---	---	---	---	---	---	---	---			
73207: Caneyville-----	0-5	10-27	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	6.0-13	4.0-11	4.5-7.3	.43	.43	2	5	56
	5-21	36-60	1.35-1.60	1.40-4.00	0.18-0.20	3.0-5.9	0.0-1.0	15-25	8.0-18	4.5-7.3	.28	.28			
	21-32	40-60	1.35-1.60	1.40-4.00	0.06-0.13	3.0-5.9	0.0-1.0	22-32	17-27	4.5-7.3	.28	.28			
	32-60	---	---	0.42-0.70	---	---	---	---	---	---	---	---			
73208, 73209: Caneyville-----	0-3	10-27	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.5	11-19	5.0-13	4.5-7.3	.43	.43	2	5	56
	3-6	10-27	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	1.0-2.0	7.0-13	3.0-9.0	4.5-7.3	.28	.28			
	6-18	40-55	1.35-1.60	1.40-4.00	0.11-0.13	3.0-5.9	0.5-1.0	18-28	13-21	4.5-7.3	.28	.28			
	18-34	40-60	1.35-1.60	1.40-4.00	0.08-0.10	3.0-5.9	0.5-1.0	26-36	17-27	4.5-7.3	.28	.28			
	34-60	---	---	0.42-0.70	---	---	---	---	---	---	---	---			
73210: Goss-----	0-3	10-27	1.10-1.50	14.00-42.00	0.06-0.10	0.1-2.9	0.5-3.0	5.0-14	2.0-8.0	4.5-6.5	.24	.37	4	8	0
	3-9	10-27	1.10-1.70	14.00-42.00	0.06-0.10	0.1-2.9	0.2-1.0	3.0-10	1.0-7.0	4.5-6.0	.24	.32			
	9-80	35-90	1.30-1.60	4.00-14.00	0.06-0.10	3.0-5.9	0.2-1.0	25-35	18-28	4.5-7.3	.24	.28			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors			Wind erodi- bility	Wind erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T	group	index
73211, 73212: Gasconade-----	0-10 10-13 13-60	40-50 40-60 ---	1.35-1.50 1.45-1.70 ---	4.00-14.00 1.40-4.00 0.07-0.42	0.05-0.11 0.05-0.07 ---	6.0-8.9 6.0-8.9 ---	2.0-4.0 2.0-4.0 ---	28-40 26-35 ---	25-38 24-33 ---	6.1-7.8 6.1-7.8 ---	.20 .20 ---	.32 .28 ---	1	8	0
Rock outcrop.															
73213, 73214: Moko-----	0-5 5-10 10-60	18-27 18-35 ---	1.25-1.60 1.25-1.60 ---	4.00-14.00 4.00-14.00 0.00-1.40	0.08-0.17 0.07-0.14 ---	0.1-2.9 0.1-2.9 ---	2.0-6.0 2.0-6.0 ---	13-23 10-20 ---	25-35 25-36 ---	6.6-7.8 6.6-7.8 ---	.24 .37 ---	.43 .43 ---	1	8	0
Rock outcrop.															
73215, 73216: Crider-----	0-11 11-37 37-60	15-27 18-35 30-60	1.20-1.40 1.20-1.45 1.20-1.55	4.00-14.00 4.00-14.00 4.00-14.00	0.22-0.24 0.18-0.23 0.08-0.18	0.1-2.9 0.1-2.9 3.0-5.9	2.0-4.0 0.2-1.0 0.2-1.0	10-18 13-22 13-22	10-18 10-19 9.0-18	5.1-7.3 5.1-7.3 4.5-6.5	.32 .28 .28	.32 .28 .28	5	6	48
73217: Useful-----	0-7 7-31 31-39 39-53 53-60	15-27 35-45 40-60 35-60 ---	1.20-1.45 1.25-1.35 1.25-1.55 1.25-1.50 ---	4.00-14.00 4.00-14.00 1.40-4.00 1.40-4.00 0.07-0.42	0.20-0.24 0.10-0.18 0.08-0.10 0.10-0.18 ---	0.1-2.9 6.0-8.9 6.0-8.9 6.0-8.9 ---	2.0-4.0 0.5-1.0 0.0-0.5 0.0-0.5 ---	10-17 18-23 18-30 18-30 ---	7.0-14 15-20 15-27 15-27 ---	5.1-6.5 4.5-6.0 5.6-7.8 5.6-7.8 ---	.37 .32 .32 .32 ---	.37 .32 .43 .32 ---	4	6	48
Sonsac-----	0-3 3-8 8-11 11-32 32-60	9-27 9-27 18-39 50-85 ---	1.10-1.40 1.10-1.40 1.10-1.40 1.30-1.50 ---	4.00-14.00 4.00-14.00 1.00-4.00 0.40-1.40 0.07-0.42	0.12-0.17 0.12-0.17 0.09-0.15 0.08-0.12 ---	0.1-2.9 0.1-2.9 6.0-9.0 6.0-9.0 ---	0.5-2.0 0.5-1.0 0.5-1.0 0.5-1.0 ---	8.0-17 3.0-10 7.0-15 25-42 ---	6.0-12 2.0-8.0 5.0-13 20-54 ---	4.5-6.5 4.5-6.5 4.5-6.5 6.6-7.8 ---	.28 .32 .32 .20 ---	.37 .43 .32 .20 ---	3	8	0
73218: Tiff-----	0-3 3-80	50-90 50-90	1.30-1.50 1.10-1.30	1.40-4.00 1.40-4.00	0.10-0.13 0.06-0.10	3.0-5.9 3.0-5.9	0.3-1.0 0.2-0.5	20-45 20-40	15-40 15-30	4.5-7.3 4.5-7.3	.28 .28	.20 .20	5	8	0
73219: Rueter-----	0-2 2-13 13-48 48-80	4-27 4-25 20-35 40-75	1.20-1.40 1.20-1.40 1.30-1.45 1.20-1.40	14.00-42.00 14.00-42.00 14.00-42.00 4.00-14.00	0.12-0.17 0.12-0.17 0.06-0.10 0.05-0.08	0.1-2.9 0.1-2.9 0.1-2.9 6.0-8.9	0.5-2.0 0.0-0.5 0.0-0.5 0.0-0.5	8.0-23 2.0-8.0 8.0-12 30-45	6.0-15 1.0-6.0 6.0-10 29-44	3.5-6.0 3.5-6.0 3.5-5.5 3.5-5.5	.28 .28 .32 .20	.37 .37 .43 .28	3	8	0

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH					
74644: Deible-----	0-10	10-27	1.30-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-4.0	6.0-20	4.0-18	4.5-7.8	.43	.43	3	5	56
	10-15	10-25	1.30-1.45	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.0	6.0-20	4.0-18	4.5-7.8	.43	.43			
	15-37	40-60	1.35-1.50	0.01-0.42	0.09-0.13	6.0-8.9	0.1-1.0	22-32	16-25	4.5-7.8	.32	.32			
	37-80	20-40	1.35-1.50	1.40-4.00	0.18-0.22	3.0-5.9	0.1-0.5	12-20	9.0-15	5.1-8.4	.37	.37			
74675: Horsecreek-----	0-9	10-27	1.20-1.40	4.00-14.00	0.18-0.23	0.1-2.9	2.0-4.0	8.0-16	6.0-15	5.6-7.3	.43	.43	5	5	56
	9-60	18-35	1.20-1.50	4.00-14.00	0.16-0.23	0.1-2.9	0.5-2.0	8.0-16	6.0-15	5.6-7.3	.43	.43			
74676: Urban land.															
Freeburg-----	0-8	12-27	1.20-1.45	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	8.0-15	6.0-14	4.5-7.3	.37	.37	5	6	48
	8-18	10-20	1.40-1.50	4.00-14.00	0.18-0.20	0.1-2.9	0.2-1.0	6.0-14	4.0-12	4.5-6.5	.37	.37			
	18-37	27-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.1-0.5	10-25	8.0-23	4.5-5.5	.37	.37			
	37-65	20-35	1.35-1.50	1.40-4.00	0.16-0.20	3.0-5.9	0.1-0.5	10-22	8.0-20	4.5-7.3	.37	.37			
75375: Horsecreek-----	0-9	10-25	1.20-1.40	4.00-14.00	0.18-0.23	0.0-2.9	2.0-4.0	8.0-16	8.0-16	5.6-7.3	.43	.43	5	5	56
	9-19	10-25	1.20-1.40	4.00-14.00	0.18-0.23	0.0-2.9	1.0-2.0	8.0-16	8.0-16	5.6-7.3	.55	.55			
	19-60	18-34	1.20-1.50	4.00-14.00	0.16-0.23	0.0-2.9	0.5-2.0	8.0-16	8.0-16	5.6-7.3	.49	.49			
75385: Gabriel-----	0-14	12-27	1.25-1.45	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	15-25	10-19	6.1-7.3	.32	.32	5	6	48
	14-29	27-35	1.20-1.40	1.40-4.00	0.18-0.20	3.0-5.9	2.0-4.0	15-25	10-19	5.1-6.5	.37	.37			
	29-80	22-35	1.25-1.45	1.40-4.00	0.18-0.20	3.0-5.9	0.1-1.0	15-25	10-22	5.1-6.5	.37	.37			
75390: Razort-----	0-7	9-27	1.35-1.60	4.00-14.00	0.20-0.22	0.1-2.9	1.0-3.0	6.0-25	6.0-27	6.1-7.3	.37	.43	5	5	56
	7-34	18-35	1.35-1.60	4.00-14.00	0.17-0.22	0.1-2.9	0.5-1.0	5.0-20	5.0-20	5.6-7.3	.32	.43			
	34-80	10-27	1.35-1.50	14.00-42.00	0.08-0.10	0.1-2.9	0.5-1.0	5.0-20	5.0-20	5.6-7.3	.32	.43			
75398: Kaintuck-----	0-6	5-18	1.30-1.50	14.00-42.00	0.09-0.17	0.1-2.9	0.5-2.0	4.0-10	2.0-10	5.6-7.3	.24	.24	5	3	86
	6-80	5-18	1.20-1.50	14.00-42.00	0.06-0.20	0.1-2.9	0.1-1.0	5.0-8.0	2.0-8.0	5.6-7.3	.28	.28			
75450: Bloomsdale-----	0-20	10-20	1.10-1.30	4.00-14.00	0.10-0.24	0.1-2.9	1.0-2.0	5.0-20	3.0-20	5.6-7.3	.24	.32	5	8	0
	20-32	12-30	1.10-1.30	14.00-42.00	0.06-0.09	0.1-2.9	0.5-1.0	5.0-20	3.0-20	5.6-7.8	.24	.32			
	32-80	30-60	1.20-1.50	4.00-14.00	0.03-0.09	3.0-5.9	0.5-1.0	10-25	7.0-30	5.6-7.8	.24	.32			

Table 18.--Physical and Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Erosion factors			Wind erodi- bility	Wind erodi- bility
	In	Pct	g/cc	um/sec	In/in	Pct	Pct	meq/100	meq/100	pH	Kw	Kf	T	group	index
75452: Gladden-----	0-7	10-20	1.25-1.45	4.00-14.00	0.13-0.18	0.1-2.9	2.0-4.0	6.0-20	4.0-14	4.5-7.3	.32	.32	4	5	56
	7-40	10-18	1.30-1.50	4.00-14.00	0.13-0.18	0.1-2.9	0.2-2.0	6.0-12	4.0-12	4.5-7.3	.32	.32			
	40-80	2-12	1.30-1.55	14.00-140.00	0.01-0.03	0.1-2.9	0.0-0.5	3.0-12	2.0-11	4.5-7.3	.24	.32			
75453: Sturkie-----	0-8	15-27	1.20-1.40	4.00-14.00	0.20-0.24	0.1-2.9	2.0-4.0	10-30	10-30	5.6-7.8	.37	.37	5	5	56
	8-28	18-35	1.20-1.40	4.00-14.00	0.18-0.22	0.1-2.9	1.0-2.0	10-30	10-30	5.6-7.8	.37	.37			
	28-80	18-35	1.20-1.40	4.00-14.00	0.18-0.22	0.1-2.9	0.5-2.0	10-30	10-30	6.1-8.4	.37	.37			
75454: Urban land.															
Razort-----	0-7	9-27	1.35-1.60	4.00-14.00	0.20-0.22	0.1-2.9	1.0-3.0	6.0-25	6.0-27	6.1-7.3	.37	.43	5	5	56
	7-34	18-35	1.35-1.60	4.00-14.00	0.17-0.22	0.1-2.9	0.5-1.0	5.0-20	5.0-20	5.6-7.3	.32	.43			
	34-80	10-27	1.35-1.50	14.00-42.00	0.08-0.10	0.1-2.9	0.5-1.0	5.0-20	5.0-20	5.6-7.3	.32	.43			
99000. Pits, quarries															
99001. Water															
99003. Miscellaneous water															
99005: Landfills-----	0-60	---	---	---	---	---	---	---	---	---	---	---	--	8	0
99009: Udorthents.															
Pits.															

