United States Department of Agriculture

Soil Conservation Service

In cooperation with Tennessee Agricultural Experiment Station, the Weakley County Board of Commissioners, the Tennessee Valley Authority, and the Tennessee Department of Agriculture

Soil Survey of Weakley County, Tennessee

How To Use This Soil Survey

General Soil Map

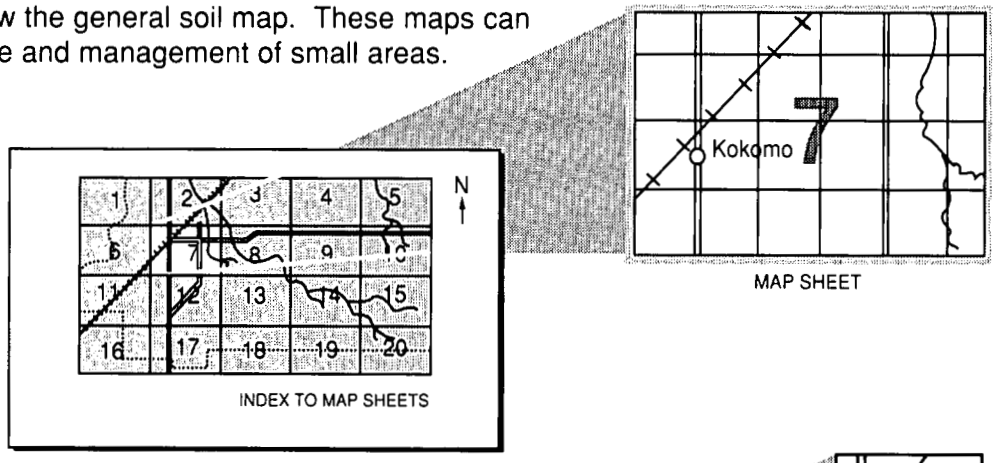
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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.

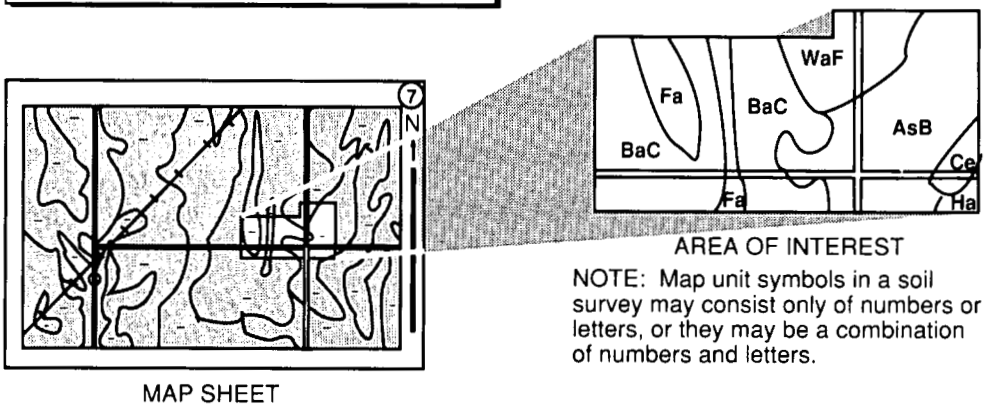
To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



INDEX TO MAP SHEETS

MAP 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.



MAP SHEET

AREA OF INTEREST

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 1984. Soil names and descriptions were approved in 1985. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This soil survey was made cooperatively by the Soil Conservation Service, the Tennessee Agricultural Experiment Station, the Weakley County Board of Commissioners, the Tennessee Valley Authority, and the Tennessee Department of Agriculture. It is part of the technical assistance furnished to the Weakley County Soil Conservation District. The Weakley County Board of Commissioners, the Tennessee Valley Authority, and the Tennessee Department of Agriculture provided funds to accelerate the work on this soil survey.

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: Harvesting alfalfa hay on Loring soils. The Loring series is one of the most extensive series in Weakley County.

Contents

Issued July 1992

Index to Map Units

Summary of Tables

Foreword

This soil survey contains information that can be used in land-planning programs in Weakley 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 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.

Jerry S. Lee
State Conservationist
Soil Conservation Service

Soil Survey of Weakley County, Tennessee

By Charles L. Moore, Soil Conservation Service

Fieldwork by Charles L. Moore, John G. Gibi, Gregory W. Seat, and Willie L. Turner, Soil Conservation Service, and Steve R. Burgess, Scott L. Ferguson, and Richard Henderson, Weakley County

United States Department of Agriculture, Soil Conservation Service,
in cooperation with
the Tennessee Agricultural Experiment Station, the Weakley County Board of Commissioners, the Tennessee Valley Authority, and the Tennessee Department of Agriculture

WEAKLEY COUNTY is in the northwestern part of Tennessee (fig. 1). It has an area of 368,600 acres, or about 576 square miles. It is bounded on the north by Hickman and Graves Counties, Kentucky; on the east by Henry County, Tennessee; on the southeast by Carroll County; on the southwest by Gibson County; and on the west by Obion County.

According to the 1980 census, the population of the county is 32,896. Dresden, the county seat, is near the geographic center of the county, at the intersection of Tennessee State Highways 22, 54, and 89. Martin is the largest town.

According to the local soil conservation district, about 53 percent of the county is cropland, 18 percent is woodland, 17 percent is pasture, 2 percent is urban land, and 10 percent is other land. Row cropping is the dominant farm enterprise. Corn, soybeans, and wheat are the main crops. Hog, dairy, and beef enterprises also are important.

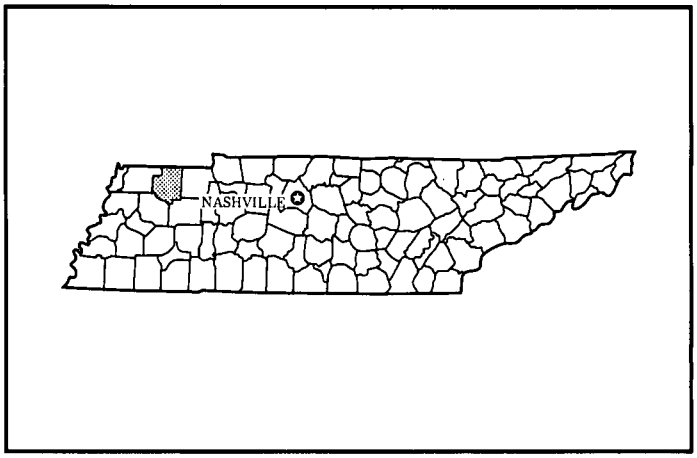


Figure 1.—Location of Weakley County in Tennessee.

General Nature of the County

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

History

Weakley County was established by the state legislature in 1823. It was named for Colonel Robert Weakley, Speaker of the Tennessee Senate. Dresden was selected as the county seat, mainly because of its central location. Several small rural hamlets were settled about the same time. The towns of Martin, Greenfield, Sharon, and Gleason grew as trade and manufacturing centers along two railroads. The early settlers reported plentiful game, including deer, elk, bear, panther, wolves, and beaver. Cotton, tobacco, corn, and sweet potatoes were the leading cash crops for many years. The Nancy Hall sweet potato was developed near Gardner.

Natural Resources and Industry

The main natural resources in Weakley County are soils, streams, forests, animals, mineral deposits, and possible fossil fuel deposits. The county has been mainly an agricultural area from its beginnings. The production of cotton and tobacco has been replaced by the production of corn, soybeans, wheat, swine, and beef cattle. Dairying, hardwood timber, sweet potatoes, and sweet potato plants also are important to the local economy. The extraction of clay is the principal mining enterprise in Weakley County. The county is a major producer of ball clay, which is used in oil well drilling and in manufacturing ceramics, brick, paper, and kitty litter. The county has some lignite deposits, and seismic surveys have been made to search for potential oil and natural gas reserves.

Local industry includes enterprises engaged in manufacturing fluorescent lights, clothing, lawn and garden machinery, metal fasteners, machine tools and dies, gears, and wooden boxes; in printing books; and in processing frozen food.

Physiography, Geology, Relief, and Drainage

Weakley County is entirely on the West Tennessee Plain, which is part of the Southern Mississippi Valley Silty Uplands. Nearly level to sloping ridgetops dissected by a young, dendritic drainage system characterize the uplands. Side slopes in the uplands are winding, sloping to steep, and generally narrow from top to bottom. Broad, nearly level bottom land is along the larger streams.

The geology of the county has not been mapped in detail. The soils in the uplands formed mainly in deposits of loess ranging from about 5 to about 20 feet in thickness. These deposits generally become thinner to the east and as slope increases in a given locality. The soils in the steeper areas, particularly in the eastern half of the county, formed mainly in thin layers of loess and in the underlying loamy Coastal Plain sediments. Erosion has removed the loess cap in many of these areas. Locally important deposits of clayey Coastal Plain sediments are near Gleason and Dresden. In most places the clayey deposits are at a depth of 20 feet or more. The loess is of Quaternary age, and the Coastal Plain sediments were deposited during the Tertiary age. The flood plains along the streams are of Quaternary age.

The county is drained almost entirely by the North, Middle, and South Forks of the Obion River and their tributaries.

The highest elevation in the county is 578 feet above sea level. It is about 2.5 miles east of Austin Springs, near the northeast corner of the county. The lowest elevation is about 290 feet. It is in an area on the flood plain along the South Fork of the Obion River near the Obion County line.

Transportation Facilities

Weakley County has a complete network of roads. The major routes are U.S. Highway 45E and Tennessee State Highways 22, 54, 89, and 118. Other blacktop roads and gravel roads connect nearly every square mile of the county.

The main line of the Illinois Central Gulf Railroad runs parallel to U.S. Highway 45E. The Louisville and Nashville Railroad recently abandoned a line from Union City to Dresden, but a line southeast of Dresden and a short line to the industrial park east of Martin remain in use.

Climate

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

Weakley County has long, hot summers and rather cool winters. An occasional cold wave brings near-freezing or subfreezing temperatures 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 Martin in the period 1951 to 1980. 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 29 degrees. The lowest temperature on record, which occurred at Martin on January 12, 1977, is -14 degrees. In summer, the average temperature is 78 degrees and the average daily maximum temperature is 90 degrees. The highest recorded temperature, which occurred at Martin on June 30, 1952, 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 52 inches. Of

this, about 26 inches, or 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 9.20 inches at Martin on April 28, 1970. Thunderstorms occur on about 53 days each year.

The average seasonal snowfall is about 6 inches. The greatest snow depth at any one time during the period of record was 12 inches. On an average of 3 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.

Severe local storms, including tornadoes, can occasionally strike in or near the county. They are of short duration and cause damage in scattered small areas.

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; and the kinds of crops and native plants growing on the soils. 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 is generally 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, the landforms, relief, climate, and the 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 several 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.

The soil names and boundaries on the general soil map of this county do not always match those on the maps of adjacent counties. Differences result from variations in soil patterns and map scales and recent advances in soil classification.

Soil Descriptions

1. Loring-Grenada-Collins

Nearly level to moderately steep, moderately well drained soils; on uplands and narrow flood plains

This map unit consists of soils on ridgetops, side slopes, and flood plains. The stream tributary patterns are generally complete, dendritic systems. Winding ridgetops are in the higher areas of the Loring soils, and somewhat smoother and broader ridgetops are in the lower areas of the Grenada soils. The Collins soils are on narrow flood plains. Slopes are mainly 2 to 8 percent but in places are as much as 20 percent.

This map unit makes up about 40 percent of the county. It is about 45 percent Loring soils, 15 percent Grenada soils, 15 percent Collins soils, and 25 percent minor soils, including Memphis, Lexington, Smithdale, and Calloway soils.

The deep, silty Loring soils are mainly on the somewhat narrower tops of the higher ridges and on hillsides. They have a fragipan. They formed in thick deposits of loess. Slopes are 2 to 20 percent.

The deep, silty Grenada soils are on the tops of the lower ridges and on side slopes. They have a fragipan. They formed in thick deposits of loess. Slopes are 2 to 8 percent.

The deep, silty Collins soils are on narrow flood plains along tributary streams that dissect the uplands. They are occasionally flooded.

Most of the acreage in this map unit is used as cropland. Some areas are used for some hay and pasture (fig. 2). Soybeans and corn are the principal crops. If row crops are grown without proper conservation tillage systems, the steeper areas have the highest erosion rates in the county.

The nearly level bottom land is highly productive cropland. The soils on gently sloping ridgetops are suited to cultivated crops if erosion is controlled. The slope and the hazard of erosion are the main problems in the steeper areas on uplands. In some areas a permanent cover of plants, such as pasture plants and hay, is needed because erosion has lowered the available water capacity of the soils. The soils in other sloping areas are fairly productive and can be safely cropped if conservation tillage systems are used to control erosion. Suitable sites for farm ponds are common, and properly constructed ponds generally hold water well.

The soils in this map unit are well suited to trees. Most climatically adapted hardwoods grow well. Loblolly pine can help to control gully and sheet erosion in the steeper, more severely eroded areas. The soils are seasonally wet, so logging is restricted to summer and fall.

Some areas of this map unit are moderately suited to building site development and roads. Careful design and proper construction procedures are needed. The

Figure 2.—Grass-legume hay in an area of Grenada and Loring soils in the Loring-Grenada-Collins general soil map unit.

soils on flood plains are not suited to building site development. Low strength is a limitation on sites for local roads and streets. Slow permeability and seasonal wetness are severe limitations on sites for septic tank absorption fields.

2. Waverly-Falaya-Rosebloom

Nearly level, poorly drained and somewhat poorly drained soils; on flood plains

This map unit consists of soils on the broader, wetter flood plains along the North, Middle, and South Forks of the Obion River and their tributaries. Most areas are flooded nearly every winter and spring. Slopes are 0 to 2 percent.

This map unit makes up about 16 percent of the county. It is about 30 percent Waverly soils, 30 percent Falaya soils, 20 percent Rosebloom soils, and 20 percent minor soils, including Routon and Collins soils.

The poorly drained, deep, silty Waverly and Rosebloom soils are on the lowest parts of the large areas of bottom land. They are flooded nearly every winter and spring. Some areas of the Rosebloom soils are ponded most of the time.

The somewhat poorly drained, deep, silty Falaya soils are on the somewhat higher parts of the major flood plains. They receive thin layers of sediments when nearby streams and ditches overflow.

Most of the acreage of the Waverly soils and nearly all of the acreage of the Rosebloom soils remain wooded. Several large fields have been cleared and partly drained by systems of ditches and levees. Most of the drained areas are used for soybeans when wetness does not prevent planting. Harvesting is often difficult or impossible because of the wetness.

In most areas the Falaya soils are used for soybeans, grain sorghum, or corn. They are fairly well suited to these crops but are less well suited to alfalfa and other crops that are sensitive to wetness. If the soils are well managed, good yields of soybeans, grain sorghum, and corn can be obtained in most years. Drainage ditches have been installed to minimize the

crop damage caused by occasional flooding during the growing season.

The soils in this map unit are suitable for trees. Most climatically adapted bottom land hardwoods grow well in areas that are not ponded for several months of the year. The ponded areas are dominated by baldcypress and water tupelo and by wetland shrubs and sedges. Logging is restricted to dry periods during summer and fall. This map unit provides important food and habitat for wildlife.

This map unit is poorly suited to buildings, roads, and sanitary facilities because of flooding, wetness, and low strength.

