United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
Tennessee Agricultural
Experiment Station

Soil Survey of Tipton County, Tennessee

How To Use This Soil Survey

General Soil Map

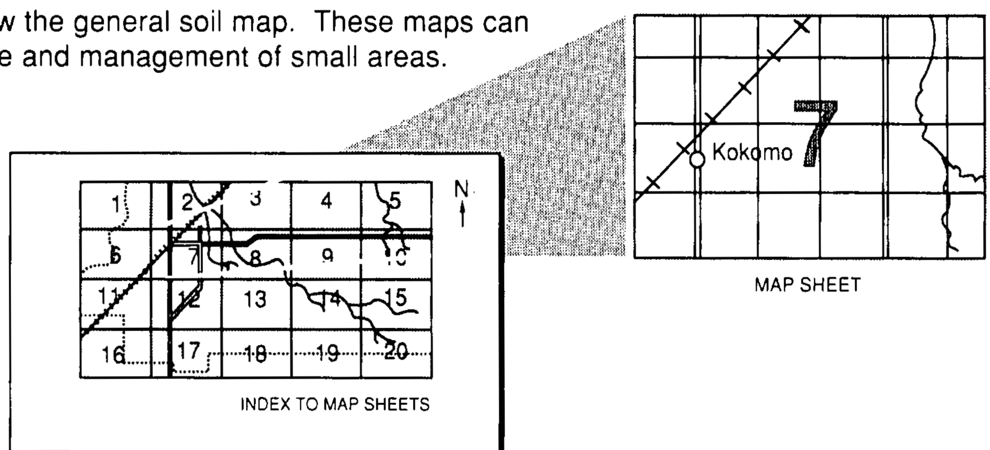
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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.

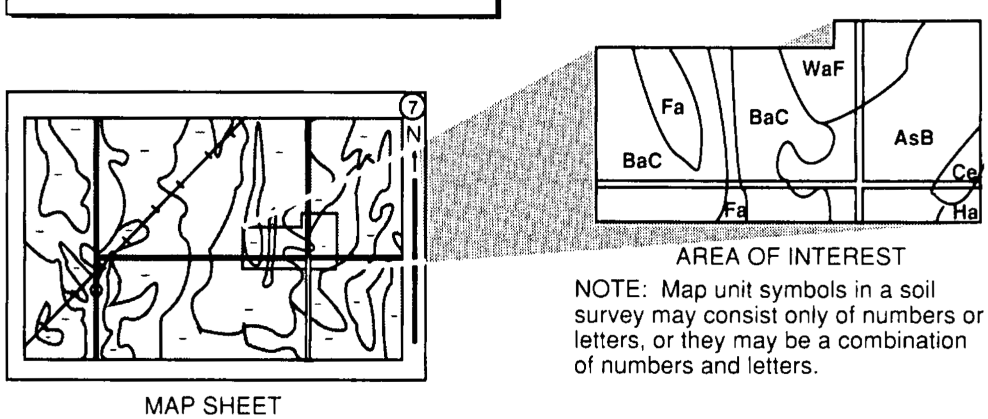
Detailed Soil Maps

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 unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **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 Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1982. Soil names and descriptions were approved in 1987. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1982. This soil survey was made cooperatively by the Soil Conservation Service and the Tennessee Agricultural Experiment Station. Funds to accelerate the survey were provided by the Tipton County Board of Commissioners, the Tennessee Valley Authority, and the Tennessee Department of Agriculture. The survey is part of the technical assistance furnished to the Tipton County Soil 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.

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: An area of Tipton County along the Mississippi River. The river plays a vital role in the economy of the county.

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Foreword

This soil survey contains information that can be used in land-planning programs in Tipton County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, 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, 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.

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 Soil Conservation Service or the Cooperative Extension Service.

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Soil Survey of
Tipton County, Tennessee

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United States Department of Agriculture, Soil Conservation Service, in cooperation with
Tennessee Agricultural Experiment Station

TIPTON COUNTY is in the southwestern part of Tennessee (fig. 1). It has a land area of 290,600 acres, or 454 square miles. It is bounded on the north by Lauderdale County, on the east by Haywood County, on the south by Shelby and Fayette Counties, and on the west by the Mississippi River. According to census data, the population of the county was 32,747 in 1980. Covington, the county seat, is 39 miles north of Memphis and 49 miles west of Jackson.

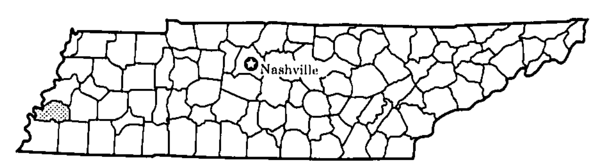

Figure 1.—Location of Tipton County in Tennessee.

General Nature of the County

This section gives general information about the county. It describes settlement; natural resources; industry and transportation facilities; physiography, geology, relief, and drainage; and climate.

Settlement

The first settlement in Tipton County was established near the present site of Covington in 1821-22. Most of the settlers came from middle and eastern Tennessee and from North Carolina and Virginia. The settlers were attracted by the abundance of rich farmland in the county.

Tipton County was formed out of Shelby County by an act of the General Assembly on October 29, 1823. It originally included what is now Lauderdale County. In 1836, the part of the original county north of the Hatchie River was separated out as Lauderdale County. Tipton County was named in honor of Captain Jacob Tipton, whose son was one of the earliest settlers in the county.

The first county court was organized and the first magistrates commissioned in December 1823. Covington was incorporated in 1826 on land donated by three landowners in the county. Randolph, the oldest town in the county, was established in the early 1820's. It became a flourishing town.

The early settlers hunted, cleared new land, and grew crops. In 1870, wheat, rye, corn, oats, tobacco, and cotton were the most important crops *(1, 9)*.

Natural Resources

Tipton County has many valuable natural resources. The most important of these are the rivers, streams, soils, deposits of sand and gravel, forests, and wildlife. The Mississippi River is the main waterway, but there are numerous other large and small streams. The county also has an abundant supply of good potable water, which is supplied by wells dug into very deep sand aquifers throughout the county. The soils in the county are moderate or high in fertility. Tipton County is one of the top farming counties in the state. It has many deposits of sand and gravel. These deposits meet local needs and the needs of surrounding counties.

The county has only a relatively small acreage of woodland. The wooded areas are mainly along the Hatchie River. They support bottom-land hardwoods that are valuable as sources of timber and as wildlife habitat elements. The county is in the Mississippi waterfowl flyway and has an abundance of ducks and geese that are of value to hunters and birdwatchers. The county has many rivers and lakes, which are inhabited by many kinds of game and commercial fish.

Industry and Transportation Facilities

Farming is the most important industry in Tipton County. About 201,000 acres in the county is farmland. The major farm products are soybeans, cotton, wheat, corn, beef cattle, and hogs.

The county has 12 major industrial and manufacturing plants. These plants manufacture curtains, window shades, folding doors, brass and copper fittings, fiberboard, milk products, ceramic ware, battery chemicals, air bags, and nails. They employ approximately 1,400 people. Commercial fishing is a small but important industry on the Mississippi and Hatchie Rivers.

Tipton County is traversed by U.S. Highway 51 and State Highways 59, 54, and 14. It is served by a railroad that transports grain and other products to and from local industries. The Mississippi River, which is the western boundary of the county, is a major transportation artery for goods shipped by barge. Petroleum products, steel, cement, grain, sand, chemicals, and many other products are transported by way of the river.

Physiography, Geology, Relief, and Drainage

Most of Tipton County is in the Southern Mississippi River Valley Silty Uplands, but the westernmost part of the county is in the physiographic area called Mississippi River Valley Alluvium. The silty uplands are gently rolling to hilly in the east and are steep, dissected hills in the west. Broad, nearly level flood plains and terraces are along the Mississippi and Hatchie Rivers.

The geology of the county consists of upper Coastal Plain sand, gravel, and clay overlain by loess. The Coastal Plain sediments are exposed only in a few areas. In the northern part of the county, near the Hatchie River, is Millstone Mountain, which is underlain by cemented gravel and sand or conglomerate.

All of the surface water in the county eventually drains into the Mississippi River. The northern part of the county is drained by the Hatchie River, and the southern part is drained by the Loosahatchie River. Other important streams are Indian, Beaver, Town, and Hurricane Creeks.

The highest elevation in the county, in an area near Munford, is 455 feet above sea level. The lowest, in an area where the Mississippi River flows out of the county, is 200 feet above sea level.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

Summers in Tipton County are hot and long, and winters are rather cool. An occasional cold wave brings temperatures near or below freezing but seldom much snow. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation falls mainly during afternoon thunderstorms and is adequate for all of the crops commonly grown in the county.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Covington, Tennessee, in the period 1951 to 1981. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 39 degrees F and the average daily minimum temperature is 30 degrees. The lowest temperature on record, which occurred at Covington on February 2, 1951, is -11 degrees. In summer, the average temperature is 79 degrees and the average daily maximum temperature is 90 degrees. The highest recorded temperature, which occurred on July 14, 1954, is 106 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 51 inches. Of this, about 25 inches, or nearly 50 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 20 inches. The heaviest 1-day rainfall during the period of record was 6.1 inches at Covington on August 14, 1957. Thunderstorms occur on about 53 days each year. Severe local storms, including tornadoes, strike occasionally. They are of short duration and cause damage in scattered small areas.

The average seasonal snowfall is about 7 inches. The greatest snow depth at any one time during the period of record was 13 inches. On an average of 5 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 75 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 11 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; 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 from which the soil formed. The unconsolidated material generally is devoid of roots and other living organisms and has been little changed by other biological activity.

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

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. 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 soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns 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 (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed, and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

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

General Soil Map Units

The general soil map at the back of 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 and some minor soils. It is named for the major soils. The soils making up one 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 a 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.

1. Memphis-Adler

Nearly level to very hilly, well drained and moderately well drained, loamy soils; on dissected uplands and on flood plains

This map unit consists of soils on highly dissected hillsides and along many small intermittent streams. Most areas are dissected from the lower side slopes to the ridgetops. The ridgetops generally are narrow and winding. Slopes commonly are 1 to 25 percent but are as much as 40 percent near the Mississippi River.

This unit makes up about 50 percent of the survey area. It is about 70 percent Memphis soils, 15 percent Adler soils, and 15 percent soils of minor extent.

Memphis soils are on ridgetops and side slopes. Typically, they have a surface layer of brown silt loam and a subsoil of brown and dark yellowish brown silt loam.

Adler soils are in drainageways. Typically, they have a surface layer of brown silt loam and a substratum of brown and grayish brown silt loam.

Of minor extent in this unit are the moderately well drained Loring soils on side slopes and the well drained Morganfield soils in drainageways.

Most of this unit has been cleared and is used for cultivated crops or for pasture and hay. The steeper areas support mixed hardwoods.

The less sloping soils on uplands and the soils in drainageways are suited to specialty crops, row crops, pasture, and hay. Erosion is a major hazard if cultivated crops are grown in the uplands. The steeper areas are best suited to woodland.

The less sloping soils on uplands are suited to most urban and recreational uses. Erosion is a major hazard on construction sites. The unit is well suited to such recreational uses as nature trails and to wildlife habitat.

2. Robinsonville-Crevasse-Bruno

Nearly level, well drained to excessively drained, loamy and sandy soils; on flood plains along the Mississippi River

This map unit consists of soils on bottom land that has been shaped by swiftly flowing floodwater. The areas nearest the river commonly are sandy.

This unit makes up about 7 percent of the survey area. It is about 40 percent Robinsonville soils, 15 percent Crevasse soils, 13 percent Bruno soils, and 32 percent soils of minor extent.

Robinsonville soils typically have a surface layer of brown fine sandy loam and a substratum of brown fine sandy loam, loamy fine sand, and silt loam.

Crevasse soils typically have a surface layer of pale brown sand and a substratum of brownish loamy fine sand and sand.

Bruno soils typically have a surface layer of very dark grayish brown silt loam and a substratum of brown fine sand and loamy sand.

Of minor extent in this unit are the somewhat poorly drained Commerce and poorly drained Bowdre and Tunica soils in the lower landscape positions.

Most of this unit has been cleared and is used for soybeans, wheat, or cotton. The sandier soils are used as pasture or are idle.

The Robinsonville soils and, to a lesser extent, the Bruno soils are suited to soybeans and cotton. The Crevasse soils are too sandy for the production of most cultivated crops.

The soils in this unit are suited to woodland. The most common trees are eastern cottonwood and sweetgum.

Because of the hazard of flooding, this unit is not suited to urban development or intensive recreational uses. It is suited to wildlife habitat.

3. Tunica-Bowdre-Sharkey

Nearly level, poorly drained and somewhat poorly drained, clayey soils; in slack-water areas on flood plains along the Mississippi River

This map unit consists of soils in slack-water areas on bottom land. Many areas have a series of sloughs and ridges. Some have old channels that are filled with clayey alluvium.

This unit makes up about 8 percent of the survey area. It is about 35 percent Tunica soils, 25 percent Bowdre soils, 20 percent Sharkey soils, and 20 percent soils of minor extent.

Tunica soils typically have a surface layer of very dark grayish brown clay, a subsoil of dark gray clay, and a substratum of grayish brown loamy fine sand.

Bowdre soils typically have a surface layer of very dark grayish brown silty clay, a subsoil of very dark grayish brown clay, and a substratum of mottled silt loam, sandy loam, and loamy sand.

Sharkey soils typically have a surface layer of very dark grayish brown clay and a subsoil of dark gray clay.

Of minor extent in this unit are the somewhat poorly drained Commerce and somewhat excessively drained Bruno soils in the slightly higher landscape positions.

Most of this unit is used for soybeans. Low, wet areas support eastern cottonwood and black willow.

Areas where surface drainage is adequate are suited to soybeans. The soils are sticky when wet and hard when dry. As a result, tillage is limited to optimum moisture conditions. The unit is poorly suited to pasture because of excessive wetness in winter and spring.

This unit is suited to woodland. The most common trees are eastern cottonwood and sweetgum.

Because of the wetness and the hazard of flooding, this unit is not suited to urban development or most recreational uses. It is suited to wildlife habitat.

4. Adler-Vacherie

Nearly level, moderately well drained and somewhat poorly drained, loamy soils; on flood plains and in drainageways

This map unit consists of soils on narrow or wide bottom land along streams and drainageways.

This unit makes up about 2 percent of the survey area. It is about 60 percent Adler soils, 20 percent Vacherie soils, and 20 percent soils of minor extent.

Adler soils typically have a surface layer of brown silt loam and a substratum of brown and grayish brown silt loam.

Vacherie soils typically have a surface layer of dark grayish brown silt loam. The substratum is brownish, mottled silt loam in the upper part and dark gray clay and silty clay in the lower part.

Of minor extent in this unit are the well drained Morganfield soils in landscape positions similar to those of the major soils and the moderately well drained Grenada and Loring soils at the slightly higher elevations.

Most of this unit has been cleared and is used for cultivated crops. Flooding and wetness generally are not problems during the growing season.

This unit is suited to woodland. The most common trees are eastern cottonwood and sweetgum.

Because of the hazard of flooding and the wetness, this unit is not suited to urban development or most recreational uses. It is suited to wildlife habitat.

5. Falaya-Amagon-Adler

Nearly level, moderately well drained to poorly drained, loamy soils; on flood plains

This map unit consists of soils on bottom land along streams that flow from the uplands.

This unit makes up about 2 percent of the survey area. It is about 30 percent Falaya soils, 25 percent Amagon soils, 20 percent Adler soils, and 25 percent soils of minor extent.

Falaya soils typically have a surface layer of brown silt loam and a substratum of dark yellowish brown, grayish brown, and light brownish gray silt loam.

Amagon soils typically have a surface layer of dark grayish brown silt loam, a subsurface layer of light brownish gray silt loam, and a subsoil of grayish brown silty clay loam and silt loam.

Adler soils typically have a surface layer of brown silt loam and a substratum of brown and grayish brown silt loam.

Of minor extent in this unit are the moderately well drained Loring and Grenada soils in the higher areas above the flood plains.

Much of this unit has been cleared and is cultivated. The suitability for cultivated crops is limited by flooding and wetness. Unless a surface drainage system is installed, the Amagon soils are too wet for the consistent production of row crops.

This unit is suited to woodland. The most common trees are eastern cottonwood, water oak, and cherrybark oak.

Because of the hazard of flooding and the wetness, this unit is not suited to urban development or most recreational uses. It is suited to wildlife habitat.

6. Grenada-Loring-Memphis

Gently sloping to rolling, moderately well drained and well drained, loamy soils; on uplands

This map unit consists of soils on low hills dissected by small drainageways. Slopes commonly range from 1 to 12 percent.

This unit makes up about 2 percent of the survey area. It is about 45 percent Grenada soils, 20 percent Loring soils, 15 percent Memphis soils, and 20 percent soils of minor extent.

Grenada soils are on the lower side slopes and on low flats. Typically, they have a surface layer of dark yellowish brown. The subsoil is yellowish brown silt loam and a fragipan of mottled silt loam.

Loring soils are on the upper side slopes and on hilltops. Typically, they have a surface layer and subsoil of dark brown silt loam. The subsoil has a mottled fragipan.

Memphis soils are on the upper side slopes and on hilltops. Typically, they have a surface layer of brown silt loam and a subsoil of dark brown and dark yellowish brown silt loam.

Of minor extent in this unit are the moderately well drained Adler soils in drainageways, the somewhat poorly drained Falaya soils on flood plains, and the poorly drained Routon soils in depressions.

Most of this unit has been cleared and is used for cultivated crops or pasture. The unit is well suited to row crops. The major management concern is the hazard of erosion. The suitability for pasture and hay is good.

The soils in this unit are well suited to woodland. The most common trees are cherrybark oak and sweetgum.

The suitability of this unit for most urban and recreational uses is only fair. The hazard of erosion and low strength are management concerns. Also, slow permeability is a limitation in areas of the Grenada and Loring soils. The unit is suited to wildlife habitat.

7. Loring-Memphis-Grenada

Gently sloping to hilly, moderately well drained and well drained, loamy soils; on uplands

This map unit consists of soils on narrow or fairly wide hilltops and side slopes. The landscape is dissected by many small drainageways. Slopes commonly range from 1 to 25 percent.

This unit makes up about 15 percent of the survey area. It is about 55 percent Loring soils, 20 percent Memphis soils, 10 percent Grenada soils, and 15 percent soils of minor extent.

Loring soils are on the upper side slopes and on hilltops. Typically, they have a surface layer and subsoil of dark brown silt loam. The subsoil has a mottled fragipan.

Memphis soils are on the upper side slopes and on hilltops. Typically, they have a surface layer of brown silt loam and a subsoil of brown and dark yellowish brown silt loam.

Grenada soils are on the lower side slopes and on low flats. Typically, they have a surface layer of dark yellowish brown silt loam. The subsoil is yellowish brown silt loam and a fragipan of mottled silt loam.

Of minor extent in this unit are the moderately well drained Adler soils in drainageways and the poorly drained Routon soils in depressions.

Most of this unit has been cleared and is used for cultivated crops or pasture. The unit is well suited to row crops. The major management concern is the hazard of erosion. The suitability for pasture and hay is good.

The soils in this unit are well suited to woodland. The most common trees are cherrybark oak and sweetgum.

The suitability of this unit for most urban and recreational uses is only fair. The hazard of erosion and low strength are management concerns. Also, slow permeability is a limitation in areas of the Grenada and Loring soils. The unit is suited to wildlife habitat.

8. Dubbs-Routon-Dekoven

Nearly level and gently sloping, well drained to poorly drained, loamy soils; on undulating terraces

This map unit consists of soils on undulating ridges, on broad flats, and in depressions. Slopes range from 0 to 8 percent.

This unit makes up about 11 percent of the survey area. It is about 30 percent Dubbs soils, 28 percent Routon soils, 22 percent Dekoven soils, and 20 percent soils of minor extent.

Dubbs soils are on ridges. Typically, they have a surface layer of yellowish brown silt loam and a subsoil of brown, yellowish brown, and dark yellowish brown silt loam.

Routon soils are on wide flats and in depressions. Typically, they have a surface layer of brown and grayish brown silt loam and a subsurface layer of light brownish gray silt loam. The subsoil is light brownish gray silt loam in the upper part and grayish brown silty clay loam in the lower part.

Dekoven soils are on low, wide flats. Typically, they have a surface layer of very dark gray silt loam. The subsoil is very dark gray silty clay loam in the upper part, light olive brown silty clay loam in the next part, and mottled light yellowish brown and grayish brown silt loam in the lower part.

Of minor extent in this unit are the somewhat poorly drained Falaya and moderately well drained Adler soils on flood plains.

Most of this unit has been cleared and is used for row crops. The suitability for cultivated crops and pasture is good. Erosion is a hazard in the undulating areas, and wetness is a limitation on the low flats.

This unit is well suited to woodland. The most common trees are cherrybark oak, willow oak, and sweetgum.

The suitability for most urban and recreational uses is poor because of wetness. Areas of the well drained Dubbs soils are generally small and are surrounded by areas of poorly drained soils. The suitability for wildlife habitat is good.

9. Amagon-Oaklimeter

Nearly level, poorly drained and moderately well drained, loamy soils; on flood plains

This map unit consists of soils on wide bottom land along the Hatchie River.

This unit makes up about 3 percent of the survey area. It is about 50 percent Amagon soils, 30 percent Oaklimeter soils, and 20 percent soils of minor extent.

Amagon soils typically have a surface layer of brown silt loam overwash and a subsoil of grayish brown and light brownish gray silt loam and silty clay loam.

Oaklimeter soils typically have a surface layer of dark yellowish brown silt loam. The upper part of the subsoil is dark yellowish brown silt loam that has grayish mottles, the next part is mottled grayish and brownish silt loam, and the lower part is light brownish gray silt loam that has brownish mottles.

Of minor extent in this unit are the moderately well drained Adler soils in drainageways and the well drained Dubbs soils on low ridges.

Most of this unit is used as woodland. The suitability for bottom-land hardwoods is good. The most common trees are cherrybark oak, eastern cottonwood, and sweetgum.

This unit is not suited to cultivated crops or pasture or to most urban and recreational uses because of the hazard of flooding. The suitability for wildlife habitat is good.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil 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 or of the substratum, 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 or of the substratum. They also can differ in slope, stoniness, salinity, wetness, 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, Memphis silt loam, 5 to 8 percent slopes, severely eroded, is a phase of the Memphis series.

Some map units are made up of two or more major soils. These map units are called soil complexes or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Dubbs-Routon complex, 0 to 4 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Amagon overwash and Oaklimeter silt loams, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of 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.