Table 19.--Water Features

(The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
60003, 60024: Menfro-----	B	None-----	---	---	>6.0	---	---
60025: Urban land-----	---	None-----	---	---	>6.0	---	---
Harvester-----	B	None-----	---	---	3.3-4.9	Perched	Nov-May
60037: Wrengart-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr
60038: Pevely-----	B	None-----	---	---	2.0-3.3	Perched	Nov-Apr
Holstein-----	B	None-----	---	---	>6.0	---	---
60039, 60040: Pevely-----	B	None-----	---	---	2.0-3.3	Perched	Nov-Apr
60041: Brussels-----	C	None-----	---	---	>6.0	---	---
Rock outcrop.							
60042, 60043: Menfro-----	B	None-----	---	---	>6.0	---	---
60044, 60045, 60046: Minnith-----	C	None-----	---	---	3.0-6.0	Perched	Nov-Apr
60047: Urban land.							
Harvester-----	B	None-----	---	---	3.3-4.9	Perched	Nov-May
60048: Weingarten-----	C	None-----	---	---	>6.0	---	---
60049: Horsecreek-----	B	None-----	---	---	>6.0	---	---
60050: Urban land.							
Deible-----	D	None-----	---	---	0.0-1.0	Perched	Nov-May
64007: Freeburg-----	C	Occasional	Brief-----	Nov-May	1.0-2.5	Perched	Nov-May
64008, 64009: Freeburg-----	C	None-----	---	---	1.0-2.5	Perched	Nov-May
66000: Moniteau-----	C/D	Occasional	Brief-----	Nov-May	0-1.0	Apparent	Nov-May
66014: Haymond-----	B	Frequent----	Brief-----	Nov-May	>6.0	---	---
66020: Haynie-----	B	Frequent----	Long-----	Nov-May	>6.0	---	---

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
66024: Wilbur-----	B	Frequent----	Long-----	Nov-May	1.5-2.0	Apparent	Nov-Jun
66050: Tice-----	B	Frequent----	Long-----	Nov-May	1.5-3.0	Apparent	Nov-May
66051: Perche-----	B	Occasional	Very brief	Nov-May	2.0-3.5	Apparent	Nov-Apr
66052: Waldron-----	D	Frequent----	Long-----	Nov-May	1.0-3.0	Apparent	Nov-May
66053: Fishpot-----	C	None-----	---	---	2.0-5.0	Perched	Nov-May
Urban land.							
73046: Wrengart-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr
73090: Useful-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr
73200, 73201: Sonsac-----	B	None-----	---	---	>6.0	---	---
73202: Rueter-----	B	None-----	---	---	>6.0	---	---
73203: Rueter-----	B	None-----	---	---	>6.0	---	---
Sonsac-----	B	None-----	---	---	>6.0	---	---
73204: Ramsey-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
73205, 73206: Useful-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr
73207, 73208, 73209: Caneyville-----	C	None-----	---	---	>6.0	---	---
73210: Goss-----	B	None-----	---	---	>6.0	---	---
73211, 73212: Gasconade-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
73213, 73214: Moko-----	D	None-----	---	---	>6.0	---	---
Rock outcrop.							
73215, 73216: Crider-----	B	None-----	---	---	>6.0	---	---
73217: Useful-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr

Table 19.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
73217: Sonsac-----	B	None-----	---	---	>6.0	---	---
73218: Tiff-----	C	None-----	---	---	>6.0	---	---
73219: Rueter-----	B	None-----	---	---	>6.0	---	---
74644: Deible-----	D	None-----	---	---	0-1.0	Perched	Nov-May
74675: Horsecreek-----	B	None-----	---	---	>6.0	---	---
74676: Urban land.							
Freeburg-----	C	None-----	---	---	1.0-2.5	Perched	Nov-May
75375: Horsecreek-----	B	Occasional	Very brief	Nov-May	>6.0	---	---
75385: Gabriel-----	B/D	Occasional	Brief-----	Nov-May	1.0-2.5	Apparent	Nov-May
75390: Razort-----	B	Rare-----	Brief-----	Nov-May	>6.0	---	---
75398: Kaintuck-----	B	Frequent----	Brief-----	Nov-May	>6.0	---	---
75450: Bloomsdale-----	B	Frequent----	Very brief	Nov-May	>6.0	---	---
75452: Gladden-----	B	Frequent----	Very brief	Nov-May	>6.0	---	---
75453: Sturkie-----	B	Occasional	Brief-----	Nov-Apr	>6.0	---	---
75454: Urban land-----	---	None-----	None-----	---	>6.0	---	---
Razort-----	B	Rare-----	Very brief	Nov-Apr	>6.0	---	---
99000: Pits, quarries-----	---	None-----	---	---	>6.0	---	---
99001. Water							
99003. Miscellaneous water							
99005. Landfills							
99009: Udorthents.							
Pits.							

Table 20.--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				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
60003, 60024: Menfro-----	---	---	---	---	High	Low	Moderate
60025: Urban land-----	---	---	---	---	None	---	---
Harvester-----	---	---	---	---	High	Low	Low
60037: Wrengart-----	Dense material	20-40	5-35	Noncemented	Moderate	Moderate	Moderate
60038: Pevely-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
Holstein-----	---	---	---	---	Moderate	Moderate	Moderate
60039: Pevely-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
60040: Pevely-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
60041: Brussels-----	---	---	---	---	Moderate	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
60042, 60043: Menfro-----	---	---	---	---	High	Low	Moderate
60044, 60045, 60046: Minnith-----	---	---	---	---	Moderate	Moderate	Moderate
60047: Urban land-----	---	---	---	---	None	---	---
Harvester-----	---	---	---	---	High	Low	Low
60048: Weingarten-----	Dense material	30-40	10-39	Noncemented	Moderate	Moderate	Moderate
60049: Urban land-----	---	---	---	---	None	---	---
Horsecreek-----	---	---	---	---	High	Low	Low
60050: Urban land-----	---	---	---	---	None	---	---
Deible-----	Abrupt textural change	13-22	14-22	Noncemented	Moderate	High	High
64007, 64008, 64009: Freeburg-----	---	---	---	---	High	High	High
66000: Moniteau-----	---	---	---	---	High	High	High
66014: Haymond-----	---	---	---	---	High	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		<u>In</u>	<u>In</u>				
66020: Haynie-----	---	---	---	---	High	Low	Low
66024: Wilbur-----	---	---	---	---	High	Moderate	Low
66050: Tice-----	---	---	---	---	High	High	Low
66051: Perche-----	---	---	---	---	Moderate	Moderate	Moderate
66052: Waldron-----	---	---	---	---	High	High	Low
66053: Fishpot-----	---	---	---	---	High	Moderate	Moderate
Urban land-----	---	---	---	---	None	---	---
73046: Wrengart-----	Dense material	20-40	5-35	Noncemented	Moderate	Moderate	Moderate
73090: Useful-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
73200, 73201: Sonsac-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73202: Rueter-----	---	---	---	---	Moderate	Low	High
73203: Rueter-----	---	---	---	---	Moderate	Low	High
Sonsac-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73204: Ramsey-----	Bedrock (lithic)	7-20	---	Indurated	Moderate	Low	Moderate
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
73205, 73206: Useful-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	Moderate
73207, 73208, 73209: Caneyville-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
73210: Goss-----	---	---	---	---	Moderate	Low	Moderate
73211, 73212: Gasconade-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
73213, 73214: Moko-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	Low	Low
Rock outcrop-----	Bedrock (lithic)	0-0	---	Indurated	None	---	---
73215, 73216: Crider-----	---	---	---	---	High	Moderate	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness		Uncoated steel	Concrete
		In	In			
73217: Useful-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate
Sonsac-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate
73218: Tiff-----	---	---	---	---	Moderate	High
73219: Rueter-----	---	---	---	---	Moderate	Low
74644: Deible-----	Abrupt textural change	13-22	14-22	Noncemented	Moderate	High
74675: Horsecreek-----	---	---	---	---	High	Low
74676: Urban land-----	---	---	---	---	None	---
Freeburg-----	---	---	---	---	High	High
75375: Horsecreek-----	---	---	---	---	High	Low
75385: Gabriel-----	---	---	---	---	High	High
75390: Razort-----	---	---	---	---	Moderate	Low
75398: Kaintuck-----	---	---	---	---	Moderate	High
75450: Bloomsdale-----	---	---	---	---	Moderate	Low
75452: Gladden-----	---	---	---	---	Moderate	High
75453: Sturkie-----	---	---	---	---	High	Low
75454: Urban land-----	---	---	---	---	None	---
Razort-----	---	---	---	---	Moderate	Low
99000. Pits, quarries						
99001. Water						
99003. Miscellaneous water						
99005: Landfills-----	---	---	---	---	None	---
99009: Udorthents-----	---	---	---	---	None	---
Pits-----	---	---	---	---	None	---

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (USDA, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1999) and in "Keys to Soil Taxonomy" (USDA, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Bloomsdale Series

The Bloomsdale series consists of very deep, well drained, moderately permeable soils. These soils formed in gravelly loamy alluvium on narrow flood plains. Slopes range from 0 to 3 percent.

Soils of the Bloomsdale series are loamy-skeletal, mixed, superactive, mesic Typic Hapludalfs.

Typical Pedon

Bloomsdale silt loam, 0 to 3 percent slopes, frequently flooded; USGS House Springs quadrangle; latitude 38 degrees 24 minutes 03 seconds N.; longitude 90 degrees 34 minutes 18 seconds W.

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; many very fine and fine and common medium and coarse roots; many very fine and fine vesicular pores; 12 percent chert gravel; strongly acid; clear smooth boundary.

2Bw1—8 to 19 inches; brown (10YR 4/3) very gravelly loam; moderate very fine granular structure; friable; many very fine and fine, common medium, and few coarse roots; many very fine and fine interstitial pores; common distinct organic coats on faces of peds; 40 percent chert gravel; slightly acid; clear wavy boundary.

2Bw2—19 to 39 inches; brown (10YR 4/3) very gravelly sandy loam; weak very fine subangular blocky structure; friable; common very fine and fine and few medium and coarse roots; common very fine, fine, and medium interstitial and tubular pores between rock fragments; very few distinct organic coats on faces of peds; 51 percent chert gravel; 5 percent chert cobbles; slightly alkaline; gradual wavy boundary.

2Bt1—39 to 56 inches; brown (7.5YR 4/4) extremely gravelly sandy loam; weak very fine subangular blocky structure; friable; common very fine and fine and few medium and coarse roots; few distinct clay films on faces of peds; common very fine and fine interstitial and few medium pores between rock fragments; 61 percent chert gravel; 5 percent chert cobbles; slightly alkaline; gradual wavy boundary.

3Bt2—56 to 80 inches; brown (7.5YR 4/4) extremely gravelly clay loam; weak very fine subangular blocky structure; firm; few very fine, fine, and medium roots; common distinct clay films on faces of peds; few very fine and fine interstitial and tubular pores; 70 percent chert gravel; 5 percent chert cobbles; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 3 or 4 and chroma of 2 or 3

2Bw and 2Bt horizons:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—very gravelly or extremely gravelly or cobbly to extremely cobbly analogues of silt loam, loam, or sandy loam

3Bt horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 or 4

Texture—gravelly, very gravelly, or extremely gravelly sandy clay loam or clay loam

Brussels Series

The Brussels series consists of very deep, well drained, moderately slowly permeable soils. These soils formed in colluvium weathered from limestone on backslopes of uplands. Slopes range from 35 to 90 percent.

Soils of the Brussels series are clayey-skeletal, mixed, superactive, mesic Typic Hapludolls.

Typical Pedon

Brussels very channery silty clay loam, in an area of Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony; USGS House Springs quadrangle; latitude 38 degrees 28 minutes 07 seconds N.; longitude 90 degrees 36 minutes 24 seconds W.

Ap—0 to 8 inches; very dark gray (10YR 3/1) very channery silty clay loam, very dark grayish brown (10YR 3/2) dry; moderate very fine granular structure; friable; common very fine, fine, and medium and few coarse roots; few very fine and fine vesicular pores; 10 percent limestone gravel; 30 percent limestone channers; slightly alkaline; clear smooth boundary.

AB—8 to 15 inches; very dark gray (10YR 3/1) extremely gravelly silty clay loam, very dark grayish brown (10YR 3/2) dry; moderate very fine granular structure parting to weak very fine subangular blocky; friable; common very fine, fine, and medium and few coarse roots; common very fine and fine vesicular pores; 45 percent limestone gravel; 15 percent limestone channers; slightly alkaline; gradual wavy boundary.

Bw1—15 to 23 inches; very dark grayish brown (10YR 3/2) very gravelly silty clay loam, light brownish gray (10YR 6/2) dry; weak fine angular blocky structure parting to weak very fine subangular blocky; firm; common very fine and fine and few medium and coarse roots; common very fine and fine vesicular and tubular pores;

very few faint clay films on faces of peds; 35 percent limestone gravel; 5 percent limestone channers; slightly alkaline; gradual smooth boundary.

Bw2—23 to 51 inches; dark yellowish brown (10YR 3/4) very stony silty clay loam; moderate very fine subangular blocky structure; firm; few very fine to coarse roots; common very fine and fine vesicular and tubular pores; very few faint clay films and distinct organic coats on faces of peds; 15 percent limestone gravel; 20 percent limestone channers; 20 percent limestone stones; slightly alkaline; gradual smooth boundary.

Bw3—51 to 64 inches; brown (10YR 4/3) very stony silty clay loam; weak very fine subangular blocky structure; firm; few very fine, fine, and medium roots; common very fine and fine vesicular and tubular pores; very few faint clay films on faces of peds; 15 percent limestone gravel; 15 percent limestone channers; 20 percent limestone stones; slightly alkaline; gradual smooth boundary.

Bw4—64 to 80 inches; dark yellowish brown (10YR 4/4) very stony silty clay loam; weak very fine subangular blocky structure; firm; few very fine and fine roots; common very fine and fine vesicular and tubular pores; 10 percent limestone gravel; 10 percent limestone channers; 15 percent limestone stones; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

A or Ap horizon:

Color—value of 2 or 3

AB horizon:

Color—value of 2 or 3

Texture—very gravelly, extremely gravelly, or very flaggy silty clay loam

Bw horizon:

Color—value of 3 or 4 and chroma of 2 to 4

Texture—very gravelly, extremely gravelly, very stony, extremely stony, very flaggy, or extremely flaggy analogues of silty clay loam or silty clay

Caneyville Series

The Caneyville series consists of moderately deep, well drained, moderately slowly permeable soils. These soils formed in clayey residuum weathered from dolostone on summits and backslopes of uplands. Slopes range from 3 to 30 percent.

Soils of the Caneyville series are fine, mixed, active, mesic Typic Hapludalfs.

Typical Pedon

Caneyville silt loam, 15 to 30 percent slopes; USGS Belew Creek quadrangle; latitude 38 degrees 16 minutes 34 seconds N.; longitude 90 degrees 37 minutes 27 seconds W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine granular structure; friable; common very fine and fine roots; common very fine and fine vesicular pores; 5 percent chert gravel; strongly acid; clear smooth boundary.

E—3 to 6 inches; brown (7.5YR 5/4) silt loam; moderate very fine subangular blocky structure; friable; common very fine and fine roots; common very fine and fine interstitial and tubular pores; very few distinct silt coats in pores and on faces of peds; 5 percent chert gravel; very strongly acid; gradual smooth boundary.

Bt1—6 to 12 inches; brown (7.5YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine, fine, and medium roots; common very fine and fine interstitial and tubular pores; very few distinct silt coats and clay films on faces of peds; 5 percent chert gravel; very strongly acid; clear smooth boundary.

Bt2—12 to 18 inches; strong brown (7.5YR 4/6) silty clay; moderate fine and strong very fine subangular blocky structure; very firm; common very fine, fine, and medium roots; common very fine and fine interstitial and tubular pores; very few distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3—18 to 26 inches; strong brown (7.5YR 4/6) gravelly clay; strong very fine angular blocky structure; very firm; common very fine and fine roots; common very fine and fine interstitial and tubular pores; very few distinct clay films on faces of peds; few fine iron-manganese stains; 30 percent chert gravel; very strongly acid; gradual wavy boundary.

Bt4—26 to 34 inches; yellowish red (5YR 4/6) gravelly clay; strong very fine angular blocky structure; very firm; common very fine and fine interstitial and tubular pores; very few distinct clay films on faces of peds; 20 percent chert gravel; moderately acid; abrupt irregular boundary.

R—34 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3

E horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4

Bt horizon:

Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 3, 4, 6, or 8

Texture—silty clay, silty clay loam, clay loam, loam, clay, or their gravelly analogues

Crider Series

The Crider series consists of very deep, well drained, moderately permeable soils. These soils formed in loess over clayey residuum weathered from limestone or dolostone on footslopes and backslopes of uplands. Slopes range from 3 to 15 percent.

Soils of the Crider series are fine-silty, mixed, active, mesic Typic Paleudalfs.

Typical Pedon

Crider silt loam, 3 to 8 percent slopes; USGS Fletcher quadrangle; latitude 38 degrees 08 minutes 23 seconds N.; longitude 90 degrees 43 minutes 00 seconds W.