3. Loring-Smithdale-Memphis

Gently sloping to steep, moderately well drained and well drained soils; on dissected uplands

This map unit consists of soils on gently sloping ridgetops and steep and moderately steep hillsides. The landscape is dissected by a dendritic drainage pattern. The Loring and Smithdale soils are on side slopes, and the Loring and Memphis soils are on ridgetops. Slopes mainly are 2 to 35 percent but in a few places are as much as 45 percent.

This map unit makes up about 33 percent of the county. It is about 45 percent Loring soils, 10 percent Smithdale soils, 10 percent Memphis soils, and 35 percent minor soils, including Lexington, Grenada, and Collins soils.

The moderately well drained, deep, silty Loring soils are mainly on the narrow tops of high ridges and on hillsides. They have a fragipan. They formed in thick deposits of loess. Slopes are 2 to 20 percent.

The well drained, deep, loamy Smithdale soils are on steep hillsides. They formed in thick beds of Coastal Plain sediments. Slopes are 15 to 45 percent.

The well drained, deep, silty Memphis soils are on the higher, convex ridgetops. They formed in thick beds of loess. Slopes are 2 to 8 percent.

Most of the acreage in this map unit is used for small general farms. The soils on ridgetops and narrow flood plains are used as cropland, and the soils on the steeper hillsides are used for hardwoods, pasture, or hay (fig. 3). Soybeans and corn are the principal crops. If row crops are grown without proper conservation tillage systems, the steeper areas have some of the highest erosion rates in the county.

The soils on gently sloping and sloping ridgetops are generally well suited to cultivated crops if measures that

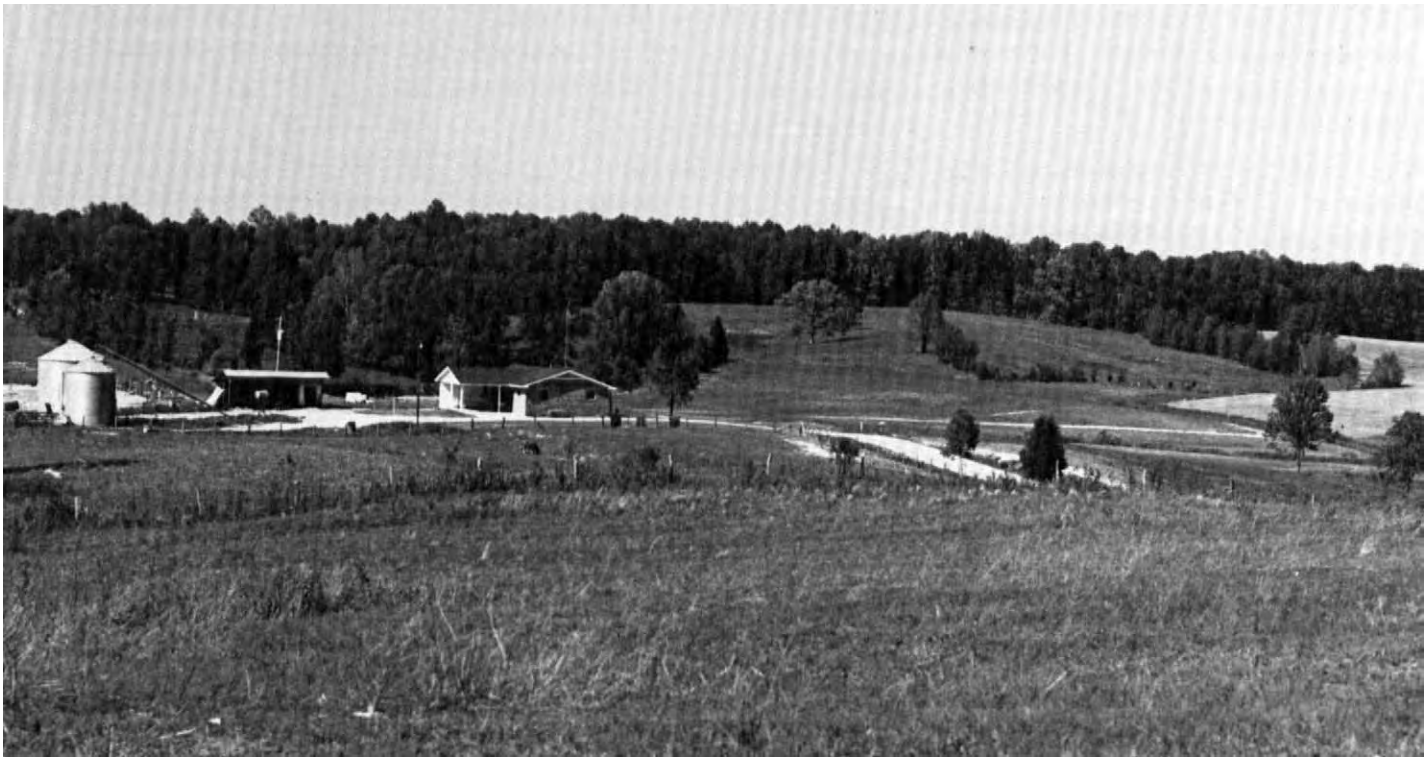


Figure 3.—A strongly sloping area of the Loring-Smithdale-Memphis general soil map used for hay and pasture.

prevent excessive erosion are applied. The soils on strongly sloping to steep side slopes are not so well suited to cultivated crops because of a higher runoff rate, a very severe hazard of erosion, and low productivity.

The soils in this map unit are well suited to trees. Most hardwoods grow well. Pine trees help to stabilize active gullies.

Selected areas of this map unit are fair or good sites for houses, roads, and septic tank absorption fields. The soils on the steeper hillsides are poorly suited to these uses because of the slope, the hazard of erosion, low strength, and slow permeability.

4. Routon-Grenada-Calloway

Nearly level to sloping, poorly drained to moderately well drained soils; on loess-covered stream terraces and low uplands

The soils in this map unit are on terraces slightly above the present flood plains and in some areas are on low uplands. A few areas are subject to rare flooding. Slopes are 0 to 8 percent.

This map unit makes up about 11 percent of the county. It is about 40 percent Routon soils, 25 percent Grenada soils, 20 percent Calloway soils, and 15 percent minor soils, including Falaya and Center soils.

The poorly drained Routon soils are on the lower, flatter parts of the stream terraces and on low flats in the uplands. The moderately well drained Grenada soils are in gently sloping and sloping areas on the somewhat higher uplands. The somewhat poorly drained Calloway soils are in saddles and at the head of drainageways.

In most areas the soils in this map unit are used for cultivated crops, mainly soybeans. Corn and grain sorghum are grown in some of the higher areas. These soils are fairly well suited to cultivated crops. If good management is applied, fairly good yields of soybeans and grain sorghum can be obtained. The soils are not so well suited to crops that are sensitive to wetness, such as alfalfa. Surface drainage can be improved in some areas by shallow ditches or land smoothing.

The soils in this map unit are well suited to trees. Most bottom land hardwoods grow well. Because of seasonal wetness, logging is restricted to summer or fall.

This map unit is poorly suited to buildings, roads, and onsite sewage disposal systems because of wetness, slow permeability, and low strength.

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, Loring silt loam, 2 to 5 percent slopes, eroded, is a phase of the Loring 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. Smithdale-Loring complex, 15 to 35 percent slopes, eroded, 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. Waverly and Rosebloom 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.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown 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.

Soil Descriptions

Ca—Calloway silt loam. This deep, nearly level and gently sloping, somewhat poorly drained soil is on flats and in depressions on broad, smooth uplands. It has a slowly permeable fragipan in the subsoil. Individual areas are about 5 to 60 acres in size. Slopes range from 1 to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 7 inches; brown silt loam

Subsoil:
7 to 17 inches; yellowish brown silt loam
17 to 22 inches; light brownish gray silt loam that has brown mottles

22 to 30 inches; a firm, brittle fragipan of brown silt loam that has vertical streaks of light brownish gray silt
30 to 66 inches; a firm, brittle fragipan of silt loam that is mottled in shades of brown and gray and has vertical streaks of grayish silt

Included with this soil in mapping are some small areas of Grenada soils in the somewhat higher landscape positions, a few areas of Center soils in landscape positions similar to those of the Calloway soil, and a few spots of the poorly drained Routon soils on the slightly lower flats and in depressions.

Important soil properties—

Permeability: Moderate above the fragipan and slow in the fragipan
Available water capacity: High
Natural fertility: Low
Reaction: Medium acid to very strongly acid in the upper part of the profile and medium acid or strongly acid in the lower part
Flooding: None
Erosion hazard: Moderate
Water table: Seasonally perched above the fragipan
Root zone: Restricted mainly to the upper 2 feet above the fragipan

Most of the acreage is used as cropland. Some areas are used for pasture and hay.

This soil is moderately suited to water-tolerant summer annuals, such as soybeans and grain sorghum. In some areas a surface drainage system is needed to remove shallow standing water. The wetness often delays the planting of row crops until late in spring. The soil is often excessively dry late in summer. As a result, crop yields, particularly of corn, are reduced. Small grain is subject to the damage caused by frost heave during some winters but produces moderate yields in most years. Conservation tillage can prevent excessive erosion and conserves moisture that can be used by crops during dry periods. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to some climatically adapted hay and pasture plants, such as tall fescue and white clover. It is poorly suited to alfalfa and other deep-rooted plants that are sensitive to wetness because the stands thin out after the first or second year. Because of the perched water table, the soil is too soggy and too soft for grazing for several weeks during the winter and early in spring. Yields are moderate or low in dry years because of the limited depth available for water storage and root development.

This soil is well suited to some trees, such as cherrybark oak, sweetgum, and water oak. Loblolly pine also grows well. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is poorly suited to most urban uses. The seasonal wetness, the slow permeability, and low strength are limitations. They can be minimized or overcome through careful design and proper construction procedures. The soil has severe limitations as a site for septic tank absorption fields because of the slow permeability and the perched seasonal high water table. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IIe.

Ce—Center silt loam. This deep, nearly level and gently sloping, somewhat poorly drained soil is in broad, smooth areas on loess-covered terraces and low uplands. Individual areas are 5 to 50 acres in size. Slopes are dominantly 1 to 2 percent but range to 3 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 7 inches; brown silt loam

Subsoil:
7 to 17 inches; yellowish brown silt loam
17 to 30 inches; light yellowish brown silty clay loam that has mottles in shades of brown and gray
30 to 45 inches; mottled brown and gray silt loam

Substratum:
45 to 60 inches; mottled brown and gray silt loam

Included with this soil in mapping are a few small, slightly convex areas of Grenada soils at the somewhat higher elevations. Also included are several areas of Routon soils in saddles and depressions and around drainageways.

Important soil properties—

Permeability: Moderately slow
Available water capacity: High
Natural fertility: Low

Reaction: Strongly acid to slightly acid to a depth of about 45 inches and medium acid to neutral below that depth
Flooding: None
Erosion hazard: Slight
Water table: At a depth of 1.0 to 2.5 feet in winter and early in spring
Root zone: Deep, but restricted by the water table late in winter and early in spring

Most areas are used for crops, mainly soybeans and corn. Some areas are used for wheat, and a few areas are used for pasture and hay.

This soil is well suited to row crops. Summer annual crops usually can be grown despite the seasonal wetness. They cannot be grown, however, in a few years when the wetness delays tillage and planting after periods of heavy rainfall. High yields can be obtained in most years if good management is applied. Erosion can be easily controlled by a suitable conservation tillage system.

This soil is well suited to some climatically adapted hay and pasture plants, such as tall fescue and white clover. It is poorly suited to deep-rooted plants that are sensitive to wetness because the stands thin out after the first or second year. Because of the perched water table, the soil is too soggy and too soft for grazing for several weeks during the winter and early in spring.

This soil is well suited to hardwoods, including yellow poplar, eastern cottonwood, cherrybark oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

Because of the seasonal wetness and the moderately slow permeability, this soil is poorly suited to most urban uses. It has severe limitations as a site for septic tank absorption fields because of the moderately slow permeability and the perched high water table. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IIw.

Cn—Collins silt loam, rarely flooded. This deep, nearly level, moderately well drained soil is on flood plains along Cypress, Thompson, and Mud Creeks. It is protected from flooding after most storms by upstream watershed structures. Individual areas are 10 to about 100 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 8 inches; dark yellowish brown silt loam

Substratum:
8 to 21 inches; dark yellowish brown silt loam that has brownish and grayish mottles
21 to 32 inches; mottled dark yellowish brown and light brownish gray silt loam
32 to 70 inches; light brownish gray silt loam that has brownish mottles

Included with this soil in mapping are a few small areas of the somewhat poorly drained Falaya soils. Also included, along stream channels, are a few narrow bands of the well drained Ochlockonee soils and a well drained, silty soil that is similar to the Collins soil.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Moderate
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Rare, for brief periods after rains of unusual intensity or duration
Water table: At a depth of 2 to 3 feet in winter and early in spring
Root zone: Deep in summer, but restricted by the water table in winter and early in spring

Most of the acreage is used for soybeans or corn. Some areas are used for hay and pasture.

This soil is well suited to most of the crops commonly grown in the county. Small grain can be grown successfully in most years. Alfalfa can be damaged by the seasonal high water table and by the rare flooding. Applications of fertilizer and lime are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to bottom land hardwoods, including green ash, yellow poplar, eastern cottonwood, cherrybark oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the

soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

Because of the susceptibility to flooding and the seasonal wetness, this soil is poorly suited to most urban uses. It is not suited to dwellings because of the flooding.

The capability class is I.

Co—Collins silt loam, occasionally flooded. This deep, nearly level, moderately well drained soil is on flood plains and along narrow drainageways. Individual areas are in long, narrow strips about 10 to 200 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 8 inches; dark yellowish brown silt loam

Substratum:
8 to 21 inches; dark yellowish brown silt loam that has brownish and grayish mottles
21 to 32 inches; mottled dark yellowish brown and light brownish gray silt loam
32 to 70 inches; light brownish gray silt loam that has mottles in shades of brown

Included with this soil in mapping are a few small areas of a well drained soil that is similar to the Collins soil. This included soil is along streambanks. Also included are some areas of soils that are similar to the Collins soil but are medium acid or slightly acid in one or more subsurface layers, a few narrow strips of the somewhat poorly drained Falaya soils in the slightly lower landscape positions, and a few small areas of the well drained Ochlockonee soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Moderate
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Occasional, for brief periods usually in winter or early in spring
Water table: At a depth of 2 to 3 feet in winter and early in spring
Root zone: Deep in summer, but restricted by the water table in winter and early in spring

Most of the acreage is used for soybeans, grain sorghum, or corn. Some areas are used for hay and pasture.

This soil is well suited to most of the crops commonly grown in the county. Small grain and alfalfa can be damaged by the occasional flooding. Also, alfalfa can be damaged by the seasonal high water table. Applications of fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to bottom land hardwoods, including green ash, yellow poplar, eastern cottonwood, cherrybark oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

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

The capability subclass is IIw.

Fa—Falaya silt loam, rarely flooded. This deep, nearly level, somewhat poorly drained soil is on flood plains along Cypress, Thompson, and Mud Creeks. It is protected from flooding after most storms by upstream watershed structures. Individual areas are 10 to about 100 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 8 inches; brown silt loam that has gray mottles

Substratum:
8 to 16 inches; brown silt loam that has gray mottles
16 to 21 inches; mottled gray and brown silt loam
21 to 62 inches; gray silt loam that has brownish mottles

Included with this soil in mapping are a few small areas of the moderately well drained Collins soils and a few areas of the poorly drained Waverly and Rosebloom soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Medium
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been added recently to the surface layer
Flooding: Rare, for brief periods after rains of unusual intensity or duration

Water table: At a depth of 1 to 2 feet in winter and early in spring
Root zone: Deep in summer, but restricted by the water table in winter and early in spring

Most of the acreage is used for soybeans, grain sorghum, or corn. Some areas are used for hay and pasture.