Ad—Adler silt loam, frequently flooded. This very deep, moderately well drained, nearly level soil is on flood plains along streams and along narrow drainageways. Individual areas are 5 to 140 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. The substratum to a depth of 60 inches or more is mottled brown, yellowish brown, and grayish brown silt loam.

Reaction ranges from medium acid to mildly alkaline throughout the profile. Permeability is moderate, and available water capacity is high. The soil is flooded for periods of less than a week in late winter and early spring. Flooding is not a serious hazard, however, during the growing season. The water table is 2 to 3 feet below the surface during late winter and early spring.

Included with this soil in mapping are some small areas of well drained and somewhat poorly drained soils.

Nearly all of the acreage is used for row crops. This soil has good suitability for soybeans, cotton, and corn. Good yields can be obtained. The suitability for the hay and pasture plants that are tolerant of a high water table and flooding is good. In some areas open ditches are needed to remove excess water. Levees can be used to protect many areas from flooding.

This soil has good suitability for eastern cottonwood, black walnut, and American sycamore. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the wetness and the hazard of flooding.

The capability subclass is IIw.

Am—Amagon silt loam, frequently flooded. This very deep, poorly drained, nearly level soil is on flood plains, mainly along Beaver Creek and its tributaries. Slopes range from 0 to 2 percent. Individual areas are 5 to 50 acres in size.

Typically, the surface layer is dark grayish brown silt loam about 6 inches thick. The subsoil to a depth of about 60 inches is light brownish gray and grayish brown silt loam and silty clay loam.

Reaction ranges from very strongly acid to medium acid in the upper part of the soil and from strongly acid to neutral in the lower part. Permeability is slow, and available water capacity is high. The soil is flooded during periods of heavy rainfall. The water table is near the surface in late winter and early spring. In many areas the soil has a high water table or standing water during much of the year because of siltation of drainage outlets and beaver dams.

Included with this soil in mapping are a few areas of soils that have silt loam overwash as much as 15 inches thick. Also included are a few areas of somewhat poorly drained and poorly drained soils that have a clayey subsoil.

Most of the acreage is wooded. A few areas have been cleared and are planted to soybeans. Because of the hazard of flooding and the wetness, this soil is not suited to most cultivated crops. It does not dry out early enough to be cultivated before late in spring. Crops may be damaged by flooding during the growing season. Drainage ditches help to remove excess water and thus allow earlier planting dates. The suitability for water-tolerant pasture plants is fair.

This soil has good suitability for sweetgum, eastern cottonwood, American sycamore, water oak, and willow oak. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the wetness and the hazard of flooding.

The capability subclass is Vw.

AO—Amagon overwash and Oaklimeter silt loams, frequently flooded. These nearly level soils are on flood plains along the Hatchie River. They are in long, broad areas between the river channel and the nearby terraces and uplands. They are frequently flooded during late winter and early spring and may be covered with water for as much as a month. The Amagon soil is poorly drained, and the Oaklimeter soil is moderately well drained. Slopes range from 0 to 3 percent.

Individual areas of each soil are large enough to be mapped separately. Because of present and predicted land uses, however, the soils were mapped as one unit. Most mapped areas have both soils, but a few have only one of the soils.

About 50 percent of the map unit is the overwash phase of the Amagon soils. Typically, the surface layer is dark grayish brown silt loam overwash about 14 inches thick. The subsoil to a depth of about 60 inches is light brownish gray and grayish brown silt loam and silty clay loam.

Reaction ranges from strongly acid to slightly acid throughout the overwash phase of the Amagon soils. Permeability is slow, and available water capacity is high. The water table is at or near the surface during late winter and early spring. Floodwater can be 1 to 8 feet deep during the same period. The surface tends to crust or puddle after heavy rainfall.

About 30 percent of the map unit is the Oaklimeter soil. Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The upper 8 inches of the subsoil is dark yellowish brown silt loam that has grayish mottles. The lower part to a depth of about 60 inches is silt loam that is mottled in shades of gray and brown.

Reaction is very strongly acid or strongly acid throughout the Oaklimeter soil. Permeability is moderate, and available water capacity is high. The water table fluctuates between depths of about 1.5 and 2.5 feet during late winter and early spring. Floodwater can be 1 to 5 feet deep during the same period.

Included with these soils in mapping are a few small areas of clayey soils in old meander scours and sloughs. Also included are small areas of soils that are neutral in reaction and have concretions of calcium carbonate in the subsoil.

Most of the acreage is wooded with willow oak, cherrybark oak, sweetgum, American sycamore, eastern cottonwood, black willow, tupelo gum, and baldcypress.

These soils are not suited to such crops as soybeans, millet, and grain sorghum. Crops are damaged by flooding late in spring and early in summer during most years.

These soils are poorly suited to pasture. The main management concerns are the wetness and the flooding. Suitable pasture plants are common bermudagrass, tall fescue, and white clover. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. During periods of flooding, cattle should be moved to protected areas or to a pasture at a higher elevation.

These soils are well suited to the commercial production of hardwoods, including eastern cottonwood, willow oak, water oak, and cherrybark oak. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

These soils are not suited to urban uses because of the hazard of flooding. Sites for these uses cannot be protected from flooding.

The capability subclass is Vw.

Bo—Bowdre silty clay, frequently flooded. This nearly level, somewhat poorly drained soil is on flood plains along the Mississippi River. Slopes are dominantly 0 to 3 percent, but short slopes are as much as 5 percent. Individual areas are 10 to 300 acres in size.

Typically, the surface layer is very dark grayish brown silty clay about 6 inches thick. The subsoil is very dark grayish brown, mottled clay about 8 inches thick. The upper part of the substratum is mottled dark grayish brown, brown, and very dark grayish brown silt loam. The lower part to a depth of 60 inches or more is brown, mottled sandy loam and loamy sand.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is moderately slow in the upper part of the profile and moderately rapid in the lower part. Available water capacity is moderate. The soil is flooded for periods of as much as 6 weeks during winter and early spring. Flooding is not a major hazard, however, during the growing season. The water table is at a depth of about 1.5 to 2.0 feet during late winter and early spring.

Included with this soil in mapping are small areas of soils that have less than 10 or more than 20 inches of clayey material and are underlain by loamy sediments and a few areas where the substratum is fine sand. Also included, on a few long and narrow ridges, are soils that are loamy or sandy throughout.

About half the acreage is used for row crops. This soil has good suitability for soybeans, corn, and cotton. Ditches may be needed to remove excess water in many areas. The soil can be worked only within a narrow range in moisture content. It is sticky when wet and hard and cloddy when dry. Breaking up the plow layer in the fall allows freezing and thawing to make the surface layer more friable. Grading or smoothing low spots can improve drainage. The soil is poorly suited to pasture because most pasture plants are likely to drown out.

This soil has good suitability for eastern cottonwood, sweetgum, and black willow. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the wetness and the hazard of flooding.

The capability subclass is IVw.

Br—Bruno silt loam, frequently flooded. This very deep, excessively drained, nearly level soil is on flood plains along the Mississippi River. Slopes are dominantly 0 to 2 percent but range to 5 percent. Most are smooth, but many areas where the surface has been shaped by swiftly flowing water are uneven and hummocky. Individual areas are 10 to 100 acres in size.

Typically, the surface layer and subsurface layer are very dark grayish brown and dark brown silt loam about 9 inches thick. The substratum to a depth of 60 inches or more is brown fine sand, loamy sand, and loamy fine sand having thin layers of loam and silt loam.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is rapid, and available water capacity is low or moderate, depending on the thickness of the silt loam overwash. In most years the soil is flooded for periods of as much as several weeks during winter and early spring. The water table is below a depth of about 4 feet during winter and early spring.

Included with this soil in mapping are a few small areas where the surface layer is loamy sand or is a thin layer of silty clay loam or silty clay.

Most of the acreage has been cleared and is planted to soybeans or wheat. Some areas are wooded, mainly with black willow and eastern cottonwood. This soil has fair suitability for row crops. In years of limited rainfall, yields are low. The suitability for small grain is good.

The suitability for pasture is fair or good. Deep-rooted species that can withstand flooding should be selected for planting.

This soil has good suitability for black willow, eastern cottonwood, and cherrybark oak. Seedling mortality rates may be high because of droughtiness. Planting vigorous seedlings in early spring increases the likelihood of a good stand. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to urban uses because of the hazard of flooding.

The capability subclass is IIIs.

Co—Commerce silt loam, frequently flooded. This very deep, somewhat poorly drained, nearly level soil is on flood plains along the Mississippi River. Slopes range from 0 to 3 percent. They generally are smooth, but a few areas in old channels or sloughs are concave. Individual areas are 10 to more than 500 acres in size.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The subsoil is about 32 inches of dark grayish brown silt loam and silty clay loam mottled with grayish brown. The substratum to a depth of about 60 inches is dark grayish brown silt loam that has dark yellowish brown mottles.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is moderate in the surface layer and substratum and moderately slow in the subsoil. Available water capacity is high. In most years the soil is flooded for periods of as much as several weeks during winter and early spring. Flooding is not a serious hazard, however, during the growing season. The water table is 1.5 to 4.0 feet below the surface during winter and early spring. The surface layer tends to become cloddy if plowed when wet.

Included with this soil in mapping are some small areas where the substratum is fine sandy loam and sandy loam and a few long, narrow areas of soils that are poorly drained and have a clayey surface layer. Also included are small areas of soils that are better drained than the Commerce soil.

Nearly all of the acreage is used for row crops. This soil has good suitability for soybeans, cotton, and corn. The suitability for most perennial pasture plants and small grain is poor because of the flooding during winter and spring. Drainage ditches help to remove excess water after periods of flooding, but dikes or levees are needed.

This soil has good suitability for eastern cottonwood and American sycamore. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to urban uses because of the wetness and the hazard of flooding.

The capability subclass is IIIw.

Cr—Crevasse sand, occasionally flooded. This very deep, excessively drained, nearly level soil is on flood plains along the Mississippi River. Slopes are dominantly 0 to 2 percent but range to 5 percent. Most are smooth, but many areas where the surface has been shaped by swiftly flowing water are uneven and hummocky. Individual areas are 20 to more than 500 acres in size.

Typically, the surface layer is pale brown sand about 14 inches thick (fig. 2). The substratum to a depth of more than 60 inches is brown sand, pale brown sand, grayish brown fine sand, and dark brown loamy fine sand.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is rapid, and available water capacity is low. In some years the soil is flooded for periods of several weeks during winter and early spring. It is subject to scouring and deposition of sandy material during periods of flooding. The water table is

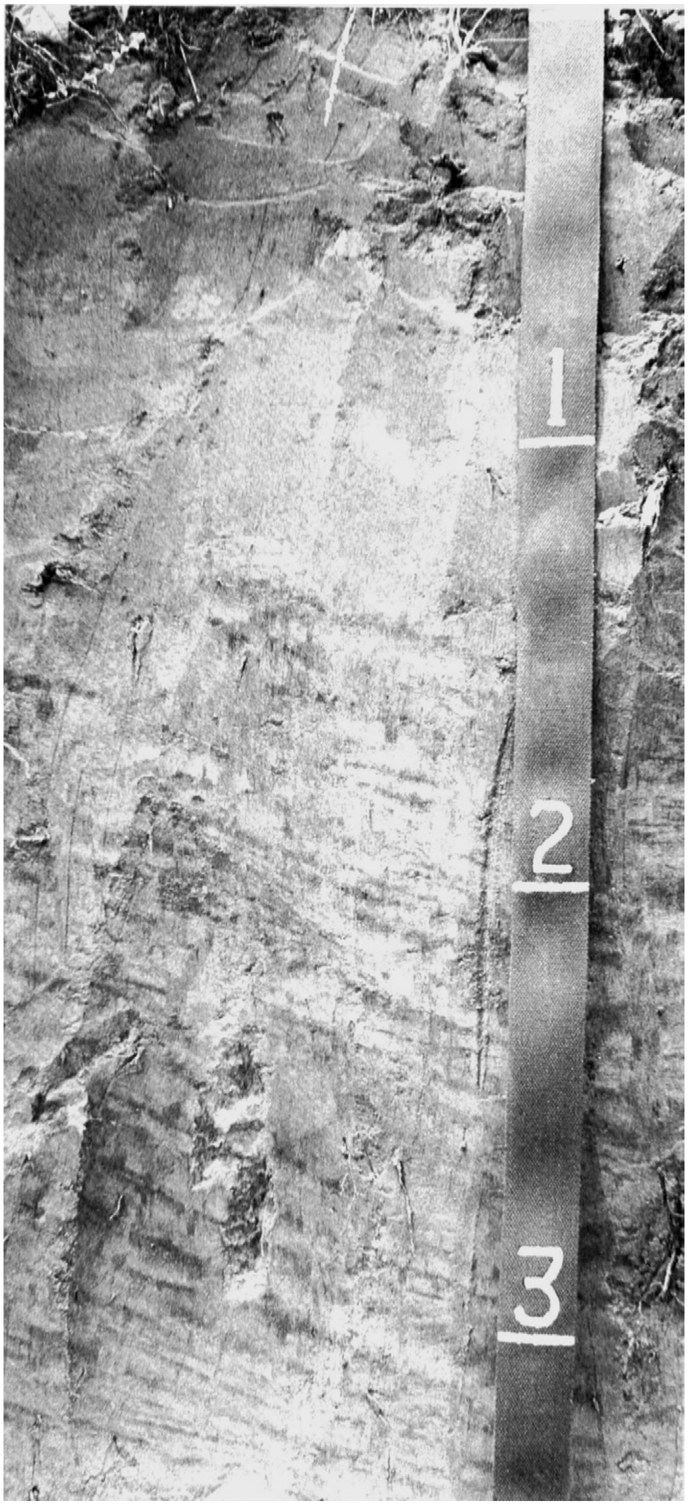

Figure 2.—Profile of Crevasse sand, occasionally flooded. Depth is marked in feet.

below a depth of about 3.5 feet during winter and early spring.

Included with this soil in mapping are some areas where the substratum has layers of fine textured material. These are long, narrow areas that are several acres in size.

Most of the acreage is bare and has only a few clumps of vegetation. Some areas are wooded, mainly with black willow and some eastern cottonwood. This soil is poorly suited to row crops and small grain because of the low available water capacity. The suitability for pasture is fair, but yields are low because of the low available water capacity. Establishing a pasture may be difficult.

This soil has fair suitability for black willow and eastern cottonwood. Seedling mortality rates may be high because of droughtiness. Planting vigorous seedlings in early spring increases the likelihood of a good stand.

This soil is not suited to urban uses because of the hazard of flooding.

The capability subclass is IVs.

De—Dekoven silt loam, rarely flooded. This very deep, nearly level, poorly drained soil is in depressions near the bluff on the terrace along the Hatchie River and at the bottom and head of the smaller streams. Slopes range from 0 to 2 percent. Individual areas are 5 to 200 acres in size.

Typically, the surface layer is very dark gray silt loam about 7 inches thick. The subsurface layer is very dark gray silty clay loam about 15 inches thick. The subsoil to a depth of about 60 inches is dark grayish brown and grayish brown silty clay loam that has grayish, brownish, and yellowish mottles. Some areas have 1 to 10 inches of brown silt loam overwash.

Reaction is slightly acid or neutral throughout the profile. Permeability is moderate, and available water capacity is high. The root zone is deep and can be easily penetrated but may be restricted by a high water table, which is at or near the surface during late winter and early spring. The surface layer tends to become cloddy if plowed when wet.

Included with this soil in mapping are a few small areas of better drained soils on the slightly higher parts of the landscape.

Almost all of the acreage is used for row crops (fig. 3). A few small areas are wooded or pastured. This soil has good suitability for soybeans, cotton, and corn. The suitability for water-tolerant hay and pasture plants also is good. In some areas open ditches are needed to remove excess water. Tilth can be improved by returning crop residue to the soil. The soil dries out slowly in spring. As a result, planting is delayed in some years.

Figure 3.—A cultivated area of Dekoven silt loam, rarely flooded.

This soil has good suitability for cherrybark oak, black willow, and American sycamore. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to urban uses, mainly because of the wetness and the hazard of flooding.

The capability subclass is IIIw.

Do—Dekoven silt loam, overwash, rarely flooded. This very deep, nearly level, poorly drained soil is in depressions near the bluff on the terrace along the Hatchie River and at the bottom and head of the smaller streams. Slopes range from 0 to 2 percent. Individual areas are 5 to 200 acres in size.

Typically, the surface layer is brown silt loam about 16 inches thick. The upper 18 inches of the subsoil is very dark gray silty clay loam. The lower part to a depth of about 60 inches is dark grayish brown silty clay loam that has dark gray mottles.

Reaction is slightly acid or neutral throughout the profile. Permeability is moderate, and available water capacity is high. The root zone is deep and can be easily penetrated but may be restricted in the lower part by a high water table, which is within 1 foot of the surface during late winter and early spring. Tilth is good, and a good seedbed can be easily prepared.

Included with this soil in mapping are a few small areas of better drained soils on the slightly higher parts of the landscape.

Almost all of the acreage is used for row crops. A few small areas are wooded or pastured. This soil has good suitability for soybeans, cotton, and corn. The suitability for water-tolerant hay and pasture plants also is good. In some areas open ditches are needed to remove excess water.

This soil has good suitability for American sycamore, cherrybark oak, and black willow. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to urban uses because of the wetness and the hazard of flooding.

The capability subclass is IIIw.

DuB2—Dubbs silt loam, 1 to 5 percent slopes, eroded. This very deep, gently sloping, well drained soil is on broad terraces along the Hatchie River. Slopes are smooth and gently undulating. Individual areas are about 5 to 40 acres in size.

Typically, the surface layer is yellowish brown silt loam about 6 inches thick. The subsoil to a depth of about 60 inches is brown, yellowish brown, and dark yellowish brown silt loam.

Erosion has removed much of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high. Tilth is good. The soil can be easily penetrated by roots.

Included with this soil in mapping are a few small areas of poorly drained soils in depressions.

Nearly all of the acreage has been cleared and is planted to row crops. A few areas are pastured or wooded. This soil has good suitability for most of the crops commonly grown in the county. The suitability for pasture and hay also is good. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, crop residue management, and cover crops increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for black walnut, cherrybark oak, eastern cottonwood, and loblolly pine. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer.

This soil has fair suitability for urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. In most areas the soil is adjacent to low areas where the soils are limited as sites for urban uses by wetness and by ponding during winter and spring.

The capability subclass is IIe.

DuC3—Dubbs silt loam, 5 to 8 percent slopes, severely eroded. This very deep, moderately sloping, well drained soil is on broad terraces along the Hatchie River. Slopes are smooth and rolling. Individual areas are about 5 to 40 acres in size.

Typically, the surface layer is yellowish brown silt loam about 6 inches thick. The subsoil to a depth of about 60 inches is brown, yellowish brown, and dark yellowish brown silt loam.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high. Tilth is good. The soil can be easily penetrated by roots.

Included with this soil in mapping are a few small areas of poorly drained soils in depressions.

Nearly all of the acreage has been cleared and is planted to row crops. A few areas are pastured or wooded. This soil has good suitability for most of the crops commonly grown in the county if adequate erosion-control measures are applied. The suitability for pasture and hay also is good. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, crop residue management, cover crops, and a cropping sequence that includes grasses and legumes increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, debris basins, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for black walnut, cherrybark oak, eastern cottonwood, and loblolly pine. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer.

This soil has fair suitability for urban uses. Low strength and the slope are limitations, but they can be overcome by good design and careful installation procedures. In most areas the soil is adjacent to low areas where the soils are limited as sites for urban uses by wetness and by ponding during winter and spring.

The capability subclass is IIIe.

Dv—Dubbs-Dekoven complex, 0 to 4 percent slopes. These very deep, nearly level and gently sloping soils are on low terraces. The Dubbs soil is well drained, and the Dekoven soil is poorly drained. The two soils occur as areas so intermingled that they could not be separated at the scale selected for mapping. Individual areas are 10 to 100 acres in size.

Dubbs silt loam makes up about 50 percent of the mapped areas. Typically, the surface layer is yellowish brown silt loam about 6 inches thick. The subsoil to a depth of about 60 inches is brown, yellowish brown, and dark yellowish brown silt loam.

Reaction generally ranges from very strongly acid to medium acid throughout the Dubbs soil, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high.

Dekoven silt loam makes up about 40 percent of the mapped areas. Typically, the surface layer is very dark gray silt loam about 7 inches thick. The subsurface layer is very dark gray silty clay loam about 15 inches thick. The subsoil to a depth of about 60 inches is dark grayish brown and grayish brown silty clay loam that has grayish, brownish, and yellowish mottles.

Reaction is slightly acid or neutral throughout the Dekoven soil. Permeability is moderate, and available water capacity is high. The water table is at or near the surface during late winter and early spring. The surface layer tends to become cloddy if plowed when wet.

Included with these soils in mapping are small areas of somewhat poorly drained soils on slight rises and small areas of the poorly drained Routon soils on low parts of the landscape.

This unit has good suitability for soybeans, corn, and cotton. Erosion is a hazard on the Dubbs soil, and the high water table is a limitation in the Dekoven soil. The suitability for pasture is good.

The suitability for cherrybark oak, eastern cottonwood, and American sycamore is good. The Dubbs soil also is suited to black walnut and loblolly pine. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high on the Dekoven soil because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard on the Dekoven soil during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants on the Dekoven soil can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

These soils are poorly suited to most urban uses. The suitable areas are small and are intermingled with unsuitable soils that are wet.

The capability subclass is IIIw.

Dx—Dubbs-Routon complex, 0 to 4 percent slopes. These very deep, nearly level and gently sloping soils are on low terraces. The Dubbs soil is well drained, and the Routon soil is poorly drained. The two soils occur as areas so intermingled they could not be separated at the scale selected for mapping. Individual areas are 10 to 200 acres in size.

Dubbs silt loam makes up about 40 percent of the mapped areas. Typically, the surface layer is yellowish brown silt loam about 6 inches thick. The subsoil to a depth of about 60 inches is brown, yellowish brown, and dark yellowish brown silt loam.

Reaction generally ranges from very strongly acid to medium acid throughout the Dubbs soil, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high.

Routon silt loam makes up about 40 percent of the mapped areas. Typically, the surface layer and subsurface layer are brown and grayish brown silt loam about 11 inches thick. The next 14 inches is light brownish gray, mottled silt loam. The upper part of the subsoil also is light brownish gray, mottled silt loam. The lower part to a depth of about 60 inches is grayish brown, mottled silty clay loam.