A—0 to 6 inches; dark brown (7.5YR 4/3) silt loam, brown (10YR 5/3) dry; weak fine granular structure; very friable; many very fine and fine and few medium roots; few very fine vesicular pores; neutral; gradual smooth boundary.

AB—6 to 11 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; common very fine and fine and few medium roots; common very fine and fine vesicular and tubular pores; neutral; clear smooth boundary.

Bt1—11 to 19 inches; brown (7.5YR 4/4) silty clay loam; weak fine subangular blocky structure; firm; few very fine, fine, and medium roots; common very fine and fine vesicular and tubular pores; common distinct clay films on faces of peds; neutral; gradual smooth boundary.

2Bt2—19 to 26 inches; yellowish red (5YR 4/6) silty clay loam; weak fine subangular blocky structure; firm; common very fine and fine roots; common very fine and fine vesicular and tubular pores; common distinct clay films on faces of peds; moderately acid; gradual smooth boundary.

2Bt3—26 to 37 inches; yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) silty clay loam; weak fine subangular blocky structure; firm; common

very fine and fine roots; common very fine and fine vesicular and tubular pores; common prominent silt coats and common distinct clay films on faces of peds; few prominent iron-manganese stains; strongly acid; clear smooth boundary.

2Bt4—37 to 54 inches; yellowish red (5YR 4/6) silty clay loam; common fine prominent brown (10YR 5/3) mottles; weak medium subangular blocky structure; very firm; few very fine and fine roots; common very fine and fine vesicular and tubular pores; many prominent clay films and common prominent silt coats on faces of peds; very few iron-manganese stains; moderately acid; clear smooth boundary.

2Bt5—54 to 72 inches; red (2.5YR 4/6) and yellowish red (5YR 5/8) silty clay loam; weak medium subangular blocky structure; very firm; few very fine and fine roots; common very fine and fine vesicular and tubular pores; many prominent clay films and few prominent silt coats on faces of peds; very few iron-manganese stains; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—hue of 7.5YR or 10YR and chroma of 2 to 4

AB horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 5

Bt horizon:

Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—silt loam or silty clay loam

2Bt horizon:

Color—hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 4, 6, or 8

Texture—silty clay loam, silty clay, clay, or gravelly silty clay

Deible Series

The Deible series consists of very deep, poorly drained, very slowly permeable soils. These soils formed in clayey alluvium over colluvium on stream terraces. Slopes range from 1 to 3 percent.

Soils of the Deible series are fine, mixed, active, mesic Typic Albaqualfs.

Typical Pedon

Deible silt loam, 1 to 3 percent slopes; USGS Pacific quadrangle; latitude 38 degrees 28 minutes 50 seconds N.; longitude 90 degrees 38 minutes 52 seconds W.

Ap1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak fine granular structure; very friable; many fine and few medium roots; moderately acid; abrupt smooth boundary.

Ap2—3 to 10 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate fine platy structure; very friable; common fine roots; few very fine vesicular pores; common fine irregular iron-manganese concretions; slightly acid; clear smooth boundary.

E1—10 to 16 inches; pale brown (10YR 6/3) silt loam; weak thin platy structure parting to weak very fine granular; very friable; common fine roots; few very fine vesicular pores; very few fine irregular iron-manganese concretions; slightly acid; clear smooth boundary.

E2—16 to 19 inches; pale brown (10YR 6/3) silt loam; weak thin platy structure parting to weak fine subangular blocky; friable; common fine roots; many fine and common very fine tubular pores; common fine irregular iron-manganese concretions; moderately acid; abrupt smooth boundary.

Btg1—19 to 25 inches; 95 percent light brownish gray (10YR 6/2) and 5 percent light gray (10YR 7/2) silty clay loam; weak fine subangular blocky structure; friable; few fine roots; common very fine tubular pores; few distinct clay films on faces of peds; common fine irregular iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg2—25 to 32 inches; light brownish gray (10YR 6/2) and light yellowish brown (10YR 6/4) silty clay loam; moderate fine subangular blocky structure; firm; few fine roots; few very fine tubular pores; few distinct clay films on faces of peds; common fine irregular iron-manganese concretions; common fine prominent yellowish brown (10YR 5/8) iron accumulations; very strongly acid; gradual smooth boundary.

Btg3—32 to 58 inches; grayish brown (10YR 5/2) and pale brown (10YR 6/3) silty clay loam; weak fine subangular blocky structure; firm; few very fine and fine roots; few very fine tubular pores; few distinct clay films on faces of peds; common fine irregular iron-manganese concretions; few fine distinct yellowish brown (10YR 5/6) iron

accumulations; strongly acid; gradual smooth boundary.

2Btg4—58 to 81 inches; light brownish gray (10YR 6/2) silt loam; common fine faint brown (10YR 5/3) mottles; weak fine subangular blocky structure; firm; few very fine and fine roots; few very fine tubular pores; few distinct clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) iron accumulations; 5 percent chert gravel; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5 and chroma of 2 or 3

E horizon:

Color—value of 5 or 6 and chroma of 2 or 3

Btg horizon:

Color—value of 4 to 7 and chroma of 2 to 4

Texture—silty clay loam or silty clay

2Btg horizon:

Color—value of 4 to 6 and chroma of 1 to 3

Texture—silt loam or silty clay loam

Fishpot Series

The Fishpot series consists of very deep, somewhat poorly drained, moderately slowly permeable soils. These soils formed in a mixture of loess and alluvium and fill materials from the adjacent uplands on stream terraces. Slopes range from 0 to 3 percent.

Soils of the Fishpot series are fine-loamy, mixed, superactive, nonacid, mesic Aquic Udorthents.

Typical Pedon

Fishpot silt loam, in an area of Fishpot-Urban land complex, 0 to 3 percent slopes; USGS Webster Groves quadrangle; latitude 38 degrees 29 minutes 21 seconds N.; longitude 90 degrees 32 minutes 25 seconds W.

A—0 to 1 inch; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

C1—1 to 8 inches; brown (7.5YR 4/4) silt loam; few medium distinct pale brown (10YR 6/3) mottles; moderate fine and medium fragments; firm; common fine roots; few pieces of glass; neutral; abrupt wavy boundary.

C2—8 to 34 inches; very dark grayish brown (10YR

3/2) silt loam mixed with brown (10YR 4/3 and 7.5YR 4/4) and yellowish brown (10YR 5/4) material; common medium and large pockets of discontinuous bands of brown (7.5YR 4/4) silt loam; moderate medium and fine fragments; firm; common fine roots; 20 percent fine and medium fragments and pieces of cinders, china, brick, glass, concrete, and metal; neutral; abrupt irregular boundary.

C3—34 to 47 inches; brown (7.5YR 4/4) silt loam; weak medium fragments; firm; few roots; few black concretions of iron-manganese; common medium and coarse grayish brown (10YR 5/2) iron depletions; neutral; abrupt wavy boundary.

2Ab—47 to 54 inches; mottled grayish brown (10YR 5/2) and brown (10YR 5/3) silt loam; medium thin platy structure; firm; few roots; common black and reddish brown iron-manganese concretions; common dark reddish brown (2.5YR 3/4) and reddish brown (5YR 4/4) stains; neutral; abrupt wavy boundary.

2C—54 to 60 inches; mottled grayish brown (10YR 5/2), brown (10YR 5/3), and dark yellowish brown (10YR 4/4) silt loam; massive; friable; few fine iron-manganese concretions; few medium pale brown (10YR 6/3) and strong brown (7.5YR 5/6) stains; common thin silt lamellae; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

C horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4

2Ab horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 or 3

2C horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2, 3, 4, or 6

Freeburg Series

The Freeburg series consists of very deep, somewhat poorly drained, moderately slowly permeable soils. These soils formed in silty alluvium on stream terraces and footslopes. Slopes range from 0 to 9 percent.

Soils of the Freeburg series are fine-silty, mixed, superactive, mesic Aquic Hapludalfs.

Typical Pedon

Freeburg silt loam, 2 to 5 percent slopes; USGS House Springs quadrangle; latitude 38 degrees 29 minutes 21 seconds N.; longitude 90 degrees 32 minutes 25 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, very pale brown (10YR 6/3) dry; moderate fine granular structure; very friable; many very fine and fine roots; few very fine interstitial pores; moderately acid; abrupt smooth boundary.

Bt1—8 to 14 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; many very fine and fine roots; common very fine and fine vesicular and tubular pores; few distinct clay films on vertical and horizontal faces of peds; few distinct clay depletions; few fine iron-manganese concretions; strongly acid; clear smooth boundary.

Bt2—14 to 23 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; many very fine and fine roots; common very fine and fine vesicular and tubular pores; common distinct clay films on vertical and horizontal faces of peds; common distinct clay depletions; few fine and medium iron-manganese concretions; few fine faint yellowish brown (10YR 5/4) iron accumulations; few fine distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary.

Bt3—23 to 30 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate coarse subangular blocky structure; firm; common very fine and fine roots; common very fine and fine vesicular and tubular pores; common distinct clay films on vertical and horizontal faces of peds; common distinct clay depletions; few fine and medium iron-manganese concretions; few fine distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary.

Bt4—30 to 42 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium and coarse prismatic structure; firm; few very fine and fine roots; common very fine and fine vesicular and tubular pores; common distinct clay films on vertical and horizontal faces of peds; common distinct clay depletions; common fine and medium iron-manganese concretions; common fine distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary.

Bt5—42 to 54 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate coarse prismatic structure; firm; few very fine and fine roots;

common very fine and fine vesicular and tubular pores; common distinct clay films on vertical and horizontal faces of peds; common fine and medium iron-manganese concretions; few fine strong brown iron accumulations; common fine distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; gradual smooth boundary.

Bt6—54 to 65 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate coarse prismatic structure; firm; few very fine and fine roots; common very fine and fine vesicular and tubular pores; common distinct clay films on vertical and horizontal faces of peds; common fine and medium iron-manganese concretions; few fine strong brown iron accumulations; common fine distinct grayish brown (10YR 5/2) iron depletions; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5

E horizon (where present):

Color—value of 5 to 7 and chroma of 2 or 3

Bt horizon:

Color—value of 4 to 6 and chroma of 2, 3, 4, or 6

Gabriel Series

The Gabriel series consists of very deep, poorly drained, moderately slowly permeable soils. These soils formed in silty alluvium on stream terraces. Slopes range from 0 to 2 percent.

Soils of the Gabriel series are fine-silty, mixed, superactive, mesic Typic Argiaquolls.

Typical Pedon

Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded; USGS Pacific quadrangle; latitude 38 degrees 24 minutes 15 seconds N.; longitude 90 degrees 31 minutes 23 seconds W.

Ap—0 to 10 inches; dark brown (10YR 3/3) silt loam, grayish brown (10YR 5/2) dry; weak very fine subangular blocky structure; friable; common fine and medium roots; neutral; abrupt smooth boundary.

A—10 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine subangular blocky structure; firm; common very fine roots; common very fine

vesicular pores; few fine iron-magnesium stains; neutral; clear smooth boundary.

Btg1—15 to 21 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate very fine subangular blocky structure; very firm; few very fine roots; common very fine vesicular pores; few distinct clay films on faces of peds; few fine irregular soft masses of iron and few fine rounded iron-manganese concretions; few fine iron-magnesium stains; neutral; gradual smooth boundary.

Btg2—21 to 30 inches; very dark grayish brown (2.5Y 3/2) silty clay loam, grayish brown (2.5Y 5/2) dry; moderate fine subangular blocky parting to weak very fine angular blocky structure; very firm; few very fine vesicular pores; few distinct clay films on faces of peds; common fine rounded iron-manganese concretions; few fine prominent yellowish brown (10YR 5/6) iron accumulations; neutral; gradual smooth boundary.

Btg3—30 to 42 inches; dark grayish brown (2.5Y 4/2) silty clay loam; moderate very fine angular blocky structure; very firm; few very fine vesicular pores; few distinct clay films on faces of peds; common fine rounded iron-manganese concretions; few fine prominent yellowish brown (10YR 5/6) iron accumulations; neutral; gradual smooth boundary.

Btg4—42 to 70 inches; dark gray (2.5Y 4/1) silty clay loam; moderate very fine angular blocky structure; very firm; few very fine vesicular pores; few distinct clay films on faces of peds; common fine rounded iron-manganese concretions; common fine prominent yellowish brown (10YR 5/6) iron accumulations; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap and A horizons:

Color—value of 2 or 3 and chroma of 1 to 3

Btg horizon:

Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 or 2

Texture—silty clay loam or silty clay

Gasconade Series

The Gasconade series consists of very shallow and shallow, somewhat excessively drained, moderately slowly permeable soils. These soils formed in clayey residuum weathered from limestone on uplands. Slopes range from 3 to 50 percent.

Soils of the Gasconade series are clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls.

Typical Pedon

Gasconade very channery silty clay, in an area of Gasconade-Rock outcrop complex, 15 to 50 percent slope, rubbly; USGS Pacific quadrangle; latitude 38 degrees 24 minutes 09 seconds N.; longitude 90 degrees 40 minutes 09 seconds W.

A—0 to 10 inches; very dark grayish brown (10YR 3/2) very channery silty clay, very dark grayish brown (10YR 3/2) dry; moderate very fine granular structure parting to weak very fine subangular blocky; firm; common very fine and fine roots; common very fine and fine vesicular pores; 30 percent limestone channers; 10 percent chert gravel; neutral; clear smooth boundary.

Bw—10 to 13 inches; brown (7.5YR 4/3) channery silty clay; strong very fine subangular blocky structure; very firm; common very fine and fine roots; common very fine and fine vesicular pores; common fine distinct strong brown (7.5YR 5/6) iron stains; 30 percent limestone channers; neutral; abrupt irregular boundary.

R—13 inches; limestone bedrock.

Range in Characteristics

Depth to bedrock: 4 to 20 inches

A horizon:

Color—chroma of 1 or 2

Bw horizon:

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 or 2

Texture—very gravelly, extremely gravelly, very channery, or extremely channery analogues of silty clay or silty clay loam

Gladden Series

The Gladden series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in loamy alluvium over gravelly alluvium on narrow flood plains. Slopes range from 0 to 3 percent.

Soils of the Gladden series are coarse-loamy, siliceous, superactive, mesic Dystric Fluventic Eutrudepts.

Typical Pedon

Gladden fine sandy loam, 0 to 3 percent slopes, frequently flooded; USGS Festus quadrangle; latitude

38 degrees 13 minutes 38 seconds N.; longitude 90 degrees 27 minutes 02 seconds W.

A—0 to 7 inches; brown (10YR 4/3) fine sandy loam, brown (10YR 5/3) dry; weak very fine granular structure; very friable; many very fine and fine and common medium roots; many very fine and fine vesicular and tubular pores; neutral; clear smooth boundary.

Bw1—7 to 15 inches; dark yellowish brown (10YR 4/4) medium sandy loam; weak very fine subangular blocky structure; friable; common very fine and fine and few medium roots; common very fine and fine interstitial and tubular pores; neutral; gradual smooth boundary.