This soil is well suited to most of the crops commonly grown in the county and to water-tolerant grasses, such as tall fescue. High yields can be obtained if good management is applied. Water-sensitive crops, such as alfalfa, are less likely to survive than other crops. Preparation of a seedbed and planting are sometimes delayed by wetness. Moderate yields of small grain are produced on some fields, but the wetness can damage the small grain during some winters. Small ditches or land smoothing can help to remove standing water on some fields. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to some trees, such as cherrybark oak, eastern cottonwood, Nuttall oak, water oak, yellow poplar, green ash, sweetgum, and American sycamore. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

Because of the susceptibility to flooding and the seasonal high water table, this soil is poorly suited to most urban uses. It is not suited to dwellings because of the flooding and the seasonal wetness.

The capability subclass is IIw.

Fb—Falaya silt loam, occasionally flooded. This deep, nearly level, somewhat poorly drained soil is on flood plains. Individual areas are 10 to 200 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 8 inches; brown silt loam that has gray mottles

Substratum:
8 to 16 inches; brown silt loam that has gray mottles
16 to 21 inches; mottled gray and brown silt loam
21 to 62 inches; gray silt loam that has brownish mottles

Included with this soil in mapping are a few small areas of the poorly drained Waverly and Routon soils and a few small areas of the moderately well drained Collins and well drained Ochlockonee soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Medium
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Occasional, usually for several days at a time in winter and spring
Water table: At a depth of 1 to 2 feet in winter and early in spring
Root zone: Deep in summer, but restricted by the water table in winter and spring

Most areas are used as cropland. The main crop is soybeans. Some areas are used for corn, pasture, or hay. A few areas support hardwoods.

This soil is well suited to summer annual crops, such as soybeans, corn, and grain sorghum, and to water-tolerant grasses, such as tall fescue. It produces high yields of suitable crops if good management is applied. Water-sensitive crops, such as alfalfa, are less likely to survive than other crops. Preparation of a seedbed and planting are sometimes delayed by wetness. Flooding during the growing season occasionally damages or destroys some crops. Moderate yields of small grain are produced on some fields that are protected from flooding. Small ditches or land smoothing can help to remove standing water on some fields. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to some trees, such as cherrybark oak, eastern cottonwood, Nuttall oak, water oak, yellow poplar, green ash, sweetgum, and American sycamore. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

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

The capability subclass is IIw.

GrB2—Grenada silt loam, 2 to 5 percent slopes, eroded. This deep, moderately well drained, gently sloping soil is on ridgetops and on some side slopes. It has a dense, slowly permeable fragipan below a depth of about 28 inches. Individual areas range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; dark yellowish brown silt loam

Subsoil:
6 to 24 inches; yellowish brown silt loam that has grayish mottles in the lower part
24 to 28 inches; light gray silt loam
28 to 37 inches; a firm, brittle fragipan of mottled brownish and grayish silt loam
37 to 65 inches; a firm, brittle fragipan of brown silt loam that has very pale brown mottles and streaks of gray silt

In most areas erosion has removed most of the original surface layer, in many small areas it has removed all of the original surface layer, and in a few small areas the soil is less eroded. These areas are so intermingled that they could not be separated in mapping or managed separately. Some areas have a few shallow gullies.

Included with this soil in mapping are several small areas of the somewhat poorly drained Calloway soils in slight depressions and on foot slopes. Also included are a few small, slightly convex areas of Loring soils on the somewhat higher parts of the uplands.

Important soil properties—

Permeability: Moderate above the fragipan and slow in the fragipan
Available water capacity: Moderate or high, depending on depth to the fragipan
Natural fertility: Low
Reaction: Medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Moderate
Water table: Seasonally perched above the fragipan; water moves laterally in the grayish layer above the fragipan and seeps out near foot slopes as "wet weather springs"
Root zone: Restricted mainly to the upper 2 feet above the fragipan

Most areas are used for crops. Soybeans and corn are the major crops. Some areas are used for wheat, hay, or pasture.

This soil is well suited to row crops and small grain if good management is applied. The limited root zone, the available water capacity, and the hazard of erosion are the main management concerns. Roots are restricted to the part of the profile above the fragipan and the grayish seams of silt in the fragipan. Plants respond well to applications of fertilizer and lime, but the amount of available water limits yields in most summers. The hazard of erosion can be reduced by crop rotations and conservation tillage systems designed for the specific field and cropping plan.

This soil is well suited to some hay and pasture plants, such as tall fescue and white clover, which do not require a deep root zone and can withstand short periods of wetness. It is poorly suited to alfalfa and other deep-rooted plants that are sensitive to wetness because the stands thin out after the first or second year. Because of the perched water table, the soil is too soggy and too soft for grazing for several days at a time in winter and early in spring. Yields are moderate or low in dry years because of the limited available water capacity.

This soil is well suited to trees, including cherrybark oak, Shumard oak, southern red oak, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

If a central sewage system is available, this soil is moderately suited to most urban uses. It has severe limitations as a site for septic tank absorption fields because of the slow permeability in the fragipan and the perched seasonal high water table. Low strength is a severe limitation on sites for local roads and streets. The seasonal wetness is a moderate limitation on sites for dwellings without basements and for lawns.

The capability subclass is IIe.

GrC3—Grenada silt loam, 5 to 8 percent slopes, severely eroded. This deep, moderately well drained, sloping soil is on hillsides. It has a dense, slowly

permeable fragipan at a depth of about 18 inches. Individual areas range from 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; yellowish brown silt loam

Subsoil:
6 to 14 inches; yellowish brown silt loam
14 to 18 inches; light gray silt loam
18 to 60 inches; a compact, brittle fragipan of mottled yellowish brown and gray silt loam that has vertical seams of gray silt extending down from the layer above

Erosion has removed all of the original surface layer and part of the subsoil in most areas. In numerous small areas it has removed almost all of the subsoil above the fragipan. In other small areas the soil is less eroded. These areas are so intermingled that they could not be separated in mapping or managed separately. Shallow gullies and a few deep gullies have formed in some areas. Many small gullies are filled in before seedbed preparation each spring but form again by the following spring.

Included with this soil in mapping are a few small, slightly convex areas of Loring soils and several small areas of the somewhat poorly drained Calloway soils at the head of drainageways. Also included are narrow strips of Collins soils in a few drainageways.

Important soil properties—

Permeability: Moderate above the fragipan and slow in the fragipan
Available water capacity: Moderate
Natural fertility: Low
Reaction: Medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: Seasonally perched above the fragipan; water moves laterally in the grayish layer above the fragipan and seeps out near foot slopes as "wet weather springs"
Root zone: Restricted mainly to the upper 18 inches above the fragipan

Most areas are used for pasture (fig. 4), hay, or cropland. Soybeans and grain sorghum are grown in some areas. Some of the acreage is idle land.

This soil is only moderately suited to row crops and small grain because of the effects of past erosion and the hazard of further erosion. The limited root zone, the available water capacity, and the hazard of erosion are the main management concerns. Roots are restricted to the part of the profile above the fragipan and the grayish silt seams in the fragipan. Plants respond well to applications of fertilizer and lime, but the amount of available water limits yields in most summers. A permanent plant cover is the most effective means of controlling further erosion. Erosion can be controlled by including sod crops in a rotation with row crops. A conservation tillage system that includes contour farming, sod planting, and stubble mulching also help to control erosion. Conservation tillage also increases the rate of water infiltration and thus the amount of water available to the crop.

This soil is well suited to pasture and hay plants, such as tall fescue, ladino clover, sericea lespedeza, and bermudagrass. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests. Conservation tillage systems can be used in reseeding and in renovating the older stands.

This soil is well suited to trees, including cherrybark oak, Shumard oak, southern red oak, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

If a central sewage system is available, this soil is moderately suited to most urban uses. It has severe limitations as a site for septic tank absorption fields because of the slow permeability in the fragipan and the perched seasonal high water table. Low strength is a severe limitation on sites for local roads and streets. The seasonal wetness is a moderate limitation on sites for dwellings without basements and for lawns.

The capability subclass is IVe.

LeB2—Lexington silt loam, 2 to 5 percent slopes, eroded. This deep, gently sloping, well drained soil is on the slightly convex tops of high ridges in the hilly uplands. Individual areas are 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

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

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 42 inches; dark yellowish brown and dark brown silt loam
42 to 56 inches; strong brown sandy clay loam
56 to 65 inches; strong brown sandy loam

Erosion has removed more than half of the original surface layer in most areas. In several areas the surface layer is entirely made up of former subsoil material. In a few small areas, the soil is somewhat less eroded. A few shallow gullies have formed in some areas.

Included with this soil in mapping are a few small areas of the moderately well drained Loring soils. These soils are in nearly level or concave areas on hilltops. Also included are Memphis soils in small areas where the depth to dominantly sandy material is more than 4 feet.

Important soil properties—

Permeability: Moderate in the upper part of the profile and moderately rapid in the lower part
Available water capacity: High
Natural fertility: Low
Reaction: Medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Moderate
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas are used for corn or soybeans. Some areas are used for wheat, hay, or pasture.

If good management is applied, this soil is highly productive and is well suited to all of the crops commonly grown in the county. Good yields of alfalfa can be obtained if lime and fertilizer are added and other needed management measures are applied. A

suitable conservation tillage system is needed to control further erosion. Sod planting, stubble planting, contour farming, stripcropping, and other measures can hold erosion to a tolerable level and help to maintain productivity. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to hay and pasture. All of the climatically adapted plants can be grown. Alfalfa, orchardgrass, and other high-quality forage plants respond well to management. If erosion is controlled, no significant limitations affect forage production.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, sweetgum, and loblolly pine. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is well suited to most urban uses. Low strength is a severe limitation on sites for local roads and streets. The moderate permeability is a limitation on sites for septic tank absorption fields. These limitations can be offset or overcome by careful design and proper construction procedures.

The capability subclass is IIe.

LeC3—Lexington silt loam, 5 to 8 percent slopes, severely eroded. This deep, sloping, well drained soil is on narrow ridgetops and side slopes in the hilly uplands. Individual areas are about 5 to 30 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; dark brown silt loam

Subsoil:
5 to 36 inches; dark brown silt loam
36 to 43 inches; dark brown clay loam
43 to 60 inches; reddish brown sandy clay loam and clay loam

Erosion has removed all of the original surface layer and part of the subsoil in most areas. In a few small areas, the soil is somewhat less eroded. Some areas have a few deep gullies. In some cultivated fields shallow gullies form during and after each cropping season. These generally are filled in with soil material before seedbed preparation the next spring, resulting in a shallower root zone and a poorer seedbed in the stripped area.

Included with this soil in mapping are a few small areas of the moderately well drained Loring soils in saddles or on small flats. Also included are a few small areas of Smithdale soils on the steeper slopes.

Important soil properties—

Permeability: Moderate in the upper part of the profile and moderately rapid in the lower part
Available water capacity: High
Natural fertility: Low
Reaction: Medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas are used for soybeans or corn. Some areas are used for pasture and hay.

This soil is moderately suited to row crops if a conservation tillage system is used to control erosion. Crops respond well to applications of fertilizer and lime. Good yields of all the commonly grown crops can be obtained if good management is applied. The hazard of erosion is the main management concern if row crops are grown. A protective plant cover, contour farming, stubble planting, and other conservation measures are needed to control further erosion.

This soil is well suited to pasture and hay. Tall fescue, white clover, alfalfa, and sericea lespedeza grow well if the pasture or hayland is well managed. Applications of lime and fertilizer are needed.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is well suited to most urban uses. The

moderate permeability is a limitation on sites for septic tank absorption fields. Low strength is a severe limitation on sites for local roads and streets. Careful design and proper construction procedures can minimize these limitations.

The capability subclass is IVe.

LeD3—Lexington silt loam, 8 to 12 percent slopes, severely eroded. This deep, well drained, strongly sloping soil is on narrow, winding side slopes in areas of moderately high relief. Individual areas are 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 36 inches; dark brown silt loam
36 to 43 inches; strong brown clay loam
43 to 60 inches; reddish brown sandy clay loam and sandy loam

Erosion has removed all of the original surface layer and part of the subsoil in most areas. In a few small areas, the soil is somewhat less eroded. Some areas have a few deep gullies. In some cultivated fields shallow gullies form during and after each cropping season. These generally are filled in with soil material before seedbed preparation the next spring, resulting in a shallower root zone and a poorer seedbed in the stripped area.

Included with this soil in mapping are a few small areas of the moderately well drained Loring soils. Also included are a few small areas of soils that have loamy or sandy material within a depth of 2 feet.

Important soil properties—

Permeability: Moderate in the upper part of the profile and moderately rapid below a depth of about 43 inches
Available water capacity: High
Natural fertility: Low
Reaction: Medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas are used for pasture and hay. Some areas are used as cropland, and some support second-growth hardwoods or planted stands of pine.

This soil is poorly suited to cultivated crops because of the slope and the hazard of further erosion. A permanent plant cover is needed to control erosion.

This soil is well suited to pasture and hay (fig. 5). Tall fescue, white clover, alfalfa, and sericea lespedeza grow well if the pasture or hayland is well managed. Applications of lime and fertilizer are needed.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is moderately suited to most urban uses. The slope and the moderate permeability are limitations on sites for septic tank absorption fields. Low strength is a severe limitation on sites for local roads and streets. Careful design and proper construction procedures can minimize these limitations.

The capability subclass is VIe.

LeE3—Lexington silt loam, 12 to 20 percent slopes, severely eroded. This deep, well drained, moderately steep soil is on narrow, winding side slopes on highly dissected uplands. Individual areas are 5 to 50 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; dark yellowish brown silt loam

Subsoil:
5 to 36 inches; dark brown silt loam
36 to 60 inches; reddish sandy clay loam and sandy loam

Erosion has removed all of the original surface layer and part of the subsoil in most areas. In a few small areas, the soil is somewhat less eroded. Large gullies have formed at intervals of 200 to 300 feet in some areas. Smaller gullies have formed at closer intervals in other areas.

Included with this soil in mapping are a few small areas of the loamy Smithdale soils and the moderately well drained Loring soils.

Figure 5.—A pastured area of Lexington silt loam, 8 to 12 percent slopes, severely eroded. This soil is well suited to pasture.

Important soil properties—

Permeability: Moderate in the upper part of the profile and moderately rapid below a depth of about 36 inches
Available water capacity: Moderate
Natural fertility: Low
Reaction: Medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas support hardwoods. A few areas are used for row crops or pasture, and a small acreage is idle land that is reverting to hardwoods.

This soil is poorly suited to cultivated crops because of the slope and the hazard of further erosion. A permanent plant cover is needed to control erosion.

This soil is well suited to pasture and hay. Tall fescue, white clover, bermudagrass, alfalfa, and sericea lespedeza grow well if the pasture or hayland is well managed. Applications of lime and fertilizer are needed.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is poorly suited to most urban uses. The slope is a severe limitation on sites for septic tank absorption fields. Low strength is a severe limitation on sites for local roads and streets. Careful design and proper construction procedures can minimize these limitations.

The capability subclass is VIe.

LoB2—Loring silt loam, 2 to 5 percent slopes, eroded. This deep, moderately well drained soil is on ridgetops in the hilly uplands. It has a dense fragipan in the lower part of the subsoil. Individual areas are about 10 to 100 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; brown silt loam

Subsoil:
6 to 29 inches; dark brown silt loam
29 to 65 inches; a dense fragipan of dark brown silt loam that has light brownish gray mottles

Erosion has removed most of the original plow layer in most areas. In a few small areas, the soil is somewhat less eroded.