Reaction ranges from strongly acid to neutral throughout the Routon soil. Permeability is slow, and available water capacity is high. The water table is at or near the surface during winter and early spring.

Included with these soils in mapping are small areas of somewhat poorly drained soils.

This unit has good suitability for soybeans, milo, and cotton. Erosion is a hazard on the Dubbs soil, and the high water table is a limitation in the Routon soil. The suitability for pasture is good.

The suitability for cherrybark oak, eastern cottonwood, and American sycamore is good. The Dubbs soil also is suited to black walnut and loblolly pine. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high on the Routon soil because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard on the Routon soil during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants on the Routon soil can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

These soils are poorly suited to most urban uses. The suitable areas are small and are intermingled with unsuitable soils that are wet and are slowly permeable.

The capability subclass is IIIw.

Fa—Falaya silt loam, frequently flooded. This very deep, nearly level, somewhat poorly drained soil is on flood plains. Slopes range from 0 to 2 percent. Individual areas are 5 to about 200 acres in size.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil is silt loam about 37 inches thick. The upper part is brown and has grayish mottles, and the lower part is light brownish gray and grayish brown and has brownish and grayish mottles. The substratum to a depth of about 60 inches is grayish brown silt loam that has grayish mottles.

Reaction generally is strongly acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high. The soil is flooded for periods of about 2 to 7 days during winter and early spring. The water table is at a depth of about 1 to 2 feet in winter and early spring.

Included with this soil in mapping are some areas of soils that are less acid than is typical for the series. These soils are in the western half of the county. Also included are small areas of soils that are better drained than the Falaya soil.

Most of the acreage is wooded. A few areas have been cleared and are planted to soybeans. This soil is poorly suited to row crops because of the hazard of flooding and the high water table, which delays planting in spring.

The suitability for water-tolerant hay and pasture plants is fair. Small ditches or land smoothing can help to eliminate areas of standing water on some fields.

This soil has good suitability for eastern cottonwood, cherrybark oak, and American sycamore. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the hazard of flooding and the seasonal high water table.

The capability subclass is IVw.

GrB2—Grenada silt loam, 1 to 5 percent slopes, eroded. This moderately well drained soil is on undulating uplands of low relief. It has a fragipan. Slopes are complex and commonly are slightly concave. Individual areas are 5 to 100 acres in size.

Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The upper 15 inches of the subsoil is yellowish brown and light brownish gray silt loam. The lower part to a depth of about 60 inches is a compact, brittle fragipan of mottled silt loam.

Erosion has removed much of the original surface layer. Reaction generally ranges from medium acid to very strongly acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 1.5 to 2.0 feet in winter and early spring. The root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of somewhat poorly drained soils in depressions. Also included are a few areas of soils that do not have a fragipan and some areas that are severely eroded.

Most of the acreage is used for row crops. Some areas are used as pasture. This soil has good suitability for cotton and soybeans, but in dry years only fair yields can be obtained because of the restricted rooting depth. The suitability for hay and pasture is good. Erosion is a moderate hazard if cultivated crops are grown. As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. Minimum tillage, crop residue management, and cover crops help to control runoff and erosion. Contour terraces, grassed waterways, and contour farming help to control erosion in clean-cultivated areas.

This soil has good suitability for black walnut, loblolly pine, shortleaf pine, and cherrybark oak. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Wetness and low strength are limitations, but they can be overcome by good design and careful installation procedures. The slow permeability in the fragipan is a limitation on sites for septic tank absorption fields.

The capability subclass is IIe.

GrB3—Grenada silt loam, 1 to 5 percent slopes, severely eroded. This moderately well drained soil is on undulating uplands of low relief. It has a fragipan. Slopes are complex and commonly are slightly concave. Individual areas are 5 to 15 acres in size.

Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The upper 12 inches of the subsoil is yellowish brown and light brownish gray silt loam. The lower part to a depth of about 60 inches is a compact, brittle fragipan of mottled silt loam.

Erosion has removed most of the original surface layer. Reaction generally ranges from medium acid to very strongly acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 1.5 to 2.0 feet in winter and early spring. The root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of somewhat poorly drained soils in depressions. Also included are a few areas of soils that do not have a fragipan.

Most of the acreage is used for row crops. Some areas are used as pasture. This soil has fair suitability for cotton and soybeans. The suitability for hay and pasture also is fair. Erosion is a moderate hazard if cultivated crops are grown. As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. Minimum tillage, cover crops, and a cropping sequence that includes grasses and legumes help to control runoff and erosion. Contour terraces, grassed waterways, debris basins, and contour farming help to control erosion in clean-cultivated areas.

This soil has good suitability for black walnut, loblolly pine, shortleaf pine, and cherrybark oak. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Wetness and low strength are limitations, but they can be overcome by good design and careful installation procedures. The slow permeability in the fragipan is a limitation on sites for septic tank absorption fields.

The capability subclass is IIIe.

GrC3—Grenada silt loam, 5 to 8 percent slopes, severely eroded. This moderately well drained soil is on gently rolling uplands of low relief. It has a fragipan. Slopes are complex and commonly are slightly convex. Individual areas are 5 to 15 acres in size.

Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The upper 12 inches of the subsoil is yellowish brown and light brownish gray silt loam. The lower part to a depth of about 60 inches is a compact, brittle fragipan of mottled silt loam.

Erosion has removed most of the original surface layer. Reaction generally ranges from medium acid to very strongly acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 1.5 to 2.0 feet in winter and early spring. The root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of somewhat poorly drained soils in depressions. Also included are a few areas of soils that do not have a fragipan.

Most of the acreage is used for row crops. Some areas are used as pasture. This soil has fair suitability for cotton and soybeans. The suitability for hay and pasture also is fair. Erosion is a severe hazard if cultivated crops are grown. As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. Minimum tillage, cover crops, and a cropping sequence that includes grasses and legumes help to control runoff and erosion. Contour terraces, grassed waterways, debris basins, and contour farming help to control erosion in clean-cultivated areas.

This soil has good suitability for loblolly pine and shortleaf pine. Minimizing disturbance of the forest litter reduces the hazard of erosion. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Wetness and low strength are limitations, but they can be overcome by good design and careful installation procedures. The slow permeability in the fragipan is a limitation on sites for septic tank absorption fields.

The capability subclass is IVe.

LoB2—Loring silt loam, 1 to 5 percent slopes, eroded. This moderately well drained soil is on ridgetops and side slopes in undulating areas. It has a fragipan. Slopes generally are convex and complex. Individual areas are about 5 to 50 acres in size.

Typically, the surface layer is dark yellowish brown silt loam about 6 inches thick. The upper 14 inches of subsoil is dark brown silt loam. The next 33 inches is a fragipan of dark brown, compact silt loam that has grayish and brownish mottles. The lower part to a depth of about 60 inches is dark brown silt loam that has brownish mottles.

Erosion has removed much of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 2 to 3 feet in late winter and early spring. Much of the root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of soils that are severely eroded and small areas of Grenada and Memphis soils. Also included are a few areas of soils that do not have a fragipan.

Nearly all of the acreage is used for row crops. A few small areas are pastured or wooded. This soil has good suitability for most of the crops commonly grown in the county. The suitability for hay and pasture also is good. Erosion is a moderate hazard if cultivated crops are grown. As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. Minimum tillage, crop residue management, and cover crops increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for black walnut, cherrybark oak, loblolly pine, and shortleaf pine. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The wetness and the slow permeability are limitations on sites for septic tank absorption fields.

The capability subclass is IIe.

LoB3—Loring silt loam, 1 to 5 percent slopes, severely eroded. This moderately well drained soil is on ridgetops and side slopes in undulating areas. It has a fragipan. Slopes are convex and complex. Individual areas are about 5 to 50 acres in size.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The upper 11 inches of the subsoil also is dark brown silt loam. The next 37 inches is a fragipan of dark brown, compact silt loam that has brownish and grayish mottles. The lower part to a depth of about 60 inches is dark brown silt loam that has brownish mottles.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 2 to 3 feet in late winter and early spring. Much of the root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of Memphis and Grenada soils. Also included are small areas of soils that do not have a fragipan.

Most of the acreage is used for row crops. A few small areas are pastured or wooded. This soil has good suitability for most of the crops commonly grown in the county. The suitability for pasture and hay also is good. Erosion is a moderate hazard if cultivated crops are grown. As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. Minimum tillage, crop residue management, and cover crops increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for black walnut, cherrybark oak, loblolly pine, and shortleaf pine. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures. The wetness and the slow permeability are limitations on sites for septic tank absorption fields.

The capability subclass is IIIe.

LoC3—Loring silt loam, 5 to 8 percent slopes, severely eroded. This moderately well drained soil is on ridgetops and side slopes in gently rolling areas. It has a fragipan. Slopes are convex and complex. Individual areas are about 5 to 50 acres in size.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The upper 11 inches of the subsoil also is dark brown silt loam. The next 37 inches is a fragipan of dark brown, compact silt loam that has brownish and grayish mottles. The lower part to a depth of about 60 inches is dark brown silt loam that has brownish mottles.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 2 to 3 feet in late winter and early spring. Much of the root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of Memphis and Grenada soils. Also included are small areas of soils that do not have a fragipan.

Most of the acreage is used for row crops. A few small areas are pastured or wooded. This soil has fair suitability for most of the crops commonly grown in the county if adequate erosion-control measures are applied. The suitability for pasture and hay is good. Erosion is a severe hazard if cultivated crops are grown (fig. 4). As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. Minimum tillage, crop residue management, cover crops, and a cropping sequence that includes grasses and legumes increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, debris basins, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for black walnut, cherrybark oak, shortleaf pine, and loblolly pine. Minimizing disturbance of the forest litter reduces the hazard of erosion. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Low strength and the slope are limitations, but they can be

Figure 4.—A cultivated area of Loring silt loam, 5 to 8 percent slopes, severely eroded.

overcome by good design and careful installation procedures. The wetness and the slow permeability are limitations on sites for septic tank absorption fields.

The capability subclass is IVe.

LoD3—Loring silt loam, 8 to 12 percent slopes, severely eroded. This moderately well drained soil is on ridgetops and side slopes in rolling areas. It has a fragipan. Slopes are convex and complex. Individual areas are about 5 to 20 acres in size.

Typically, the surface layer is dark brown silt loam about 5 inches thick. The upper 11 inches of the subsoil also is dark brown silt loam. The next 37 inches is a fragipan of dark brown, compact silt loam that has brownish and grayish mottles. The lower part to a depth of about 60 inches is dark brown silt loam that has brownish mottles.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate above the fragipan and slow in the fragipan. Available water capacity is moderate. The water table is at a depth of about 2 to 3 feet in late winter and early spring. Much of the root zone is restricted by the fragipan.

Included with this soil in mapping are small areas of Memphis and Grenada soils. Also included are small areas of soils that do not have a fragipan.

Most of the acreage is pastured or wooded. Some areas are used for row crops. This soil is not suited to row crops because of a very severe hazard of erosion. As more soil is removed through erosion, depth to the fragipan, the rooting depth, and the available water capacity are reduced. The suitability for pasture is only fair because maintaining the pasture is difficult.

This soil has good suitability for black walnut, cherrybark oak, shortleaf pine, and loblolly pine. Minimizing disturbance of the forest litter reduces the hazard of erosion. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard because of the fragipan, which restricts the rooting depth. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil has fair suitability for most urban uses. Low strength and the slope are limitations, but they can be overcome by good design and careful installation procedures. The wetness and the slow permeability are limitations on sites for septic tank absorption fields.

The capability subclass is VIe.

MeB2—Memphis silt loam, 1 to 5 percent slopes, eroded. This very deep, well drained, gently sloping soil is on narrow ridgetops in the highly dissected uplands and on broad ridgetops in the less dissected areas. Slopes are smooth and convex. Individual areas are 5 to several hundred acres in size.

Typically, the surface layer is dark yellowish brown silt loam about 7 inches thick. The subsoil is about 35 inches of brown silty clay loam and silt loam. The underlying material to a depth of 60 inches or more is dark yellowish brown silt loam.

Erosion has removed much of the original surface layer. Reaction generally ranges from medium acid to very strongly acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high.

Included with this soil in mapping are small areas of soils that are severely eroded.

Most of the acreage is used for row crops. A few areas are pastured or wooded. This soil has good suitability for most of the crops commonly grown in the county and for hay and pasture. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, crop residue management, and cover crops increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for loblolly pine, black walnut, and cherrybark oak. No significant hazards or limitations affect planting or harvesting.

This soil has good suitability for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures.

The capability subclass is IIe.

MeC3—Memphis silt loam, 5 to 8 percent slopes, severely eroded. This very deep, well drained soil is on narrow ridgetops and side slopes in dissected, gently rolling areas. Slopes commonly are complex and convex. Individual areas are 5 to 150 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil is silt loam about 33 inches thick. It is brown in the upper part and dark yellowish brown in the lower part. The substratum to a depth of 60 inches or more is dark yellowish brown silt loam that has light brownish gray and yellowish brown mottles.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high. Tilth is good. The root zone can be easily penetrated by plant roots.

Included with this soil in mapping are a few areas where the subsoil has a mottled, compact layer. Also included are a few areas of soils having a surface layer and subsoil that are thicker than those of the Memphis soil.

Most of the acreage is used for row crops. A few areas are pastured or wooded. This soil has fair suitability for most of the crops commonly grown in the county if adequate erosion-control measures are applied. The suitability for pasture and hay is good. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage, crop residue management, cover crops, and a cropping sequence that includes grasses and legumes increase the rate of water infiltration and help to control runoff and erosion. Contour terraces, grassed waterways, debris basins, and contour farming help to control erosion in clean-cultivated areas. Drill or broadcast planting of soybeans, instead of planting in rows, also can reduce the hazard of erosion.

This soil has good suitability for loblolly pine, black walnut, and cherrybark oak. No significant hazards or limitations affect planting or harvesting.

This soil has good suitability for most urban uses. Low strength is a limitation, but it can be overcome by good design and careful installation procedures.

The capability subclass is IVe.

MeD3—Memphis silt loam, 8 to 12 percent slopes, severely eroded. This very deep, well drained soil is on side slopes in dissected, rolling areas. Slopes commonly are complex and convex. Individual areas are 5 to 40 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil also is brown silt loam. It is about 33 inches thick. The substratum to a depth of 60 inches or more is dark yellowish brown silt loam.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high. Tilth is good. The root zone can be easily penetrated by plant roots.

Included with this soil in mapping are a few areas where the subsoil has a mottled, compact layer. Also included are a few areas of soils having a surface layer and subsoil that are thicker than those of the Memphis soil.

Most of the acreage is used for row crops. A few areas are pastured or wooded. This soil is not suited to row crops because of a very severe hazard of erosion. The suitability for pasture and hay is fair.

This soil has good suitability for loblolly pine, black walnut, and cherrybark oak. No significant hazards or limitations affect planting or harvesting.

This soil has fair suitability for most urban uses. Low strength and the slope are moderate limitations, but they can be overcome by good design and careful installation procedures.

The capability subclass is VIe.

MeE3—Memphis silt loam, 12 to 25 percent slopes, severely eroded. This very deep, well drained soil is on side slopes in the highly dissected, hilly uplands. Slopes are broken by drainageways, slumps, and gullies and are generally complex and convex. Individual areas are large. Many are more than 100 acres in size.

Typically, the surface layer is brown silt loam about 5 inches thick. The subsoil is brown silt loam about 33 inches thick. The underlying material to a depth of 60 inches or more also is brown silt loam.

Erosion has removed most of the original surface layer. Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. Permeability is moderate, and available water capacity is high. Many areas have a few gullies.

Included with this soil in mapping are eroded areas where the unweathered substratum of silt loam is exposed. Also included are a few areas where a thin layer of compact, brittle material is directly below the plow layer.

Most of the acreage has been cleared and is used for row crops or pasture. Almost all of the acreage has been used for row crops in the past. This soil is not suited to row crops because of a very severe hazard of erosion. The suitability for pasture is poor because maintaining the pasture is difficult.

This soil has good suitability for loblolly pine and shortleaf pine. Minimizing disturbance of the forest litter reduces the hazard of erosion. Operating wheeled equipment on the dissected slopes is hazardous.

This soil is poorly suited to most urban uses, mainly because of the slope and a severe hazard of erosion.

The capability subclass is VIe.

MeF—Memphis silt loam, 20 to 40 percent slopes. This very deep, well drained soil is on side slopes in highly dissected, very hilly areas. Slopes are complex and convex. Individual areas are large. Many are more than 100 acres in size.

Typically, the surface layer is very dark grayish brown silt loam about 4 inches thick. The subsurface layer is dark yellowish brown silt loam about 5 inches thick. The subsoil is brown silt loam about 29 inches thick. The underlying material to a depth of 60 inches or more is dark brown and dark yellowish brown silt loam.

Reaction ranges from medium acid to very strongly acid throughout the profile. Permeability is moderate, and available water capacity is high. The root zone can be easily penetrated by plant roots.

Included with this soil in mapping are some small areas that are severely eroded, a few areas that have large gullies with very steep sides, and a few small areas of Natchez soils on very steep side slopes. Also included, along drainageways, are a few small areas of moderately well drained soils that are subject to flooding.

Almost all of the acreage is used as woodland. This soil is not suited to cultivated crops or pasture because of a very severe hazard of erosion.

The suitability for loblolly pine and shortleaf pine is good. Minimizing disturbance of the forest litter reduces the hazard of erosion. Operating wheeled equipment on the dissected slopes is hazardous.

This soil is poorly suited to urban uses, mainly because of the slope and a severe hazard of erosion.

The capability subclass is VIIe.

Mo—Morganfield silt loam, occasionally flooded. This very deep, well drained, nearly level soil is on narrow flood plains along streams and in upland drainageways. It formed in alluvial material washed from the steeper loess-covered uplands. Individual areas are 5 to 150 acres in size.

Typically, the surface layer is dark yellowish brown silt loam about 8 inches thick. The substratum to a depth of about 60 inches is mainly dark yellowish brown silt loam that has yellowish brown mottles.

Reaction ranges from medium acid to mildly alkaline throughout the profile. Permeability is moderate, and available water capacity is high. The soil is occasionally flooded for periods of about 2 to 7 days during late winter and early spring. The water table is at a depth of about 3 to 4 feet during late winter and early spring.

Included with this soil in mapping are some areas of moderately well drained soils.

Most of the acreage is used for row crops. This soil has good suitability for soybeans, cotton, corn, and small grain and for hay and pasture.

This soil has good suitability for eastern cottonwood, black walnut, American sycamore, and yellow-poplar. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the hazard of flooding and low strength.

The capability subclass is IIw.

NaF—Natchez silt loam, 30 to 60 percent slopes, gullied. This very deep, well drained soil is on side slopes in very hilly, highly dissected areas, mainly above flood plains along the Mississippi River and other streams. Individual areas are 5 to 200 acres in size.

Gullies make up 2 to 10 percent of each mapped area. They generally are 10 to 40 feet deep but are as much as 100 feet deep in some areas (fig. 5). Slopes on the sides of the gullies range from 45 percent to nearly vertical. The gullies have cut completely through the loess, and the channel bottom is Coastal Plain sediments in many areas. Soil slumps are in many areas.

Typically, the surface layer is very dark grayish brown silt loam about 2 inches thick. The subsurface layer is brown silt loam about 3 inches thick. The subsoil is dark yellowish brown silt loam about 18 inches thick. The substratum to a depth of about 60 inches is yellowish brown and light yellowish brown silt loam.

Reaction is medium acid to neutral in the solum and neutral or mildly alkaline in the substratum. Permeability is moderate, and available water capacity is high.

Included with this soil in mapping are a few small areas of Memphis silt loam on the upper side slopes, a few areas of soils that have a subsoil of clay loam, and a few areas of sand and gravel. Also included are a few areas where slopes are less than 30 or more than 60 percent.

All of the acreage is used as woodland. This soil is not suited to farming or urban uses, mainly because of the slope, a very severe hazard of erosion, and the susceptibility to slumps and landslides near gullies and vertical cuts.

The suitability for loblolly pine, shortleaf pine, and southern red oak is fair. Minimizing disturbance of the forest litter reduces the hazard of erosion. Operating wheeled equipment on the dissected slopes is hazardous.

The capability subclass is VIIe.

Rb—Robinsonville silt loam, occasionally flooded. This very deep, well drained, nearly level soil is on flood plains along the Mississippi River. Slopes range from 0 to 3 percent. Individual areas are 10 to more than 50 acres in size.

Typically, the surface layer is very dark grayish brown silt loam about 6 inches thick. The substratum to a depth of about 60 inches is dark yellowish brown and brown fine sandy loam and loamy fine sand.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is moderately rapid, and available water capacity is high. The soil is occasionally flooded for periods of about 2 to 7 days during late winter and early spring. Tilth is good, and the soil can be worked throughout a wide range in moisture content.

Included with this soil in mapping are soils that have a substratum of silty clay loam, sand, or loamy sand. These soils may be moderately well drained or somewhat poorly drained and are commonly in the lower areas.

Most of the acreage has been cleared and is used for row crops. This soil has good suitability for cotton, corn, soybeans, and peanuts. Floodwater can delay planting in some years, but the soil dries out quickly after the floodwater recedes. The suitability for pasture and hay is good.

This soil has good suitability for bottom-land hardwoods, such as eastern cottonwood, American sycamore, and sweetgum.

Figure 5.—A deep gully in an area of Natchez silt loam, 30 to 60 percent slopes, gullied.

This soil is not suited to urban uses because of the hazard of flooding.

The capability subclass is IIw.

Ro—Robinsonville fine sandy loam, rarely flooded. This very deep, well drained, nearly level soil is on flood plains along the Mississippi River. Slopes range from 0 to 3 percent. Individual areas are 10 to more than 500 acres in size.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The substratum to a depth of 60 inches or more is brown and pale brown fine sandy loam that has layers of loamy fine sand and silt loam.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is moderately rapid, and available water capacity is high. The water table is below a depth of about 4 feet in late winter and early spring.

Included with this soil in mapping are moderately well drained or somewhat poorly drained soils that have a substratum of silty clay loam. These soils are commonly in the lower areas. Also included are a few small areas of soils that are droughty.

Most of the acreage has been cleared and is used for row crops. This soil has good suitability for cotton, corn, soybeans, and peanuts. Floodwater from the Mississippi River can delay planting in some years, but the soil dries out quickly after the floodwater recedes. The suitability for pasture and hay is good.