Bw2—15 to 23 inches; yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; common very fine interstitial and tubular pores; neutral; gradual smooth boundary.

Bw3—23 to 41 inches; dark yellowish brown (10YR 4/4) and strong brown (7.5YR 4/6) loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; common very fine interstitial and tubular pores; neutral; abrupt wavy boundary.

2C1—41 to 55 inches; strong brown (7.5YR 4/6) very gravelly coarse sand; massive; friable; common very fine interstitial pores; 56 percent chert gravel; neutral; gradual wavy boundary.

2C2—55 to 63 inches; strong brown (7.5YR 5/6) extremely gravelly coarse sand; single grained; loose; few very fine interstitial pores; 70 percent chert gravel; neutral; gradual wavy boundary.

2C3—63 to 72 inches; brown (7.5YR 5/4) very gravelly loamy coarse sand; single grained; loose; few very fine interstitial pores; 56 percent chert gravel; neutral; gradual wavy boundary.

2C4—72 to 80 inches; brown (10YR 4/3) extremely gravelly medium sandy loam; single grained; loose; few very fine interstitial pores; 68 percent chert gravel; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 4 or 5

Bw horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—loam or sandy loam

2C horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—gravelly to extremely gravelly analogues of silt loam, loam, fine sandy loam, sandy loam, coarse sand, or loamy coarse sand

Goss Series

The Goss series consists of very deep, well drained, moderately permeable soils. These soils formed in clayey residuum from cherty limestone on backslopes of uplands. Slopes range from 15 to 50 percent.

Soils of the Goss series are clayey-skeletal, mixed, active, mesic Typic Paleudalfs.

Typical Pedon

Goss very cobbly silt loam, 15 to 50 percent slopes, extremely stony; USGS Vineland quadrangle; latitude 38 degrees 01 minute 40 seconds N.; longitude 90 degrees 36 minutes 17 seconds W.

Oi—1 to 0 inches; partially decomposed leaves, roots and twigs.

A—0 to 3 inches; brown (10YR 4/3) very cobbly silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; common medium roots; few fine interstitial pores; 30 percent druse quartz gravel; 20 percent druse quartz cobbles; strongly acid; clear wavy boundary.

E—3 to 9 inches; brown (7.5YR 4/4) very gravelly silt loam; weak fine subangular blocky structure parting to weak fine granular; friable; many coarse, common medium, and few fine roots; few very fine interstitial and tubular pores; 45 percent druse quartz gravel; strongly acid; clear wavy boundary.

Bt1—9 to 16 inches; red (2.5YR 4/8) very cobbly silty clay loam; weak fine subangular blocky structure; firm; few fine roots; few very fine interstitial and tubular pores; common distinct clay films on faces of peds; 20 percent druse quartz gravel; 20 percent druse quartz cobbles; strongly acid; abrupt wavy boundary.

Bt2—16 to 35 inches; dark red (2.5YR 3/6) extremely cobbly clay; moderate medium angular blocky structure; firm; common fine and medium roots; few fine interstitial and tubular pores; many prominent clay films on faces of peds; 10 percent druse quartz gravel; 55 percent druse quartz cobbles; strongly acid; clear wavy boundary.

Bt3—35 to 68 inches; dark red (2.5YR 3/6) cobbly clay; moderate medium angular blocky structure; very firm; common fine and medium roots; few fine interstitial and tubular pores; many prominent clay films on faces of peds; 20 percent druse quartz cobbles; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4

Texture—silt loam or its gravelly to extremely gravelly analogues

Upper Bt horizon:

Color—hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 4, 6, or 8

Texture—very gravelly or extremely gravelly or cobbly to extremely cobbly analogues of silty clay loam or silt loam

Lower Bt horizon:

Color—hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 4, 6, or 8

Texture—very gravelly or extremely gravelly or cobbly to extremely cobbly analogues of clay or silty clay

Harvester Series

The Harvester series consists of very deep, moderately well drained, moderately slowly permeable soils. These soils formed in 12 to 40 inches of reworked loess fill material over truncated or buried loess soils on summits and backslopes of uplands. Slopes range from 3 to 15 percent.

Soils of the Harvester series are fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents.

Typical Pedon

Harvester silt loam, in an area of Urban land-Harvester complex, 8 to 15 percent slopes; USGS Kampville quadrangle; latitude 38 degrees 47 minutes 24 seconds N.; longitude 90 degrees 34 minutes 12 second W.

A—0 to 2 inches; brown (10YR 4/3) silt loam, brown (10YR 5/3) dry; few pockets of dark brown (7.5YR 4/4) silty clay loam; moderate very fine granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

- C1—2 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; common pockets of dark brown (7.5YR 4/4) silty clay loam; weak medium fragments; friable; many fine roots; neutral; clear smooth boundary.
- C2—7 to 13 inches; dark brown (7.5YR 4/4) silty clay loam; few fine pockets and thin discontinuous lenses of brown (10YR 4/3) silt loam; strong medium platy fragments; firm; common fine roots; medium acid; abrupt smooth boundary.
- C3—13 to 15 inches; dark brown (10YR 4/3) silt loam; few blocky pockets of brown (7.5YR 4/4) silty clay loam; moderate medium platy fragments; firm; common fine roots; slightly acid; abrupt smooth boundary.
- C4—15 to 21 inches; brown (7.5YR 4/4) silty clay loam; few thin discontinuous lenses of brown (10YR 4/3) silt loam; strong coarse blocky fragments; very firm; common fine roots flattened along faces of peds; common black (10YR 2/1) masses of iron-manganese accumulation; neutral; abrupt smooth boundary.
- C5—21 to 31 inches; dark grayish brown (10YR 4/2) silt loam; common fine pockets of brown to dark brown (7.5YR 4/4) silty clay loam; moderate medium platy fragments; firm; common reddish brown (5YR 4/4) masses of iron accumulation along cleavage planes; common partly decomposed organic material; neutral; abrupt smooth boundary.
- Btb1—37 to 47 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure; very firm; few fine black (10YR 2/1) iron-manganese concretions; slightly acid; gradual smooth boundary.
- Btb2—47 to 67 inches; brown to dark brown (7.5YR 4/4) silty clay loam; weak medium prismatic structure; firm; few fine black (10YR 2/1) iron-manganese concretions; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4

C horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2, 3, 4, or 6

Texture—silt loam or silty clay loam

Btb horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 or 4

Texture—silty clay loam or silt loam

Haymond Series

The Haymond series consists of very deep, well drained, moderately permeable soils. These soils formed in coarse-silty alluvium on flood plains.

Slopes range from 0 to 3 percent.

Soils of the Haymond series are coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts.

Typical Pedon

Haymond silt loam, 0 to 3 percent slopes, frequently flooded; USGS Fletcher quadrangle; latitude 38 degrees 09 minutes 49 seconds N.; longitude 90 degrees 42 minutes 38 second W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; common very fine, fine, and medium roots; few very fine tubular pores; slightly alkaline; clear smooth boundary.

Bw1—6 to 11 inches; brown (10YR 4/3) silt loam; weak very fine subangular blocky structure; very friable; common fine and few very fine roots; few very fine tubular pores; slightly alkaline; gradual smooth boundary.

Bw2—11 to 24 inches; brown (10YR 4/3) silt loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; few very fine tubular pores; slightly alkaline; gradual smooth boundary.

2Ab—24 to 41 inches; dark brown (10YR 3/3) silt loam; weak very fine subangular blocky structure; friable; few very fine and fine roots; few very fine tubular pores; slightly alkaline; gradual smooth boundary.

3C—41 to 70 inches; brown (10YR 4/3) fine sandy loam; massive; friable; few very fine tubular pores; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5

Bw horizon:

Color—value of 4 or 5 and chroma of 3 or 4

2Ab horizon:

Color—chroma of 2 or 3

3C horizon:

Color—chroma of 3 or 4

Texture—silt loam, loam, or fine sandy loam

Haynie Series

The Haynie series consists of very deep, well drained, moderately permeable soils. These soils formed in coarse-silty calcareous alluvium on the Mississippi River flood plain. Slopes range from 0 to 2 percent.

Soils of the Haynie series are coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents.

Typical Pedon

Haynie silt loam, 0 to 2 percent slopes, frequently flooded; USGS Selma quadrangle; latitude 38 degrees 14 minutes 03 seconds N.; longitude 90 degrees 20 minutes 56 seconds W.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common fine and medium roots; few very fine vesicular pores; very slight effervescence; slightly alkaline; clear smooth boundary.

C1—9 to 15 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; few very fine and fine roots; common fine vesicular pores; few thin strata; very slight effervescence; slightly alkaline; gradual smooth boundary.

C2—15 to 24 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; very friable; few very fine and fine roots; common fine vesicular pores; few prominent brown (7.5YR 4/4) iron stains on faces of peds; very slight effervescence; slightly alkaline; clear smooth boundary.

C3—24 to 29 inches; dark grayish brown (10YR 4/2) very fine sandy loam; massive; very friable; few very fine and fine roots; common fine vesicular pores; few prominent brown (7.5YR 4/4) iron stains on faces of peds; slight effervescence; common thin strata; slightly alkaline; abrupt wavy boundary.

C4—29 to 43 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few fine tubular pores; very few prominent brown (7.5YR 4/4) iron stains on faces of peds; slight effervescence; 10 percent wood fragments; few thin strata; slightly alkaline; clear wavy boundary.

C5—43 to 54 inches; dark grayish brown (10YR 4/2) stratified silt loam and fine sandy loam; massive; friable; very few prominent dark yellowish brown (10YR 4/6) iron stains on faces of peds; slight effervescence; moderately alkaline; clear smooth boundary.

C6—54 to 64 inches; dark grayish brown (10YR 4/2)

silt loam; massive; friable; common prominent dark yellowish brown (10YR 4/6) iron stains on faces of peds; slight effervescence; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 2 or 3

C horizon:

Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4

Texture—silt loam, very fine sandy loam, or sandy loam

Holstein Series

The Holstein series consists of very deep, well drained, moderately permeable soils. These soils formed in colluvium weathered from sandstone on lower backslopes of uplands. Slopes range from 8 to 30 percent.

Soils of the Holstein series are fine-loamy, mixed, active, mesic Typic Paleudalfs.

Typical Pedon

Holstein fine sandy loam, in an area of Pevely-Holstein complex, 8 to 30 percent slopes; USGS Belew Creek quadrangle; latitude 38 degrees 17 minutes 31 seconds N.; longitude 90 degrees 33 minutes 40 seconds W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; weak very fine granular structure; very friable; common very fine and fine roots; common very fine and fine interstitial pores; slightly acid; clear smooth boundary.

E—4 to 9 inches; brown (10YR 5/3) fine sandy loam; weak fine subangular blocky and weak very fine granular structure; very friable; common very fine to coarse roots; common very fine and fine interstitial pores; moderately acid; clear smooth boundary.

Bt1—9 to 13 inches; yellowish red (5YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable; common very fine and medium roots; common very fine and fine interstitial and tubular pores; very few faint clay films and distinct silt coats on faces of peds; strongly acid; clear smooth boundary.

Bt2—13 to 28 inches; yellowish red (5YR 4/6) clay loam; moderate very fine and fine subangular

blocky structure; firm; common very fine, fine, and medium roots; common very fine and fine interstitial and tubular pores; very few distinct clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt3—28 to 52 inches; yellowish red (5YR 4/6) clay loam; moderate very fine and medium subangular blocky structure; firm; common very fine and fine roots; common very fine and fine interstitial and tubular pores; very few distinct clay films on faces of peds; 5 percent cherty gravel; strongly acid; gradual smooth boundary.

Bt4—52 to 65 inches; yellowish red (5YR 5/8) sandy clay loam; moderate fine subangular blocky structure; firm; common very fine and fine interstitial and tubular pores; very few distinct clay films and prominent manganese or iron-manganese stains on faces of peds; moderately acid, abrupt smooth boundary.

2R—65 inches; sandstone bedrock.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon:

Color—value of 4 or 5 and chroma of 2 or 3

Bt horizon:

Color—hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 or 8

Texture—clay loam or sandy clay loam

Horsecreek Series

The Horsecreek series consists of very deep, well drained, moderately permeable soils. These soils formed in silty alluvium on stream terraces. Slopes range from 0 to 5 percent.

Soils of the Horsecreek series are fine-silty, mixed, active, mesic Mollic Hapludalfs.

Typical Pedon

Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded; USGS House Springs quadrangle; latitude 38 degrees 25 minutes 58 seconds N.; longitude 90 degrees 35 minutes 34 seconds W.

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak very fine granular structure; very friable; common very fine and fine roots; few very fine vesicular pores; neutral; abrupt smooth boundary.

AB—8 to 13 inches; brown (10YR 4/3) silt loam; weak very fine granular structure; friable; few very fine roots; common fine tubular pores; common distinct organic stains on faces of peds; neutral; clear smooth boundary.

Bt1—13 to 20 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; few very fine roots; common fine tubular pores; few faint clay films on faces of peds; neutral; clear smooth boundary.

Bt2—20 to 31 inches; brown (7.5YR 4/4) silty clay loam; weak fine subangular blocky structure; friable; few very fine roots; common fine tubular pores; few faint clay films on faces of peds; few fine iron-manganese accumulations; neutral; gradual smooth boundary.

Bt3—31 to 46 inches; brown (7.5YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; few very fine roots; common fine tubular pores; few distinct clay films on faces of peds; few fine iron-manganese accumulations; neutral; gradual smooth boundary.

Bt4—46 to 65 inches; brown (7.5YR 4/4) and strong brown (7.5YR 4/6) silt loam; moderate fine subangular blocky structure; firm; few very fine roots; common very fine vesicular pores; few distinct clay films on faces of peds; neutral; clear smooth boundary.

Bt5—65 to 72 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; firm; few very fine roots; common very fine tubular pores; few distinct clay films on faces of peds; few fine iron-manganese accumulations; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 2 or 3

AB horizon:

Color—value of 4 or 5

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3, 4, or 6

Texture—silty clay loam or silt loam

Kaintuck Series

The Kaintuck series consists of very deep, well drained, moderately rapidly permeable soils. These soils formed in coarse-loamy alluvium on flood plains. Slopes range from 0 to 3 percent.

Soils of the Kaintuck series are coarse-loamy, siliceous, superactive, nonacid, mesic Typic Udifluvents.

Typical Pedon

Kaintuck fine sandy loam, 0 to 3 percent slopes, frequently flooded; USGS Pacific quadrangle; latitude 38 degrees 23 minutes 59 seconds N.; longitude 90 degrees 37 minutes 54 seconds W.