Included with this soil in mapping are a few small areas of the well drained Memphis soils on the higher knolls and a few small areas of Grenada soils in saddles.

Important soil properties—

Permeability: Moderate in the upper part of the profile and slow in the fragipan
Available water capacity: High
Natural fertility: Low
Reaction: Very strongly acid to medium acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Moderate
Water table: Seasonally perched at a depth of 2 to 3 feet
Root zone: Moderately deep, but restricted mainly to the zone above the fragipan

Most areas are used for corn or soybeans. A few areas are used for wheat, hay, or pasture.

This soil is well suited to nearly all of the crops commonly grown in the county if a conservation tillage system is used to control further erosion. High yields can be obtained if good management is applied.

This soil is well suited to hay and pasture. Most of the climatically adapted forage plants grow well. Alfalfa and other moisture-sensitive perennial plants are somewhat less likely to survive than other plants. Applications of lime and fertilizer are needed.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, sweetgum, and loblolly pine. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is moderately suited to most urban uses. It has severe limitations as a site for septic tank absorption fields because of the seasonal wetness and the slow permeability. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IIe.

LoC3—Loring silt loam, 5 to 8 percent slopes, severely eroded. This deep, moderately well drained, sloping soil is on narrow ridgetops and on hillsides. It has a dense fragipan in the lower part of the subsoil. Individual areas are about 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 20 inches; dark brown silt loam
20 to 65 inches; a dense fragipan of dark brown silt loam that has grayish mottles and prism coatings

Erosion has removed the original surface layer and part of the subsoil in most areas. In a few small areas, the soil is not so severely eroded. Small gullies form in some cultivated areas during and after the cropping season. These are filled in with soil material from nearby areas before seedbed preparation in the spring. A few large gullies have formed in some areas.

Included with this soil in mapping are a few small areas of Grenada soils near drainageways. Also included are a few areas of soils that have loamy or sandy material below a depth of about 44 inches.

Important soil properties—

Permeability: Moderate in the upper part of the profile and slow in the fragipan

Available water capacity: Moderate
Natural fertility: Low
Reaction: Very strongly acid to medium acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: Seasonally perched in and above the upper part of the fragipan
Root zone: Restricted mainly to the zone above the fragipan

Most areas are used for soybeans or corn. Some areas are used for wheat, pasture, or hay.

This soil is only moderately suited to row crops because of the hazard of further erosion, the limited root zone, and the limited amount of available water. If conservation tillage systems prevent excessive erosion and maximize water infiltration, fair yields of soybeans, grain sorghum, and other hardy summer annual crops can be obtained. Yields of corn and other crops that require large amounts of water are often limited because of droughtiness late in summer.

This soil is well suited to pasture and hay plants, such as tall fescue, white clover, and sericea lespedeza. Most of the climatically adapted forage plants grow well. Stands of deep-rooted, moisture-sensitive plants, such as alfalfa, tend to thin out after about the first year. A permanent plant cover is needed to control erosion. Applications of lime and fertilizer are needed.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is moderately suited to most urban uses if a central sewage system is available. The slow permeability and the seasonal wetness are severe limitations on sites for septic tank absorption fields. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IVe.

LoD3—Loring silt loam, 8 to 12 percent slopes, severely eroded. This strongly sloping, deep, moderately well drained soil is on hillsides. It has a fragipan in the lower part of the subsoil. Individual areas are about 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; dark brown silt loam

Subsoil:
5 to 17 inches; dark brown silt loam
17 to 65 inches; a dense fragipan of dark brown silt loam that has brownish and grayish mottles

Erosion has removed the original surface layer and part of the subsoil in most areas. In a few small areas, the soil is not so severely eroded. A few large gullies have formed in some areas. Some smaller gullies form annually in cultivated areas. These generally are filled in with soil material from the adjacent areas before seedbed preparation in spring.

Included with this soil in mapping are a few small areas of Grenada soils near drainageways. Also included are a few areas of soils that have sandy or loamy material below a depth of about 40 inches.

Important soil properties—

Permeability: Moderate in the upper part of the profile and slow in the fragipan
Available water capacity: Moderate
Natural fertility: Low
Reaction: Very strongly acid to medium acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: Seasonally perched in and above the upper part of the fragipan
Root zone: Restricted mainly to the zone above the fragipan

Most areas are used for row crops, hay, or pasture. A small acreage is idle land.

This soil is poorly suited to cultivated crops because of the slope, the severe hazard of erosion, and droughtiness. A permanent plant cover is needed to control erosion.

This soil is well suited to hardy pasture and hay plants, such as tall fescue, white clover, sericea lespedeza, and bermudagrass. The less hardy plants, such as orchardgrass and alfalfa, are less likely to survive than other plants. The soil produces fair or good stands of well managed perennial plants. Applications

of fertilizer and lime are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is moderately suited to most urban uses if a central sewage system is available. The slope, the severe hazard of erosion, and the seasonal wetness are limitations. They can be overcome by careful planning and proper construction procedures. Low strength is a severe limitation on sites for local roads and streets. The seasonal wetness and the slow permeability are severe limitations on sites for septic tank absorption fields.

The capability subclass is VIe.

LoE3—Loring silt loam, 12 to 20 percent slopes, severely eroded. This deep, moderately well drained, moderately steep soil is on hillsides. It has a dense fragipan in the lower part of the subsoil. Individual areas are about 5 to 75 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 17 inches; dark brown silt loam
17 to 65 inches; a dense fragipan of dark brown silt loam that has grayish mottles and prism coatings

Erosion has removed all of the original surface layer and part of the subsoil in most areas. A few shallow gullies have formed in most areas. In a few areas the soil is somewhat less eroded.

Included with this soil in mapping are a few small areas of the well drained Smithdale soils. Also included are a few areas of a soil that is similar to the Loring soil but has loamy or sandy material in the lower part of the fragipan, within a depth of about 40 inches.

Important soil properties—

Permeability: Moderate in the upper part of the profile and slow in the fragipan
Available water capacity: Moderate
Natural fertility: Low
Reaction: Very strongly acid to medium acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: Seasonally perched in and above the fragipan
Root zone: Restricted mainly to the zone above the fragipan

Most areas are used as pasture. Some areas are used for trees, and a few are used for hay or row crops.

This soil is poorly suited to row crops. Productivity is low because of the slope, the severe hazard of erosion, the fragipan, and droughtiness. A permanent plant cover is needed to control erosion.

This soil is moderately suited to pasture and hay. Fair yields can be obtained from well managed stands of adapted forage plants. Drought-resistant, hardy plants, such as tall fescue and sericea lespedeza, are more likely to survive than other plants. Alfalfa tends to thin out after a year or so.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is poorly suited to most urban uses because of the slope, the severe hazard of erosion, the slow permeability, and a high rate of runoff. Low strength is a severe limitation on sites for local roads and streets. The soil is poorly suited to septic tank absorption fields because of the seasonal wetness, the slow permeability, and the slope.

The capability subclass is VIIe.

MeB2—Memphis silt loam, 2 to 5 percent slopes, eroded. This deep, well drained, gently sloping soil is on the convex tops of high ridges and on hillsides. Individual areas are about 5 to 100 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 8 inches; brown silt loam

Subsoil:
8 to 50 inches; dark brown silt loam

Substratum:
50 to 65 inches; dark brown silt loam

Erosion has removed most of the original surface layer in most areas. In a few small areas, the soil is somewhat less eroded. In places the plow layer is made up entirely of former subsoil material.

Included with this soil in mapping are a few small areas of the moderately well drained Loring soils on flats and the slightly concave parts of ridgetops and a few areas of Lexington soils on narrow ridgetops.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Low
Reaction: Very strongly acid to medium acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Moderate
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas are used for row crops, mainly corn and soybeans. A few areas are used for pasture and hay.

This soil is well suited to all of the crops commonly grown in the county. It is highly erodible. A conservation tillage system is needed to control erosion. Contour farming, minimum tillage, stubble planting, and other conservation measures can be effective in increasing the rate of water infiltration and in controlling erosion. The soil is highly productive if good management is applied. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to pasture and hay. A permanent plant cover helps to keep erosion to a minimum. All of the locally grown forage plants, including alfalfa, grow well if the pasture or hayland is well managed. Grasses should be included in the seeding mixture because of the hazard of erosion. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to trees, including cherrybark oak, yellow poplar, black walnut, southern red oak, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is well suited to most urban uses. It is only moderately suited to septic tank absorption fields because of the restricted permeability. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IIe.

MeC2—Memphis silt loam, 5 to 8 percent slopes, eroded. This deep, well drained, sloping soil is on the convex tops of high ridges and on hillsides. Individual areas are about 5 to 40 acres in size.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; brown silt loam

Subsoil:
6 to 50 inches; dark brown silt loam

Substratum:
50 to 65 inches; dark brown silt loam

Erosion has removed most of the original surface layer in most areas. A few gullies have formed in some areas. In a few spots the soil is somewhat less eroded.

Included with this soil in mapping are a few small areas of the moderately well drained Loring soils on the slightly concave parts of ridgetops. Also included are a few small areas of Lexington soils on narrow ridgetops.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Low
Reaction: Very strongly acid to medium acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Moderate

Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas are used for row crops, mainly corn and soybeans. A few areas are used for pasture and hay.

This soil is well suited to all of the crops commonly grown in the county. It is highly erodible. A conservation tillage system is needed to control erosion. Contour farming, minimum tillage, stubble planting, and other conservation measures can be effective in increasing the rate of water infiltration and in controlling erosion. The soil is productive if good management is applied. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to pasture and hay. A permanent plant cover helps to keep erosion to a minimum. All of the locally grown forage plants, including alfalfa, grow well if the pasture or hayland is well managed. Grasses should be included in the seeding mixture because of the hazard of erosion. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to trees, including cherrybark oak, southern red oak, yellow poplar, loblolly pine, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is well suited to most urban uses. It is only moderately suited to septic tank absorption fields because of the moderate permeability. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IIIe.

Oc—Ochlockonee loam, rarely flooded. This deep, nearly level, well drained soil is on flood plains along Cypress, Thompson, and Mud Creeks. It is protected from flooding after most storms by upstream watershed structures. Individual areas are 20 to about 100 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; dark yellowish brown loam

Substratum:
6 to 33 inches; dark yellowish brown, stratified silt loam and loam
33 to 65 inches; dark yellowish brown fine sandy loam that has grayish strata of sand in the lower part

Included with this soil in mapping are a few small areas of the moderately well drained Collins soils and the somewhat poorly drained Falaya soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Medium
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Rare, for brief periods after major storms
Water table: Seasonally at a depth of 3 to 5 feet
Root zone: Deep

Most areas are used as cropland. The main crops are corn, soybeans, and wheat. Some areas are used for grain sorghum or hay.

This soil is well suited to all of the crops and forage plants commonly grown in the county. It is well suited to vegetables and other high-value crops in areas where the hazard of flooding is slight. The rare flooding damages small grain and alfalfa in some areas, although the water drains away rapidly after flooding. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to bottom land hardwoods, including green ash, yellow poplar, cherrybark oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition, seedling mortality, and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

Because of the susceptibility to flooding and the seasonal high water table, this soil is poorly suited to most urban uses. It is not suited to dwellings because of the flooding.

The capability class is I.

Oh—Ochlockonee loam, occasionally flooded. This deep, nearly level, well drained soil is on flood plains and alluvial fans. Individual areas are 5 to 70 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; dark yellowish brown loam

Substratum:
6 to 33 inches; dark yellowish brown, stratified silt loam and loam
33 to 65 inches; dark yellowish brown fine sandy loam that has grayish strata of sand in the lower part

Included with this soil in mapping are a few small areas of the moderately well drained Collins soils and the somewhat poorly drained Falaya soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Medium
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Occasional, for brief periods usually late in winter or early in spring
Water table: Seasonally at a depth of 3 to 5 feet
Root zone: Deep

Most areas are used as cropland. Corn, soybeans, wheat, and grain sorghum are the main crops. A few areas are used for pasture and hay.

This soil is well suited to all of the crops and forage plants commonly grown in the county. If protected from flooding, it is well suited to vegetables and other high-value crops. The occasional flooding damages small grain and alfalfa, although the water drains away rapidly after flooding. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to bottom land hardwoods, including green ash, yellow poplar, cherrybark oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

Because of the susceptibility to flooding and the seasonal high water table, this soil is not suited to most urban uses. It is not suited to dwellings because of the flooding.

The capability subclass is IIw.

RO—Rosebloom silt loam, ponded. This poorly drained soil is in the lowest areas on the larger flood plains. Individual areas are about 10 to 500 acres in size. Slopes are 0 to 1 percent. When this unit was mapped, it was not traversed so closely as most of the other units in the county because the ponding makes close traverses impractical.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 5 inches; grayish brown silt loam

Substratum:
5 to 62 inches; gray silt loam

Included with this soil in mapping are a few small areas of soils at the slightly higher elevations. These soils are not ponded for so long a period as the Rosebloom soil. They are mainly Waverly soils, but in a few areas they are the somewhat poorly drained Falaya soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Low
Reaction: Strongly acid or very strongly acid
Ponding and flooding: Ponded for several months each year and flooded each winter and spring
Water table: 1 to 2 feet above the surface for several months each year
Root zone: Shallow because of the high water table and a scarcity of oxygen

This soil is not suited to cultivated crops, pasture, or urban uses. It is well suited to wetland wildlife habitat.

Only water-tolerant trees, such as baldcypress, tupelo gum, water tupelo, and black willow, grow well on this soil. Bottom land hardwoods grow in a few of the highest areas, but most are dead or dying. Some shrubs, sedges, cattails, and waterlilies can grow in open areas. Logging activities are restricted to short periods late in summer and early in fall during the driest years.

The capability subclass is VIw.

Rt—Routon silt loam. This deep, nearly level, poorly drained soil is on stream terraces and in upland depressions. Individual areas are about 5 to 200 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 9 inches; brown silt loam

Subsurface layer:
9 to 18 inches; light brownish gray silt loam that has brownish mottles

Subsoil:
18 to 34 inches; light brownish gray silt loam that has brownish mottles
34 to 51 inches; light brownish gray silty clay loam that has brownish mottles

Substratum:
51 to 60 inches; mottled brownish and grayish silt loam

Included with this soil in mapping are a few small areas of the somewhat poorly drained Falaya and Center soils and a few small slick spots, which are areas where the soils have a high content of sodium. Also included are a few areas of soils that are adjacent to flood plains and are subject to rare flooding.

Important soil properties—

Permeability: Slow
Available water capacity: High
Natural fertility: Low
Reaction: Slightly acid to very strongly acid in the upper part of the profile and slightly acid to strongly acid in the lower part
Flooding: None
Water table: Seasonally at a depth of about 1 foot
Root zone: Deep in summer, but restricted by the water table in winter and spring

Most areas are used for soybeans. A few areas are used for pasture and hay.

If drained, this soil is well suited to short-season annual crops, such as soybeans and grain sorghum. It is moderately suited to corn. The seasonal wetness is the main limitation. Planting, cultivating, and harvesting are often delayed after periods of heavy rainfall. Surface drainage can be improved in some areas by open ditches or by land smoothing.

This soil is moderately suited to pasture and hay plants that can withstand excess soil moisture. Examples are tall fescue and white clover. Grazing periods are limited mainly to summer and fall because of the excessive wetness in winter and spring. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests.