This soil has good suitability for bottom-land hardwoods, such as eastern cottonwood, American sycamore, and sweetgum.

This soil is not suited to most urban uses because of the hazard of flooding.

The capability class is I.

Rp—Routon silt loam. This very deep, poorly drained, nearly level soil is on flats in the uplands and on terraces near the Hatchie River. Slopes range from 0 to 2 percent. Individual areas are 5 to 50 acres in size.

Typically, the surface layer is brown and grayish brown silt loam about 11 inches thick. The subsurface layer is light brownish gray silt loam about 14 inches thick. The upper part of the subsoil is light brownish gray, mottled silt loam. The lower part to a depth of about 60 inches is grayish brown, mottled silty clay loam.

Reaction ranges from strongly acid to slightly acid throughout the profile. Permeability is slow, and available water capacity is high. The water table is at or near the surface in late winter and early spring. Tilth is good. Roots can penetrate deeply unless impeded by the water table.

Included with this soil in mapping are a few areas of soils that have silt loam overwash as much as 10 inches thick. Also included are a few small areas of soils that are better drained than the Routon soil.

Most of the acreage is used for row crops. This soil has good suitability for soybeans. It is poorly suited to cotton because planting dates are often delayed by wetness. The suitability for water-tolerant pasture plants is good. Drainage ditches help to remove excess water and thus allow earlier planting dates.

This soil has good suitability for sweetgum, eastern cottonwood, American sycamore, and cherrybark oak. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is poorly suited to most urban uses because of the wetness.

The capability subclass is IIIw.

Ru—Routon silt loam, overwash. This very deep, poorly drained, nearly level soil is on flats in the uplands and on terraces near the Hatchie River. Slopes range from 0 to 2 percent. Individual areas are 5 to 50 acres in size.

Typically, the surface layer is brown and grayish brown silt loam about 18 inches thick. The subsurface layer is grayish brown silt loam about 16 inches thick. The subsoil to a depth of about 60 inches is light brownish gray silty clay loam that has brownish mottles.

Reaction ranges from strongly acid to slightly acid throughout the profile. Permeability is slow, and available water capacity is high. The water table is within about 1 foot of the surface in late winter and early spring.

Included with this soil in mapping are a few areas of soils that have silt loam overwash more than 20 inches thick. Also included are a few small areas of soils that are better drained than the Routon soil.

Most of the acreage is used for row crops. This soil has good suitability for soybeans. It has fair suitability for cotton, but planting dates may be delayed by wetness. The suitability for water-tolerant pasture plants is good.

This soil has good suitability for sweetgum, eastern cottonwood, American sycamore, and cherrybark oak. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is poorly suited to most urban uses because of the wetness.

The capability subclass is IIIw.

Sh—Sharkey clay, frequently flooded. This very deep, nearly level, poorly drained soil is on flood plains along the Mississippi River. Commonly, slopes are smooth and slightly concave. They are dominantly less than 2 percent, but short slopes are as much as 5 percent. Individual areas are 10 to more than 200 acres in size.

Typically, the surface layer is very dark grayish brown clay about 5 inches thick. The subsoil is about 47 inches of dark gray clay that has brownish and reddish mottles. The substratum to a depth of about 60 inches is dark gray clay that has thin layers of brownish sandy loam.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is very slow, and available water capacity is moderate. The soil is flooded for periods of as much as 6 weeks or more during winter and early spring. Flooding is not a serious hazard, however, during the cropping season. The water table is at or near the surface for 4 to 6 months during most years.

Included with this soil in mapping are small areas of soils that have less than 40 inches of clayey material and are underlain by loamy sediments. Also included, on a few long and narrow ridges, are soils that are loamy or sandy throughout.

About half of the acreage is used for row crops. This soil has good suitability for soybeans and fair suitability for corn. Ditches may be needed to remove excess water in many areas. The soil can be worked only within a narrow range in moisture content. It is sticky when wet and hard and cloddy when dry. Breaking up the plow layer in the fall allows freezing and thawing to make the surface layer more friable. Grading or smoothing low spots can improve surface drainage. Lime is not needed. The supply of phosphorus and potassium is medium or high. Crops other than legumes respond well to applications of nitrogen fertilizer. The soil is poorly suited to pasture because most pasture plants are likely to drown out.

This soil has good suitability for eastern cottonwood, American sycamore, sweetgum, and black willow. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the wetness and the hazard of flooding.

The capability subclass is IVw.

Tu—Tunica clay, frequently flooded. This very deep, nearly level, poorly drained soil is on flood plains along the Mississippi River. Slopes are dominantly less than 2 percent, but short slopes are as much as 5 percent near old sloughs and channels. Individual areas are 10 to 300 acres in size.

Typically, the surface layer is very dark grayish brown clay about 5 inches thick. The subsoil is about 24 inches of dark gray clay that has brownish mottles. The substratum to a depth of about 60 inches is grayish brown, mottled loamy fine sand.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is very slow in the upper part of the profile and moderate or moderately rapid in the lower part. The soil is flooded for periods of as much as 6 weeks or more during winter and early spring. Flooding is not a serious hazard, however, during the cropping season. The water table is at a depth of about 1.5 to 3.0 feet during winter and early spring.

Included with this soil in mapping are small areas of soils that have less than 20 or more than 40 inches of clayey material and are underlain by loamy sediments. Also included are a few areas of soils that are underlain by loamy sand or sand and a few areas of soils that are better drained than the Tunica soil.

Most of the acreage is used for row crops. This soil has good suitability for soybeans and fair suitability for corn. Ditches may be needed to remove excess water in many areas. The soil can be worked only within a narrow range in moisture content. It is sticky when wet and hard and cloddy when dry. Breaking up the plow layer in the fall allows freezing and thawing to make the surface layer more friable. Grading or smoothing low spots can improve surface drainage. The soil is poorly suited to pasture because most pasture plants are likely to drown out.

This soil has good suitability for eastern cottonwood, American sycamore, sweetgum, and black willow. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Seedling mortality rates may be high because of the poor aeration resulting from wetness. Special site preparation, such as installing a surface drainage system and bedding, can increase seedling survival and early growth rates. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the wetness and the hazard of flooding.

The capability subclass is IVw.

UD—Udorthents, silty, steep. These very deep, well drained soils are in areas that have been strip-mined for gravel and sand. They are mainly in areas where the loess overburden has been excavated and piled and access to the underlying Coastal Plain sand and gravel has been gained. Nearly all of the pit bottoms are now filled with water. Slopes are mainly 15 to 50 percent but range from 5 to 70 percent.

These soils vary considerably in composition because of variations in the extent to which the loess has been mixed with Coastal Plain material. In a reference profile, the surface layer is brown silt loam about 3 inches thick. The next 28 inches is dark brown gravelly silt loam. Below this is dark yellowish brown silt loam that has a few gray mottles.

These soils commonly are silt loam but in some areas are clay loam or sandy clay loam. The content of gravel ranges from 0 to 20 percent, by volume.

Reaction ranges from neutral to strongly acid throughout the profile. Permeability is moderate.

Most of the acreage has a cover of trees, shrubs, and weeds. The main trees are elm, eastern cottonwood, sweetgum, and black willow. A few small areas have only a sparse plant cover.

These soils are not suited to agricultural or urban uses. Although trees grow well on the soils, harvesting timber may result in severe erosion and slippage.

The capability subclass is VIIe.

UO—Udults and Udorthents, very steep. These very deep, well drained and excessively drained, loamy and sandy soils are on very steep, highly dissected side slopes. They are in narrow bands near the base of the loess-covered bluff along the edge of the flood plains along the Mississippi River. Slopes are dominantly 30 to 60 percent but range from 15 to 70 percent.

Individual areas of each of the soils are large enough to be mapped separately. Because of present and predicted land uses, however, the soils were mapped as one unit. Most mapped areas have both soils, but a few have only one of the soils.

Udults make up 45 percent of the map unit. Commonly, the surface layer is dark brown loam about 2 inches thick. The subsoil is yellowish brown and reddish yellow clay loam about 48 inches thick. The substratum to a depth of about 60 inches is reddish yellow loam.

Reaction is strongly acid or very strongly acid throughout the Udults. Permeability and available water capacity are moderate.

Udorthents make up about 30 percent of the map unit. Commonly, the surface layer is brown loamy sand about 5 inches thick. The substratum to a depth of about 60 inches is yellowish brown and pale brown sand.

Reaction is strongly acid or medium acid throughout the Udorthents. Permeability is rapid, and available water capacity is low.

Deep gullies make up 2 to 10 percent of each mapped area. They generally are 10 to 40 feet deep but are as much as 80 feet deep in some areas. Slopes on the sides of the gullies range from 45 percent to nearly vertical. Large slumps and landslides are in some areas.

Included with these soils in mapping are small areas of Natchez soils. Also included are small areas of soils that have more than 35 percent gravel.

All of the acreage is used as woodland. These soils are not suited to farming or urban uses, mainly because of the slope, a very severe hazard of erosion, and the susceptibility to slumps and landslides near gullies and vertical cuts.

The capability subclass is VIIe.

Va—Vacherie silt loam, occasionally flooded. This very deep, somewhat poorly drained, nearly level soil is on narrow or somewhat wide flood plains. It has a layer of alluvium over older deposits. Individual areas are 10 to more than 100 acres in size.

Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The upper 23 inches of the substratum is mottled brown and light brownish gray silt loam. The lower part to a depth of 60 inches or more is dark gray and very dark gray silty clay loam and clay.

Reaction is neutral or mildly alkaline throughout the profile. Permeability is moderate in the upper part of the substratum and slow or very slow in the lower part. The water table is at a depth of 1 to 3 feet during winter and early spring.

Included with this soil in mapping are areas of moderately well drained soils.

Almost all of the acreage is used for row crops. A few small areas are wooded or pastured. This soil has good suitability for corn, cotton, and soybeans. Good yields generally can be obtained. The suitability for the hay and pasture plants that are tolerant of a high water table is good. In some areas open ditches are needed to remove excess water. Levees can be used to protect many areas from flooding.

This soil has good suitability for eastern cottonwood, cherrybark oak, and American sycamore. The use of heavy equipment during wet periods can result in compaction and the formation of ruts. Harvesting only during dry periods and using low-pressure ground equipment minimize damage to the surface layer. Windthrow is a hazard during wet periods. Managing for an uneven-aged stand or harvesting by area selection methods can reduce this hazard. Competition from undesirable plants can interfere with reforestation after the trees are harvested. Properly preparing and maintaining the site can help to control competing vegetation.

This soil is not suited to most urban uses because of the wetness and the hazard of flooding.

The capability subclass is IIw.

Prime Farmland

In this section, prime farmland is defined and the soils in Tipton County that are considered prime farmland are listed.

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. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. The moisture supply must be adequate, and the growing season must be sufficiently long. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They are used for food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 5 percent.

The following map units are considered prime farmland in Tipton County. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

About 157,560 acres in the survey area, or 54 percent of the total acreage, meets the soil requirements for prime farmland. The soils identified as prime farmland in Tipton County are:

Ad	Adler silt loam, frequently flooded
Bo	Bowdre silty clay, frequently flooded
Co	Commerce silt loam, frequently flooded
De	Dekoven silt loam, rarely flooded
Do	Dekoven silt loam, overwash, rarely flooded
DuB2	Dubbs silt loam, 1 to 5 percent slopes, eroded
Dv	Dubbs-Dekoven complex, 0 to 4 percent slopes
Dx	Dubbs-Routon complex, 0 to 4 percent slopes
GrB2	Grenada silt loam, 1 to 5 percent slopes, eroded
LoB2	Loring silt loam, 1 to 5 percent slopes, eroded
MeB2	Memphis silt loam, 1 to 5 percent slopes, eroded
Mo	Morganfield silt loam, occasionally flooded
Rb	Robinsonville silt loam, occasionally flooded
Ro	Robinsonville fine sandy loam, rarely flooded
Rp	Routon silt loam
Ru	Routon silt loam, overwash
Tu	Tunica clay, frequently flooded
Va	Vacherie silt loam, 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 avoid 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 woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation 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.

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 Soil 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 "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

In 1981, about 135,000 acres in Tipton County was used for soybeans; 50,000 acres for wheat; 26,000 acres for cotton; 2,000 acres for corn; and 2,000 acres for grain sorghum. About 20,000 acres was used for pasture and hay. The acreage used as cropland has been increasing as more land is being cleared or is being converted back to cropland. The acreage used for wheat has been increasing because double cropping of wheat and soybeans has become more common. The acreage used for cotton has decreased in recent years.

The crops suited to the soils and climate in the county include soybeans, cotton, corn, grain sorghum, wheat, oats, barley, rye, sunflowers, rice, bermudagrass, fescue, alfalfa, red clover, ladino clover, annual lespedeza, and sericea lespedeza. Some of these crops are not commonly grown in the county, but they could be grown if economic conditions were favorable.

The specialty crops grown commercially in the county are vegetables, fruits, and turf grasses. A small acreage throughout the county is used for sweet corn, tomatoes, peppers, strawberries, squash, beans, peas, watermelons, cantaloupes, and other fruits and vegetables. Zoysia and common and hybrid bermudagrass are the most common turf grasses grown in the county.

The latest information about growing field and specialty crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

The main management needs on the cropland and pasture in the county are measures that control erosion, reduce wetness, and improve tilth and fertility.

Erosion is a major concern on 75 percent of the cropland in Tipton County. It is a hazard if slopes are more than 2 percent. Memphis, Loring, and Grenada are examples of soils that have slopes of 2 percent or more.

Erosion is damaging for a number of reasons. Productivity is reduced as the surface layer, which has a higher content of organic matter than the subsoil, is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a fragipan. As more soil is lost through erosion, the root zone above the fragipan becomes thinner, the available water capacity is reduced, and yields can be reduced during years of moisture stress. Loss of the surface layer also causes puddling and crusting. Control of erosion minimizes the pollution of streams by sediments and improves the quality of water for recreation, fish, and wildlife.

Erosion-control practices provide a protective surface cover, help to control runoff, and increase the rate of water infiltration. A cropping system that keeps a plant cover on the soil for extended periods can help to hold soil losses within tolerable limits. On livestock farms including grasses and legumes in the cropping sequence helps to control erosion, provides nitrogen, and improves tilth.

Conservation tillage can help to control erosion on sloping cropland. It provides a protective cover of crop residue for long periods and thus helps to control runoff and increases the rate of water infiltration. It also increases the content of organic matter in the soil, minimizes compaction, and saves time and fuel. Conservation tillage systems have been developed for corn and soybeans in the county.

Terraces and diversions reduce the length of slopes and thus help to control runoff and erosion. They are practical on well drained soils that have uniform slopes. The Memphis soils that have slopes of less than 8 percent are very well suited to terraces. Loring and Grenada soils are less well suited because they have a fragipan, which would be exposed in the terrace channels.

Other measures that can help to control erosion in the county are contour farming, crop residue management, field borders, and grassed waterways.

Wetness is a major management concern in some areas in the county. Some soils are so wet that production of the crops commonly grown in the county generally is difficult. Examples are Amagon and Falaya soils. Unless drained, somewhat poorly drained and poorly drained soils remain wet until late in spring. As a result, crops cannot be planted at the optimum planting dates.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface and subsurface drains is needed in most areas of wet soils intensively used for row crops. On many farms in areas of the larger drainage systems in the county, improvement of drainage is not feasible because the wetness results mainly from major floods. Areas that are frequently flooded or are flooded for long periods are best suited to woodland.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. It also affects weed control. Cloddy soils can inhibit the action of many herbicides. Soils with good tilth are granular and porous.

Most of the soils used for crops in the county have a surface layer of silt loam that is light in color and low in content of organic matter. Generally, the structure of these soils is weak or moderate. During periods of intensive rainfall, a crust forms on the surface. The crust is hard when dry and somewhat impervious to water. It reduces the rate of water infiltration and increases the runoff rate. Regular additions of crop residue, manure, or other organic material improve soil structure and minimize crusting.

In areas of the clayey Sharkey, Tunica, and Bowdre soils, tilth is a management concern because the soils often stay wet until late in the spring. If these soils are plowed when wet, they tend to be very cloddy when dry. Preparing a good seedbed is difficult because of the cloddiness. Fall plowing, which allows freezing and thawing to break up the clods, usually results in good tilth in the spring, but it greatly increases the susceptibility to erosion on sloping soils in the uplands.

Many of the soils in the uplands are strongly acid or very strongly acid in their natural state. Applications of ground agricultural limestone are required to raise the pH level sufficiently for most crops to grow well. Many of the soils on flood plains are medium acid to mildly alkaline and have a higher level of natural fertility than most of the soils in the uplands. The soils on flood plains along the Mississippi River are neutral or mildly alkaline and have a high level of natural fertility. Crops other than legumes, however, respond well to applications of nitrogen fertilizer.

On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. The Cooperative Extension Service and some fertilizer companies can help in determining the kinds and amounts of plant nutrients needed.

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 each map unit 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 are also 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 table 5 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 Soil 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 use as cropland. 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 woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

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

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

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

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, IIe. The letter *e* shows that the main hazard is the risk of erosion unless a 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.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w, s,* or *c.*

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Woodland Management and Productivity

Joseph H. Paugh, forester, Soil Conservation Service, helped prepare this section.

Originally, all of Tipton County was forested with poplar, oak, maple, hickory, chestnut, and ash.

Currently, trees cover only 18 percent of the county.

The uplands are dominated by mixed oaks and hickories. The bottom land along the Mississippi River is dominated by eastern cottonwood, black willow, and sugarberry. The most common trees on the flood plains along the Hatchie River and along the smaller tributaries are pin oak, willow oak, water oak, swamp chestnut oak, cherrybark oak, sweetgum, and American sycamore. Areas of poorly drained soils and areas that have standing water are dominated by baldcypress and water tupelo *(7)*.

The value of the wood products in Tipton County is substantial, but the woodland is used far below its potential. In many areas that are being cleared for cropland, the timber is used only as a source of firewood. Every year, many acres in the county are cleared so that row crops can be grown. Many of these areas are not suited to the crops commonly grown in the county because of wetness and flooding.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. Fertility and texture also influence tree growth. Elevation, aspect, and climate determine the kinds of trees that can grow on a site. Elevation and aspect are of particular importance in mountainous areas.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. Table 7 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate*, and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, or susceptibility of the surface layer to rutting and compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by soil wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize rutting and compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize rutting and compaction. Ratings of moderate or severe indicate a need to choose the most suitable equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *windthrow hazard* indicate the likelihood that trees will be uprooted by the wind. A restricted rooting depth is the main reason for windthrow. Rooting depth can be restricted by a high water table, a fragipan, or bedrock or by a combination of such factors as soil wetness, texture, structure, and depth. The risk is *slight* if strong winds cause trees to break but do not uproot them; *moderate* if strong winds cause an occasional tree to be blown over and many trees to break; and *severe* if moderate or strong winds commonly blow trees over. Ratings of moderate or severe indicate that care is needed in thinning or that the stand should not be thinned at all. Special equipment may be needed to prevent damage to shallow root systems in partial cutting operations. A plan for the periodic removal of windthrown trees and the maintenance of a road and trail system may be needed.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. Plant competition is more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants hinders adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants hinders natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. The risk is *severe* if competition from undesirable plants prevents adequate natural or artificial reforestation unless the site is intensively prepared and maintained. A moderate or severe rating indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The *potential productivity* of *common trees* on a soil is expressed as a *site index* and a *volume* number. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands.

The *volume* is the yield likely to be produced by the most important trees, expressed in cubic feet per acre per year calculated at the age of culmination of mean annual increment.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

Gerald L. Montgomery, biologist, Soil Conservation Service, helped prepare this section.

Tipton County has various outdoor recreational facilities, mainly those that accommodate field sports. Most of these are owned and operated by the city of Covington.

The many lakes, ponds, and rivers in the county provide opportunities for boating, fishing, and swimming. The Mississippi River is heavily used for boating, waterskiing, and swimming. Private lakes (fig. 6), which are as much as 35 acres in size, and the areas adjacent to the lakes provide opportunities for fishing, picnicking, and camping *(4, 6)*.

In table 8, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings 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 are also important. Soils 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.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

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

Figure 6.—Many ponds and lakes in Tipton County provide excellent opportunities for fishing and other recreational activities.

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 best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a fragipan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Wildlife Habitat

Gerald L. Montgomery, biologist, Soil Conservation Service, helped prepare this section.

Most of the acreage in Tipton County is used as cropland. The larger areas of woodland are on the bottom land along rivers. About 75 percent of the county provides habitat for openland wildlife, and about 18 percent provides habitat for woodland wildlife.

Large populations of mourning doves, bobwhite quail, and cottontail rabbits are in the areas of openland habitat. Gray squirrels inhabit areas where mast and den trees, such as oak, pecans, and hickories, are available. Deer and turkey inhabit suitable wooded and fringe areas. Raccoon and beaver are common near creeks and rivers and in other areas of wetland. Waterfowl are abundant along the Hatchie and Mississippi Rivers during fall and spring migrations. Many kinds of nongame wildlife, such as songbirds, are throughout the county.

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 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 table 9, 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 potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

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. Examples of grain and seed crops are corn, wheat, oats, milo, and soybeans.

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. Examples of grasses and legumes are fescue, common bermudagrass, clover, lespedeza, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are pokeberry, goldenrod, beggarweed, partridge pea, and perennial lespedeza.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, dogwood, hickory, blackberry, grape, honeysuckle, and greenbrier. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian olive, autumn olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Wetland plants are annual and perennial, wild herbaceous plants that grow on moist or wet sites.

Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, muskrat, mink, and beaver.

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. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water 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, soil reaction, depth to bedrock, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. 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

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

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 stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost-action potential, and depth to a high water table affect the traffic-supporting capacity.

Sanitary Facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

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. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive 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.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the 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.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

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 final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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 soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high 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 engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and depth to the water table is less than 1 foot. These soils may have layers of suitable material, but the material is less than 3 feet thick.

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 table 12, 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 engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Acidity and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

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.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. 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, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

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 releases a variety of plant nutrients as it decomposes.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, terraces and diversions, and grassed waterways.

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

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a fragipan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of water erosion, 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, wetness, slope, and depth to bedrock or to a fragipan affect the construction of grassed waterways. A hazard of soil blowing, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

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.

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 14 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 "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. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 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 *(3)* and the system adopted by the American Association of State Highway and Transportation Officials *(2)*.

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, SP-SM.

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.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index generally are rounded to the nearest 5 percent. Thus, if the range 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 15 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.