- A—0 to 4 inches; brown (10YR 4/3) fine sandy loam, light yellowish brown (10YR 6/4) dry; weak very fine granular structure; very friable; common very fine and fine roots; common very fine and fine vesicular pores; neutral; abrupt smooth boundary.
- C1—4 to 17 inches; dark brown (10YR 3/3) stratified loamy fine sand and sand; massive; very friable; common very fine and fine roots; few very fine and fine vesicular pores; strata and lenses of silt; slightly alkaline; clear smooth boundary.
- C2—17 to 27 inches; brown (10YR 4/3) stratified fine sandy loam and sand; massive; very friable; few very fine and fine roots; few very fine and fine vesicular pores; slightly alkaline; gradual smooth boundary.
- C3—27 to 35 inches; brown (10YR 4/3) stratified fine sandy loam and sand; massive; very friable; few very fine and fine roots; few very fine vesicular pores; slightly alkaline; clear smooth boundary.
- C4—35 to 46 inches; dark brown (10YR 3/3) loam; massive; friable; few very fine vesicular pores; common fine strata; slightly alkaline; clear smooth boundary.
- C5—46 to 63 inches; brown (10YR 5/3) silt loam; massive; friable; few very fine vesicular pores; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4

C horizon:

Color—value of 3, 4, or 5 and chroma of 3 or 4

Texture—loam, silt loam, loamy fine sand, fine sandy loam, or sand

Menfro Series

The Menfro series consists of very deep, well drained, moderately permeable soils. These soils formed in thick loess on summits and backslopes of uplands. Slopes range from 3 to 50 percent.

Soils of the Menfro series are fine-silty, mixed, superactive, mesic Typic Hapludalfs.

Typical Pedon

Menfro silt loam, 3 to 8 percent slopes, eroded; USGS Herculaneum quadrangle; latitude 38 degrees 17 minutes 46 seconds N.; longitude 90 degrees 23 minutes 37 seconds W.

- Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; common very fine and fine roots; common fine and medium vesicular pores; slightly acid; abrupt smooth boundary.
- Bt1—9 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak fine angular blocky structure parting to moderate very fine angular blocky; firm; common very fine and fine roots; common very fine and fine vesicular and tubular pores; very few prominent silt coats and few distinct clay films on faces of peds; strongly acid; gradual smooth boundary.
- Bt2—21 to 39 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic parting to weak very fine angular blocky structure; firm; common very fine and fine roots; common very fine vesicular and tubular pores; very few silt coats (sand or silt) and few distinct clay films on faces of peds; strongly acid; gradual smooth boundary.
- Bt3—39 to 56 inches; yellowish brown (10YR 5/4) and strong brown (7.5YR 4/6) silt loam; moderate medium prismatic structure; firm; few very fine and fine roots; common very fine vesicular and tubular pores; very few distinct clay films and silt coats on faces of peds; strongly acid; gradual smooth boundary.
- Bt4—56 to 86 inches; strong brown (7.5YR 4/6) silt loam; moderate medium prismatic structure; firm; few very fine and fine roots; common very fine vesicular and tubular pores; very few distinct clay films on faces of peds; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 3 or 4 and chroma of 2 to 4

E horizon (where present):

Color—value of 4 or 5 and chroma of 3 or 4

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—silt loam or silty clay loam

Minnith Series

The Minnith series consists of very deep, moderately well drained, moderately slowly permeable soils. These soils formed in loess over loamy residuum weathered from sandstone on summits and backslopes of uplands. Slopes range from 3 to 30 percent.

Soils of the Minnith series are fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs.

Typical Pedon

Minnith silt loam, 3 to 8 percent slopes, eroded; USGS Pacific quadrangle; latitude 38 degrees 23 minutes 39 seconds N.; longitude 90 degrees 40 minutes 14 seconds W.

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) silt loam, very pale brown (10YR 7/4) dry; weak fine subangular blocky parting to weak fine granular structure; friable; many very fine and fine and common medium roots; many very fine and fine tubular and few fine and medium vesicular pores; medium acid; clear wavy boundary.

Bt1—5 to 11 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; many very fine and fine and common medium roots; common very fine and fine tubular pores; common distinct silt coats and few distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—11 to 20 inches; strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) silty clay loam; common fine prominent very pale brown (10YR 7/3) mottles; moderate fine and medium angular blocky structure; firm; many fine and medium roots; common very fine and fine tubular and fine and medium vesicular pores; many distinct clay films and common distinct silt coats on faces of peds; very strongly acid; clear wavy boundary.

2Bt3—20 to 35 inches; brown (7.5YR 5/4) silt loam; weak fine prismatic parting to weak fine subangular blocky structure; firm; common fine and medium roots; many very fine and fine tubular and common medium vesicular pores; common distinct clay films on faces of peds; common distinct clay depletions; few prominent iron-manganese stains; few fine faint strong brown (7.5YR 4/6) iron accumulations; strongly acid; clear wavy boundary.

2Bt4—35 to 54 inches; yellowish brown (10YR 5/4), brown (7.5YR 5/4), and strong brown (7.5YR 4/6) loam; weak fine prismatic parting to weak very fine subangular blocky structure; firm; few fine

and medium roots; many fine and medium tubular and common vesicular pores; few distinct clay films in root channels and/or pores; few distinct clay depletions; few fine and medium rounded iron-manganese accumulations; common medium prominent light brownish gray (10YR 6/2) iron depletions; neutral; gradual wavy boundary.

2Bt5—54 to 80 inches; strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) fine sandy loam; weak medium prismatic structure; firm; many fine and medium tubular and common fine vesicular pores; common distinct clay films on faces of peds; few distinct manganese or iron-manganese stains and few iron stains; common medium and coarse rounded iron-manganese accumulations; common fine and medium prominent light brownish gray (10YR 6/2) iron depletions; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 3 or 4 and chroma of 3 or 4

E horizon (where present):

Color—value of 4 or 5 and chroma of 3 or 4

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—silt loam or silty clay loam

2Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2, 3, 4, or 6

Texture—loam, clay loam, sandy clay loam, or silt loam

3Bt horizon (where present):

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2, 3, 4, or 6

Moko Series

The Moko series consists of very shallow and shallow, well drained, moderately permeable soils. These soils formed in loamy residuum weathered from dolostone on summits, shoulders, and backslopes of uplands. Slopes range from 3 to 50 percent.

Soils of the Moko series are loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls.

Typical Pedon

Moko very gravelly loam, in an area of Moko-Rock outcrop complex, 15 to 50 percent slopes, extremely

stony; USGS DeSoto quadrangle; latitude 38 degrees 09 minutes 33 seconds N.; longitude 90 degrees 34 minutes 57 seconds W.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) very gravelly loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many very fine and fine, common medium, and few coarse roots; 30 percent dolostone gravel; 20 percent dolostone channers; slightly alkaline; gradual wavy boundary.

A2—5 to 10 inches; very dark grayish brown (10YR 3/2) extremely channery silt loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; very friable; many fine, common very fine, and few medium roots; 10 percent dolostone gravel; 50 percent dolostone channers; slightly alkaline; abrupt wavy boundary.

R—10 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 4 to 20 inches

A horizon:

Texture—very gravelly, extremely gravelly, very channery, or extremely channery analogues of loam or silt loam

Moniteau Series

The Moniteau series consists of very deep, poorly drained, moderately slowly permeable soils. These soils formed in silty alluvium on stream terraces. Slopes range from 0 to 2 percent.

Soils of the Moniteau series are fine-silty, mixed, superactive, mesic Typic Endoaqualfs.

Typical Pedon

Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded; USGS House Springs quadrangle; latitude 38 degrees 27 minutes 53 seconds N.; longitude 90 degrees 36 minutes 13 seconds W.

Ap—0 to 9 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate fine granular structure; very friable; many fine roots; common fine tubular pores; common fine rounded iron-manganese concretions; slightly acid; abrupt smooth boundary.

E—9 to 19 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky parting to weak very fine granular structure; friable; common fine roots; many fine tubular pores;

common fine rounded iron-manganese concretions; common fine prominent yellowish brown (10YR 5/6) iron accumulations; neutral; gradual smooth boundary.

Btg1—19 to 31 inches; light brownish gray (10YR 6/2) silty clay loam; moderate fine subangular blocky structure; friable; many distinct clay depletions and very few distinct clay films on faces of peds; common fine roots; many fine and few medium tubular pores; common medium rounded iron-manganese concretions; common fine prominent yellowish brown (10YR 5/6) iron accumulations; strongly acid; clear smooth boundary.

Btg2—31 to 50 inches; light grayish brown (10YR 6/2) silty clay loam; moderate fine subangular blocky structure; firm; common distinct clay depletions and very few distinct clay films on faces of peds; many very fine and fine tubular pores; common medium rounded iron-manganese concretions; common fine prominent yellowish brown (10YR 5/6) iron accumulations; very strongly acid; gradual smooth boundary.

Btg3—50 to 72 inches; dark grayish brown (10YR 4/2) and light brownish gray (10YR 6/2) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine tubular pores; common medium and coarse rounded iron-manganese concretions; common fine prominent dark yellowish brown (10YR 4/6) iron accumulations; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5 and chroma of 1 or 2

E horizon:

Color—value of 5 to 7 and chroma of 1 or 2

Btg horizon:

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silty clay loam or silt loam

Perche Series

The Perche series consists of very deep, moderately well drained, moderately permeable soils. These soils formed in loamy alluvium on flood plains. Slopes range from 0 to 2 percent.

Soils of the Perche series are coarse-loamy, mixed, superactive, nonacid, mesic Aquic Udifluvents.

Typical Pedon

Perche silt loam, 0 to 2 percent slopes, occasionally flooded; USGS Pacific quadrangle; latitude 38 degrees 25 minutes 42 seconds N.; longitude 90 degrees 40 minutes 41 seconds W.

Ap—0 to 7 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak very fine granular structure; very friable; many very fine roots; many very fine and fine interstitial pores; slightly acid; abrupt smooth boundary.

C1—7 to 13 inches; brown (10YR 5/3) silt loam; massive; friable; common very fine roots; many very fine and fine interstitial and tubular pores; few fine and medium iron-manganese concretions; moderately acid; clear smooth boundary.

C2—13 to 18 inches; brown (10YR 5/3) loam; massive; friable; common very fine roots; many very fine and fine interstitial and tubular pores; common fine and medium iron-manganese concretions; common fine and medium distinct dark yellowish brown (10YR 3/6) iron accumulations; common fine faint grayish brown (10YR 5/2) iron depletions; moderately acid; gradual smooth boundary.

C3—18 to 24 inches; light brownish gray (10YR 6/2) and brown (10YR 5/3) fine sandy loam; massive; friable; many very fine interstitial and tubular pores; common fine and medium iron-manganese concretions; common fine and medium prominent dark yellowish brown (10YR 4/4) iron accumulations; strongly acid; gradual smooth boundary.

C4—24 to 33 inches; light brownish gray (10YR 6/2) fine sandy loam; massive; friable; common very fine interstitial and tubular pores; few coarse iron-manganese concretions; common fine and medium prominent dark yellowish brown (10YR 4/4) iron accumulations; strongly acid; clear wavy boundary.

C5—33 to 62 inches; light gray (10YR 7/2) fine sand; massive; common very fine interstitial pores; few fine distinct dark yellowish brown (10YR 4/4) iron accumulations; 2 percent chert gravel; slightly acid; clear wavy boundary.

C6—62 to 70 inches; brown (10YR 5/3) and yellowish brown (10YR 5/6) sand; massive; friable; common very fine interstitial pores; 5 percent chert gravel; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 3 or 4

C horizon:

Color—value of 3 to 7 and chroma of 2, 3, 4, or 6

Texture—loam, silt loam, fine sandy loam, fine sand, or sand

Pevely Series

The Pevely series consists of moderately deep, moderately well drained, moderately rapidly permeable soils. These soils formed in loamy residuum weathered from sandstone on summits and backslopes of uplands. Slopes range from 3 to 40 percent.

Soils of the Pevely series are fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs.

Typical Pedon

Pevely loam, 15 to 40 percent slopes; USGS Pacific quadrangle; latitude 38 degrees 24 minutes 47 seconds N.; longitude 90 degrees 41 minutes 32 seconds W.

A—0 to 4 inches; dark brown (7.5YR 3/2) loam, brown (7.5YR 5/2) dry; weak very fine granular structure; very friable; common very fine to coarse roots; common very fine and fine vesicular pores; moderately acid; clear smooth boundary.

E—4 to 10 inches; yellowish brown (10YR 5/4) loam; weak fine prismatic parting to weak very fine subangular blocky structure; friable; common very fine to coarse roots; common very fine and fine vesicular pores; very few distinct clay depletions in root channels and/or pores; strongly acid; clear smooth boundary.

Bt1—10 to 14 inches; strong brown (7.5YR 4/6) sandy clay loam; moderate fine subangular blocky structure; firm; common very fine to coarse roots; few very fine and fine vesicular and tubular pores; very few distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—14 to 23 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky parting to weak fine subangular blocky structure; firm; common very fine and fine roots; few very fine and fine vesicular and tubular pores; very few distinct clay films on faces of peds; few distinct iron-manganese accumulations; strongly acid; clear wavy boundary.

Bt3—23 to 32 inches; strong brown (7.5YR 5/6)

parachannery sandy clay loam; moderate medium subangular blocky structure; firm; common very fine and fine roots; few very fine and fine vesicular and tubular pores; very few distinct clay films on faces of peds; common distinct iron-manganese accumulations; 20 percent sandstone parachanners; few fine prominent grayish brown (10YR 5/2) iron depletions; very strongly acid; clear wavy boundary.

C—32 to 37 inches; reddish yellow (7.5YR 6/8) very parachannery fine sand; massive; firm; few very fine and fine roots; few very fine and fine vesicular and tubular pores; 40 percent sandstone parachanners; few fine prominent light brownish gray (10YR 6/2) iron depletions; very strongly acid; clear smooth boundary.

R—37 inches; sandstone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Color—hue of 7.5YR or 10YR and chroma of 2 or 3

Texture—loam or silt loam

E horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—silt loam, loam, or fine sandy loam

Bt horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 or 6

Texture—loam, sandy clay loam, or parachannery sandy clay loam

C horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 6 or 8

Texture—fine sandy loam, fine sand, or their parachannery to very parachannery analogues

Ramsey Series

The Ramsey series consists of very shallow and shallow, somewhat excessively drained, rapidly permeable soils. These soils formed in loamy residuum weathered from sandstone on backslopes of uplands. Slopes range from 8 to 50 percent.

Soils of the Ramsey series are loamy, siliceous, active, mesic Lithic Dystrudepts.

Typical Pedon

Ramsey fine sandy loam from an area of Ramsey-

Rock outcrop complex, 8 to 50 percent slopes; USGS Pacific quadrangle; latitude 38 degrees 23 minutes 46 seconds N.; longitude 90 degrees 41 minutes 22 seconds W.

A—0 to 1 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 4/3) dry; weak very fine granular structure; very friable; common very fine and fine roots; few very fine and fine vesicular pores; 5 percent sandstone gravel; very strongly acid; clear smooth boundary.

E—1 to 4 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; few very fine and fine roots; few very fine and fine vesicular pores; 5 percent sandstone gravel; very strongly acid; clear smooth boundary.

Bw—4 to 10 inches; yellowish brown (10YR 5/4) fine sandy loam; moderate fine granular structure; friable; few very fine and fine roots; few very fine and fine vesicular pores; 10 percent sandstone gravel; very strongly acid; clear wavy boundary.