This soil is well suited to water-tolerant hardwoods, including eastern cottonwood, water oak, willow oak, cherrybark oak, and sweetgum. The main limitations affecting timber management are plant competition, seedling mortality, and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained. The seasonal wetness increases the seedling mortality rate.

This soil is poorly suited to most urban uses, including septic tank absorption fields, because of the wetness and the slow permeability. Low strength is a severe limitation on sites for local roads and streets.

The capability subclass is IIIw.

SmF2—Smithdale-Loring complex, 15 to 35 percent slopes, eroded. These steep soils are on highly dissected side slopes, mainly in the eastern half of the county. The Smithdale soil is well drained and eroded. The Loring soil is moderately well drained and severely eroded. It has slopes of 20 percent or less and is commonly on ridgetops and in concave areas along drainageways. Individual areas are about 10 to 175 acres in size. They are about 50 to 75 percent Smithdale soil and 15 to 30 percent Loring soil. The two soils occur as areas so intricately mixed or so small that mapping them separately is not practical at the scale used.

The typical sequence, depth, and composition of the layers of the Smithdale soil are as follows—

Surface layer:
0 to 7 inches; brown and yellowish brown loam

Subsoil:
7 to 33 inches; red clay loam
33 to 60 inches; red sandy loam

The typical sequence, depth, and composition of the layers of the Loring soil are as follows—

Surface layer:
0 to 5 inches; brown silt loam

Subsoil:
5 to 20 inches; dark brown silt loam
20 to 51 inches; a dense, brittle fragipan of brown

silt loam that has grayish mottles and streaks of silt

In most areas erosion has removed much of the original surface layer. In some areas it also has removed part of the subsoil. In a few small areas, the soil is somewhat less eroded. Large gullies have formed at widely spaced intervals in some areas.

Included with these soils in mapping are a few small areas of Lexington soils. These included soils are in the less sloping areas. Also included are several areas of a soil that is similar to the Loring soil but has loamy or sandy material in the fragipan and areas of a Smithdale soil in which the surface layer has been influenced by loess and is more silty.

Important soil properties—

Permeability: Moderate in the upper part of the Smithdale soil and moderately rapid in the lower part; moderate in the upper part of the Loring soil and moderately slow in the fragipan
Available water capacity: Moderate or high
Natural fertility: Low
Reaction: Strongly acid or very strongly acid in the Smithdale soil and medium acid to very strongly acid in the Loring soil
Flooding: None
Erosion hazard: Severe
Water table: At a depth of more than 6 feet in the Smithdale soil and perched at a depth of 2 to 3 feet for brief periods in the Loring soil
Root zone: Deep in the Smithdale soil and restricted by the fragipan at a depth of about 20 inches in the Loring soil

Most areas are used as woodland. A few areas are used as pasture. Some areas that formerly were cleared and used as cropland or pasture were later abandoned and have reverted to woodland.

These soils are poorly suited to cultivated crops because of the slope, the severe hazard of erosion, and a rapid runoff rate. If crops are planted, the low fertility and a low content of soil moisture limit yields.

These soils generally are poorly suited to pasture and hay. In a few of the less sloping areas, however, they are moderately suited to pasture. Because of the slope, the use of farm machinery is difficult. A permanent plant cover is needed to control erosion. Hardy forage plants, such as tall fescue, sericea lespedeza, and bermudagrass, grow well if the pasture or hayland is well managed. The rapid runoff results in a soil moisture deficit late in summer during most years. This deficit weakens or kills stands of the less hardy plants. Applications of lime and fertilizer are needed. The kinds and amounts to be applied should be based on the results of soil tests. Controlled grazing is necessary to maintain the life of the stand.

These soils are well suited to trees. Suitable trees include loblolly pine and shortleaf pine on the Smithdale soil and cherrybark oak, southern red oak, and sweetgum on the Loring soil. The main limitations affecting timber management are plant competition and the susceptibility to compaction, rutting, and erosion. The use of heavy equipment when the soils are very moist or wet causes rutting and compaction. Puddling can occur when the soils are wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soils and help to maintain productivity. Erosion-control measures include maintaining a plant cover, constructing logging roads and trails on the contour, and avoiding the use of heavy equipment during wet periods. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained. Applications of fertilizer and lime can increase the growth rate and result in a better stand of seedlings.

These soils are poorly suited to most urban uses, including dwellings, septic tank absorption fields, and local roads and streets, because the slope is a severe limitation.

The capability subclass is VIIe.

SpF—Smithdale-Pikeville complex, 20 to 45 percent slopes. These steep and very steep, well drained soils are on side slopes in a highly dissected area north of Palmersville and east of Austin Springs, near the Kentucky State line. The Smithdale soil has slopes of 20 to 45 percent. The Pikeville soil has slopes of about 20 to 35 percent. It is on the upper parts of the side slopes. Individual areas are 25 to 200 acres in size. They are about 50 to 70 percent Smithdale soil and 20 to 25 percent Pikeville soil. The two soils occur as areas so intricately mixed or so small that mapping them separately is not practical at the scale used.

The typical sequence, depth, and composition of the layers of the Smithdale soil are as follows—

Surface layer:
0 to 7 inches; brown loam

Subsoil:
7 to 33 inches; red clay loam and sandy clay loam
33 to 60 inches; red sandy loam

The typical sequence, depth, and composition of the layers of the Pikeville soil are as follows—

Surface layer:
0 to 1 inch; very dark grayish brown sandy loam

Subsurface layer:
1 to 9 inches; yellowish brown sandy loam
Subsoil:
9 to 28 inches; strong brown gravelly sandy clay loam
28 to 45 inches; yellowish red gravelly sandy clay loam
45 to 60 inches; yellowish red sandy clay loam that has pockets of brown sandy loam

Included with these soils in mapping are a few small areas of the moderately well drained Loring soils on ridgetops. Also included are a few small areas of soils that are sandy throughout.

Important soil properties—

Permeability: Moderate in the upper part of the Smithdale soil and moderately rapid in the lower part; moderately rapid in the Pikeville soil
Available water capacity: Moderate
Natural fertility: Low
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: None
Erosion hazard: Severe
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas support hardwoods. A few small areas have been planted to loblolly pine. These soils are poorly suited to pasture and row crops because of the slope and the hazard of erosion. They are well suited to hardwoods and pine. The growth rate of most tree species is fair. The forest canopy and litter protects the soils from accelerated erosion. The main limitations affecting timber management are seedling mortality and the susceptibility to compaction, rutting, and erosion. The use of special logging equipment can help to control erosion and maintain productivity. Cutbanks are susceptible to massive landslides.

These soils are not suited to most urban uses, including dwellings, septic tank absorption fields, and local roads and streets, because the slope is a severe limitation. Road cuts can result in massive landslides.

The capability subclass is VIIe.

UPF—Udorthents-Pits complex, steep. This map unit consists of spoil mounds and mine pits in areas that formerly were strip-mined for clay. The clay was used as fuller's earth and in the manufacture of ceramics, brick, paper, and other products. Individual areas are 10 to about 150 acres in size. They are about 50 to 60 percent Udorthents and 30 to 40 percent Pits. The two components occur as areas so intricately mixed or so small that mapping them separately is not practical at the scale used. When this unit was mapped, it was not traversed so closely as most of the other units in the county.

Spoil mounds consist of overburden removed from areas of Loring and Grenada soils and mixed with clay, shale, and sandy clay cut from the Coastal Plain sediments beneath those former soil areas. The horizontal and vertical configuration of the mounds is irregular. Slopes are dominantly 15 to 35 percent. In most places the material is several feet thick. Reaction is typically very strongly acid. Permeability is slow, and available water capacity is low or moderate. Natural fertility and organic matter content are low. Fragments of ironstone are common on and near the surface.

The mine pits consist of straight-walled, craterlike depressions 20 to more than 50 feet deep. The banks are nearly vertical, exposed substrata made up of clayey and loamy Coastal Plain sediments. The pit floors are mainly dense, compact shaly clay strewn in places with debris from the overburden. Fragments of ironstone are common. Material from thin lignitic clay deposits was used temporarily as road material on pit ramps. Several pits have pools of water several feet deep. All of the pits are poorly suited to plants.

Included in this map unit are a few small areas of Loring and Grenada soils. These soils are mainly along irregular boundaries of the disturbed areas.

This map unit supports vegetation only in a few areas that have been reclaimed and revegetated. It is poorly suited to most agricultural uses. A plant cover can be established in some areas. Drought-resistant trees, such as loblolly pine, and drought-resistant grasses, such as weeping lovegrass and tall fescue, are commonly used for revegetation. Terracing, applications of lime and fertilizer, and mulch are needed.

This map unit is poorly suited to most urban uses. The slow permeability, differential settling, droughtiness, and the susceptibility to landslides are severe limitations affecting most of these uses.

This map unit is not assigned a capability subclass.

USF—Udorthents-Smithdale complex, gullied. These well drained, strongly sloping to steep soils are on side slopes. The Udorthents are deep, loamy Coastal Plain sediments exposed by gully erosion. They are on the sides and bottom of gullies. The gullies are about 10 to 50 feet wide and 5 to 15 feet deep. The smaller ones are V-shaped, and the larger ones have nearly vertical walls and a nearly level bottom. The Smithdale soil is on the remnants of the old land surface between the gullies. Slopes range from about 8 to 45 percent. Individual areas are 5 to 125 acres in size. They are about 50 to 70 percent Udorthents and

20 to 40 percent Smithdale soil. The two components occur as areas so intricately mixed or so small that mapping them separately is not practical at the scale used. When this unit was mapped, it was not traversed so closely as most of the other units in the county.

The profile of the Udorthents varies widely from one area to another. In most places these soils are reddish and yellowish sandy clay loam, sandy loam, and loamy sand to a depth of 60 inches or more. In places alluvium that varies in thickness, texture, and drainage has been deposited in the larger gullies.

The typical sequence, depth, and composition of the layers of the Smithdale soil are as follows—

Surface layer:
0 to 5 inches; brown loam

Subsoil:
5 to 60 inches; red clay loam and sandy clay loam in the upper part and red sandy loam in the lower part

Included with these soils in mapping are a few small areas of Lexington and Loring soils on narrow, projecting ridgetops.

Important properties of the Smithdale soil—

Permeability: Moderate
Available water capacity: Moderate
Natural fertility: Low
Reaction: Strongly acid or very strongly acid
Erosion hazard: Severe
Water table: At a depth of more than 6 feet
Root zone: Deep

Most areas formerly were cultivated but then were abandoned as the gullies spread out of control. Much of the acreage has naturally reforested with a sparse growth of mixed hardwoods. Some of the acreage is idle land. Many areas have been planted to loblolly pine. In these areas the trees are cut for pulpwood when the stand is thinned.

These soils are poorly suited to most uses other than trees and wildlife habitat. Reclamation involves major earthmoving and shaping, then revegetation. Hardy perennial plants, such as tall fescue, bermudagrass, and sericea lespedeza, can be established if an adequate seedbed is prepared, lime and fertilizer are applied, and mulch is used. The kinds and amounts of lime and fertilizer to be applied should be based on the results of soil tests. Less costly reclamation alternatives include planting pine trees on the existing irregular slopes and installing grade stabilization structures or gully plugs to prevent further damage to the bottom land downstream.

The capability subclass is VIIe.

Wa—Waverly silt loam, rarely flooded. This deep, nearly level, poorly drained soil is on low flood plains, mainly along Cypress, Thompson, and Mud Creeks. In a few areas it is in the slightly higher positions on other flood plains. Unless it is subject to unusually heavy storms, it is protected from flooding by upstream watershed structures. Individual areas are 5 to 100 acres in size. Slopes range from 0 to 2 percent.

The typical sequence, depth, and composition of the layers of this soil are as follows—

Surface layer:
0 to 6 inches; brown silt loam

Subsoil:
6 to 29 inches; gray silt loam that has brownish mottles

Substratum:
29 to 70 inches; gray silt loam

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

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Medium
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Rare, for a few days at a time after periods of unusually heavy rainfall
Water table: At a depth of 1 foot in winter and early in spring
Root zone: Deep in summer, but restricted by the water table in winter and spring

Most areas are used for soybeans or grain sorghum. A few areas are used as pasture, and a few are used as woodland.

This soil is moderately suited to cultivated crops. Because of wetness, preparing a seedbed, cultivating, and harvesting are difficult in some years. Fair yields of water-tolerant summer annual crops can be obtained in areas where surface drainage is sufficient, particularly in summers that have average or below average rainfall.

This soil is moderately suited to pasture. Grazing should be limited to summer and fall because of the wetness and rare flooding in winter and spring. Selection of forage plants is important because only water-tolerant plants are likely to survive. Frequently applied weed-control measures are needed.

This soil is well suited to bottom land hardwoods, including green ash, eastern cottonwood, water oak,

Figure 6.—An area of Waverly and Rosebloom silt loams, frequently flooded.

willow oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition, seedling mortality, and the susceptibility to compaction and rutting. The use of heavy equipment when the soil is very moist or wet causes rutting and compaction. Puddling can occur when the soil is wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soil and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

This soil is not suited to most urban uses, including building site development and septic tank absorption fields, because of the susceptibility to flooding and the seasonal high water table. Low strength and wetness are severe limitations on sites for local roads and streets.

The capability subclass is IIIw.

WR—Waverly and Rosebloom silt loams, frequently flooded. These deep, poorly drained soils are on flood plains (fig. 6). Individual areas are about 10 to 300 acres in size. Slopes are 0 to 1 percent. The two soils are so similar in behavior that separating them in mapping is not practical at the scale used. When this unit was mapped, it was not traversed so closely as most of the other units in the county.

The typical sequence, depth, and composition of the layers of the Waverly soil are as follows—

Surface layer:
0 to 6 inches; brown silt loam

Subsoil:
6 to 29 inches; light brownish gray and gray silt loam that has brownish mottles

Substratum:
29 to 70 inches; gray silt loam

The typical sequence, depth, and composition of the layers of the Rosebloom soil are as follows—

Surface layer:
0 to 6 inches; brown silt loam that has grayish brown mottles

Subsoil:
6 to 16 inches; light brownish gray silt loam that has brownish mottles

Substratum:
16 to 62 inches; light brownish gray and gray silt loam that has brownish mottles

Included with these soils in mapping are a few small areas of Routon soils. Also included are a few small areas of the somewhat poorly drained Falaya soils.

Important soil properties—

Permeability: Moderate
Available water capacity: High
Natural fertility: Medium
Reaction: Strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer
Flooding: Frequent, usually for several days at a time in winter and spring
Water table: Seasonally at a depth of less than 1 foot
Root zone: Deep in summer, but restricted by the water table in winter and spring

Most areas are used as woodland. A few areas that have been cleared and are protected from flooding by levees are used for soybeans or pasture.

These soils are poorly suited to cultivated crops. Because of the flooding and the wetness, preparing a seedbed, cultivating, and harvesting are difficult and expensive, if not impossible. A few drained areas can be used for summer annual crops that can withstand excess water.

Some of the open fields in areas of these soils can be pastured during summer and fall. Because of the wetness and the flooding, grazing in winter and spring is impractical or impossible. Tall fescue withstands wetness better than most other forage plants. Frequently applied weed-control measures are needed.

These soils are well suited to bottom land hardwoods, including eastern cottonwood, green ash, cherrybark oak, water oak, willow oak, American sycamore, and sweetgum. The main limitations affecting timber management are plant competition, seedling mortality, and the susceptibility to compaction and rutting. The use of heavy equipment when the soils are very moist or wet causes rutting and compaction. Puddling can occur when the soils are wet. Using low-pressure ground equipment and logging during dry periods in summer and fall result in less damage to the soils and help to maintain productivity. Undesirable plants hinder natural or artificial reforestation unless the site is adequately prepared and maintained.