Clay as a soil separate, or component, 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 the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓ 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.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil 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, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

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 in each major soil layer is stated in inches of water per inch of soil. 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.

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.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) 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. Values of K 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 T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Soil and Water Features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils 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 permanent 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.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent*. *None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding 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 absence of distinctive horizons characteristic of soils that are not subject to flooding.

Also considered is 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 depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely, grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table, that is, *perched* or *apparent;* and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 16.

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.

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. "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.

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 creates a severely corrosive environment. 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 the amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(8)*. 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 on laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven 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; 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 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 known kind of soil. 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 class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, thermic Typic Hapludalfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other 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" *(5)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(8)*. Unless otherwise stated, 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."

Adler Series

The Adler series consists of very deep, moderately well drained soils that formed in alluvium. These are nearly level soils on flood plains along streams and narrow drainageways. Slopes are dominantly less than 1 percent.

Adler soils are geographically associated with Memphis, Loring, Grenada, Morganfield, and Vacherie soils. Memphis, Loring, and Grenada soils are on uplands and are not subject to flooding. Memphis soils have an argillic horizon. Loring and Grenada soils have a fragipan. Morganfield and Vacherie soils are in landscape positions similar to those of the Alder soils. Morganfield soils are well drained. Vacherie soils are somewhat poorly drained.

Typical pedon of Adler silt loam, frequently flooded; 0.7 mile east of Drummond; 1.0 mile south on a gravel road; 400 yards southwest down creek:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; few fine roots; neutral; clear smooth boundary.

C1—5 to 17 inches; brown (10YR 4/3) silt loam; common fine distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/4) mottles; massive; friable; few fine roots; few fine pores; few organic and iron stains; neutral; gradual smooth boundary.

C2—17 to 21 inches; brown (10YR 5/3) silt loam; common fine and medium faint grayish brown (10YR 5/2) and few fine distinct dark yellowish brown (10YR 4/4) mottles; massive; friable; few fine roots; few fine pores; common organic stains in root channels; few iron stains; mildly alkaline; gradual smooth boundary.

C3—21 to 41 inches; mottled grayish brown (10YR 5/2) and brown (10YR 4/3) silt loam; massive; friable; common organic and iron stains; mildly alkaline; clear smooth boundary.

C4—41 to 55 inches; grayish brown (2.5Y 5/2) silt loam; few fine distinct brown (10YR 4/3) mottles; massive; friable; few iron stains; mildly alkaline; gradual smooth boundary.

C5—55 to 60 inches; grayish brown (2.5Y 5/2) silt loam; many medium distinct brown (10YR 4/3) mottles; massive; friable; common iron stains; mildly alkaline.

Reaction is medium acid to mildly alkaline throughout the profile. The A horizon has value of 4 or 5 and chroma of 2 or 3. The upper part of the C horizon has value of 3 to 5 and chroma of 4 or 5. It has few to many mottles in shades of gray, yellow, or brown. The lower part has value of 4 or 5 and chroma of 2 and has few to many mottles in shades of brown or gray, or it has no dominant matrix colors and is mottled in shades of brown and gray.

Amagon Series

The Amagon series consists of very deep, poorly drained soils that formed in old alluvium. These nearly level soils are on low, wide flood plains along the Hatchie River and Beaver Creek and their tributaries.

Amagon soils are geographically associated with Falaya and Adler soils. Falaya and Alder soils are in landscape positions similar to those of the Amagon soils. They have a coarse-silty control section. Falaya soils are somewhat poorly drained. Adler soils are moderately well drained.

Typical pedon of Amagon silt loam, frequently flooded; 0.6 mile south of Mason on Highway 59; about 200 yards east into a field:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; common fine roots; medium acid; clear smooth boundary.

Eg—6 to 15 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; few fine roots; common iron and manganese concretions; common fine pores; strongly acid; gradual smooth boundary.

Btg—15 to 45 inches; light brownish gray (10YR 6/2) silty clay loam; few fine faint yellowish brown mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; few fine roots; common iron and manganese concretions; common fine pores; strongly acid; gradual smooth boundary.

BC—45 to 60 inches; grayish brown (10YR 5/2) silt loam; few fine faint yellowish brown mottles; weak medium subangular blocky structure; friable; few manganese concretions; few fine pores; strongly acid.

Reaction is strongly acid or medium acid throughout the profile. Some pedons have as much as 20 inches of brown silt loam overwash. The A horizon has value of 4 or 5. The Eg and Bg horizons have value of 5 or 6 and have few to many mottles in shades of brown, yellow, or gray. The Bg and BC horizons are silt loam or silty clay loam. The BC horizon has hue of 10YR or 2.5Y and value of 5 or 6 and has mottles in shades of brown or gray.

Bowdre Series

The Bowdre series consists of somewhat poorly drained soils that have a clayey solum and a loamy substratum. These soils formed in fine textured sediments in slack-water areas along the Mississippi

River. Slopes are dominantly less than 2 percent, but some short slopes are as much as 5 percent.

Bowdre soils are geographically associated with Tunica, Sharkey, Crevasse, Bruno, and Robinsonville soils. Tunica and Sharkey soils are in landscape positions similar to those of the Bowdre soils. They are clayey to a depth of more than 20 inches. Robinsonville, Crevasse, and Bruno soils are in the higher areas. Robinsonville soils have a coarse-loamy control section. Crevasse and Bruno soils have a sandy control section.

Typical pedon of Bowdre silty clay, frequently flooded; 3.0 miles south of Reverie on a gravel road; 0.5 mile west into a field; 0.7 mile west of the Mississippi River, in a soybean field:

Ap1—0 to 3 inches; very dark grayish brown (10YR 3/2) silty clay; moderate medium granular structure; slightly hard, friable, sticky and plastic; common fine roots; common worm casts; neutral; clear smooth boundary.

Ap2—3 to 6 inches; very dark grayish brown (10YR 3/2) silty clay; weak medium subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few worm casts; neutral; clear smooth boundary.

Bw—6 to 14 inches; very dark grayish brown (10YR 3/2) clay; few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; hard, very firm, very sticky and plastic; few fine roots; few worm casts; common shiny pressure faces; mildly alkaline; abrupt smooth boundary.

2C1—14 to 30 inches; mottled dark grayish brown (10YR 4/2), brown (10YR 4/3), and very dark grayish brown (10YR 3/2) silt loam; massive; soft, friable, slightly sticky and slightly plastic; mildly alkaline; abrupt smooth boundary.

2C2—30 to 37 inches; brown (10YR 4/3) sandy loam; few fine faint dark grayish brown mottles; massive; very friable; few reddish iron stains; neutral; abrupt smooth boundary.

3C—37 to 60 inches; brown (10YR 5/3) loamy sand; common fine distinct light brownish gray (10YR 6/2) mottles; single grain; loose; neutral.

Reaction is neutral or mildly alkaline throughout the profile. The A horizon has chroma of 2 or 3. The B horizon has chroma of 1 to 3 and has few to many mottles in shades of gray or brown. It is silty clay or clay. The 2C horizon has value of 3 to 5 and chroma of 1 to 3 and has mottles in shades of gray or brown, or it has no dominant matrix colors and is mottled in shades of gray and brown. It is silt loam, loam, or sandy loam. The 3C horizon has colors similar to those of the 2C horizon. It is sandy loam or loamy sand.

Bruno Series

The Bruno series consists of very deep, excessively drained soils that formed in sandy recent alluvium. These nearly level and gently sloping soils are on flood plains along the Mississippi River. Slopes are dominantly 0 to 2 percent but range to 5 percent.

Bruno soils are geographically associated with Crevasse, Robinsonville, and Bowdre soils. Crevasse and Robinsonville soils are in landscape positions similar to those of the Bruno soils. Crevasse soils do not have strata of finer textured material. Robinsonville soils have a coarse-loamy control section. Bowdre soils are in the lower areas. They are fine textured in the upper part.

Typical pedon of Bruno silt loam, frequently flooded; on Island 35; about 300 yards southeast of a bridge over Wilson Chute; 54 yards from a road into a field:

Ap1—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine and medium granular structure; friable; few fine roots; neutral; clear smooth boundary.

Ap2—5 to 9 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; neutral; abrupt smooth boundary.

C1—9 to 40 inches; brown (10YR 5/3) fine sand; single grain; loose; neutral; abrupt smooth boundary.

C2—40 to 45 inches; brown (10YR 4/3) loamy fine sand; few fine faint dark grayish brown and few fine distinct yellowish brown (10YR 5/6) mottles; few thin layers of dark grayish brown (10YR 4/2) loam; single grain; loose; mildly alkaline; abrupt smooth boundary.

C3—45 to 60 inches; brown (10YR 5/3) loamy sand; strata of brown (10YR 4/3) and dark grayish brown (10YR 4/2) silt loam as much as 3 inches thick; single grain; loose; common small fragments of charcoal; mildly alkaline.

Reaction is neutral or mildly alkaline throughout the profile. The A horizon has value of 3 or 4 and chroma of 2 to 4. Where value and chroma are 3 or less, the horizon is less than 6 inches thick. The C horizon has value of 4 to 6. It is stratified loam, fine sandy loam, loamy fine sand, loamy sand, or fine sand.

Commerce Series

The Commerce series consists of very deep, somewhat poorly drained soils. These nearly level soils formed in loamy alluvium on flood plains along the

Mississippi River. Slopes are less than 3 percent.

Commerce soils are geographically associated with Robinsonville, Crevasse, Tunica, and Sharkey soils. Robinsonville soils are in the slightly higher areas near the river channel and are well drained. They have a coarse-loamy control section. Crevasse soils are on natural levees and in areas of blowouts adjacent to the river and are excessively drained. They have a sandy control section. Tunica and Sharkey soils are in slack-water areas and are poorly drained. They are clayey.

Typical pedon of Commerce silt loam, frequently flooded; 0.6 mile north of Cedar Point Landing; 100 feet east into a soybean field:

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam; moderate medium granular structure; friable, slightly sticky and slightly plastic; few fine roots; neutral; clear smooth boundary.

Bg1—6 to 24 inches; dark grayish brown (10YR 4/2) silt loam; common medium faint brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; neutral; clear smooth boundary.

Bg2—24 to 38 inches; dark grayish brown (10YR 4/2) silty clay loam; few fine faint grayish brown mottles; moderate medium subangular blocky structure; firm, sticky and slightly plastic; few fine roots; few fine pores; neutral; clear smooth boundary.

C—38 to 60 inches; dark grayish brown (10YR 4/2) silt loam; many medium distinct dark yellowish brown (10YR 4/4) mottles; massive; friable, nonsticky and nonplastic; few fine roots; neutral.

Reaction is neutral or mildly alkaline throughout the profile. The A horizon has value of 3 or 4 and chroma of 2 or 3. Where value and chroma are 3 or less, the horizon is less than 7 inches thick. The B and C horizons have value of 4 or 5. The B horizon is silty clay loam or silt loam. The C horizon is very fine sandy loam, silt loam, or silty clay loam.

Crevasse Series

The Crevasse series consists of very deep, excessively drained soils that formed in sandy recent alluvium. These nearly level and gently sloping soils are on flood plains along the Mississippi River, commonly near the channel. Slopes are dominantly 0 to 2 percent but range to 5 percent.

Crevasse soils are geographically associated with Robinsonville, Commerce, and Bruno soils. Robinsonville and Bruno soils are in landscape positions similar to those of the Crevasse soils. Robinsonville soils have a coarse-loamy control section. Bruno soils have thin strata that are finer textured than loamy fine sand. Commerce soils are in the slightly lower areas and are somewhat poorly drained. They have a fine-silty control section.

Typical pedon of Crevasse sand, occasionally flooded; on Neal Towhead; 700 feet south of the Mississippi River; 3,500 feet west of Coon Valley Road:

A—0 to 14 inches; pale brown (10YR 6/3) sand; single grain; loose; mildly alkaline; abrupt smooth boundary.

C1—14 to 17 inches; brown (10YR 5/3) sand; single grain; loose; mildly alkaline; abrupt smooth boundary.

C2—17 to 23 inches; pale brown (10YR 6/3) sand; single grain; loose; mildly alkaline; abrupt smooth boundary.

C3—23 to 50 inches; grayish brown (10YR 5/2) fine sand; single grain; loose; mildly alkaline; abrupt smooth boundary.

C4—50 to 60 inches; dark brown (10YR 4/3) loamy fine sand; massive; very friable; mildly alkaline.

Reaction is neutral or mildly alkaline throughout the profile. The A and C horizons have value of 4 to 6 and chroma of 2 or 3. The C horizon is sand, fine sand, loamy sand, or loamy fine sand.

Dekoven Series

The Dekoven series consists of very deep, poorly drained soils on broad flats on river and stream terraces and at the wider heads of the smaller streams. Slopes are dominantly less than 2 percent.

Dekoven soils are geographically associated with Dubbs, Routon, and Adler soils. Dubbs soils are on the higher ridges. They have an argillic horizon and do not have mottles with chroma of 2 or less in the upper part of the B horizon. Routon soils are in landscape positions similar to those of the Dekoven soils. They do not have a mollic epipedon and have an argillic horizon. Adler soils are on the lower stream bottoms and are moderately well drained. They are coarse-silty.

Typical pedon of Dekoven silt loam, rarely flooded; in a soybean field 1.4 miles north of Gift and north of Highway 54 on Locust Bluff Road; 275 feet east into the field:

Ap—0 to 7 inches; very dark gray (10YR 3/1) silt loam; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.

A—7 to 22 inches; very dark gray (10YR 3/1) silty clay loam; weak medium and coarse angular and subangular blocky structure; friable; common fine roots and pores; common shiny pressure faces;

common dark concretions; slightly acid; clear irregular boundary.

Bg1—22 to 39 inches; dark grayish brown (2.5Y 4/2) silty clay loam; many fine and medium distinct dark gray (10YR 4/1) and few fine distinct (10YR 6/6) brownish yellow mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; many fine pores; common shiny pressure faces; common fine dark brown and black concretions; neutral; gradual wavy boundary.

Bg2—39 to 60 inches; grayish brown (2.5Y 5/2) silty clay loam; common medium distinct light yellowish brown (2.5Y 6/4), few medium distinct dark gray (10YR 4/1), and few fine distinct brownish yellow (10YR 6/6) mottles; weak coarse and very coarse prismatic structure; friable; neutral.

Reaction is slightly acid or neutral throughout the profile. The A horizon has chroma of 1 or 2. Some pedons have 10 to 18 inches of silt loam overwash, which has value of 4 and chroma of 3 or 4. The Bg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 or 2. It has few or common mottles in shades of gray, brown, or yellow. It has common or many shiny pressure faces on many peds.

Dubbs Series

The Dubbs series consists of very deep, well drained soils. These nearly level to sloping soils formed in old alluvium on high terraces along the Hatchie River. Slopes range from 2 to 8 percent.

Dubbs soils are geographically associated with Routon, Adler, and Dekoven soils. Routon and Dekoven soils are in the lower areas and are poorly drained. Dekoven soils have a dark surface layer. Adler soils are in depressions and drainageways and are moderately well drained. They do not have an argillic horizon.

Typical pedon of Dubbs silt loam, in an area of Dubbs-Routon complex, 0 to 4 percent slopes; 3.4 miles east of Gift on Highway 54; about 0.9 mile north-northwest on a gravel road; 500 feet south into a field:

Ap—0 to 6 inches; yellowish brown (10YR 5/4) silt loam; weak medium granular structure; friable; few fine and very fine roots; medium acid; abrupt smooth boundary.

Bt1—6 to 14 inches; brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common fine and medium pores; few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—14 to 29 inches; yellowish brown (10YR 5/4) silt loam; common fine and medium distinct brown (7.5YR 4/4) and few medium distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; few fine and very fine roots; common fine pores; few or common distinct clay films on faces of peds and in pores; common dark concretions; very strongly acid; clear irregular boundary.

Bt3—29 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; common medium distinct light brownish gray (10YR 6/2) and few fine distinct pale brown (10YR 6/3) mottles; weak coarse subangular blocky structure; friable; few grayish seams ¼ to 1 inch across; few fine roots in the grayish seams; common fine pores; few faint clay films in pores; common dark concretions; strongly acid.

Reaction generally ranges from very strongly acid to medium acid throughout the profile, but the surface layer is less acid in limed areas. The A horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. It has few to many mottles in shades of brown or gray. The BC horizon has colors and textures similar to those of the Bt horizon.

The Dubbs soils in this county are a taxadjunct to the series. The content of sand and the base saturation in the lower part of the solum are slightly lower than is defined as the range for the series. These differences, however, do not affect the use and management of the soils.

Falaya Series

The Falaya series consists of very deep, somewhat poorly drained soils that formed in alluvium washed from loess-covered uplands. These nearly level soils are on low, wide flood plains. Slopes are dominantly less than 2 percent.

Falaya soils are geographically associated with Grenada, Loring, and Amagon soils. Grenada and Loring soils are on uplands and are not subject to flooding. They have a fragipan. Amagon soils are in landscape positions similar to those of the Falaya soils and are poorly drained.

Typical pedon of Falaya silt loam, frequently flooded; 8.0 miles south of Covington on Highway 59; about 0.4 mile west on Malone Road; 100 feet south of the road, in a wooded area:

A—0 to 6 inches; brown (10YR 4/3) silt loam; common fine distinct pale brown (10YR 6/3) mottles; weak medium granular structure; friable; common fine and medium and few coarse roots; strongly acid; gradual smooth boundary.

Bw—6 to 19 inches; dark yellowish brown (10YR 4/4) silt loam; common fine distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common fine and medium and few coarse roots; few fine pores; strongly acid; clear smooth boundary.

Bg1—19 to 29 inches; light brownish gray (10YR 6/2) silt loam; few fine faint brown and common fine distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; many fine and medium pores; common manganese concretions; strongly acid; gradual smooth boundary.

Bg2—29 to 43 inches; grayish brown (10YR 5/2) silt loam; common medium distinct yellowish brown (10YR 5/6) and common medium faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine and medium pores; common manganese concretions; strongly acid; gradual smooth boundary.

Cg—43 to 60 inches; grayish brown (10YR 5/2) silt loam; common medium distinct gray (10YR 6/1) mottles; massive; friable; few fine roots; common manganese concretions; strongly acid.

Reaction generally is strongly acid throughout the profile, but the surface layer is less acid in limed areas. The Bw horizon has value of 4 to 6 and has few to many mottles in shades of brown or gray. The Bg horizon has value of 4 or 5 and chroma of 1 or 2 and has few or common mottles in shades of gray or brown. The C horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 1 or 2 and has few or common mottles in shades of gray or brown.

Grenada Series

The Grenada series consists of moderately well drained soils that have a fragipan. These soils are on undulating to rolling uplands. Slopes range from 1 to 8 percent.

Grenada soils are geographically associated with Memphis, Loring, and Adler soils. Memphis soils are in the higher areas. They do not have a fragipan. Loring soils are on the higher hills and side slopes. They have an argillic horizon and are not characterized by bisequum. Adler soils are on flood plains. They do not have a fragipan.

Typical pedon of Grenada silt loam, 1 to 5 percent slopes, eroded; in a soybean field; 0.9 mile northeast of the intersection of Highways 14 and 59; east 0.7 mile and then south 0.25 mile on a gravel road; 75 yards east into the field:

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

Bw—6 to 16 inches; yellowish brown (10YR 5/6) silt loam; few fine faint light yellowish brown mottles; moderate medium subangular blocky structure; friable; few fine roots; common fine and medium pores; few black and dark brown concretions; very strongly acid; gradual smooth boundary.

E—16 to 21 inches; light brownish gray (10YR 6/2) silt loam; few fine distinct yellowish brown (10YR 5/4) and very pale brown (10YR 7/3) mottles; weak fine subangular blocky structure; friable; few fine roots; common fine and medium pores; strongly acid; abrupt irregular boundary.

Btx1—21 to 28 inches; yellowish brown (10YR 5/6) silt loam; common medium distinct light brownish gray (10YR 6/2) mottles; few strong brown (7.5YR 4/6) coatings; moderate coarse prismatic structure; very firm; brittle; tongues of light brownish gray (10YR 6/2) silt between prisms; few fine roots in the grayish tongues; common fine pores; few distinct clay films in pores; common dark concretions; strongly acid; gradual wavy boundary.

Btx2—28 to 45 inches; mottled yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), very pale brown (10YR 7/3), and dark yellowish brown (10YR 4/6) silt loam; moderate coarse and very coarse prismatic structure; very firm; brittle; tongues of light brownish gray (10YR 6/2) silt between prisms; common fine and few medium pores; few distinct clay films in the larger pores; common dark concretions and stains; strongly acid; gradual wavy boundary.

Btx3—45 to 60 inches; mottled yellowish brown (10YR 5/4), dark yellowish brown (10YR 4/6), and light brownish gray (10YR 6/2) silt loam; weak coarse and very coarse prismatic structure; firm; brittle; common fine and few medium pores; few dark stains; medium acid.

Depth to the fragipan ranges from 17 to 30 inches. Reaction generally ranges from medium acid to very strongly acid throughout the profile, but the surface layer is less acid in limed areas. The A horizon has value of 4 or 5. The Bw horizon has value of 5 or 6 and chroma of 4 to 6. The E horizon has value of 5 or 6. The Bx horizon has value of 4 or 5 and chroma of 4 to 6 and has mottles in shades of gray or brown.

Loring Series

The Loring series consists of moderately well drained soils that have a fragipan. These soils are on ridgetops and side slopes in the rolling and hilly uplands. Slopes range from 1 to 12 percent.

Loring soils are geographically associated with Grenada, Memphis, and Adler soils. Grenada soils are in the lower areas. They are characterized by bisequum and have an E horizon that tongues into the fragipan. Memphis soils are in the higher areas and are well drained. They do not have a fragipan. Adler soils are on stream bottoms. They are stratified and do not have a fragipan.

Typical pedon of Loring silt loam, 5 to 8 percent slopes, severely eroded; in a soybean field near Mason; 0.4 mile southeast of Beaver Creek on Highway 59; about 0.8 mile northeast on a field road; 150 feet east of the road:

Ap—0 to 5 inches; dark brown (7.5YR 4/4) silt loam; moderate medium granular structure; friable; common fine roots; strongly acid; clear smooth boundary.

Bt—5 to 16 inches; dark brown (7.5YR 4/4) silt loam; common medium distinct pale brown (10YR 6/3) silt coatings; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; common fine roots; common fine pores; strongly acid; gradual smooth boundary.