C—10 to 17 inches; pale brown (10YR 6/3) loamy fine sand; massive; friable; few very fine and fine roots; few very fine and fine vesicular pores; 5 percent sandstone gravel; 5 percent sandstone cobbles; strongly acid; abrupt wavy boundary.

R—17 inches; sandstone bedrock.

Range in Characteristics

Depth to bedrock: 4 to 20 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon:

Color—value of 4 to 6 and chroma of 3 or 4

Texture—loam or fine sandy loam

Bw horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Texture—fine sandy loam, cobbly fine sandy loam, or loamy fine sand

C horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4

Texture—loamy fine sand or fine sandy loam

Ramsey soils are considered taxadjuncts to the Ramsey series because they have a higher cation-exchange activity class than is defined for the series. This difference does not significantly affect the use and management of these soils.

Razort Series

The Razort series consists of very deep, well drained, moderately permeable soils. These soils formed in fine-loamy alluvium over gravelly alluvium on stream terraces. Slopes range from 0 to 3 percent.

Soils of the Razort series are fine-loamy, mixed, active, mesic Mollic Hapludalfs.

Typical Pedon

Razort silt loam, 0 to 3 percent slopes, rarely flooded; USGS Belew Creek quadrangle; latitude 38 degrees 15 minutes 49 seconds N.; longitude 90 degrees 31 minutes 54 seconds W.

Ap—0 to 7 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate very fine granular structure; friable; common very fine and fine roots; common very fine interstitial pores; neutral; abrupt smooth boundary.

AB—7 to 14 inches; dark yellowish brown (10YR 4/4) silt loam, pale brown (10YR 6/4) dry; weak very fine subangular blocky structure; friable; few very fine and fine roots; common very fine and fine interstitial and tubular pores; very few distinct silt coats on faces of peds and in pores; neutral; clear smooth boundary.

Bt1—14 to 22 inches; strong brown (7.5YR 4/4) silt loam; moderate very fine subangular blocky structure; friable; few very fine and fine roots; common very fine and fine interstitial and tubular pores; common distinct clay films and few distinct silt coats on faces of peds and in pores; neutral; gradual smooth boundary.

Bt2—22 to 34 inches; strong brown (7.5YR 4/4) silt loam; weak very fine subangular blocky structure; friable; few very fine roots; many very fine and fine interstitial and tubular pores; common distinct clay films and few distinct silt coats on faces of peds and in pores; 3 percent chert gravel; neutral; gradual smooth boundary.

2Bt3—34 to 43 inches; brown (7.5YR 4/4) loam; weak very fine subangular blocky structure; friable; few very fine roots; common very fine and fine interstitial and tubular pores; common distinct silt coats and few distinct clay films on faces of peds and in pores; 5 percent chert gravel; neutral; gradual smooth boundary.

2Bt4—43 to 56 inches; dark yellowish brown (10YR 4/4) loam; weak very fine subangular blocky structure; friable; few very fine roots; common very fine and fine interstitial and tubular pores; common distinct silt coats and few distinct clay

films on faces of peds and in pores; common fine iron-manganese concretions; 10 percent chert gravel; neutral; clear wavy boundary.

3Bt5—56 to 67 inches; dark yellowish brown (10YR 4/4) and strong brown (7.5YR 4/4) very gravelly loam; weak very fine subangular blocky structure; friable; common very fine interstitial pores; common distinct silt coats and few distinct clay films on faces of peds and in pores; 50 percent chert gravel; 2 percent chert cobbles; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 2 or 3

AB horizon:

Color—chroma of 3 or 4

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3, 4, or 6

Texture—silt loam or loam

2Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4

3Bt horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 or 6

Texture—gravelly or very gravelly loam

Rueter Series

The Rueter series consists of very deep, somewhat excessively drained, moderately rapidly permeable soils. These soils formed in gravelly colluvium over clayey residuum weathered from cherty dolostone and limestone on summits and backslopes of uplands. Slopes range from 3 to 55 percent.

Soils of the Rueter series are loamy-skeletal, siliceous, active, mesic Typic Paleudalfs.

Typical Pedon

Rueter gravelly silt loam, in an area of Rueter-Sonsac complex, 15 to 55 percent slopes, extremely stony; USGS Halifax quadrangle; latitude 38 degrees 03 minutes 08 seconds N.; longitude 90 degrees 24 minutes 51 seconds W.

Oi—1 to 0 inches; partially decomposed roots, leaves, and twigs.

- A—0 to 2 inches; brown (10YR 4/3) gravelly silt loam, very pale brown (10YR 7/3) dry; weak fine granular structure; very friable; many fine and medium and common coarse roots; few very fine tubular pores; 30 percent chert gravel; strongly acid; clear smooth boundary.
- E—2 to 13 inches; pale brown (10YR 6/3) gravelly silt loam; weak fine subangular blocky parting to weak fine granular structure; very friable; many fine and medium and common coarse roots; many very fine and common fine tubular pores; 30 percent chert gravel; very strongly acid; clear wavy boundary.
- Bt1—13 to 23 inches; strong brown (7.5YR 4/6) extremely gravelly silt loam; moderate fine angular blocky structure; friable; common very fine and fine and few medium roots; many very fine and fine tubular pores; few faint clay films on faces of peds; 70 percent chert gravel; 10 percent chert cobbles; very strongly acid; clear wavy boundary.
- Bt2—23 to 36 inches; strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) extremely gravelly silt loam; moderate fine angular blocky structure; friable; common very fine, fine, and medium roots; common very fine and fine tubular pores; common distinct clay films on faces of peds; 61 percent chert gravel; 10 percent chert cobbles; strongly acid; clear wavy boundary.
- Bt3—36 to 48 inches; dark red (2.5YR 3/6) and yellowish brown (10YR 5/6) extremely gravelly silt loam; moderate fine angular blocky structure; firm; few fine roots; common very fine and fine tubular pores; common distinct clay films on faces of peds; 65 percent chert gravel; 15 percent chert cobbles; 5 percent chert stones; strongly acid; abrupt wavy boundary.
- 2Bt4—48 to 80 inches; dark red (2.5YR 3/6), yellowish brown (10YR 5/6), and strong brown (7.5YR 5/6) cobbly clay; moderate fine and medium angular blocky structure; very firm; few medium and coarse roots; many very fine tubular pores; many prominent clay films on faces of peds; few fine rounded iron-manganese concretions; 5 percent chert gravel; 10 percent chert cobbles; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon:

Color—value of 4 to 7 and chroma of 3 or 4

Texture—gravelly, very gravelly, or extremely gravelly silt loam

Bt horizon:

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 4 or 6

Texture—gravelly to extremely gravelly or cobbly to extremely cobbly analogues of silt loam or silty clay loam

2Bt horizon:

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 4 or 6

Texture—silty clay, clay, or their gravelly to extremely gravelly or cobbly to extremely cobbly analogues

Sonsac Series

The Sonsac series consists of moderately deep, well drained, moderately permeable soils. These soils formed in gravelly colluvium over clayey residuum weathered from cherty dolostone and limestone on summits and backslopes of uplands. Slopes range from 3 to 55 percent.

Soils of the Sonsac series are clayey-skeletal, mixed, active, mesic Typic Hapludalfs.

Typical Pedon

Sonsac gravelly silt loam, 15 to 40 percent slopes, very stony; USGS DeSoto quadrangle; latitude 38 degrees 13 minutes 44 seconds N.; longitude 90 degrees 29 minutes 22 seconds W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; very friable; many very fine and fine and few medium roots; many very fine and fine tubular pores; 25 percent chert gravel; strongly acid; clear smooth boundary.

E—3 to 8 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak fine subangular blocky structure parting to weak fine granular; very friable; many very fine and fine and common medium and coarse roots; many very fine tubular pores; 40 percent chert gravel; strongly acid; clear wavy boundary.

Bt1—8 to 11 inches; yellowish brown (10YR 5/6) and strong brown (7.5YR 4/6) very gravelly silt loam; weak fine subangular blocky structure; firm; many very fine and fine and common medium and coarse roots; many very fine and fine tubular

pores; few distinct clay films on faces of peds; 55 percent chert gravel; slightly acid; abrupt wavy boundary.

2Bt2—11 to 24 inches; strong brown (7.5YR 4/6) very gravelly clay; moderate fine and medium angular blocky structure; very firm; many fine and medium roots; few very fine tubular pores; many distinct clay films on faces of peds; 46 percent chert gravel; 8 percent chert cobbles; neutral; abrupt wavy boundary.

2Bt3—24 to 32 inches; strong brown (7.5YR 4/6) and yellowish brown (10YR 5/6) clay; few fine prominent red (2.5YR 4/6) iron stains; moderate fine angular blocky structure; very firm; common medium roots; common very fine tubular pores; many prominent clay films on faces of peds; common fine rounded iron-manganese concretions; 8 percent chert gravel; few fine prominent light brownish gray (10YR 6/2) iron depletions; slightly alkaline; abrupt wavy boundary.

2R—32 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Color—hue of 7.5YR or 10YR and chroma of 2 or 3

E horizon:

Color—chroma of 3 or 4

Texture—gravelly, very gravelly, or extremely gravelly silt loam

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—very gravelly or extremely gravelly or cobbly or very cobbly analogues of silty clay loam or silt loam

2Bt horizon:

Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 4, 6, or 8

Texture—very gravelly or very cobbly silty clay or clay; can be clay in lower part

Sturkie Series

The Sturkie series consists of very deep, well drained, moderately permeable soils. These soils formed in silty alluvium on stream terraces. Slopes range from 0 to 2 percent.

Soils of the Sturkie series are fine-silty, mixed, superactive, mesic Cumulic Hapludolls.

Typical Pedon

Sturkie silt loam, 0 to 2 percent slopes, occasionally flooded; USGS Cedar Hill quadrangle; latitude 38 degrees 16 minutes 22 seconds N.; longitude 90 degrees 38 minutes 43 seconds W.

Ap—0 to 8 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak very fine granular structure; very friable; common very fine roots; common very fine and fine interstitial and tubular pores; neutral; clear smooth boundary.

A1—8 to 17 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak very fine subangular blocky structure; very friable; common very fine roots; common very fine and fine interstitial and tubular pores; slightly alkaline; clear smooth boundary.

A2—17 to 28 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; weak very fine subangular blocky structure; very friable; many very fine and fine interstitial and tubular pores; neutral; gradual smooth boundary.

Bw1—28 to 34 inches; brown (10YR 4/3) silt loam; moderate very fine subangular blocky structure; friable; many very fine and fine interstitial and tubular pores; neutral; gradual smooth boundary.

Bw2—34 to 43 inches; brown (10YR 4/3) silt loam; weak very fine and fine subangular blocky structure; friable; many fine and medium interstitial and tubular pores; neutral; gradual smooth boundary.

Bw3—43 to 52 inches; brown (10YR 4/3) silt loam; weak very fine and medium subangular blocky structure; friable; many very fine and fine interstitial and tubular pores; neutral; gradual smooth boundary.

Bw4—52 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine and medium subangular blocky structure; friable; common very fine and fine interstitial and tubular pores; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—chroma of 2 or 3

Bw horizon:

Color—value of 3 or 4 and chroma of 3 or 4

Tice Series

The Tice series consists of very deep, somewhat poorly drained, moderately permeable soils. These soils formed in silty alluvium on the Mississippi River flood plain. Slopes range from 0 to 2 percent.

Soils of the Tice series are fine-silty, mixed, superactive, mesic Fluvaquent Hapludolls.

Typical Pedon

Tice silty clay loam, 0 to 2 percent slopes, frequently flooded; USGS Selma quadrangle; latitude 38 degrees 14 minutes 02 seconds N.; longitude 90 degrees 22 minutes 13 seconds W.

- Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; very friable; many very fine and common fine roots; moderately alkaline; clear smooth boundary.
- A—7 to 16 inches; dark grayish brown (10YR 3/2) silt loam; weak fine subangular blocky structure; firm; common very fine and few fine roots; moderately alkaline; gradual smooth boundary.
- Bw1—16 to 29 inches; dark grayish brown (10YR 4/2) silty clay loam; weak fine subangular blocky structure; firm; few very fine roots; moderately alkaline; gradual smooth boundary.
- Bw2—29 to 37 inches; brown (10YR 5/3) silt loam; firm; weak fine subangular blocky structure; friable; moderately alkaline; clear smooth boundary.
- Bw3—37 to 60 inches; brown (10YR 5/3) silt loam; weak very fine subangular blocky structure; friable; common very fine roots; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 1 or 2

A horizon:

Color—chroma of 1 or 2

Texture—silt loam or silty clay loam

Bw horizon:

Color—value of 4 or 5 and chroma of 2 or 3

Texture—silt loam or silty clay loam

C horizon (where present):

Color—value of 4 or 5 and chroma of 1 to 3

Texture—silt loam or silty clay loam

Tiff Series

The Tiff series consists of very deep, well drained, moderately permeable soils. These soils formed in truncated areas from clayey residuum weathered from dolostone on backslopes of uplands. Slopes range from 1 to 20 percent.

Soils of the Tiff series are clayey-skeletal, kaolinitic, mesic Rhodic Paleudalfs.

Typical Pedon

Tiff gravelly clay, 1 to 20 percent slope, very rocky; USGS Vineland quadrangle; latitude 38 degrees 01 minute 15 seconds N.; longitude 90 degrees 36 minutes 39 seconds W.

- Bt1—0 to 8 inches; dark reddish brown (2.5YR 3/4) gravelly clay, dark reddish brown (2.5YR 3/4) dry; moderate medium angular blocky structure parting to moderate very fine angular blocky; very firm; many fine and medium and common coarse roots; many very fine and fine vesicular and tubular pores; common distinct clay films on faces of peds; 23 percent druse quartz gravel; strongly acid; clear wavy boundary.
- Bt2—8 to 29 inches; dark reddish brown (2.5YR 3/4) very cobbly clay, dark reddish brown (2.5YR 3/4) dry; moderate fine and medium angular blocky structure; very firm; common fine to coarse roots; common very fine and fine vesicular and tubular pores; many distinct clay films on faces of peds; 27 percent druse quartz gravel; 20 percent druse quartz cobbles; few prominent manganese or iron-manganese stains; strongly acid; gradual wavy boundary.
- Bt3—29 to 53 inches; dark reddish brown (2.5YR 3/4) gravelly sandy clay, dark reddish brown (2.5YR 3/4) dry; moderate fine and medium angular blocky structure; very firm; few very fine roots; common very fine and fine vesicular pores; many distinct clay films on faces of peds; 23 percent druse quartz gravel; few manganese or iron-manganese stains; strongly acid; gradual wavy boundary.
- Bt4—53 to 80 inches; dark reddish brown (2.5YR 3/4) clay, dark reddish brown (2.5YR 3/4) dry; moderate fine angular blocky structure; very firm; common very fine and fine vesicular and tubular pores; many distinct clay films on faces of peds; 8 percent druse quartz gravel; few manganese or iron-manganese stains; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Bt1 horizon:

Color—hue of 10R or 2.5YR, value of 3 or 4, and chroma of 3, 4, or 6

Bt horizon (lower part):

Color—hue of 10R or 2.5YR, value of 2 or 3, and chroma of 3, 4, or 6

Texture—gravelly to extremely gravelly, cobbly or very cobbly, or stony analogues of clay or sandy clay; some individual horizons are clay

Useful Series

The Useful series consists of deep, moderately well drained, moderately slowly permeable soils. These soils formed in a thin layer of loess and the underlying residuum weathered from dolostone and limestone on summits and backslopes of uplands. Slopes range from 3 to 50 percent.