These soils are not suited to most urban uses, including building site development and septic tank absorption fields, because of the susceptibility to flooding and the seasonal high water table. Low strength, the wetness, and the flooding are severe limitations on sites for local roads and streets.

The capability subclass is Vw.

Prime Farmland

In this section, prime farmland is defined and the soils in Weakley 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. The loss of prime farmland to other uses results in use of marginal land that is costly and environmentally undesirable.

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.

About 190,000 acres in Weakley County, or nearly 52 percent of the total acreage, meets the soil requirements for prime farmland. This land is in scattered areas throughout the county. It is used mainly as cropland.

The following map units are considered prime farmland in Weakley 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.

Some soils that have a high water table qualify as prime farmland only in areas where this limitation has been overcome by drainage measures. If applicable, the need for these measures is indicated in parentheses after the map unit name in the following list. Onsite evaluation is necessary to determine if this limitation has been overcome by corrective measures.

The soils identified as prime farmland in Weakley County are:

Ca	Calloway silt loam
Ce	Center silt loam
Cn	Collins silt loam, rarely flooded
Co	Collins silt loam, occasionally flooded
Fa	Falaya silt loam, rarely flooded (where drained)
Fb	Falaya silt loam, occasionally flooded (where drained)
GrB2	Grenada silt loam, 2 to 5 percent slopes, eroded
LeB2	Lexington silt loam, 2 to 5 percent slopes, eroded

LoB2	Loring silt loam, 2 to 5 percent slopes, eroded
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded
Oc	Ochlockonee loam, rarely flooded
Oh	Ochlockonee loam, occasionally flooded
Rt	Routon silt loam (where drained)

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 to 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 roadfill and topsoil. They can use it to identify areas where 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 *(4)*.

Crops and Pasture

John L. Kazda, agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils 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.

Cropland is the major land use in Weakley County (fig. 7). In 1984, about 81,000 acres was used for soybeans, 43,000 acres for wheat, 40,300 acres for corn, and 10,000 acres for grain sorghum. These four crops were grown on about 47 percent of the total land area in the county. Much of the wheat, however, was double-cropped with soybeans. According to the Tennessee Crop Reporting Service, the county ranked third in the state in wheat production and fourth in corn production in 1984. Strawberries, cotton, and tobacco were grown on small acreages. The county has the potential to become a major producer of small fruits, vegetables, and orchard fruits.

The major management needs on the cropland and pasture in Weakley County are measures that control water erosion and maintain fertility and tilth.

Water erosion is the most important management problem because the acreage of cropland is large and the silty soils are highly erodible. It is a major concern on more than 50 percent of the cropland in the county, including most of the acreage of Grenada, Lexington, Loring, and Memphis soils.

Loss of the original surface layer through erosion is detrimental for several reasons. Productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Erosion is especially damaging on the more sloping soils, such as the severely eroded Grenada and Loring soils; on soils that tend to be droughty, such as Smithdale soils; and on soils having a layer in the subsoil that limits the depth of the root zone. An example of this layer is the fragipan in Loring, Grenada, and other soils in Weakley

Figure 7.—An area of cropland in Weakley County. Cropland is the major land use in the county. The steeper areas are used mainly for hay, pasture, or woodland.

County. Tilling or preparing a good seedbed is difficult on these soils, and crops are damaged because of a scarcity of moisture during dry periods.

Stream channels and drainage ditches can be blocked by sediments as a result of erosion on uplands. The pollution of streams caused by sediments and by chemicals, such as herbicides, that are attached to soil particles can be minimized by erosion-control measures. These measures also minimize the deposition of infertile sediments washed from severely eroded uplands onto productive bottom land.

Erosion-control measures provide a protective cover, help to control runoff, and increase the rate of water infiltration. Applying a system of conservation tillage or incorporating high-residue crops into the cropping system keeps a plant cover on the soil for extended periods and holds soil losses to an amount that will not reduce the productivity of the soil. In the more sloping areas on livestock farms, which require pasture and hay, including grasses and legumes in the cropping system helps to control erosion. Also, the grasses and legumes provide nitrogen and improve tilth.

Keeping crop residue on the surface increases the rate of water infiltration and reduces the hazards of runoff and erosion. This measure is effective on most of the soils in Weakley County, but it is less successful in steep or badly eroded areas. No-till or minimum tillage systems are effective in controlling erosion in the more sloping areas used for row crops. These systems are suitable on many of the soils in the county.

Terraces and diversions reduce the length of slopes and thus the hazards of runoff and erosion. They are practical on deep, well drained soils that have uniform slopes. Memphis and Lexington soils and some areas of Loring soils are suitable for terracing. Grenada and Calloway soils are less well suited because they have a fragipan, which would be exposed in the terrace channels.

The extent of contour farming and contour stripcropping should be increased in the county. Contour farming is most effective in controlling erosion in areas where slopes are smooth and uniform, such as most areas of Memphis, Lexington, and Loring soils.

Information about the design of erosion-control measures for each kind of soil is available at the local office of the Soil Conservation Service.

Erosion removes plant nutrients from the soil. The nutrients removed through erosion are replaced by costly applications of fertilizer. Most of the soils in the county are acid and have a low or medium supply of plant nutrients. Commercial fertilizer and lime are needed to increase the yields of most crops. The amount of fertilizer and lime to be applied should be based on the results of soil tests and on the nutrient requirements of the crop to be grown. The type of soil, the desired level of yields, and the cropping practices used during the most recent 3 to 5 years also should be considered.

Information about soil tests and fertilizer recommendations can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Tilth, or workability, is an important factor affecting the germination of seeds and the infiltration of water into the soil. Tilth is good in soils that are granular and porous. Most of the soils in Weakley County have a surface layer of silt loam that is low in content of organic matter. Generally, the structure of the plow layer is weak or moderate. During periods of intensive rainfall, a crust forms on the surface. When dry, the crust is hard and somewhat impervious to water. As a result, it reduces the rate of water infiltration and increases the runoff rate. Regular additions of crop residue, manure, and other organic material improve soil structure and minimize crusting.

Only a small acreage in the county is used as pasture or hayland. These land uses could become more important as an awareness of the need for conservation becomes more widespread. The pasture or hayland supports both cool-season and warm-season grasses and legumes. The main grasses are tall fescue, bermudagrass, and orchardgrass. The most common legumes are white clover, red clover, alfalfa, annual lespedeza, and sericea lespedeza. Legumes are included as part of the seeding mixture when a pasture is established and are commonly reintroduced in perennial grass stands when they make up less than about 30 percent of the plant composition.

The major management measures needed in pastured areas are applications of fertilizer and lime, weed control, rotation grazing, and occasional renovation. The amount of fertilizer and lime to be applied should be based on the needs of the plant, the desired level of production, and the results of soil tests. Weeds can be controlled by applying herbicides and by mowing before the weeds reach maturity and produce seed. Weed control is easier on well managed pastures than it is on overgrazed, poorly managed pastures.

Some annual grasses are used for supplemental grazing or for hay. Sudan-sorghum crosses, pearl millets, and sudangrass provide good forage in summer. Small grain and annual ryegrass provide good forage late in fall and early in spring.

Most of the hay harvested in the county is the surplus growth on grass-legume pastures. Annual lespedeza, sericea lespedeza, alfalfa, and small grain also are used for hay. The management requirements in areas used for hay are generally the same as those in pastured areas, but more fertilizer is needed. The hay should be cut at the stage of growth that provides the best quality feed and does not damage the grass-legume stand. Cutting perennial hay too closely causes a premature loss of the stand.

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

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

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

Crops other than those shown in 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 *(6)*.

Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for 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. There are no class VIII soils in Weakley County. 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, rangeland, 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 Weakley County was forested, but much of the land was cleared for agricultural uses as the county was settled. Currently, nearly 113,000 acres in the county, or about 31 percent of the total acreage, is forested. The forest land is mostly in small, privately owned tracts. Industry owns about 1,000 acres.

The soils in Weakley County have the potential to produce good or excellent stands of commercial hardwoods. At present, the forests in the county produce only about 50 percent of their potential. In most areas additional management is needed to realize the potential productivity. Species conversion and increased stocking are needed to improve production on some sites.

The most common commercial species in the county are yellow poplar, upland and bottom land oaks, black walnut, black cherry, white ash, persimmon, blackgum, sweetgum, maple, hickory, and pecan. The wetter bottom land generally supports bottom land oaks, sweetgum, sycamore, water tupelo, and baldcypress.

Several small tracts of loblolly pine have been planted on severely eroded soils and in gullied areas. The trees in several of these tracts have reached pulpwood size, and some trees can be used as poles or pilings. Eastern redcedar and thickets of black locust dominate a few old fields.

In addition to their commercial value, the forests in Weakley County provide wildlife habitat, opportunities for recreation, and natural beauty and help to conserve soil and water.

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, or susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment must be used. 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 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, or if special equipment is needed to prevent or minimize 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, or if special equipment is needed to prevent or minimize 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, 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 *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 first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

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

Figure 8.—A golf fairway in an area of gently sloping and sloping Loring soils. These soils generally are well suited to recreational uses.

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

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

The soils in Weakley County generally are suitable for recreational uses, such as golf courses (fig. 8), campgrounds, picnic and sports areas, small game hunting areas, scenic areas, shooting preserves, and vacation farms. The soil characteristics that affect these uses include depth, permeability, texture, slope, and drainage.

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 also are important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation 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 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 absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes 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 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 firm after rains and is not dusty when dry. If grading is needed, the depth of the soil over a hardpan 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.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

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

Weakley County has a varied population of wildlife and fish. The abundance and distribution of any particular species depend on the land use, the amount of water, and the kind of vegetation. The species that inhabit open areas, such as cropland, pasture, brushy fence rows, thickets, and scattered woodlots, include cottontail rabbit, bobwhite quail, mourning dove, meadowlark, bluebird, groundhog, and coyote. These species are most abundant in areas that have a diversity of vegetation. The species that inhabit upland woodlots and bottom land tracts of hardwoods include white-tailed deer, gray squirrel, wild turkey, raccoon, and a variety of nongame birds.

Shallow lakes and the wetlands along the Obion River provide breeding habitat for wood ducks and resting and feeding areas for other migratory waterfowl. These wetlands also provide habitat for furbearers, such as beaver, mink, and muskrat, and for aquatic nongame birds. The streams, lakes, and ponds in Weakley County support crappie, bream, largemouth bass, and catfish. Nongame species, such as gar, carp, buffalo, bowfin (grinnel), and drum, also are abundant, especially in lakes, oxbows, and sloughs on the bottom land along the Obion River. Siltation, contamination by pesticides, and drainage are some of the major problems that have reduced the extent and quality of the habitat for fish.

In most areas of the county, the habitat for wildlife could be improved by increasing the amount of necessary food, water, and cover. General soil map units 1, 3, and 4 are well suited to the development of habitat for upland wildlife. General soil map unit 2, which is on bottom land, has potential for the development of habitat for a variety of wildlife species, including waterfowl.

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, and flood hazard. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, soybeans, and wheat.

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, flood hazard, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, switchgrass, orchardgrass, clover, annual 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, and flood hazard. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are ragweed, goldenrod, beggarweed, partridgepea, and broom sedge.

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 hardwoods 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, and blackberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are shrub lespedeza, shrub honeysuckle, 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, baldcypress, and redcedar.

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, and slope. Examples of wetland plants are smartweed, wild millet, cattails, 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 wetness, slope, and permeability. Examples of shallow water plants are coontail, spatterdock, lotus, waterlily, and pondweed.

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.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas.

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

Figure 9.—A homesite in an area of Loring silt loam, 2 to 5 percent slopes, eroded.

design and construction of engineering works.

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, the 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 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 (fig. 9), small commercial buildings, local roads and streets, and lawns and landscaping. 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 a very firm dense layer, 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, and the shrink-swell potential can cause the movement of footings. The depth to a high water table 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. The depth to a high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), the shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts or sodium affect plant growth. Flooding, wetness, slope, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

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 a cemented pan, and flooding affect absorption of the effluent.

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 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, and flooding.

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. Slope can cause construction problems.

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 needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a water table, slope, and flooding affect both types of landfill. Texture, 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, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils 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 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 estimated 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 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 the 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, 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 or slopes of 15 to 25 percent. 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, 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. Kinds of rock, 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 as much as 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.

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

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They 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, 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 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 and for embankments, dikes, and levees. 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, irrigation, 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 in the soil and the depth to 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. A high water table affects the amount of usable material. It also affects trafficability.

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 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 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 or sodium. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, and depth 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. Wetness and slope affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, low fertility, 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.

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

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help 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 *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection. If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6.

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 generally are rounded to the nearest 5 percent. Thus, if the ranges of gradation extend a marginal amount (1 or 2 percentage points) across the 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 content of clay in 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.

The 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.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

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. Examples are Memphis, Lexington, and Smithdale soils.

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. Examples are Grenada, Loring, Calloway, and Collins soils.

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. Examples are Routon and Rosebloom soils.

If a soil is assigned to two hydrologic groups in table 16, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary covering of the 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. November-May, for example, means that flooding can occur during the period November through May. 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 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 are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The 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 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. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

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 also is 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 *(7)*. 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 Entisol.

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 Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

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 Fluvaquents (*Fluv*, meaning flood plain, plus *aquent*, the suborder of the Entisols that has an aquic 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 Fluvaquents.

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 coarse-silty, mixed, acid, thermic Typic Fluvaquents.

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" *(7)*. 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."

Calloway Series

The Calloway series consists of somewhat poorly drained soils that have a fragipan. These soils formed in thick deposits of loess on flats and in depressions on

uplands. They have a high water table that is perched above the fragipan late in winter and early in spring. Slopes range from 1 to 3 percent.

Calloway soils are on the same landscape as Routon and Grenada soils. Routon soils do not have a fragipan and are poorly drained. Grenada soils are in the higher, more sloping landscape positions and are moderately well drained.

Typical pedon of Calloway silt loam, in a field 2.7 miles north-northwest of Greenfield and 350 feet west of Brooks Chapel Road:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many very fine and few medium roots; few very fine dark red stains; strongly acid; abrupt smooth boundary.

Bw—7 to 17 inches; yellowish brown (10YR 5/4) silt loam; few fine faint light brownish gray mottles, mostly in the lower 3 inches; weak medium subangular blocky structure; friable; common very fine roots; common very fine pores; few very fine black concretions and fine reddish and brownish stains; very strongly acid; gradual wavy boundary.

E—17 to 22 inches; light brownish gray (2.5Y 6/2) silt loam; common medium faint brown (10YR 5/3) mottles; weak medium granular structure; friable; few fine roots; common medium and fine pores; many black and brown concretions and accumulations as much as ½ inch diameter; very strongly acid; abrupt irregular boundary.

Bx/E—22 to 30 inches; brown (10YR 5/3) silt loam (Bx) that has a few vertical streaks or seams of light brownish gray (2.5Y 6/2) silt as much as about 1 inch wide (E); common medium faint yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brittle; many black concretions and many strong brown and dark brown stains; very strongly acid; gradual irregular boundary.

Btx1—30 to 35 inches; mottled grayish brown (10YR 5/2), yellowish brown (10YR 5/6), and brown (7.5YR 4/4) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brittle; common thick grayish brown (10YR 5/2) clay films on faces of prisms; prisms separated by vertical coatings and seams of light brownish gray silt as much as about 1 inch wide; common fine and medium concretions; very strongly acid; gradual irregular boundary.