Btx1—16 to 20 inches; dark brown (7.5YR 4/4) silt loam; common medium distinct pale brown (10YR 6/3) silt coatings; weak medium prismatic structure breaking to weak medium subangular blocky; firm; slightly brittle; few faint clay films in pores; common fine roots in gray seams; common fine and medium pores; strongly acid; gradual wavy boundary.

Btx2—20 to 40 inches; dark brown (7.5YR 4/4) silt loam; common fine distinct light brownish gray (10YR 6/2) and pale brown (10YR 6/3) and few medium distinct yellowish brown (10YR 5/4) mottles; weak medium and coarse prismatic structure; few light brownish gray (10YR 6/2) seams ¼ to 1 inch wide; firm; slightly brittle; common distinct clay films in pores; few fine roots in seams; common fine and medium pores; common dark stains and concretions; strongly acid; gradual smooth boundary.

Btx3—40 to 53 inches; dark brown (7.5YR 4/4) silt loam; common fine distinct light brownish gray (10YR 6/2) and pale brown (10YR 6/3) mottles; weak coarse and very coarse prismatic structure; few light brownish gray (10YR 6/2) seams ¼ to ½ inch wide; firm; slightly brittle; few fine roots in seams; common fine and medium pores; few dark stains and concretions; strongly acid; gradual smooth boundary.

BC—53 to 60 inches; dark brown (7.5YR 4/4) silt loam; common fine distinct pale brown (10YR 6/3) and few fine distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; common fine and few medium pores; few or common grayish silt coatings and grayish seams ¼ inch wide; strongly acid.

Reaction generally is strongly acid or medium acid throughout the profile, but the surface layer is less acid in limed areas. The A horizon has hue of 10YR or 7.5YR. The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. It has a few mottles and silt coatings in shades of brown in most pedons. The Btx horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It has mottles, silt coatings, and seams in shades of brown or gray. The BC horizon has colors similar to those in the lower part of the Btx horizon.

Memphis Series

The Memphis series consists of very deep, well drained soils on broad, nearly level and gently sloping ridgetops in areas of low relief and on nearly level ridgetops and steep side slopes in the highly dissected uplands. Slopes range from 1 to 40 percent.

Memphis soils are geographically associated with Grenada, Loring, and Natchez soils. Grenada and Loring soils are on side slopes in nearly level to rolling areas and are moderately well drained. They have a fragipan. Natchez soils are on the steeper side slopes. They do not have an argillic horizon.

Typical pedon of Memphis silt loam, 1 to 5 percent slopes, eroded; in a cotton field 3.0 miles east of Richardson's Landing on Highway 59; about 200 yards south of the highway:

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium granular structure; friable; common fine roots; medium acid; abrupt smooth boundary.

Bt1—7 to 19 inches; brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; thin distinct clay films on faces of peds; few fine roots; common fine pores; very strongly acid; gradual smooth boundary.

Bt2—19 to 28 inches; brown (7.5YR 4/4) silt loam; few light brownish gray (10YR 6/2) silt coatings; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; few fine roots; common fine pores; very strongly acid; gradual smooth boundary.

BC—28 to 42 inches; brown (7.5YR 4/4) silt loam; common light brownish gray (10YR 6/2) silt coatings; weak medium subangular blocky structure; friable; few fine roots; common fine pores; strongly acid; gradual smooth boundary.

C—42 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; many light brownish gray (10YR 6/2) silt coatings and streaks; massive; friable; common fine pores; strongly acid.

Reaction generally ranges from medium acid to very strongly acid throughout the profile, but the surface layer is less acid in limed areas. The A horizon has hue of 10YR or 7.5YR. The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. It has few or common grayish silt coatings in most pedons. It is silt loam or silty clay loam. The BC and C horizons have hue of 10YR or 7.5YR. They have few to many grayish silt coatings in most pedons.

Morganfield Series

The Morganfield series consists of very deep, well drained soils that formed in alluvium. These nearly level soils are on flood plains along streams and upland drainageways. Slopes are dominantly less than 2 percent.

Morganfield soils are geographically associated with Memphis, Loring, and Adler soils. Memphis and Loring soils are on uplands and are not subject to flooding. Memphis soils have an argillic horizon. Loring soils have a fragipan. Adler soils are in landscape positions similar to those of the Morganfield soils and are moderately well drained.

Typical pedon of Morganfield silt loam, occasionally flooded; 1.0 mile east of Wilkinsville; 0.7 mile northeast on a paved road; 350 feet south of the road:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium granular structure; friable; common fine roots; slightly acid; clear smooth boundary.

C1—8 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; common medium faint yellowish brown (10YR 5/4) mottles; massive; common thin bedding planes; friable; few fine roots; slightly acid; abrupt smooth boundary.

C2—20 to 27 inches; brown (10YR 4/3) silt loam; massive; common thin bedding planes; friable; few fine roots; medium acid; abrupt smooth boundary.

C3—27 to 55 inches; dark yellowish brown (10YR 4/4) silt loam; common thin brown (10YR 5/3) and yellowish brown (10YR 5/6) strata; massive; friable; few fine roots; slightly acid; abrupt smooth boundary.

C4—55 to 60 inches; dark grayish brown (10YR 4/2) silt loam; common fine distinct yellowish brown (10YR 5/4) mottles; massive; friable; many manganese stains and concretions; slightly acid.

Reaction ranges from medium acid to mildly alkaline throughout the profile. The A horizon has chroma of 3 or 4. The part of the C horizon within a depth of 40 inches has value of 4 to 6 and chroma of 3 or 4. The part below a depth of 40 inches has value of 4 to 6 and chroma of 2 to 4 and has few to many mottles in shades of gray or brown. Some pedons have a buried A horizon below a depth of 20 inches.

Natchez Series

The Natchez series consists of very deep, well drained soils on side slopes in highly dissected areas known locally as the "loess bluffs." Slopes range from 30 to 60 percent.

Natchez soils are geographically associated with Memphis soils. Memphis soils are on the higher side slopes and ridgetops. They have an argillic horizon.

Typical pedon of Natchez silt loam, 30 to 60 percent slopes, gullied; 1.5 miles east of Dixonville; in a wooded area 700 feet due north of road; 100 yards south of a subdivision road:

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine and medium granular structure; very friable; common fine and medium roots; many fine pores; neutral; abrupt smooth boundary.

A2—2 to 5 inches; brown (10YR 4/3) silt loam; weak medium granular structure; friable; common fine and medium roots; common fine pores; neutral; gradual smooth boundary.

Bw—5 to 23 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine and few medium roots; common fine pores; neutral; gradual smooth boundary.

C1—23 to 31 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; mildly alkaline; gradual smooth boundary.

C2—31 to 60 inches; light yellowish brown (10YR 6/4) silt loam; massive; friable; mildly alkaline.

Reaction is medium acid to neutral in the A and B horizons and neutral or mildly alkaline in the substratum. The A1 horizon has value of 3 or 4. The A2 horizon has value of 4 or 5 and chroma of 3 or 4. The B horizon has value of 4 or 5. The C horizon has value of 4 to 6 and chroma of 3 or 4.

Oaklimeter Series

The Oaklimeter series consists of very deep, moderately well drained, nearly level soils that formed in silty alluvium on flood plains along the Hatchie River. These soils are on broad, slightly convex old natural levees, which are slightly higher than the surrounding areas. Slopes range from 0 to 2 percent.

Oaklimeter soils are geographically associated with the overwash phase of Amagon soils and with Adler and Dubbs soils. The overwash phase of Amagon soils is poorly drained and is in the slightly lower, more nearly level areas. It has matrix colors with chroma of 2 or less within 20 inches of the surface. Adler soils are near loess-covered uplands or near tributary streams that run into the Hatchie River. They do not have buried subhorizons and are less acid than the Oaklimeter soils. Dubbs soils are on the slightly higher terraces and are well drained.

Typical pedon of Oaklimeter silt loam, in an area of Amagon overwash and Oaklimeter silt loams, frequently flooded; 2,500 feet south of the Hatchie River and 3,000 feet west of Mathis Creek:

A—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium granular structure; friable; common fine and medium roots; very strongly acid; clear smooth boundary.

Bw—6 to 14 inches; dark yellowish brown (10YR 4/4) silt loam; common fine and medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; gradual smooth boundary.

BE—14 to 30 inches; mottled light brownish gray (10YR 6/2) and brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; few worm casts; few manganese nodules; very strongly acid; gradual smooth boundary.

Btgb—30 to 60 inches; light brownish gray (10YR 6/2) silt loam; common medium distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; firm; few faint clay films on faces of peds; common worm casts; common manganese nodules; very strongly acid.

Depth to the buried soil ranges from 20 to 40 inches. Reaction is strongly acid or very strongly acid throughout the profile. The A horizon has chroma of 3 or 4. The Bw horizon has value of 4 or 5 and chroma of 3 or 4. It has few or common mottles in shades of brown or gray. The BE and Btgb horizons have value of 5 to 7 and have mottles in shades of brown, or they are mottled in shades of brown and gray.

Robinsonville Series

The Robinsonville series consists of very deep, well drained soils. These nearly level soils are on flood plains along the Mississippi River. Slopes range from 0 to 3 percent.

Robinsonville soils are geographically associated with Commerce, Bruno, and Crevasse soils. Commerce soils are in landscape positions similar to those of the Robinsonville soils or are slightly lower on the flood plains. They are somewhat poorly drained. They have a fine-silty control section. Bruno and Crevasse soils are in landscape positions similar to those of the Robinsonville soils and are excessively drained. They have a sandy control section.

Typical pedon of Robinsonville fine sandy loam, rarely flooded; in a cotton field 2.5 miles southwest of Duval boat launch; 400 yards south of an abandoned house; 100 feet east of Coon Valley Road:

Ap—0 to 7 inches; brown (10YR 5/3) fine sandy loam; weak fine and medium granular structure; very friable; mildly alkaline; abrupt smooth boundary.

C1—7 to 9 inches; brown (10YR 5/3) fine sandy loam; massive; friable; mildly alkaline; abrupt smooth boundary.

C2—9 to 16 inches; pale brown (10YR 6/3) loamy fine sand; single grain; very friable; mildly alkaline; clear smooth boundary.

C3—16 to 29 inches; brown (10YR 4/3) fine sandy loam; massive; very friable; mildly alkaline; abrupt wavy boundary.

C4—29 to 39 inches; brown (10YR 5/3) loamy fine sand; common medium faint brown (10YR 4/3) mottles; single grain; very friable; mildly alkaline; abrupt smooth boundary.

C5—39 to 49 inches; brown (10YR 4/3) silt loam; few fine distinct grayish brown (10YR 5/2) mottles; massive; friable; mildly alkaline; abrupt smooth boundary.

C6—49 to 60 inches; brown (10YR 5/3) fine sandy loam; massive; very friable; mildly alkaline.

Reaction is neutral or mildly alkaline throughout the profile. The A horizon has value of 3 to 5 and chroma of 2 or 3. Where value and chroma are 3 or less, the horizon is less than 6 inches thick. It is fine sandy loam or silt loam. The C horizon has value of 4 to 6 and chroma of 3 or 4. It is fine sandy loam, loamy fine sand, silt loam, or loam.

Routon Series

The Routon series consists of very deep, poorly drained soils that formed in alluvium. These nearly level soils are on terraces near the Hatchie River and on depressional flats in the loess-covered uplands. Slopes are dominantly less than 2 percent.

Routon soils are geographically associated with Dubbs, Dekoven, Grenada, and Adler soils. Dubbs soils are in the slightly higher areas and are well drained.

Dekoven soils are in landscape positions similar to those of the Routon soils. They have a mollic epipedon. Grenada soils are on foot slopes. They have a fragipan. Adler soils are in depressions and drainageways and are moderately well drained. They do not have an argillic horizon.

Typical pedon of Routon silt loam; 1 mile east of airport; 1.1 miles north on a gravel road; 100 feet west of the road:

Ap1—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; few fine roots; slightly acid; abrupt smooth boundary.

Ap2—8 to 11 inches; grayish brown (10YR 5/2) silt loam; many fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; massive; few fine roots; strongly acid; abrupt smooth boundary.

Eg—11 to 25 inches; light brownish gray (10YR 6/2) silt loam; few fine and medium distinct brownish yellow (10YR 6/6) and few medium distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular and subangular blocky structure; friable; few fine roots; many fine and medium pores and voids; strongly acid; gradual wavy boundary.

Btg1—25 to 35 inches; light brownish gray (10YR 6/2) silt loam; common fine and medium distinct brownish yellow (10YR 6/6) and yellowish brown (10YR 5/6) and common medium distinct brown (10YR 5/3) mottles; weak medium and coarse subangular blocky structure; friable; few faint clay films; few fine roots; common fine pores; strongly acid; gradual wavy boundary.

Btg2—35 to 42 inches; grayish brown (10YR 5/2) silty clay loam; common medium faint brown (10YR 5/3) and few fine distinct brownish yellow (10YR 6/6) mottles; weak medium and coarse subangular blocky structure; firm; less than 2 percent seams of grayish silt ¼ to ½ inch wide; few distinct clay films; few roots; few very fine pores; medium acid; gradual wavy boundary.

Btg3—42 to 60 inches; grayish brown (2.5Y 5/2) silty clay loam; grayish brown (10YR 5/2) faces of peds; moderate medium and coarse subangular blocky structure; firm; few distinct clay films; less than 2 percent seams of grayish silt ¼ to ½ inch wide; common fine black stains and concretions; slightly acid.

Reaction ranges from strongly acid to slightly acid throughout the profile. Some pedons have as much as 20 inches of silt loam overwash. The Ap horizon has value of 4 or 5 and chroma of 2 or 3. The Eg horizon has value of 6 or 7 and has mottles in shades of brown or yellow. The Btg horizon has hue of 10YR or 2.5Y. It has value of 5 or 6 and chroma of 1 or value of 6 and chroma of 2. It has mottles in shades of brown or yellow.

Sharkey Series

The Sharkey series consists of very deep, poorly drained soils. These soils formed in fine textured sediments in slack-water areas along the Mississippi River. Slopes are dominantly less than 2 percent, but some short slopes are as much as 5 percent.

Sharkey soils are geographically associated with Tunica, Bowdre, Crevasse, and Robinsonville soils. Tunica and Bowdre soils are in landscape positions similar to those of the Sharkey soils. They are clayey to a depth of less than 40 inches and are underlain by loamy sediments. Crevasse and Robinsonville soils are in the higher areas. Crevasse soils have a sandy control section. Robinsonville soils have a coarse-loamy control section.

Typical pedon of Sharkey clay, frequently flooded; on the south end of Island 37; about 1.35 miles east of Brandywine Chute; 300 yards southwest of the barn on Glass and Son farm:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) clay; moderate medium granular structure; firm, very sticky and plastic; few fine roots; neutral; clear smooth boundary.

Bg1—5 to 15 inches; dark gray (10YR 4/1) clay; common fine faint dark grayish brown mottles; few reddish iron stains; strong medium and coarse angular blocky structure; firm, very sticky and very plastic; few fine roots; common or many pressure faces; neutral; gradual smooth boundary.

Bg2—15 to 28 inches; dark gray (10YR 4/1) clay; common medium distinct brown (10YR 4/3) and common fine prominent yellowish red (5YR 4/6) and strong brown (7.5YR 5/6) mottles; strong medium angular blocky structure; firm, very sticky and very plastic; few fine roots; common or many pressure faces; neutral; gradual wavy boundary.

Bg3—28 to 52 inches; dark gray (10YR 4/1) clay; common medium distinct dark yellowish brown (10YR 4/4) and many fine and medium prominent yellowish red (5YR 4/6) and strong brown (7.5YR 5/6) mottles; moderate medium angular blocky structure; firm, very sticky and very plastic; few fine roots; many pressure faces; neutral; gradual wavy boundary.

Cg—52 to 60 inches; dark gray (N 4/0) clay; common thin layers of dark yellowish brown (10YR 4/4) and brown (10YR 5/3) sandy loam; dominantly massive but has some platy layers; firm, very sticky and very plastic; mildly alkaline.

Reaction is neutral or mildly alkaline throughout the profile. The A horizon has value and chroma of 2 or 3. The Bg horizon has value of 4 or 5 and has mottles in shades of red or brown. The C horizon has hue of 10YR, value of 4 to 6, and chroma of 1, or it is neutral in hue and has value of 4 or 5. It is clay that has fine strata of loam or sandy loam.

Tunica Series

The Tunica series consists of very deep, poorly drained soils underlain by loamy sediments. These soils formed in fine textured sediments in slack-water areas along the Mississippi River. Slopes are dominantly less than 2 percent.

Tunica soils are geographically associated with Sharkey, Bowdre, Crevasse, and Robinsonville soils. Sharkey and Bowdre soils are in landscape positions similar to those of the Tunica soils. Sharkey soils are clayey to a depth of more than 40 inches and are underlain by loamy sediments. Bowdre soils are clayey to a depth of less than 20 inches and are underlain by loamy sediments. Crevasse and Robinsonville soils are in the higher areas. Crevasse soils have a sandy control section. Robinsonville soils have a coarse-loamy control section.

Typical pedon of Tunica clay, frequently flooded; 1.0 mile north of Bear Creek on Coon Valley Road; 0.5 mile east on a field road; 20 yards across a drainage ditch into a soybean field:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) clay; moderate medium granular and moderate fine subangular blocky structure; hard, firm, sticky and plastic; common fine roots; common worm casts; mildly alkaline; clear smooth boundary.

Bg1—5 to 16 inches; dark gray (10YR 4/1) clay; common medium distinct dark yellowish brown (10YR 4/4) mottles; moderate fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few worm casts; common shiny pressure faces; mildly alkaline; gradual smooth boundary.

Bg2—16 to 29 inches; dark gray (10YR 4/1) clay; few medium distinct dark yellowish brown (10YR 4/4) mottles; strong fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; few fine roots; few worm casts; few small pockets of sandy loam; many shiny pressure faces; mildly alkaline; clear smooth boundary.

2C—29 to 60 inches; grayish brown (10YR 5/2) loamy fine sand; few coarse distinct dark yellowish brown (10YR 4/4) and few medium faint light brownish gray mottles; single grain; loose; neutral.

Reaction is neutral or mildly alkaline throughout the profile. The A horizon has value of 3 or 4. The Bg1 horizon has value of 4 or 5 and has few or common mottles in shades of brown. The Bg2 horizon has value of 4 or 5 and chroma of 1 or 2 and has few to many mottles in shades of brown, yellow, or gray. It is silty clay or clay. The 2C horizon has value of 4 or 5 and chroma of 1 or 2 and has few or common mottles in shades of brown or gray. It is silt loam, fine sandy loam, or loamy fine sand.

Vacherie Series

The Vacherie series consists of very deep, somewhat poorly drained soils that formed in alluvium. These are nearly level soils on flood plains. Slopes are dominantly less than 1 percent.

Vacherie soils are geographically associated with Grenada and Adler soils. Grenada soils are on uplands and are not subject to flooding. They have a fragipan. Adler soils are in landscape positions similar to those of the Vacherie soils and are moderately well drained.

Typical pedon of Vacherie silt loam, occasionally flooded; 1.4 miles east of Mt. Carmel; 350 yards north of a road into a field:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; few fine roots; neutral; abrupt smooth boundary.

C1—5 to 18 inches; mottled brown (10YR 4/3) and light brownish gray (10YR 6/2) silt loam; massive; friable; few fine roots; few fine pores; few very thin bedding planes; few dark brown and black concretions; neutral; gradual smooth boundary.

C2—18 to 28 inches; grayish brown (10YR 5/2) silt loam; common fine distinct pale brown (10YR 6/3) and few fine distinct dark yellowish brown (10YR 4/4) mottles; massive; friable; few fine pores; few dark stains and concretions; neutral; clear smooth boundary.

2Bgb1—28 to 42 inches; dark gray (10YR 4/1) clay; weak coarse prismatic structure parting to angular blocky; firm, sticky and plastic; few fine pores; common shiny pressure faces; mildly alkaline; gradual smooth boundary.

2Bgb2—42 to 60 inches; dark gray (10YR 4/1) silty clay; common medium distinct grayish brown (10YR 5/2) and few fine distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to angular blocky; firm, sticky and slightly plastic; few fine pores; mildly alkaline.

Depth to the underlying silty clay or clay ranges from 20 to 36 inches. Reaction is neutral or mildly alkaline throughout the profile. The A horizon has chroma of 1 or 2. The C horizon has value of 4 or 5 and chroma of 2 and has mottles in shades of brown, or it has no dominant matrix colors and is mottled in shades of brown and gray. The 2Bgb horizon has value of 4 or 5. It has few to many mottles in shades of brown. It is silty clay or clay.

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Glossary

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.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

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

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

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 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.

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 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 are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

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. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

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.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazingland for a prescribed period.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

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 fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

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.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foot slope. The inclined surface at the base of a hill.

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.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

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 up to 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

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.

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 at the surface of a mineral soil.

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 O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

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 A or B horizon. 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, the Arabic numeral 2 precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Infiltration. The downward entry of water into the immediate surface of soil or other material. This contrasts with percolation, which is movement of water through soil layers or material.

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.

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.

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.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

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. Mottling generally indicates poor aeration and impeded drainage. 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).

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

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.

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.

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 to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 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. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

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.

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 permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

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.

Reaction, soil. A measure of the 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:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly 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

Relief. The elevations or inequalities of a land surface, considered collectively.

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.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the substratum. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. 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.

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.

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 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

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.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

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 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 substratum. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing 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 grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

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 organic matter content than the overlying surface layer.

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."

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.

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

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."