Soils of the Useful series are fine, mixed, active, mesic Oxyaquic Hapludalfs.

Typical Pedon

Useful silt loam, 15 to 40 percent slopes; USGS Cedar Hill quadrangle; latitude 38 degrees 24 minutes 49 seconds N.; longitude 90 degrees 04 minutes 37 seconds W.

Ap—0 to 2 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; common very fine and fine roots; few very fine interstitial pores; strongly acid; clear smooth boundary.

E—2 to 5 inches; yellowish brown (10YR 5/4) silt loam; weak very fine subangular blocky structure; friable; common very fine and fine roots; few very fine vesicular pores; few distinct clay depletions on faces of peds; very strongly acid; clear smooth boundary.

Bt1—5 to 16 inches; strong brown (7.5YR 4/6) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots; few very fine vesicular and tubular pores; very few distinct clay films and silt coats on faces of peds; strongly acid; gradual smooth boundary.

Bt2—16 to 24 inches; strong brown (7.5YR 4/6) silty clay loam; moderate fine subangular blocky structure; firm; few very fine and fine roots; few very fine vesicular and tubular pores; very few prominent silt coats and few distinct clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt3—24 to 33 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky parting to moderate very fine subangular blocky

structure; firm; few very fine and fine roots; common very fine vesicular and tubular pores; very few distinct clay films on faces of peds; common fine distinct yellowish red (5YR 4/8) iron stains; slightly acid; gradual smooth boundary.

2Bt4—33 to 45 inches; yellowish red (5YR 5/6) silty clay; moderate medium angular blocky structure; very firm; few very fine and fine roots; few very fine vesicular and tubular pores; very few distinct clay films on faces of peds; very few prominent manganese or iron-manganese stains; neutral; abrupt smooth boundary.

2Bt5—45 to 52 inches; yellowish red (5YR 5/6) silty clay; moderate fine angular blocky structure; very firm; few very fine and fine roots; few very fine vesicular and tubular pores; very few distinct clay films on faces of peds; very few prominent manganese or iron-manganese stains; neutral; gradual wavy boundary.

2Bt4—52 to 59 inches; yellowish red (5YR 5/8) silty clay; moderate fine angular blocky structure; very firm; few very fine and fine roots; few very fine vesicular and tubular pores; very few distinct clay films on faces of peds; very few prominent manganese or iron-manganese stains; moderately alkaline; abrupt smooth boundary.

2R—59 inches; limestone bedrock

Range in Characteristics

Depth to bedrock: 40 to 60 inches

A or Ap horizon:

Color—value of 4 or 5 and chroma of 2 or 3

E horizon:

Color—value of 4 or 5 and chroma of 3 or 4

Bt horizon:

Color—hue of 5YR or 7.5YR, value of 3 to 5, and chroma of 4, 6, or 8

Texture—silty clay loam or silty clay

2Bt horizon:

Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4, 6, or 8

Texture—silty clay loam, silty clay, or their gravelly or very gravelly analogues

Waldron Series

The Waldron series consists of very deep, somewhat poorly drained, slowly permeable soils. These soils formed in clayey calcareous alluvium on the Mississippi River flood plain. Slopes range from 0 to 2 percent.

Soils of the Waldron series are fine, smectitic, calcareous, mesic Aeric Fluvaquents.

Typical Pedon

Waldron silty clay loam, 0 to 2 percent slopes, frequently flooded; USGS Oakville quadrangle; latitude 38 degrees 22 minutes 53 seconds N.; longitude 90 degrees 21 minutes 15 seconds W.

- Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; weak very fine subangular blocky structure; firm; few fine roots; few very fine vesicular pores; slightly alkaline; abrupt smooth boundary.
- C1—6 to 19 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; massive; very firm; few very fine and fine roots; few very fine vesicular pores; very slight effervescence; slightly alkaline; gradual smooth boundary.
- C2—19 to 30 inches; very dark grayish brown (10YR 3/2), dark grayish brown (10YR 4/2), and brown (10YR 5/3) silty clay loam; massive; very firm; few fine roots; very slight effervescence; slightly alkaline; clear smooth boundary.
- C3—30 to 41 inches; dark grayish brown (10YR 4/2) stratified silty clay loam; massive; firm; few fine roots; few fine distinct dark yellowish brown (10YR 4/4) iron accumulations; very slight effervescence; moderately alkaline; clear smooth boundary.
- C4—41 to 51 inches; dark grayish brown (10YR 4/2) and brown (10YR 5/3) stratified silt loam; firm; few very fine vesicular pores; strong effervescence; moderately alkaline; clear smooth boundary.
- C5—51 to 60 inches; dark grayish brown (10YR 4/2) stratified silt loam; firm; common prominent dark reddish brown (2.5YR 3/4) patchy iron coats on vertical faces of pedis; strong effervescence; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 1 or 2

C horizon:

Color—value of 3 to 5 and chroma of 1 to 4

Texture—stratified silty clay loam, silty clay, or silt loam

Weingarten Series

The Weingarten series consists of very deep, well drained, moderately slowly permeable soils. These soils formed in loess overlying residuum weathered from cherty limestone on backslopes of uplands. Slopes range from 15 to 50 percent.

Soils of the Weingarten series are fine-silty, mixed, active, mesic Fragic Hapludalfs.

Typical Pedon

Weingarten silt loam, 15 to 50 percent slopes; USGS House Springs quadrangle; latitude 38 degrees 26 minutes 10 seconds N.; longitude 90 degrees 37 minutes 09 seconds W.

- Oi—1 to 0 inches; partially decomposed roots, leaves, and twigs.
- A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky parting to weak very fine granular structure; very friable; many fine and medium and common coarse roots; few fine vesicular pores; neutral; clear smooth boundary.
- E—3 to 11 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; many fine and medium and few coarse roots; common very fine and fine vesicular and tubular pores; strongly acid; clear smooth boundary.
- Bt1—11 to 24 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate fine angular blocky structure; firm; many fine and medium and few coarse roots; common very fine and fine vesicular and tubular pores; common distinct clay films and very few distinct clay depletions on faces of pedis; strongly acid; gradual wavy boundary.
- Bt2—24 to 32 inches; dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/4) silty clay loam; weak fine angular blocky structure; very firm; common fine to coarse roots; common very fine and fine vesicular and tubular pores; common distinct clay films and clay depletions on faces of pedis; strongly acid; gradual wavy boundary.
- 2Btx1—32 to 54 inches; dark yellowish brown (10YR 4/4) and dark yellowish brown (10YR 4/6) silty clay loam; weak medium prismatic parting to weak very fine angular blocky structure; very firm; common fine to coarse roots; common very fine and fine vesicular and tubular pores; common distinct clay films and clay depletions on faces of pedis; 30 percent brittle; 2 percent chert gravel; very strongly acid; abrupt wavy boundary.

2Btx2—54 to 68 inches; dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) very gravelly silt loam; weak coarse prismatic parting to weak very fine angular blocky structure; very firm; common very fine roots; common very fine and fine vesicular and tubular pores; common distinct clay films and very few faint clay depletions on faces of peds; few fine rounded iron-manganese concretions; 35 percent brittle; 36 percent chert gravel; strongly acid; abrupt wavy boundary.

3Bt—68 to 80 inches; dark yellowish brown (10YR 4/4) and brown (7.5YR 4/4) extremely gravelly silt loam; moderate fine angular blocky structure; very firm; few very fine and fine roots; common very fine and fine vesicular and tubular pores; common prominent clay films and few clay depletions on faces of peds; common distinct manganese or iron-manganese stains; 58 percent chert gravel; 20 percent chert cobbles; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon:

Color—value of 4 to 6 and chroma of 3 or 4

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6

Texture—silty clay loam or silt loam

2Btx horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6

Texture—silt loam, silty clay loam, or their gravelly to extremely gravelly analogues

3Bt horizon:

Color—value of 4 or 5

Texture—gravelly, very gravelly, or extremely gravelly silt loam or silty clay loam

Wilbur Series

The Wilbur series consists of very deep, moderately well drained, moderately permeable soils. These soils formed in silty alluvium on flood plains. Slopes range from 0 to 2 percent.

Soils of the Wilbur series are coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrudepts.

Typical Pedon

Wilbur silt loam, 0 to 2 percent slopes, frequently flooded; USGS Pacific quadrangle; latitude 38 degrees 29 minutes 00 seconds N.; longitude 90 degrees 38 minutes 48 seconds W.

A—0 to 7 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; many fine roots; few fine tubular pores; common fine irregular iron-manganese concretions; slightly acid; clear smooth boundary.

Bw1—7 to 18 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; common fine tubular pores; common fine irregular iron-manganese concretions; few fine faint dark grayish brown (10YR 4/2) iron depletions; slightly acid; gradual smooth boundary.

Bw2—18 to 26 inches; brown (10YR 5/3) silt loam; weak fine granular structure; very friable; common fine roots; common fine tubular pores; common fine faint light brownish gray (10YR 6/2) iron depletions; slightly acid; clear smooth boundary.

Bw3—26 to 37 inches; brown (10YR 5/3) silt loam; few fine faint pale brown (10YR 6/3) mottles; weak fine granular structure; very friable; common fine roots; many fine tubular pores; slightly acid; clear smooth boundary.

Bg—37 to 44 inches; 80 percent grayish brown (10YR 5/2) and 20 percent light brownish gray (10YR 6/2) silt loam; weak very fine subangular blocky structure; friable; few fine roots; many very fine and fine tubular pores; very few distinct patchy manganese or iron-manganese stains on faces of peds; moderately acid; clear smooth boundary.

Cg1—44 to 58 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; few fine roots; common very fine and fine and few medium tubular pores; few fine prominent dark yellowish brown (10YR 4/6) iron accumulations; very few distinct patchy manganese or iron-manganese stains; moderately acid; clear smooth boundary.

Cg2—58 to 74 inches; light brownish gray (10YR 6/2) silt loam; massive; firm; common very fine and fine tubular pores; very few prominent patchy manganese or iron-manganese stains; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—chroma of 2 or 3

Bw horizon:

Color—value of 4 or 5 and chroma of 2 or 4

Bg horizon:

Color—value of 5 or 6

Cg horizon:

Color—value of 4 to 6

Wrengart Series

The Wrengart series consists of very deep, moderately well drained, moderately slowly permeable soils. These soils formed in loess and cherty residuum weathered from cherty limestone on summits and backslopes of uplands. Slopes range from 3 to 15 percent.

Soils of the Wrengart series are fine-silty, mixed, active, mesic Fragic Oxyaquic Hapludalfs.

Typical Pedon

Wrengart silt loam, 3 to 8 percent slopes, eroded; USGS Vineland quadrangle; latitude 38 degrees 06 minutes 32 seconds N.; longitude 90 degrees 36 minutes 55 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine and common medium roots; common interstitial pores; slightly acid; clear smooth boundary.

Bt1—6 to 12 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common very fine to coarse roots; common very fine and fine tubular pores; few faint clay films on faces of peds; slightly acid; gradual smooth boundary.

Bt2—12 to 19 inches; strong brown (7.5YR 5/6) silt loam; moderate fine and medium subangular blocky structure; firm; common very fine to coarse roots; common very fine and fine tubular pores; few distinct clay films on faces of peds; neutral; clear wavy boundary.

Bt3—19 to 26 inches; strong brown (7.5YR 5/6) silt loam; few fine prominent pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; firm; common very fine and fine roots; common very fine, fine, and medium tubular pores; common distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt4—26 to 33 inches; yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) silty clay loam; common fine and medium prominent pale brown (10YR 6/3) mottles; moderate fine subangular blocky structure; firm; common very fine and fine roots; common very fine and fine vesicular pores; common distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Btx—33 to 44 inches; yellowish brown (10YR 5/4) and strong brown (7.5YR 5/6) silty clay loam; weak medium prismatic parting to moderate fine subangular blocky structure; firm; common very fine and fine roots; many very fine and fine vesicular pores; common prominent clay films on faces of peds; 35 percent brittle; common fine and medium prominent light gray (10YR 7/2) iron depletions; very strongly acid; abrupt wavy boundary.

3Bt—44 to 60 inches; brown (7.5YR 5/4) and strong brown (7.5YR 5/6) very cobbly silty clay loam; moderate fine subangular blocky structure; firm; many very fine and fine vesicular and common medium tubular pores; many prominent clay films on faces of peds; 20 percent chert cobbles; 20 percent chert gravel; common fine and medium prominent light gray (10YR 7/2) iron depletions; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon (where present):

Color—chroma of 3 or 4

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3, 4, or 6

Texture—silty clay loam or silt loam

2Btx horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6

Texture—silt loam, silty clay loam, or their gravelly to extremely gravelly analogues

3Bt horizon:

Color—value of 4 or 5

Texture—gravelly to extremely gravelly or cobbly to extremely cobbly analogues of silty clay loam, silty clay, or clay

Table 21.--Classification of the Soils

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

Soil name	Family or higher taxonomic class
Bloomsdale-----	Loamy-skeletal, mixed, superactive, mesic Typic Hapludalfs
Brussels-----	Clayey-skeletal, mixed, superactive, mesic Typic Hapludolls
Caneyville-----	Fine, mixed, active, mesic Typic Hapludalfs
Crider-----	Fine-silty, mixed, active, mesic Typic Paleudalfs
Deible-----	Fine, mixed, active, mesic Typic Albaqualfs
Fishpot-----	Fine-loamy, mixed, superactive, nonacid, mesic Aquic Udorthents
Freeburg-----	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Gabriel-----	Fine-silty, mixed, superactive, mesic Typic Argiaqualfs
Gasconade-----	Clayey-skeletal, mixed, superactive, mesic Lithic Hapludolls
Gladden-----	Coarse-loamy, siliceous, superactive, mesic Dystric Fluventic Eutrudepts
Goss-----	Clayey-skeletal, mixed, active, mesic Typic Paleudalfs
Harvester-----	Fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents
Haymond-----	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Haynie-----	Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents
Holstein-----	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Horsecreek-----	Fine-silty, mixed, active, mesic Mollic Hapludalfs
Kaintuck-----	Coarse-loamy, siliceous, superactive, nonacid, mesic Typic Udifluvents
Menfro-----	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Minnith-----	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Moko-----	Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls
Moniteau-----	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Perche-----	Coarse-loamy, mixed, superactive, nonacid, mesic Aquic Udifluvents
Pevely-----	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
*Ramsey-----	Loamy, siliceous, active, mesic Lithic Dystrudepts
Razort-----	Fine-loamy, mixed, active, mesic Mollic Hapludalfs
Rueter-----	Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs
Sonsac-----	Clayey-skeletal, mixed, active, mesic Typic Hapludalfs
Sturkie-----	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Tice-----	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Tiff-----	Clayey-skeletal, kaolinitic, mesic Rhodic Paleudalfs
Udorthents-----	Udorthents
Useful-----	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Waldron-----	Fine, smectitic, calcareous, mesic Aeris Fluvaquents
Weingarten-----	Fine-silty, mixed, active, mesic Fragic Hapludalfs
Wilbur-----	Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrudepts
Wrengart-----	Fine-silty, mixed, active, mesic Fragic Oxyaquic Hapludalfs

Formation of the Soils

This section relates the soils in the survey area to the major factors of soil formation.