Btx2—35 to 51 inches; mottled yellowish brown (10YR 5/6), grayish brown (10YR 5/2), and brown (7.5YR 4/4) silt loam; weak very coarse prismatic structure; firm; brittle; common clay films on faces of prisms; coatings of gray silt as much as 1 inch wide between prisms; very strongly acid; gradual irregular boundary.

Bx—51 to 66 inches; yellowish brown (10YR 5/6) silt loam; common coarse grayish brown (10YR 5/2) and brown (7.5YR 4/4) mottles; weak very coarse prismatic structure; firm; brittle; medium acid.

Reaction is medium acid to very strongly acid in the upper part of the solum and medium acid or strongly acid in the lower part.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The Bw horizon has hue of 10YR and value and chroma of 4 to 6. It has few to many mottles in shades of gray.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many mottles in shades of brown and few to many concretions and black or red stains. It is silt loam or silt.

The Btx horizon has hue of 10YR or 2.5Y, value of 5, and chroma of 2 to 6. It has few to many grayish mottles or is mottled in shades of gray, brown, or yellow. The Bx horizon, if it occurs, has the same colors as the Btx horizon.

Center Series

The Center series consists of somewhat poorly drained soils. These soils formed in thick deposits of loess on broad, nearly level and gently sloping terraces and low uplands. Slopes are 1 to 3 percent.

Center soils are on the same landscape as Routon soils and are commonly adjacent to those soils and to Grenada and Calloway soils. Routon soils are dominantly gray and are poorly drained. Grenada and Calloway soils are in the somewhat higher positions on uplands. They are bisequal and have a fragipan. Grenada soils are moderately well drained.

Typical pedon of Center silt loam, in a field 1.6 miles east of Dresden High School and 250 feet north of a gravel road:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; common medium distinct pale brown (10YR 6/3) mottles; weak fine granular structure; very friable; few fine and medium roots; common fine black stains at the lower boundary; slightly acid; abrupt wavy boundary.

Bt1—7 to 17 inches; yellowish brown (10YR 5/6) silt loam; many medium distinct pale brown (10YR 6/3) and few medium distinct light brownish gray (10YR 6/2) mottles; weak medium prismatic structure parting to weak medium subangular blocky; friable;

common fine and medium roots and vesicular pores; few thin clay films on faces of peds; common fine black stains and segregations; common krotovinas 1 to 2 inches wide; strongly acid; clear wavy boundary.

Bt2—17 to 30 inches; light yellowish brown (10YR 6/4) silty clay loam; common strong brown (7.5YR 4/6), yellowish brown (10YR 5/8), and light brownish gray (10YR 6/2) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine and medium roots along faces of prisms; common thin clay films on faces of peds; few fine and medium red stains and common fine and medium black stains; common krotovinas; common fine and medium vesicular pores; strongly acid; clear wavy boundary.

Bt3—30 to 45 inches; mottled brown (7.5YR 4/4), yellowish brown (10YR 5/4), and light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure; friable; common clay films; few fine vesicular pores; common medium dark brown stains; strongly acid; diffuse wavy boundary.

C—45 to 60 inches; mottled brown (7.5YR 4/4), yellowish brown (10YR 5/4), and light brownish gray (10YR 6/2) silt loam; massive; friable; medium acid.

Reaction is strongly acid to slightly acid in the solum and medium acid to neutral in the C horizon.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3. The Bt horizon has hue of 10YR and value and chroma of 4 to 6. Some pedons have a Btg horizon below a depth of about 24 inches. This horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or less. It has few or common mottles in shades of gray or brown and in some pedons is mottled and does not have a dominant matrix color. It is silt loam or silty clay loam.

The C horizon has hue of 10YR, value of 5, and chroma of 4 to 6 or hue of 7.5YR, value of 4, and chroma of 4 to 6. It has few to many mottles in shades of gray or brown and in some pedons is mottled and does not have a dominant matrix color.

Collins Series

The Collins series consists of deep, moderately well drained soils on flood plains and in narrow strips along drainageways. These soils formed in silty alluvium that washed from soils on loess-covered uplands. Slopes range from 0 to 2 percent.

Collins soils are on the same landscape as Ochlockonee, Falaya, and Waverly soils and are commonly adjacent to those soils. Ochlockonee soils are coarse-loamy. Falaya soils are somewhat lower on the bottom land than the Collins soils. They have a layer in which the dominant colors have chroma of 2 or less within a depth of 20 inches. Waverly soils are on the lowest parts of the flood plains and are dominantly gray directly below the surface layer.

Typical pedon of Collins silt loam, occasionally flooded, 4.5 miles south of Martin, 2,000 feet north of the intersection of a gravel road and a blacktop road at Pleasant Hill Church, 80 feet north of mailboxes, and 50 feet west of the gravel road:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; many fine and common medium roots; strongly acid; abrupt wavy boundary.

C1—8 to 21 inches; dark yellowish brown (10YR 4/4) silt loam; common fine faint brown (10YR 5/3) and common coarse distinct light brownish gray (10YR 6/2) mottles; few fine strong brown (7.5YR 5/6) stains; massive; friable but shows evidence of some traffic compaction; few fine roots; common thin horizontal bedding planes; few 1- to 2-inch animal burrows filled with silt loam that has no bedding planes; strongly acid; abrupt smooth boundary.

C2—21 to 32 inches; mottled dark yellowish brown (10YR 4/4) and light brownish gray (10YR 6/2) silt loam; common fine strong brown (7.5YR 5/6) and very dark grayish brown (10YR 3/2) stains; massive; friable; few fine roots; common thin bedding planes; few 1- to 2-inch animal burrows filled with silt loam; few bits of charcoal ½ inch in diameter; strongly acid; clear smooth boundary.

Cg—32 to 70 inches; light brownish gray (10YR 6/2) silt loam; many medium brown (10YR 5/3) and dark grayish brown (10YR 4/2) mottles; many fine yellowish brown (10YR 5/6) stains; massive; friable; common thin bedding planes; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile unless the surface layer has been recently limed.

The A horizon generally has hue of 10YR but in a few pedons has hue of 7.5YR. It has value of 4 or 5 and chroma of 3 or 4. It is dominantly silt loam, but in a few pedons it is loam or fine sandy loam.

The C1 horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. It has few or common mottles in shades of gray or brown. Mottles with chroma of 2 or less are within a depth of 20 inches. The C2 horizon has colors similar to those of the C1 horizon, or it is mottled in shades of gray or brown and has no dominant color.

The Cg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has few to many mottles in shades of brown.

Falaya Series

The Falaya series consists of deep, somewhat poorly drained soils on flood plains. These soils formed in silty alluvium that washed from soils on loess-covered uplands. Slopes range from 0 to 2 percent.

Falaya soils are on the same landscape as Collins, Ochlockonee, and Waverly soils and are commonly adjacent to those soils. Ochlockonee and Collins soils are somewhat higher on the flood plains than the Falaya soils. They do not have dominantly gray colors within a depth of 20 inches. Ochlockonee soils are coarse-loamy. Waverly soils are on the lowest part of the flood plains. They are dominantly gray directly below the Ap horizon.

Typical pedon of Falaya silt loam, occasionally flooded, 5 miles northeast of Martin, 1,000 feet north of the North Fork of the Obion River, and 2,700 feet west of Campground Road:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; few fine faint light brownish gray (10YR 6/2) mottles; moderate fine granular structure; very friable; many fine roots; a compact, firm traffic pan in the lower 2 inches; strongly acid; abrupt smooth boundary.

C—8 to 16 inches; brown (10YR 5/3) silt loam; common medium faint light brownish gray (10YR 6/2) mottles; common dark brown and dark reddish brown stains and accumulations; weak thin platy structure; a compact, massive traffic pan in the upper 3 inches; friable; common fine and few medium roots; many thin horizontal strata, some of which are wavy; strongly acid; abrupt smooth boundary.

Cg1—16 to 21 inches; mottled light brownish gray (10YR 6/2) and brown (10YR 5/3) silt loam; few fine and medium distinct dark yellowish brown (10YR 4/6) mottles; many very fine red and black stains; massive; friable; common fine roots; common very fine wormcasts and root channels; strongly acid; abrupt wavy boundary.

Cg2—21 to 32 inches; gray (10YR 6/1) silt loam; common fine and medium distinct dark yellowish brown (10YR 4/6) mottles; few fine dark brown (7.5YR 3/4) stains; massive; friable; few ½-inch black concretions; few fine roots; strongly acid; gradual wavy boundary.

Cg3—32 to 62 inches; gray (10YR 6/1) silt loam; common fine and medium distinct dark yellowish brown (10YR 4/6) mottles; few fine dark brown (7.5YR 3/4) stains; massive; friable; few fine roots; few coarse, weak horizontal bedding planes; few 2-inch pockets of medium and fine black concretions at a depth of 50 to 56 inches (appear to be associated with krotovinas); strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The A and C horizons have hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The C horizon has grayish mottles. The Cg horizon is within a depth of 20 inches. It has hue of 10YR, value of 4 to 6, and chroma of 1 or 2 and has mottles with higher chroma.

Grenada Series

The Grenada series consists of moderately well drained soils that have a fragipan (fig. 10). These soils formed in thick deposits of loess on uplands that have moderately low relief. Slopes are 2 to 8 percent.

Grenada soils are on the same landscape as Loring and Calloway soils and are commonly adjacent to those soils. Loring soils are in the somewhat higher positions on uplands. They have an argillic horizon above the fragipan. They do not have an E horizon. Calloway soils are in saddles, in depressions, and around the head of drainageways and are somewhat poorly drained.

Typical pedon of Grenada silt loam, 2 to 5 percent slopes, eroded, 2.1 miles northwest of Sharon, 3,500 feet west of U.S. Highway 45E, about 4,400 feet south of Mud Creek, and 115 feet south of a blacktop road:

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

Bw1—6 to 17 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; common fine roots; common very fine pores; common medium and few fine soft brown and black accumulations; strongly acid; gradual wavy boundary.

Bw2—17 to 24 inches; light yellowish brown (10YR 6/4) silt loam; few fine faint light brownish gray (10YR 6/2) mottles; weak coarse and medium prismatic structure parting to moderate medium subangular blocky; firm; brittle in about 20 percent of the mass; common fine roots; common medium vesicular pores; pale brown clean silt coatings on faces of most peds; common medium brown and black accumulations; very strongly acid; clear wavy boundary.

E—24 to 28 inches; light gray (10YR 7/2) silt loam;

Figure 10.—A profile of Grenada silt loam exposed along a roadbank. The light colored layer is the fragipan.

weak medium granular structure; friable; slightly brittle in about 25 percent of the mass; common fine roots; many medium vesicular pores; common medium and fine brown and black accumulations; very strongly acid; abrupt irregular boundary.

Btx1—28 to 37 inches; mottled yellowish brown (10YR 5/4), light brownish gray (10YR 6/2), and brown (7.5YR 4/4) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; brittle in about 65 percent of the mass; coatings or seams, 1 to 2 inches wide, of gray silty material between prisms; few fine roots in gray seams; many thick gray clay films on faces of prisms; common medium brown and black accumulations; very strongly acid; gradual wavy boundary.

Btx2—37 to 65 inches; brown (7.5YR 4/4) silt loam; common fine distinct very pale brown (10YR 7/3) mottles; weak very coarse prismatic structure parting to moderate medium subangular blocky; firm; brittle in about 70 percent of the mass; few fine and medium vesicular pores; prisms separated by seams of gray silty material about 1 inch wide; common gray clay films on faces of peds; common medium and coarse brown and black accumulations; very strongly acid.

Reaction is medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. The Bw horizon has hue of 10YR and value and chroma of 4 to 6. It has few to many clean silt coatings and skeletans in the lower part. The E horizon has hue of 10YR, value of 6 or 7, and chroma of 1 or 2.

The Btx horizon has hue of 10YR, value of 4 or 5, and chroma of 4 to 6 or hue of 7.5YR, value of 4 or 5, and chroma of 4. It has mottles in shades of brown and gray, or it is mottled and does not have a dominant color.

Lexington Series

The Lexington series consists of deep, well drained soils. These soils formed in 2 to 4 feet of loess and in the underlying loamy Coastal Plain sediments. Slopes range from 2 to 20 percent.

Lexington soils are on the same landscape as Memphis, Loring, and Smithdale soils and are commonly adjacent to those soils. Memphis and Loring soils formed in deposits of loess thicker than those of the Lexington soils. Loring soils have a fragipan in the lower part of the subsoil and are moderately well drained. Smithdale soils do not have a mantle of loess. They formed in the loamy Coastal Plain sediments.

Typical pedon of Lexington silt loam, 2 to 5 percent slopes, eroded, 2.5 miles south of Ore Springs, 1,750 feet north of New Hope Cemetery, and 260 feet west of a paved road:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common medium and many fine and very fine roots; slightly acid; abrupt smooth boundary.

Bt1—5 to 20 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; slightly firm; common fine and very fine roots; common thin clay films on faces of peds and along root channels; few fine vesicular pores; common medium and fine black stains; strongly acid; clear smooth boundary.

Bt2—20 to 32 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few fine and very fine roots; common thin clay films on faces of peds and along root channels; few very fine vesicular pores; few medium and fine black stains; strongly acid; gradual smooth boundary.

Bt3—32 to 42 inches; dark brown (7.5YR 4/4) silt loam that has about 30 percent fine sand; weak coarse subangular blocky structure; friable; few thin clay films on faces of peds and along root channels; few very fine vesicular pores; common medium black stains; strongly acid; clear smooth boundary.

2Bt4—42 to 56 inches; strong brown (7.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; friable; few thin clay films on faces of peds and along root channels; common fine and very fine vesicular pores; few medium and fine black stains; very strongly acid; clear smooth boundary.

2Bt5—56 to 65 inches; strong brown (7.5YR 4/6) sandy loam; weak medium subangular blocky structure; very friable; common skeletans on faces of peds; very strongly acid.

Reaction is medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It is silt loam or silty clay loam. Many pedons have skeletans near the lower boundary of this horizon.

The 2Bt horizon has hue of 7.5YR to 2.5YR, value of 4 or 5, and chroma of 4 to 6. It has few or common skeletans in most pedons. It is sandy clay loam, clay loam, sandy loam, or loam.

Loring Series

The Loring series consists of moderately well drained soils that have a fragipan. These soils formed in thick deposits of loess on uplands that have moderate relief. Slopes are 2 to 20 percent.

Loring soils are on the same landscape as Grenada and Memphis soils and are commonly adjacent to those soils. Grenada soils are somewhat lower on the uplands than the Loring soils. They have a continuous E horizon above the Btx horizon. Their Bw horizon is nearly free of clay films. Memphis soils are on the highest parts of the uplands and are well drained. They do not have a fragipan.

Typical pedon of Loring silt loam, 2 to 5 percent

slopes, eroded, in a field 3.4 miles east-northeast of Martin, 80 feet west of the west end of an old concrete tank factory, and 100 feet south from the roadbank to the pit site:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and few medium roots; medium acid; abrupt smooth boundary.

Bt1—6 to 18 inches; dark brown (7.5YR 4/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common fine roots; common fine pores and fine root channels; few thin clay films on faces of peds and in pores and root channels; strongly acid; gradual wavy boundary.