Thin layer (in tables). Otherwise suitable soil material 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.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

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.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-81 at Covington, Tennessee)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	46.0	27.3	36.7	73	4	30	4.54	2.20	6.56	7	3.1
February----	50.5	30.5	40.5	76	8	47	4.46	2.53	6.16	7	2.2
March-------	59.3	38.6	49.0	82	20	138	5.51	2.98	7.73	9	1.1
April-------	71.4	49.6	60.5	87	31	322	5.52	3.17	7.61	8	.0
May---------	80.0	57.7	68.9	93	40	586	4.99	2.54	7.12	7	.0
June--------	88.2	65.7	77.0	99	51	810	3.42	1.22	5.23	5	.0
July--------	91.3	69.2	80.3	101	56	939	3.99	1.95	5.75	6	.0
August------	89.9	66.9	78.4	100	54	880	3.05	1.17	4.61	5	.0
September---	83.8	59.9	71.9	97	43	657	3.82	1.48	5.78	5	.0
October-----	74.0	47.4	60.7	90	30	342	2.53	1.11	3.76	4	.0
November----	60.6	38.1	49.4	81	18	81	4.45	2.28	6.34	7	.1
December----	50.3	31.0	40.7	74	9	21	4.54	2.22	6.54	7	.6
Yearly:											
Average---	70.4	48.5	59.5	---	---	---	---	---	---	---	---
Extreme---	---	---	---	102	1	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,853	50.82	42.48	58.79	77	7.1

* 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 1951-81 at Covington, Tennessee)

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--	Mar. 27	Apr. 3	Apr. 16
2 years in 10 later than--	Mar. 18	Mar. 28	Apr. 12
5 years in 10 later than--	Mar. 2	Mar. 16	Apr. 3
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 1	Oct. 29	Oct. 19
2 years in 10 earlier than--	Nov. 7	Nov. 2	Oct. 22
5 years in 10 earlier than--	Nov. 18	Nov. 10	Oct. 29

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-81 at Covington, Tennessee)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	226	217	191
8 years in 10	238	224	197
5 years in 10	261	238	209
2 years in 10	283	252	221
1 year in 10	295	260	227

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ad	Adler silt loam, frequently flooded	41,740	14.0
Am	Amagon silt loam, frequently flooded	1,500	0.5
AO	Amagon overwash and Oaklimeter silt loams, frequently flooded	10,000	3.4
Bo	Bowdre silty clay, frequently flooded	6,400	2.1
Br	Bruno silt loam, frequently flooded	2,900	1.0
Co	Commerce silt loam, frequently flooded	1,870	0.6
Cr	Crevasse sand, occasionally flooded	3,230	1.1
De	Dekoven silt loam, rarely flooded	4,510	1.5
Do	Dekoven silt loam, overwash, rarely flooded	2,270	0.8
DuB2	Dubbs silt loam, 1 to 5 percent slopes, eroded	4,470	1.5
DuC3	Dubbs silt loam, 5 to 8 percent slopes, severely eroded	940	0.3
Dv	Dubbs-Dekoven complex, 0 to 4 percent slopes	1,910	0.6
Dx	Dubbs-Routon complex, 0 to 4 percent slopes	8,020	2.7
Fa	Falaya silt loam, frequently flooded	1,830	0.6
GrB2	Grenada silt loam, 1 to 5 percent slopes, eroded	6,130	2.0
GrB3	Grenada silt loam, 1 to 5 percent slopes, severely eroded	1,480	0.5
GrC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded	3,250	1.1
LoB2	Loring silt loam, 1 to 5 percent slopes, eroded	9,420	3.1
LoB3	Loring silt loam, 1 to 5 percent slopes, severely eroded	1,050	0.3
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	17,330	5.8
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	3,710	1.2
MeB2	Memphis silt loam, 1 to 5 percent slopes, eroded	32,100	10.7
MeC3	Memphis silt loam, 5 to 8 percent slopes, severely eroded	15,730	5.2
MeD3	Memphis silt loam, 8 to 12 percent slopes, severely eroded	10,870	3.6
MeE3	Memphis silt loam, 12 to 25 percent slopes, severely eroded	38,130	12.7
MeF	Memphis silt loam, 20 to 40 percent slopes	18,420	6.2
Mo	Morganfield silt loam, occasionally flooded	2,400	0.8
NaF	Natchez silt loam, 30 to 60 percent slopes, gullied	2,090	0.7
Rb	Robinsonville silt loam, occasionally flooded	3,740	1.2
Ro	Robinsonville fine sandy loam, rarely flooded	5,070	1.7
Rp	Routon silt loam	7,640	2.5
Ru	Routon silt loam, overwash	1,410	0.5
Sh	Sharkey clay, frequently flooded	5,110	1.7
Tu	Tunica clay, frequently flooded	8,960	3.0
UD	Udorthents, silty, steep	630	0.2
UO	Udults and Udorthents, very steep	370	0.1
Va	Vacherie silt loam, occasionally flooded	3,970	1.3
	Water	9,500	3.2
	Total	300,100	100.0

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. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Soybeans	Cotton lint	Corn	Wheat	Common bermudagrass	Tall fescue-ladino
		Bu	Lbs	Bu	Bu	AUM*	AUM*
Ad-------------- Adler	IIw	45	800	100	50	---	---
Am-------------- Amagon	Vw	---	---	---	---	---	---
AO-------------- Amagon and Oaklimeter	Vw	---	---	---	---	---	---
Bo-------------- Bowdre	IVw	35	---	---	---	---	6.5
Br-------------- Bruno	IIIs	---	425	---	---	---	---
Co-------------- Commerce	IIIw	40	700	---	50	---	6.5
Cr-------------- Crevasse	IVs	---	---	---	---	---	---
De, Do---------- Dekoven	IIIw	45	700	120	35	---	6.0
DuB2------------ Dubbs	IIe	35	800	100	50	8.0	8.0
DuC3------------ Dubbs	IIIe	30	750	80	40	7.0	7.0
Dv-------------- Dubbs-Dekoven	IIIw	41	750	103	45	7.0	7.5
Dx-------------- Dubbs-Routon	IIIw	36	625	76	45	7.0	7.5
Fa-------------- Falaya	IVw	35	---	---	---	---	6.5
GrB2------------ Grenada	IIe	30	550	65	40	7.0	7.0
GrB3------------ Grenada	IIIe	20	450	55	35	6.0	6.0
GrC3------------ Grenada	IVe	---	---	---	---	5.0	---
LoB2------------ Loring	IIe	35	700	90	45	7.0	7.0
LoB3------------ Loring	IIIe	25	600	75	35	6.0	6.0

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Soybeans	Cotton lint	Corn	Wheat	Common bermudagrass	Tall fescue-ladino
		Bu	Lbs	Bu	Bu	AUM*	AUM*
LoC3------------ Loring	IVe	20	500	65	30	5.5	---
LoD3------------ Loring	VIe	---	---	---	---	5.0	---
MeB2------------ Memphis	IIe	40	800	90	45	7.5	7.5
MeC3------------ Memphis	IVe	20	550	60	35	5.5	---
MeD3------------ Memphis	VIe	---	---	---	---	5.5	---
MeE3------------ Memphis	VIe	---	---	---	---	5.0	---
MeF------------- Memphis	VIIe	---	---	---	---	4.5	---
Mo-------------- Morganfield	IIw	45	950	115	50	8.0	8.0
NaF------------- Natchez	VIIe	---	---	---	---	---	---
Rb-------------- Robinsonville	IIw	40	825	115	50	9.0	8.0
Ro-------------- Robinsonville	I	40	825	115	50	9.0	8.0
Rp, Ru---------- Routon	IIIw	35	450	65	35	---	7.0
Sh-------------- Sharkey	IVw	30	---	---	---	---	4.5
Tu-------------- Tunica	IVw	35	---	---	---	---	5.0
UD-------------- Udorthents	VIIe	---	---	---	---	---	---
UO-------------- Udults and Udorthents	VIIe	---	---	---	---	---	---
Va-------------- Vacherie	IIw	40	---	85	55	8.0	7.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

(Absence of an entry indicates no acreage)

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	5,070	---	---	---
II	103,970	52,120	51,850	---
III	34,000	3,470	27,630	2,900
IV	61,840	36,310	22,300	3,230
V	11,500	---	11,500	---
VI	52,710	52,710	---	---
VII	21,510	21,510	---	---
VIII	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

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

Soil name and map symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Volume*	Trees to plant
Ad-------------- Adler	Slight	Moderate	Slight	Slight	Moderate	Eastern cottonwood--	120	186	Eastern cottonwood, black walnut, American sycamore.
						Green ash-----------	95	57	
						Water oak-----------	100	100	
						Willow oak----------	100	100	
						Sweetgum------------	100	143	
						American sycamore---	115	186	
Am-------------- Amagon	Slight	Moderate	Moderate	Severe	Severe	Cherrybark oak------	90	114	Eastern cottonwood, American sycamore, water oak, willow oak.
						Eastern cottonwood--	100	129	
						Water oak-----------	100	100	
						Willow oak----------	100	100	
						Green ash-----------	80	57	
AO:									
Amagon---------	Slight	Moderate	Moderate	Severe	Severe	Cherrybark oak------	90	114	Eastern cottonwood, cherrybark oak, water oak, willow oak.
						Eastern cottonwood--	100	129	
						Water oak-----------	100	100	
						Willow oak----------	100	100	
						Green ash-----------	80	57	
Oaklimeter-----	Slight	Moderate	Severe	Slight	Moderate	Cherrybark oak------	100	143	Cherrybark oak, eastern cottonwood, water oak, willow oak.
						Eastern cottonwood--	100	129	
						Green ash-----------	90	57	
						Willow oak----------	100	100	
						Sweetgum------------	100	143	
Bo-------------- Bowdre	Slight	Moderate	Moderate	Slight	Moderate	Cherrybark oak------	90	57	Eastern cottonwood, sweetgum, American sycamore.
						Eastern cottonwood--	110	157	
						Sweetgum------------	95	114	
						Water oak-----------	95	86	
Br-------------- Bruno	Slight	Slight	Severe	Slight	Moderate	Cherrybark oak------	95	129	Cherrybark oak, black willow, eastern cottonwood.
						Eastern cottonwood--	110	157	
						Water oak-----------	90	86	
						Sweetgum------------	90	100	
						Willow oak----------	90	86	
Co-------------- Commerce	Slight	Moderate	Slight	Slight	Moderate	Eastern cottonwood--	120	186	Eastern cottonwood, American sycamore.
						Green ash-----------	120	186	
						Water oak-----------	110	114	
						American sycamore---	115	186	
						Willow oak----------	95	86	
Cr-------------- Crevasse	Slight	Slight	Moderate	Slight	Slight	Sweetgum------------	90	100	Eastern cottonwood, black willow.
						White oak-----------	100	71	
De, Do---------- Dekoven	Slight	Moderate	Severe	Severe	Severe	Pin oak-------------	100	57	Cherrybark oak, black willow, American sycamore.
						Sweetgum------------	95	114	
						Green ash-----------	100	86	
						American sycamore---	115	186	
						Black willow--------	110	114	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns					Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume*	
DuB2, DuC3------ Dubbs	Slight	Moderate	Slight	Slight	Slight	Cherrybark oak------	100	143	Eastern cottonwood, cherrybark oak, black walnut, loblolly pine.
						Eastern cottonwood--	100	129	
						Green ash-----------	80	57	
						Sweetgum------------	95	114	
						Water oak-----------	90	86	
						Willow oak----------	95	86	
Dv:									
Dubbs----------	Slight	Moderate	Slight	Slight	Slight	Cherrybark oak------	100	143	Eastern cottonwood, cherrybark oak, black walnut, loblolly pine, American sycamore.
						Eastern cottonwood--	100	129	
						Green ash-----------	80	57	
						Sweetgum------------	95	114	
						Water oak-----------	90	86	
						Willow oak----------	95	86	
Dekoven--------	Slight	Moderate	Severe	Severe	Severe	Sweetgum------------	95	114	Cherrybark oak, eastern cottonwood, American sycamore.
						Green ash-----------	100	86	
						American sycamore---	115	186	
						Black willow--------	110	114	
Dx:									
Dubbs----------	Slight	Moderate	Slight	Slight	Slight	Cherrybark oak------	100	143	Eastern cottonwood, cherrybark oak, black walnut, loblolly pine, American sycamore.
						Eastern cottonwood--	100	129	
						Green ash-----------	80	57	
						Sweetgum------------	95	114	
						Water oak-----------	90	86	
						Willow oak----------	95	86	
Routon---------	Slight	Moderate	Moderate	Moderate	Moderate	Cherrybark oak------	110	186	Cherrybark oak, eastern cottonwood, American sycamore.
						Water oak-----------	90	86	
						White oak-----------	80	57	
						Willow oak----------	90	86	
						Sweetgum------------	105	143	
Fa-------------- Falaya	Slight	Moderate	Severe	Moderate	Severe	Eastern cottonwood--	100	129	Eastern cottonwood, cherrybark oak, American sycamore.
						Cherrybark oak------	100	143	
						Water oak-----------	100	100	
						Green ash-----------	90	129	
GrB2, GrB3------ Grenada	Slight	Moderate	Slight	Moderate	Moderate	Loblolly pine-------	85	114	Black walnut, cherrybark oak, loblolly pine, shortleaf pine.
						Southern red oak----	80	57	
						Cherrybark oak------	85	100	
						Shortleaf pine------	75	114	
						Sweetgum------------	80	86	
GrC3------------ Grenada	Moderate	Slight	Slight	Moderate	Moderate	Loblolly pine-------	85	114	Loblolly pine, shortleaf pine.
						Southern red oak----	80	57	
						Cherrybark oak------	85	100	
						Shortleaf pine------	75	114	
						Sweetgum------------	80	86	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns					Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume*	
LoB2, LoB3: Loring	Slight	Moderate	Slight	Moderate	Moderate	Southern red oak	74	57	Black walnut, cherrybark oak, loblolly pine, shortleaf pine.
						Cherrybark oak	86	100	
						Sweetgum	90	100	
						Loblolly pine	85	114	
						Water oak	82	71	
LoC3, LoD3: Loring	Moderate	Moderate	Slight	Moderate	Moderate	Southern red oak	74	57	Loblolly pine, shortleaf pine.
						Cherrybark oak	86	100	
						Sweetgum	90	100	
						Loblolly pine	85	114	
						Water oak	82	71	
MeB2, MeC3, MeD3: Memphis	Slight	Slight	Slight	Slight	Slight	Loblolly pine	90	129	Cherrybark oak, black walnut, loblolly pine.
						Cherrybark oak	90	114	
						Sweetgum	90	100	
MeE3, MeF: Memphis	Severe	Moderate	Slight	Slight	Slight	Loblolly pine	90	129	Loblolly pine, shortleaf pine.
						Cherrybark oak	90	114	
						Sweetgum	90	100	
Mo: Morganfield	Slight	Slight	Slight	Slight	Moderate	Eastern cottonwood	120	186	Eastern cottonwood, black walnut, American sycamore, yellow-poplar.
						Green ash	90	57	
						Sweetgum	110	172	
						Water oak	105	100	
						Yellow-poplar	115	129	
NaF: Natchez	Moderate	Moderate	Slight	Slight	Slight	Eastern cottonwood	105	143	Southern red oak, shortleaf pine, loblolly pine.
						Loblolly pine	90	129	
						Sweetgum	105	157	
Rb, Ro: Robinsonville	Slight	Slight	Slight	Slight	Slight	Eastern cottonwood	110	157	Eastern cottonwood, sweetgum, American sycamore.
						Green ash	85	57	
						Sweetgum	105	157	
						American sycamore	115	186	
Rp, Ru: Routon	Slight	Moderate	Moderate	Moderate	Moderate	Southern red oak	80	57	Cherrybark oak, eastern cottonwood, American sycamore, sweetgum.
						Cherrybark oak	110	186	
						Water oak	90	86	
						White oak	80	57	
						Willow oak	90	86	
						Sweetgum	105	157	
Sh: Sharkey	Slight	Severe	Moderate	Moderate	Severe	Green ash	98	86	Eastern cottonwood, American sycamore, black willow.
						Sweetgum	90	100	
						Water oak	90	86	
Tu: Tunica	Slight	Severe	Moderate	Moderate	Moderate	Eastern cottonwood	105	143	Black willow, eastern cottonwood, American sycamore.
						Cherrybark oak	90	114	
						Green ash	100	57	
						Sweetgum	90	100	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Management concerns					Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume*	
Va------------- Vacherie	Slight	Moderate	Slight	Moderate	Severe	Eastern cottonwood--	120	186	Eastern cottonwood, American sycamore, cherrybark oak.
						Sweetgum------------	110	186	
						Green ash-----------	100	57	
						American sycamore---	115	186	
						Water oak-----------	90	86	

* Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

TABLE 8.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Ad: Adler	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Slight.
Am: Amagon	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
AO:				
Amagon	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
Oaklimeter	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: flooding, wetness.
Bo: Bowdre	Severe: flooding, too clayey.	Severe: too clayey.	Severe: too clayey.	Severe: too clayey.
Br: Bruno	Severe: flooding.	Slight	Moderate: slope, flooding.	Slight.
Co: Commerce	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, flooding.	Moderate: wetness.
Cr: Crevasse	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
De, Do: Dekoven	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DuB2: Dubbs	Slight	Slight	Moderate: slope.	Slight.
DuC3: Dubbs	Slight	Slight	Severe: slope.	Slight.
Dv:				
Dubbs	Slight	Slight	Moderate: slope.	Slight.
Dekoven	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Dx:				
Dubbs	Slight	Slight	Moderate: slope.	Slight.
Routon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Fa: Falaya	Severe: flooding, wetness.	Moderate: flooding, wetness.	Severe: wetness, flooding.	Moderate: wetness, flooding.
GrB2, GrB3: Grenada	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.
GrC3: Grenada	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.
LoB2, LoB3: Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight.
LoC3: Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight.
LoD3: Loring	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.
MeB2: Memphis	Slight	Slight	Moderate: slope.	Severe: erodes easily.
MeC3: Memphis	Slight	Slight	Severe: slope.	Severe: erodes easily.
MeD3: Memphis	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.
MeE3: Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.
MeF: Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.
Mo: Morganfield	Severe: flooding.	Slight	Moderate: flooding.	Slight.
NaF: Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.
Rb: Robinsonville	Severe: flooding.	Slight	Moderate: flooding.	Slight.
Ro: Robinsonville	Severe: flooding.	Slight	Slight	Slight.
Rp, Ru: Routon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Sh-------------------- Sharkey	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.
Tu-------------------- Tunica	Severe: flooding, percs slowly, too clayey.	Severe: too clayey, percs slowly.	Severe: too clayey, percs slowly.	Severe: too clayey.
UD. Udorthents				
UO. Udults and Udorthents				
Va-------------------- Vacherie	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, percs slowly.	Moderate: wetness.

TABLE 9.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Ad----------------- Adler	Good	Good	Good	Good	Fair	Poor	Poor	Good	Good	Poor.
Am----------------- Amagon	Fair	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
AO:										
Amagon------------	Fair	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
Oaklimeter--------	Poor	Fair	Good	Good	Poor	Poor	Poor	Fair	Good	Fair.
Bo----------------- Bowdre	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair.
Br----------------- Bruno	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Co----------------- Commerce	Good	Good	Good	Good	Fair	Fair	Fair	Good	Good	Fair.
Cr----------------- Crevasse	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
De, Do------------- Dekoven	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
DuB2--------------- Dubbs	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DuC3--------------- Dubbs	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Dv:										
Dubbs-------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Dekoven-----------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Dx:										
Dubbs-------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Routon------------	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Fa----------------- Falaya	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
GrB2, GrB3--------- Grenada	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
GrC3--------------- Grenada	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LoB2, LoB3--------- Loring	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
LoC3, LoD3--------- Loring	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MeB2--------------- Memphis	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MeC3, MeD3--------- Memphis	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MeE3--------------- Memphis	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MeF---------------- Memphis	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Mo----------------- Morganfield	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NaF---------------- Natchez	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rb, Ro------------- Robinsonville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Rp, Ru------------- Routon	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Sh----------------- Sharkey	Fair	Fair	Fair	Good	Poor	Good	Good	Fair	Good	Good.
Tu----------------- Tunica	Fair	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
UD. Udorthents										
UO. Udults and Udorthents										
Va----------------- Vacherie	Good	Good	Good	Good	Fair	Fair	Fair	Good	Good	Fair.

TABLE 10.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Ad: Adler	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, low strength.
Am: Amagon	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding, wetness.
AO:					
Amagon	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, flooding, wetness.
Oaklimeter	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, low strength.
Bo: Bowdre	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, low strength.
Br: Bruno	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Co: Commerce	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.
Cr: Crevasse	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
De, Do: Dekoven	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.
DuB2: Dubbs	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.
DuC3: Dubbs	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.
Dv:					
Dubbs	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.
Dekoven	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.
Dx:					
Dubbs	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Dx:					
Routon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
Fa Falaya	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, low strength.
GrB2, GrB3, GrC3 Grenada	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.
LoB2, LoB3 Loring	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.
LoC3 Loring	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.
LoD3 Loring	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.
MeB2 Memphis	Slight	Slight	Slight	Slight	Severe: low strength.
MeC3 Memphis	Slight	Slight	Slight	Moderate: slope.	Severe: low strength.
MeD3 Memphis	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.
MeE3, MeF Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.
Mo Morganfield	Moderate: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, low strength.
NaF Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Rb Robinsonville	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Ro Robinsonville	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Rp, Ru Routon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
Sh Sharkey	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Tu---------------- Tunica	Severe: wetness.	Severe: flooding, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, shrink-swell.	Severe: low strength, flooding, shrink-swell.
UD. Udorthents					
UO. Udults and Udorthents					
Va---------------- Vacherie	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength.

TABLE 11.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ad----------------- Adler	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Am----------------- Amagon	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
AO:					
Amagon-------------	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Oaklimeter---------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
Bo----------------- Bowdre	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding.	Fair: wetness.
Br----------------- Bruno	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Co----------------- Commerce	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Cr----------------- Crevasse	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
De, Do------------- Dekoven	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
DuB2, DuC3--------- Dubbs	Slight------------	Severe: seepage.	Severe: seepage.	Slight------------	Fair: too clayey.
Dv:					
Dubbs--------------	Slight------------	Severe: seepage.	Severe: seepage.	Slight------------	Fair: too clayey.
Dekoven------------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Dx:					
Dubbs--------------	Slight------------	Severe: seepage.	Severe: seepage.	Slight------------	Fair: too clayey.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Dx:					
Routon	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Fa Falaya	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
GrB2, GrB3, GrC3 Grenada	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
LoB2, LoB3, LoC3 Loring	Severe: wetness, percs slowly.	Moderate: slope.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
LoD3 Loring	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, slope.	Moderate: wetness, slope.	Moderate: wetness, slope.
MeB2, MeC3 Memphis	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
MeD3 Memphis	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
MeE3, MeF Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Mo Morganfield	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
NaF Natchez	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Rb Robinsonville	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Good.
Ro Robinsonville	Moderate: flooding, wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Good.
Rp, Ru Routon	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Sh Sharkey	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
Tu Tunica	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
UD. Udorthents					
UO. Udults and Udorthents					
Va------------------ Vacherie	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.