Soil is the product of soil-forming processes acting on accumulated or deposited geologic material. The characteristics of the soil are determined by the type of parent material; the plant and animal life on and in the soil; the climate under which the soil-forming factors were active; topography, or lay of the land; and the length of time these forces have been active.

The parent material affects the kind of soil profile that is formed and, in extreme cases, determines it almost entirely. Plant and animal life are the active factors of soil formation. The climate determines the amount of water available for leaching and the amount of heat for physical and chemical changes. Together, climate and plant and animal life act on the parent material and slowly change it to a natural body that has genetically related horizons. Topography often modifies these other factors. Finally, time is required for changes in the parent material to result in the formation of a soil. Generally, a long time is required for the development of distinct soil horizons.

These factors of soil formation are all so closely interrelated in their effects on the soil that few generalizations can be made about the effect of any one factor unless conditions are specified for the other four. Soil formation is complex, and many processes of soil development are still unknown.

Parent Material

Parent material is the unconsolidated mass from which soil is formed. The formation or the deposition of this material is the first step in the development of a soil profile. The characteristics of the material determine the chemical and mineralogical composition of the soil. In Jefferson County, four kinds of parent material, alone or in combinations of two or more, have contributed to the formation of the soils. These four kinds of parent material are residuum, or material weathered from bedrock; loess, or wind-deposited material; alluvium, or water-deposited material; and colluvium, or gravitationally relocated material.

Residual soil material formed from sandstone, limestone, or cherty dolostone that weathered in place of origin. Generally, the mantle rock, or regolith, forms the surface appearance of the land. The thickness of the bedding, degree of cementation, chemical composition, and proximity to geologic faulting have effects on rate of residual weathering. Depth to bedrock can vary from less than 10 inches to over 5 feet. The Pevely and Ramsey soils weathered from sandstone. The Gasconade soil weathered from limestone. The Goss, Moko, and Sonsac soils weathered from cherty dolostone.

Loess, a silty material transported by the wind, is an extensive parent material in Jefferson County. Loess probably once covered all of the survey area. Evidence remains of loess deposited during the two most recent post-glacial periods. The sources of this material were the flood plains along the Mississippi and Missouri Rivers and their tributaries. Filled with sediment deposited by glacial meltwater and nearly barren in the still frigid climate, these valleys were the source of loess material due to dust storms. The resulting deposits blanketed the landscape to depths that were greatest on the river hills and decreased with distance from the source. Loess was removed from the landscape at widely varying rates. Erosion kept pace with the rate of deposition on the steep, sun-warmed south and west exposures where, in most places, all the loess was removed. In contrast, north and east aspects remained frozen longer and thus retained an appreciable amount of the loess. The thickness of the loess on the more stable landforms ranges from about 20 inches to 50 feet. The very deep Menfro soil is composed of loess and averages 7 to over 50 feet thick.

Alluvium is material that was transported by water and deposited on nearly level flood plains. The soils on the flood plains in Jefferson County formed in alluvial deposits ranging in thickness from about 3 feet to more than 30 feet. These soils differ widely in texture and chemical composition, reflecting diversity of origin, distance down watershed, varying floodwater velocity, and various kinds of primary source material. The soils on the Mississippi River

flood plain have a vast watershed as their source of material and are rich in unweathered minerals. The soils on the smaller flood plains in the county, namely those along the Big and Meramec Rivers and their tributaries, formed mainly in silty and loamy alluvium. The basal deposits commonly are gravel, and the soil particles and coarse fragments decrease in size toward the surface. A similar gradation occurs as the distance downstream increases. The abundance of loess as a source material and predictable decreases in stream velocity and gradient along descending watercourses cause this gradation.

Gravity, water, and temperature fluctuation on steep slopes influence colluvial material deposition. Soil creep or mass movement directly influences soil profile development and limits structural

development. The composition of the colluvial material is directly related to the material on the higher slope from which it developed. Soils such as Rueter on upper side slopes and Holstein and Brussels on footslopes are colluvial influenced.

Living Organisms

Plants and animals living on or in the soil are active in the soil-forming process. Plants furnish organic matter to the soil and bring up plant nutrients from underlying layers to the surface layer. As plants die and decay, they contribute organic matter to the soil. Bacteria and fungi decompose the plant remains and help to incorporate the organic matter into the soil.



Figure 14.—Urban development in an area of Fishpot silt loam, 0 to 3 percent slopes.

The kind of native vegetation is one factor that has greatly influenced soil formation in Jefferson County. The basic kinds of native vegetation were prairie grasses and forest vegetation. Additions of organic matter to soils that formed under prairie grasses are largely a result of the yearly decomposition of plant materials. Plant tops decompose at the surface, and the roots decompose at various depths in the soil. As a result, soils that formed under prairie grasses have a thick, dark surface layer.

Additions of organic matter to soils that formed under forest vegetation are mostly the result of leaves and twigs that decompose on the surface. These soils have a thin, dark surface layer.

Insects, worms, humans, and other animals affect soil formation. Bacteria and fungi cause rotting of organic materials, fix nitrogen, and improve tilth. Burrowing animals and insects loosen and mix various soil horizons.

In a relatively short time, human activities have greatly affected the processes of soil formation. The major alterations have resulted in vegetation, drainage of wet areas, and accelerated erosion. Row crops have replaced native grasses and many forested areas. Nearly all of the flood plains and much of the upland areas are now farmed. These changes have increased food production but have had an adverse effect in terms of sustained productivity. Accelerated erosion continues to reduce the potential of many upland soils, and the loss of cropland to urban development is virtually irreversible.

Human activities have had a tremendous effect on the soils in the survey area during the past 200 years. Man has cut, filled, reshaped, and graded soils, until in many parts of the county an undisturbed soil profile is difficult to find. Soils, geology, hydrology, vegetation, drainage, and existing downstream development should be carefully analyzed for each watershed prior to development of new tracts.

Urbanization changes the natural landscape and causes potential soil slippage, gullyng, and accelerated runoff leading to downstream flooding, creek bank cutting, channel entrenchment/widening, and water siltation problems. Many ridges have the loess cap removed and are graded to widen them for development. If the fill material is not properly compacted, settling, foundation fracture, and potential soil slippage or slump often occur (fig. 15).

The Kimmswick geologic sequence contains many sinkholes that when disturbed lead to direct ground-water contact and potential contamination.

Developed areas in flood plains have fill materials

added, creating channeled drainageways that harm the stream life environment (fig. 14). Levees designed to protect areas from flooding prevent the deposition of new sediments on flood plains and often jeopardize life and property if they fail. Highway easements often require stripping of soil, excavation, filling, and concrete coverage. These factors increase water runoff rates, streambank cutting, channel entrenchment, and expensive infrastructure repair.

All of these factors contribute to the rate of water movement as it travels from the uplands to the river bottoms. The frequency and severity of water related environmental and development problems could be reduced by planning.

Climate

Climate has been and still is an important factor of soil formation. Geologic erosion; plant and animal life; and, in more recent times, accelerated erosion all have varied with the climate.

Currently we are dominated by a sub-humid, mid-continental climate with distinct seasonal temperature variations and predictable distribution of rainfall. Warm temperatures and rainfall create a setting for additions, removals, transfers, and transformations of soil, geologic, and plant materials (Simonson, 1959). Aspect affects soil temperature, evaporation, evapotranspiration, and vegetative production that in turn influences soil profile formation. The Gasconade and Sonsac soils are dominantly on south and west aspects with frequent freeze/thaw cycles. Useful soils on the north-facing slopes remain frozen and are cooler in spring with lower rates of evapotranspiration than the opposing south and west aspects. Shallower soils, inferior tree species, and slower vegetative growth are evident on the warmer and dryer south and west aspects.

Topography

Topography, or relief, affects soil formation through its influence on drainage, runoff, the rate of water infiltration, and geologic erosion. Topography is characterized by the length, shape, aspect, and degree of slope. It is important in determining the pattern and distribution of soils.

The amount of water entering the soil depends on steepness of slope, permeability, and the intensity of rainfall. Because runoff is rapid in steep areas, very little water passes through the soil and soil formation is slow. Geologic erosion almost keeps pace with the soil-forming processes. In gently sloping areas, runoff is slow, erosion is minimal, and most of the



Figure 15.—Damage from fill movement in an area of Harvester silt loam, 8 to 15 percent slopes.

water passes through the soil. Leaching, the translocation of clay, and other soil-forming processes are intensified in these areas. Soils in these areas generally show maximum profile development.

Soils on steep, south-facing slopes receive more direct sunlight and are drier than similar soils on north-facing slopes. Drier conditions influence soil formation by affecting the kind of vegetation, the susceptibility to erosion, and the cycles of freezing and thawing.

Time

The degree of profile development is dependent on the length of time that the parent material has been in place and subject to the soil-forming processes. Older soils show the effects of leaching and clay movement and have developed distinct horizons. Young soils show little profile development.

The surface of Jefferson County has had soils in varied stages of development since the beginning of time. Chemical reactions, physical movement, and disintegration proceed at variable rates and affect the soil profile and landscape. The age of a soil is

expressed in the degree of development of its profile characteristics. The factors of material type and microenvironment have a greater influence than weathering duration on development (Daniels and Hammer, 1992).

The soils of Jefferson County show a wide range in degree of development over time. Those that formed in recent alluvial deposits along the Big, Meramec, and Mississippi Rivers, such as Haymond, Haynie, and Kaintuck, are the youngest soils in the county. On landforms of the shallow Gasconade, Moko, and Ramsey soils, the removal of soil material through geologic erosion is at near equilibrium with the formation of materials through residual weathering. These soils have initial profile development and are relatively young. The deep loess deposited approximately 14,000 to 17,000 years ago (Ruhe, Daniels, and Cady, 1967) formed the Menfro soil, which shows good profile development with a relatively high level of base saturation still remaining, making it an older soil. The Goss soil is an example of the oldest soil in the county. It has gravelly clay textures that developed by the weathering of underlying geology for great periods of time.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon.

Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed

as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Backslopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Board foot. A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.

Bottomland. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. 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. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a chanter.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or

more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey soil. Silty clay, sandy clay, or clay.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from the adjacent stands.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Commercial forest. Forest land capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate

pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Consolidated sandstone. Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry, are not easily crushed, and cannot be textured by the usual field method.

Consolidated shale. Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

Contour stripcropping. Growing crops in strips that

follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deep to water (in tables). Deep to permanent water during the dry season.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to bedrock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Droughty (in tables). Soil holds too little water for plants during dry periods.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream,

that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erodes easily (in tables). Soil is easily eroded by water.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Even aged. Refers to a stand of trees in which only small differences in age occur between individual trees. A range of 20 years is allowed.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and

equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flooding (in tables). Soil flooded by moving water from stream overflow or runoff.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to

grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to pack (in tables). Difficult to compact using regular earthwork construction equipment.

Head out. To form a flower head.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

Highly erodible (in tables). Soil has an erodibility index greater than 8 and is very susceptible to erosion by water.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction

between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water

table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasesers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Infrequent flooding (in tables). Flooding occurs at an interval that limits riparian plant species.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long,

continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. Saturated hydraulic conductivity. (See Permeability.)

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low adsorption (in tables). Low amounts of cations are adsorbed from wastes applied to the soil.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral,

and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common, and many*; size—*fine, medium, and coarse*; and contrast—*faint, distinct, and prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan, and traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice.

They form on the soil after plant cover is removed.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth).

Depth to which roots could penetrate if the content of moisture in the soil were adequate.

The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline.

The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few

inches deep and not wide enough to be an obstacle to farm machinery.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Seasonally ponded (in tables). Standing water on soils in closed depressions that is removed only by percolation or evapotranspiration. Generally occurs during the winter and early spring.

Seasonal wetness (in tables). The soil may be wet during the period of desired use. This usually occurs during the winter and early spring.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sedimentary uplands. Land areas of bedrock formed from water- or wind-deposited sediments. They are higher on the landscape than the flood plain.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the backslope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of

alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special

practices are required to ensure satisfactory performance of the soil for a specific use.

Slope/erodibility (in tables). A combination of slope and susceptibility to water erosion may be restrictive in the use of this soil.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil reaction (in tables). A measure of acidity or alkalinity of a soil, expressed in pH values, which indicates that the soil reaction is either too high or too low for the intended use.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stickiness (surface) (in tables). The soil is slippery and sticky when wet and slow to dry.

Stones. Rock fragments 10 to 24 inches (25 to 60

centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Subsurface layer. Any subsurface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. A general term for the top, or highest level, of an upland feature, such as a hill or mountain. It

commonly refers to a higher area that has a gentle slope and is flanked by steeper slopes.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The textural classes are *C—clay*, *CL—clay loam*, *COS—coarse sand*, *COSL—coarse sandy loam*, *FS—fine sand*, *FSL—fine sandy loam*, *L—loam*, *LCOS—loamy coarse sand*, *LFS—loamy fine sand*, *LS—loamy sand*, *LVFS—loamy very fine sand*, *S—sand*, *SC—sandy clay*, *SCL—sandy clay loam*, *SI—silt*, *SIC—silty clay*, *SICL—silty clay loam*, *SIL—silt loam*, *SL—sandy loam*, *VFS—very fine sand*, and *VFSL—very fine*

sandy loam. Terms used in lieu of texture are *WB—weathered bedrock and UWB—unweathered bedrock*. The texture modifiers that may apply to textural classes are *BY—bouldery, BYV—very bouldery, BYX—extremely bouldery, CB—cobbly, CBV—very cobbly, CBX—extremely cobbly, CN—channery, CNV—very channery, CNX—extremely channery, FL—flaggy, FLV—very flaggy, FLX—extremely flaggy, GR—gravelly, GRV—very gravelly, GRX—extremely gravelly, PCN—parachannery, PCNV—very parachannery, SR—stratified, ST—stony, STV—very stony, and STX—extremely stony*.

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Too acid (in tables). The soil is so acid that growth of plants is restricted.

Too arid (in tables). The soil is dry most of the time, and vegetation is difficult to establish.

Too clayey (in tables). The soil is slippery and sticky when wet and slow to dry.

Too sandy (in tables). The soil is soft and loose, droughty, and low in fertility or is too fine to use as gravel.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

Tread. The relatively flat surface that was cut or built by stream or wave action.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley. An elongated depressional area primarily developed by stream action.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Very deep soil. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water-spreading. Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wetness (in tables). The soil is wet during the period of desired use.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