TABLE 12.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Ad: Adler	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Am: Amagon	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
AO:				
Amagon	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Oaklimeter	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Bo: Bowdre	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Br: Bruno	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Co: Commerce	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
Cr: Crevasse	Good	Probable	Improbable: too sandy.	Poor: too sandy.
De, Do: Dekoven	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
DuB2, DuC3: Dubbs	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Dv:				
Dubbs	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Dekoven	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Dx:				
Dubbs	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Routon	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Fa: Falaya	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
GrB2, GrB3, GrC3: Grenada	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
LoB2, LoB3, LoC3: Loring	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
LoD3: Loring	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
MeB2, MeC3: Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
MeD3: Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
MeE3: Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MeF: Memphis	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Mo: Morganfield	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
NaF: Natchez	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Rb, Ro: Robinsonville	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Rp, Ru: Routon	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Sh: Sharkey	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Tu: Tunica	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
UD. Udorthents				
UO. Udults and Udorthents				
Va: Vacherie	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.

TABLE 13.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Ad---------------- Adler	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Flooding-------	Erodes easily, wetness.	Erodes easily.
Am---------------- Amagon	Slight---------	Severe: wetness, piping.	Severe: no water.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
AO:						
Amagon-----------	Slight---------	Severe: wetness, piping.	Severe: no water.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Oaklimeter-------	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding-------	Erodes easily, wetness.	Erodes easily.
Bo---------------- Bowdre	Moderate: seepage.	Severe: piping.	Severe: no water.	Percs slowly, flooding.	Erodes easily, wetness.	Erodes easily, percs slowly.
Br---------------- Bruno	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Too sandy------	Droughty.
Co---------------- Commerce	Moderate: seepage.	Severe: thin layer, wetness.	Severe: slow refill.	Flooding-------	Erodes easily, wetness.	Erodes easily.
Cr---------------- Crevasse	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Too sandy------	Droughty.
De, Do------------ Dekoven	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable------	Erodes easily, wetness.	Wetness, erodes easily.
DuB2, DuC3-------- Dubbs	Severe: seepage.	Moderate: thin layer.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Dv:						
Dubbs------------	Severe: seepage.	Moderate: thin layer.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Dekoven----------	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable------	Erodes easily, wetness.	Wetness, erodes easily.
Dx:						
Dubbs------------	Severe: seepage.	Moderate: thin layer.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
Routon-----------	Slight---------	Severe: piping, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
Fa----------------- Falaya	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Flooding, poor outlets.	Erodes easily, wetness.	Wetness, erodes easily.
GrB2, GrB3, GrC3-- Grenada	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Percs slowly, slope.	Erodes easily, wetness.	Erodes easily, rooting depth.
LoB2, LoB3, LoC3-- Loring	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Slope, percs slowly.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
LoD3-------------- Loring	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Slope, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
MeB2, MeC3--------- Memphis	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
MeD3, MeE3, MeF--- Memphis	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Mo---------------- Morganfield	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Erodes easily	Erodes easily.
NaF--------------- Natchez	Severe: slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Rb, Ro------------ Robinsonville	Severe: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Favorable------	Favorable.
Rp, Ru------------ Routon	Slight---------	Severe: piping, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Sh---------------- Sharkey	Slight---------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, rooting depth.
Tu---------------- Tunica	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly.	Percs slowly.
UD. Udorthents						
UO. Udults and Udorthents						
Va---------------- Vacherie	Slight---------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, droughty.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In								Pct	
Ad---------------Adler	0-5	Silt loam--------	ML, CL-ML	A-4	100	100	100	95-100	<28	NP-7
	5-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	100	100	95-100	60-95	<30	NP-10
Am---------------Amagon	0-15	Silt loam--------	CL-ML, CL	A-4	100	98-100	90-100	70-90	<30	4-10
	15-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	100	98-100	85-100	70-95	25-40	7-20
AO:										
Amagon----------	0-14	Silt loam--------	CL-ML, CL	A-4	100	98-100	90-100	70-90	<30	4-10
	14-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	100	98-100	85-100	70-95	25-40	7-20
Oaklimeter------	0-6	Silt loam--------	ML, CL, CL-ML	A-4	100	100	90-100	70-90	<30	NP-8
	6-60	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4	100	100	90-100	90-100	<30	NP-10
Bo---------------Bowdre	0-14	Silty clay, clay	CH	A-7	100	100	95-100	90-95	51-65	28-40
	14-30	Silt loam, loam	CL-ML, CL, ML	A-4, A-6	100	100	90-100	70-90	25-35	3-12
	30-37	Sandy loam, silt loam, loam.	SC, CL, CL-ML, SM-SC	A-2, A-4	100	100	60-100	30-90	20-30	3-10
	37-60	Loamy sand, sandy loam.	SM, SM-SC	A-2, A-4	100	100	60-75	15-40	<25	NP-5
Br---------------Bruno	0-9	Silt loam--------	CL	A-6, A-7	100	100	90-100	80-95	30-42	11-20
	9-60	Loamy sand, loamy fine sand, sand.	SP-SM, SM	A-2	100	100	60-80	10-30	---	NP
Co---------------Commerce	0-6	Silt loam--------	CL-ML, CL, ML	A-4	100	100	100	75-100	<30	NP-10
	6-60	Silty clay loam, silt loam, loam.	CL	A-6, A-7-6	100	100	100	85-100	32-45	11-23
Cr---------------Crevasse	0-14	Sand-------------	SP-SM, SM	A-2-4, A-3	100	95-100	50-100	5-20	---	NP
	14-60	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	100	95-100	50-100	5-20	---	NP
De---------------Dekoven	0-7	Silt loam--------	ML, CL, CL-ML	A-4, A-6	100	95-100	90-100	85-100	25-40	5-20
	7-60	Silty clay loam, silt loam.	ML, CL, CL-ML	A-4, A-6, A-7	100	95-100	90-100	85-100	25-45	5-20
Do---------------Dekoven	0-16	Silt loam--------	ML, CL, CL-ML	A-4, A-6	100	95-100	90-100	85-100	25-40	5-20
	16-60	Silty clay loam, silt loam.	ML, CL, CL-ML	A-4, A-6, A-7	100	95-100	90-100	85-100	25-45	5-20
DuB2, DuC3-------Dubbs	0-6	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	60-90	20-35	3-10
	6-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	100	100	100	85-100	35-50	15-25

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Dv:										
Dubbs-----------	0-6	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	60-90	20-35	3-10
	6-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	100	100	100	85-100	35-50	15-25
Dekoven---------	0-7	Silt loam--------	ML, CL, CL-ML	A-4, A-6	100	95-100	90-100	85-100	25-40	5-20
	7-60	Silty clay loam, silt loam.	ML, CL, CL-ML	A-4, A-6, A-7	100	95-100	90-100	85-100	25-45	5-20
Dx:										
Dubbs-----------	0-6	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	60-90	20-35	3-10
	6-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	100	100	100	85-100	35-50	15-25
Routon----------	0-25	Silt loam--------	ML, CL, CL-ML	A-4, A-6	100	100	90-100	85-95	16-32	3-12
	25-60	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	100	100	90-100	90-95	20-40	5-17
Fa--------------- Falaya	0-60	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	95-100	<30	NP-10
GrB2, GrB3, GrC3- Grenada	0-6	Silt loam--------	ML, CL-ML	A-4	100	100	95-100	90-100	25-31	4-7
	6-16	Silt loam, silty clay loam.	CL	A-6, A-4	100	100	95-100	90-100	27-40	8-19
	16-21	Silt loam--------	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	21-45	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-7, A-4	100	100	95-100	90-100	25-45	5-24
	45-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-7, A-4	100	100	95-100	90-100	25-45	5-24
LoB2, LoB3, LoC3, LoD3------------ Loring	0-5	Silt loam--------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	<35	NP-15
	5-16	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	100	100	95-100	90-100	32-48	10-20
	16-53	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	10-22
	53-60	Silt loam--------	CL, ML	A-4, A-6	100	100	95-100	70-100	28-40	7-16
MeB2, MeC3, MeD3, MeE3------------ Memphis	0-5	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	5-60	Silt loam--------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
MeF-------------- Memphis	0-9	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	9-38	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	100	90-100	35-48	15-25
	38-60	Silt loam--------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
Mo--------------- Morganfield	0-8	Silt loam--------	ML, CL, CL-ML	A-4	100	100	95-100	65-95	<30	NP-10
	8-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	100	100	95-100	65-95	<30	NP-10

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
NaF--------------- Natchez	0-23	Silt loam---------	ML, CL-ML, CL	A-4	100	100	100	85-100	<30	NP-10
	23-60	Silt loam, silt	ML, CL-ML	A-4	100	100	100	85-100	<30	NP-7
Rb---------------- Robinsonville	0-6	Silt loam---------	SM, ML	A-4	100	95-100	85-95	35-80	<25	NP-3
	6-60	Stratified fine sandy loam to loamy fine sand.	SM, ML	A-2, A-4	100	95-100	75-95	30-65	<25	NP-3
Ro---------------- Robinsonville	0-7	Fine sandy loam	SM, ML	A-4	100	100	85-95	40-55	<25	NP-3
	7-60	Stratified fine sandy loam to loamy fine sand.	SM, ML	A-2, A-4	100	95-100	75-95	30-65	<25	NP-3
Rp, Ru------------ Routon	0-25	Silt loam---------	ML, CL, CL-ML	A-4, A-6	100	100	90-100	85-95	16-32	3-12
	25-60	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	100	100	90-100	90-95	20-40	5-17
Sh---------------- Sharkey	0-5	Clay--------------	CH, CL	A-7-6, A-7-5	100	100	100	95-100	46-85	22-50
	5-52	Clay--------------	CH	A-7-6, A-7-5	100	100	100	95-100	56-85	30-50
	52-60	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	100	100	100	95-100	32-85	11-50
Tu---------------- Tunica	0-5	Clay--------------	CH	A-7	100	98-100	95-100	90-100	50-92	25-62
	5-29	Clay, silty clay	CH	A-7	100	98-100	95-100	90-100	50-92	25-62
	29-60	Fine sandy loam, loamy fine sand.	ML, SM	A-4, A-2	100	95-100	75-95	30-65	<25	NP-3
UD. Udorthents										
UO. Udults and Udorthents										
Va---------------- Vacherie	0-28	Silt loam---------	ML, CL-ML	A-4	100	100	95-100	65-90	<27	NP-7
	28-60	Clay, silty clay	CH	A-7-6	100	100	100	95-100	51-75	26-45

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T
	In	Pct	g/cc	In/hr	In/in	pH			
Ad---------------	0-5	10-25	1.50-1.55	0.6-2.0	0.20-0.23	5.6-7.8	Low---------	0.43	5
Adler	5-60	5-18	1.50-1.55	0.6-2.0	0.20-0.23	5.1-7.8	Low---------	0.43	
Am---------------	0-15	12-25	1.25-1.50	0.6-2.0	0.16-0.24	4.5-6.5	Low---------	0.43	5
Amagon	15-60	18-35	1.25-1.50	0.06-0.2	0.16-0.24	4.5-6.5	Moderate----	0.37	
AO:									
Amagon----------	0-14	12-25	1.25-1.50	0.6-2.0	0.16-0.24	4.5-6.5	Low---------	0.43	5
	14-60	18-35	1.25-1.50	0.06-0.2	0.16-0.24	4.5-6.5	Moderate----	0.37	
Oaklimeter------	0-6	10-16	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low---------	0.43	5
	6-60	7-30	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low---------	0.43	
Bo---------------	0-14	35-60	1.40-1.50	0.06-0.2	0.15-0.20	5.6-7.3	High--------	0.37	3
Bowdre	14-30	10-25	1.50-1.55	0.2-0.6	0.19-0.22	6.1-8.4	Low---------	0.32	
	30-37	7-25	1.50-1.55	0.6-2.0	0.15-0.22	6.1-8.4	Low---------	0.32	
	37-60	5-12	1.40-1.50	2.0-6.0	0.05-0.15	6.1-8.4	Low---------	----	
Br---------------	0-9	24-38	1.30-1.50	0.6-2.0	0.17-0.22	5.1-8.4	Moderate----	0.28	5
Bruno	9-60	2-10	1.40-1.60	6.0-20	0.05-0.10	5.1-8.4	Low---------	0.15	
Co---------------	0-6	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-8.4	Low---------	0.43	5
Commerce	6-60	14-39	1.35-1.65	0.2-0.6	0.20-0.22	6.1-8.4	Moderate----	0.32	
Cr---------------	0-14	2-8	1.40-1.50	6.0-20	0.02-0.06	5.6-8.4	Low---------	0.10	5
Crevasse	14-60	2-8	1.40-1.50	6.0-20	0.02-0.06	5.6-8.4	Low---------	0.15	
De---------------	0-7	18-35	1.20-1.40	0.6-2.0	0.18-0.23	6.1-7.8	Low---------	0.32	5
Dekoven	7-60	18-35	1.25-1.50	0.6-2.0	0.18-0.23	6.1-7.8	Low---------	0.37	
Do---------------	0-16	18-35	1.20-1.40	0.6-2.0	0.18-0.23	6.1-7.8	Low---------	0.32	5
Dekoven	16-60	18-35	1.25-1.50	0.6-2.0	0.18-0.23	6.1-7.8	Low---------	0.37	
DuB2, DuC3-------	0-6	5-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low---------	0.37	5
Dubbs	6-60	20-35	1.45-1.55	0.6-2.0	0.18-0.22	4.5-6.0	Moderate----	0.37	
Dv:									
Dubbs-----------	0-6	5-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low---------	0.37	5
	6-60	20-35	1.45-1.55	0.6-2.0	0.18-0.22	4.5-6.0	Moderate----	0.37	
Dekoven---------	0-7	18-35	1.20-1.40	0.6-2.0	0.18-0.23	6.1-7.8	Low---------	0.32	5
	7-60	18-35	1.25-1.50	0.6-2.0	0.18-0.23	6.1-7.8	Low---------	0.37	
Dx:									
Dubbs-----------	0-6	5-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low---------	0.37	5
	6-60	20-35	1.45-1.55	0.6-2.0	0.18-0.22	4.5-6.0	Moderate----	0.37	
Routon----------	0-25	15-25	1.40-1.55	0.6-2.0	0.20-0.24	4.5-6.5	Low---------	0.49	5
	25-60	20-35	1.35-1.50	0.06-0.2	0.18-0.22	4.5-6.5	Low---------	0.49	
Fa---------------	0-60	6-18	1.25-1.45	0.6-2.0	0.20-0.22	4.5-5.5	Low---------	0.49	5
Falaya									

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T
	In	Pct	g/cc	In/hr	In/in	pH			
GrB2, GrB3, GrC3-- Grenada	0-6	12-16	1.40-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3
	6-16	18-30	1.40-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.43	
	16-21	12-16	1.35-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	
	21-45	15-32	1.45-1.60	0.06-0.2	0.10-0.12	4.5-6.0	Low	0.37	
	45-60	15-32	1.45-1.60	0.06-0.2	0.10-0.12	5.1-7.3	Low	0.37	
LoB2, LoB3, LoC3, LoD3 Loring	0-5	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3
	5-16	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43	
	16-53	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43	
	53-60	10-25	1.30-1.60	0.2-2.0	0.06-0.13	4.5-6.5	Low	0.43	
MeB2, MeC3, MeD3, MeE3 Memphis	0-5	8-22	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	5
	5-60	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	
MeF Memphis	0-9	8-22	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	5
	9-38	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49	
	38-60	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	
Mo Morganfield	0-8	2-5	1.40-1.50	0.6-2.0	0.20-0.23	5.6-7.8	Low	0.43	5
	8-60	5-18	1.40-1.55	0.6-2.0	0.20-0.23	5.1-7.8	Low	0.43	
NaF Natchez	0-23	8-18	1.30-1.45	0.6-2.0	0.20-0.24	5.1-7.3	Low	0.49	5
	23-60	8-15	1.35-1.45	0.6-2.0	0.20-0.24	6.6-8.4	Low	0.49	
Rb Robinsonville	0-6	2-10	1.40-1.50	0.6-2.0	0.15-0.22	6.1-8.4	Low	0.32	5
	6-60	5-15	1.50-1.60	2.0-6.0	0.14-0.18	6.1-8.4	Low	0.32	
Ro Robinsonville	0-7	2-10	1.40-1.50	2.0-6.0	0.15-0.18	6.1-8.4	Low	0.28	5
	7-60	5-15	1.50-1.60	2.0-6.0	0.14-0.18	6.1-8.4	Low	0.32	
Rp, Ru Routon	0-25	15-25	1.40-1.55	0.6-2.0	0.20-0.24	4.5-6.5	Low	0.49	5
	25-60	20-35	1.35-1.50	0.06-0.2	0.18-0.22	4.5-6.5	Low	0.49	
Sh Sharkey	0-5	40-60	1.20-1.50	<0.06	0.12-0.18	5.1-8.4	Very high	0.32	5
	5-52	60-90	1.20-1.50	<0.06	0.07-0.14	5.6-8.4	Very high	0.28	
	52-60	25-90	1.20-1.65	0.06-0.2	0.12-0.18	6.6-8.4	High	0.28	
Tu Tunica	0-5	35-75	1.45-1.55	<0.06	0.15-0.20	5.6-7.8	High	0.32	5
	5-29	35-75	1.45-1.55	<0.06	0.15-0.20	5.6-7.8	High	0.32	
	29-60	10-32	1.40-1.50	0.6-6.0	0.10-0.16	5.6-8.4	Low	0.32	
UD. Udorthents									
UO. Udults and Udorthents									
Va Vacherie	0-28	10-18	1.35-1.70	0.6-2.0	0.11-0.24	5.6-8.4	Low	0.43	5
	28-60	40-65	1.20-1.60	<0.06	0.08-0.19	6.6-8.4	Very high	0.32	

TABLE 16.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
Ad: Adler	C	Frequent	Very brief to brief.	Jan-Apr	2.0-3.0	Apparent	Jan-Apr	Moderate	Low.
Am: Amagon	D	Frequent	Brief to long.	Dec-Apr	0.5-1.5	Perched	Dec-Apr	High	High.
AO:									
Amagon	D	Frequent	Long	Dec-Apr	0.5-1.5	Perched	Dec-Apr	High	High.
Oaklimeter	C	Frequent	Brief to long.	Dec-Apr	1.5-2.5	Apparent	Dec-Mar	Moderate	High.
Bo: Bowdre	C	Frequent	Brief to very long.	Dec-Apr	1.5-2.0	Perched	Jan-Apr	High	Low.
Br: Bruno	A	Frequent	Brief to very long.	Dec-Apr	4.0-6.0	Apparent	Dec-Apr	Low	Low.
Co: Commerce	C	Frequent	Brief to long.	Dec-Apr	1.5-4.0	Apparent	Dec-Apr	High	Low.
Cr: Crevasse	A	Occasional	Brief to long.	Dec-Mar	3.5-6.0	Apparent	Dec-Mar	Low	Moderate.
De, Do: Dekoven	D	Rare	---	---	0-1.0	Apparent	Jan-Apr	Moderate	Low.
DuB2, DuC3: Dubbs	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Dv:									
Dubbs	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Dekoven	D	None	---	---	0-1.0	Apparent	Jan-Apr	Moderate	Low.
Dx:									
Dubbs	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Routon	D	None	---	---	0-1.0	Apparent	Dec-Mar	High	Moderate.
Fa: Falaya	D	Frequent	Brief	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	High	Moderate.
GrB2, GrB3, GrC3: Grenada	C	None	---	---	1.5-2.5	Perched	Jan-Apr	Moderate	Moderate.
LoB2, LoB3, LoC3, LoD3: Loring	C	None	---	---	2.0-3.0	Perched	Jan-Mar	Moderate	Moderate.
MeB2, MeC3, MeD3, MeE3, MeF: Memphis	B	None	---	---	>6.0	---	---	Moderate	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
Mo---------------- Morganfield	B	Occasional	Brief-----	Jan-Apr	3.0-4.0	Apparent	Jan-Apr	Low------	Low.
NaF--------------- Natchez	B	None---------	---	---	>6.0	---		Low------	Low.
Rb---------------- Robinsonville	B	Occasional	Brief-----	Jan-Apr	4.0-6.0	Apparent	Jan-Apr	Low------	Low.
Ro---------------- Robinsonville	B	Rare---------	---	---	4.0-6.0	Apparent	Jan-Apr	Low------	Low.
Rp, Ru------------ Routon	D	None---------	---	---	0-1.0	Apparent	Dec-Mar	High-----	Moderate.
Sh---------------- Sharkey	D	Frequent----	Brief to very long.	Dec-Apr	0-2.0	Apparent	Dec-Apr	High-----	Moderate.
Tu---------------- Tunica	D	Frequent----	Brief to very long.	Jan-Apr	1.5-3.0	Apparent	Dec-Apr	High-----	Low.
UD. Udorthents									
UO. Udults and Udorthents									
Va---------------- Vacherie	C	Occasional	Brief-----	Jan-Apr	1.0-3.0	Apparent	Dec-Apr	High-----	Low.

TABLE 17.--CLASSIFICATION OF THE SOILS

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

Soil name	Family or higher taxonomic class
Adler	Coarse-silty, mixed, nonacid, thermic Aquic Udifluvents
Amagon	Fine-silty, mixed, thermic Typic Ochraqualfs
Bowdre	Clayey over loamy, montmorillonitic, thermic Fluvaquentic Hapludolls
Bruno	Sandy, mixed, thermic Typic Udifluvents
Commerce	Fine-silty, mixed, nonacid, thermic Aeric Fluvaquents
Crevasse	Mixed, thermic Typic Udipsamments
Dekoven	Fine-silty, mixed, thermic Fluvaquentic Haplaquolls
*Dubbs	Fine-silty, mixed, thermic Typic Hapludalfs
Falaya	Coarse-silty, mixed, acid, thermic Aeric Fluvaquents
Grenada	Fine-silty, mixed, thermic Glossic Fragiudalfs
Loring	Fine-silty, mixed, thermic Typic Fragiudalfs
Memphis	Fine-silty, mixed, thermic Typic Hapludalfs
Morganfield	Coarse-silty, mixed, nonacid, thermic Typic Udifluvents
Natchez	Coarse-silty, mixed, thermic Typic Eutrochrepts
Oaklimeter	Coarse-silty, mixed, thermic Fluvaquentic Dystrochrepts
Robinsonville	Coarse-loamy, mixed, nonacid, thermic Typic Udifluvents
Routon	Fine-silty, mixed, thermic Typic Ochraqualfs
Sharkey	Very fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Vacherie	Coarse-silty over clayey, mixed, nonacid, thermic Aeric Fluvaquents

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