Bt2—18 to 29 inches; dark brown (7.5YR 4/4) silt loam; common medium faint yellowish brown (10YR 5/4) mottles and skeletans; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; common medium and many fine vesicular pores; few thin clay films in pores and on faces of peds; common medium very dark brown stains; few fine black concretions; strongly acid; gradual wavy boundary.

Btx1—29 to 37 inches; dark brown (7.5YR 4/4) silt loam; common medium distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; compact and brittle; seams of friable light brownish gray (10YR 6/2) silt (E) about 2 inches wide at the top and about ½ inch thick at the bottom; few thin clay films on faces of peds and in pores; few fine roots in silt seams; many fine and medium vesicular pores in seams and few fine vesicular pores in prisms; few fine black stains; very strongly acid; gradual irregular boundary.

Btx2—37 to 65 inches; dark brown (7.5YR 4/4) silt loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; very firm; compact and very brittle; light brownish gray (10YR 6/2) silt coatings on faces of prisms; few fine black stains in prisms; very strongly acid.

Reaction is medium acid to very strongly acid throughout the profile unless lime has recently been added to the surface layer.

The Ap horizon has hue of 10YR or 7.5YR and chroma of 3 or 4. It generally has value of 4 or 5, but some severely eroded pedons have value of 6. The Bt horizon generally has hue of 7.5YR but in a few pedons has hue of 10YR. It has value of 4 or 5 and chroma of 4 to 6. It is silt loam or silty clay loam. Some pedons have thin silt coatings on faces of peds in the lower part of this horizon.

The Btx horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It has mottles in shades of gray or brown. It is dominantly silt loam, but the grayish seams are silt or silt loam. The C horizon, if it occurs, has colors and textures similar to those of the Btx horizon.

Memphis Series

The Memphis series consists of deep, well drained soils. These soils formed in thick deposits of loess on the crest of the higher hills and ridges. Slopes are 2 to 8 percent.

Memphis soils are on the same landscape as Loring and Lexington soils and are commonly adjacent to those soils. Loring soils are somewhat lower on the uplands than the Memphis soils. They are moderately well drained and have a fragipan in the lower part of the subsoil. Lexington soils have more sand in the lower part of the solum than the Memphis soils.

Typical pedon of Memphis silt loam, 2 to 5 percent slopes, eroded, 3.6 miles south of Sidonia, 850 feet north of the Greenfield-Kenton blacktop road, 2,500 feet northeast of the Gibson County line, and 425 feet west of a gravel road:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine and very fine roots; neutral; abrupt smooth boundary.

Bt1—8 to 18 inches; dark brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; continuous thin clay films on faces of peds; common fine roots; strongly acid; clear smooth boundary.

Bt2—18 to 29 inches; dark brown (7.5YR 4/4) silt loam; strong medium and fine subangular blocky structure; friable; common fine roots; thin discontinuous dark reddish brown (5YR 3/4) clay films on faces of peds; few fine vesicular pores; strongly acid; clear smooth boundary.

Bt3—29 to 40 inches; dark brown (7.5YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; few grayish silt coatings on faces of peds; common very fine vesicular pores; strongly acid; clear smooth boundary.

Bt4—40 to 50 inches; dark brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; common

grayish silt coatings on faces of peds; common fine vesicular pores; strongly acid; gradual smooth boundary.

C—50 to 65 inches; dark brown (7.5YR 4/4) silt loam; few vertical silt streaks ¼ inch thick; massive; friable; strongly acid.

Reaction is medium acid to very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The Ap horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It is silt loam or silty clay loam. The content of clay decreases with increasing depth. This horizon has few or common clean silt coatings in the lower part.

The C horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4. It has few to many clean silt coatings along channels and cracks.

Ochlockonee Series

The Ochlockonee series consists of deep, well drained, loamy soils on flood plains. These soils formed in a mixture of loess and loamy Coastal Plain deposits that washed from soils on the surrounding uplands. Slopes range from 0 to 2 percent.

Ochlockonee soils are on the same landscape as Collins and Falaya soils and commonly are adjacent to those soils. Collins and Falaya soils have less than 15 percent sand in the control section. Falaya soils are somewhat lower on the bottom land than the Ochlockonee soils and are somewhat poorly drained.

Typical pedon of Ochlockonee loam, occasionally flooded, in a cultivated field about 5 miles south-southwest of Dresden, 7,750 feet west of Tennessee State Highway 54, about 3,380 feet south of Lower Sharon Road, and 90 feet east of a ditchbank:

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

C1—6 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; common medium faint brown (10YR 5/3) mottles; few fine black stains; weak medium granular structure; very friable but shows evidence of some traffic compaction; few medium and common fine roots; weakly stratified; strongly acid; abrupt smooth boundary.

C2—12 to 21 inches; dark yellowish brown (10YR 4/4) loam; few fine faint brown mottles; few fine black stains; massive; very friable; few fine and medium roots; weakly stratified; few animal burrows, 1 to 3 inches wide, filled with silt loam; very strongly acid; clear smooth boundary.

C3—21 to 33 inches; dark yellowish brown (10YR 4/4) silt loam that has 10 to 12 percent fine sand and very fine sand; few fine faint brown mottles; massive; friable; few fine and medium roots; weakly stratified; very strongly acid; abrupt smooth boundary.

Ab—33 to 41 inches; dark yellowish brown (10YR 3/4) fine sandy loam; common fine clean sand grains; massive; very friable; few fine and medium roots; many fine and very fine vesicular pores; very strongly acid; clear smooth boundary.

C—41 to 65 inches; dark yellowish brown (10YR 4/4) fine sandy loam; common medium distinct light brownish gray (10YR 6/2) strata of sand and patches of clean sand; massive; very friable; few fine and medium roots; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The Ap horizon generally has hue of 10YR but in a few pedons has hue of 7.5YR. It has value of 4 or 5 and chroma of 3 or 4. It is dominantly loam or silt loam, but in a few pedons it is fine sandy loam.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. It has no mottles or has few or common mottles in shades of gray or brown at a depth of more than 20 inches. The control section ranges from 15 to 50 percent sand dominated by fine sand and very fine sand. In most pedons the C horizon is weakly stratified. Individual strata in this horizon are silt loam, loam, sandy loam, or loamy sand. They are at various depths and vary in thickness.

The Ab horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. It is silt loam, loam, fine sandy loam, or sandy loam. Some pedons do not have an Ab horizon.

Pikeville Series

The Pikeville series consists of deep, well drained, loamy soils. These soils formed in gravelly Coastal Plain deposits on very steep side slopes in the uplands. Slopes range from 20 to 45 percent.

Pikeville soils are on the same landscape as Loring and Smithdale soils and are adjacent to those soils. Loring and Smithdale soils have almost no gravel. Loring soils have at least 48 inches of silty loess and have a fragipan in the lower part of the subsoil. They are moderately well drained.

Typical pedon of Pikeville sandy loam, in an area of Smithdale-Pikeville complex, 20 to 45 percent slopes;

1,650 feet south of the Kentucky State line, 3 miles west of Tennessee State Highway 89, and 300 feet south of a gravel road:

Oi—1 inch to 0; partly decomposed litter from hardwoods.
A—0 to 1 inch; very dark grayish brown (10YR 3/2) sandy loam; weak fine granular structure; very friable; many fine and very fine roots; strongly acid; abrupt smooth boundary.
E—1 to 9 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; common fine and few medium roots; 5 to 10 percent, by volume, semirounded gravel ¼ to 1 inch in diameter; very strongly acid; clear wavy boundary.
Bt1—9 to 28 inches; strong brown (7.5YR 4/6) gravelly sandy clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; common fine pores; common thin patchy clay films on faces of peds; 20 to 30 percent, by volume, semirounded gravel ¼ inch to 1¾ inches in diameter; very strongly acid; gradual wavy boundary.
Bt2—28 to 45 inches; yellowish red (5YR 4/6) gravelly sandy clay loam; moderate medium and coarse subangular blocky structure; friable; few fine roots; common thin patchy clay films on faces of peds; common fine pores; 35 to 45 percent, by volume, semirounded gravel ¼ inch to 2 inches in diameter; very strongly acid; clear wavy boundary.
Bt3/E—45 to 60 inches; yellowish red (5YR 4/6) sandy clay loam (Bt); about 10 percent, by volume, eluviated bodies of brown (7.5YR 4/4) sandy loam ½ to 1 inch in diameter (E); weak coarse subangular blocky structure; friable; common thin patchy clay films on faces of peds; common fine pores; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is sandy loam or loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is sandy loam or loam. The content of gravel ranges from 5 to 20 percent.

The Bt horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 to 8. The fine-earth fraction is sandy clay loam or clay loam. Eluviated bodies of sandy loam make up 5 to 20 percent of the volume below a depth of about 40 inches. The content of pebbles ranges from 15 to 50 percent in the upper part of the Bt horizon and from 0 to 25 percent below a depth of about 40 inches.

The Pikeville soils in Weakley County mainly have little or no gravel at a depth of more than 45 inches. This characteristic is outside the range defined for the series but does not significantly affect the use or behavior of the soils.

Rosebloom Series

The Rosebloom series consists of deep, poorly drained soils on low flood plains. These soils formed in silty alluvium that washed from soils on loess-covered uplands. Slopes are 0 to 1 percent.

Rosebloom soils are on the same landscape as the Waverly and Falaya soils and are commonly adjacent to those soils. Waverly soils are poorly drained and are on low flood plains. They have less than 18 percent clay in the control section. Falaya soils are somewhat poorly drained and are somewhat higher on the flood plains than the Rosebloom soils. Also, they have browner colors in the upper part of the Bg horizon and have less than 18 percent clay in the control section.

Typical pedon of Rosebloom silt loam, in an area of Waverly and Rosebloom silt loams, frequently flooded; about 2.7 miles southwest of Sidonia and 1,500 feet northwest of the entrance to Beech Ridge:

A—0 to 6 inches; brown (10YR 4/3) silt loam; common medium grayish brown (10YR 5/2) mottles; weak fine granular structure; very friable; common fine and few medium roots; strongly acid; clear smooth boundary.
Bg—6 to 16 inches; light brownish gray (10YR 6/2) silt loam; common fine faint brown (10YR 4/3) and few medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine black stains; strongly acid; clear smooth boundary.
Cg1—16 to 25 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct dark brown (7.5YR 4/4) mottles; massive; friable; common thin bedding planes; few fine roots; few fine black stains; very strongly acid; clear smooth boundary.
Cg2—25 to 62 inches; gray (10YR 6/1) silt loam; common fine faint brown (10YR 5/3) mottles; massive; friable; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is mottled in shades of brown or gray.

The Bg horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2 or hue of 10YR, value of 4 to 7, and chroma of 1. It is silt loam or silty clay loam. It has

common or few mottles in shades of brown or yellow. Some pedons have buried A and B horizons below a depth of 20 inches. The Cg horizon has the same colors and textures as the Bg horizon.

Routon Series

The Routon series consists of deep, poorly drained soils. These soils formed in thick deposits of loess on flats and low terraces in the uplands. Slopes are dominantly 1 percent or less but range to 2 percent.

Routon soils are on the same landscape as Center, Calloway, and Grenada soils. Center soils are slightly higher on the landscape than the Routon soils and are somewhat poorly drained. Calloway and Grenada soils are in the slightly higher positions on uplands and have a fragipan. Calloway soils are somewhat poorly drained, and Grenada soils are moderately well drained.

Typical pedon of Routon silt loam, in a soybean field 2.3 miles south of Martin, 500 feet east of the Illinois Central Gulf Railroad, and 110 feet north of the Westview-Ralston blacktop road:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; common fine faint brown (10YR 5/3) mottles; weak fine and medium granular structure; very friable; common fine roots; few fine black stains; strongly acid; abrupt wavy boundary.

Eg—9 to 18 inches; light brownish gray (10YR 6/2) silt loam; many medium faint pale brown (10YR 6/3) and few medium distinct yellowish brown (10YR 5/8) mottles; weak medium and fine granular structure; friable; few fine roots; common fine reddish brown and black stains and few fine concretions; very strongly acid; abrupt wavy boundary.

Btg1—18 to 34 inches; light brownish gray (2.5Y 6/2) silt loam; many medium distinct pale brown (10YR 6/3), common medium distinct brown (10YR 4/3 and 5/3), and few medium distinct olive yellow (2.5Y 6/8) mottles; weak medium prismatic structure parting to weak medium subangular blocky; friable; few fine roots; common indistinct krotovinas, as much as 3 inches wide, filled with stratified silt; a few 2-inch prisms of silty clay loam; common medium vesicular pores; few thin patchy clay films on faces of peds; common fine black stains and concretions; very strongly acid; abrupt wavy boundary.

Btg2—34 to 51 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct brown (7.5YR 4/4) and yellowish brown (10YR 5/8) mottles; weak very coarse prismatic structure parting to weak medium subangular blocky; friable; few medium and fine vesicular pores; common thin patchy clay films on faces of peds; common medium black and reddish brown stains; very strongly acid; clear irregular boundary.

C—51 to 60 inches; mottled dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) silt loam; massive; friable; thin clay films in some root channels; common krotovinas, as much as 3 inches in diameter, filled with gray silt and lined with nearly continuous black stains; strongly acid.

Reaction is slightly acid to very strongly acid in the solum and slightly acid to strongly acid in the C horizon.

The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The Eg horizon has hue of 10YR or 2.5Y and has value of 6 or 7 and chroma of 2 or value of 5 to 7 and chroma of 1, or it is neutral in hue. It has few to many mottles in shades of brown, yellow, or gray. It is silt loam or silt.

The part of the Btg horizon within a depth of about 30 inches has the same colors as the Eg horizon. The lower part of this horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2, or it is neutral in hue. It has few to many mottles in shades of brown, yellow, or gray. The Btg horizon is silt loam or silty clay loam.

The BC horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 6 or hue of 7.5YR, value of 4 or 5, and chroma of 4.

The C horizon is mottled in shades of brown and gray, or it has colors similar to those of the BC horizon.

Smithdale Series

The Smithdale series consists of deep, well drained, loamy soils. These soils formed in thick beds of loamy Coastal Plain sediments on steep hillsides, mostly in the eastern half of the county. Slopes are 15 to 45 percent.

Smithdale soils are on the same landscape as Lexington and Loring soils. Lexington soils are on ridgetops. They are brownish silt loam and silty clay loam in the upper part of the solum. Loring soils are on the somewhat less steep slopes and are moderately well drained. They are dominantly brownish silt loam or silty clay loam throughout and have a fragipan in the lower part of the solum.

Typical pedon of Smithdale loam, in an area of Smithdale-Loring complex, 15 to 35 percent slopes, eroded; 2,200 feet south-southeast of the Weakley County golf course, about 2,200 feet north of the Middle Fork of the Obion River, and 150 feet east of the western edge of a wooded area:

Oi—½ inch to 0; partly decomposed litter from mixed hardwoods.
A—0 to 3 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine, common medium, and few coarse roots; strongly acid; abrupt smooth boundary.
E—3 to 7 inches; yellowish brown (10YR 5/4) loam; weak fine granular structure; very friable; many fine, common medium, and few coarse roots; strongly acid; clear smooth boundary.
Bt1—7 to 17 inches; red (2.5YR 4/6) clay loam; weak medium subangular blocky structure; friable; common fine and few medium roots; common thin clay films on faces of peds; few very fine pores; very strongly acid; clear wavy boundary.
Bt2—17 to 33 inches; red (2.5YR 4/6) clay loam; weak coarse subangular blocky structure; friable; about 20 percent of the mass occurring as weak coarse prisms or clusters of reticulately mottled red (2.5YR 4/6) clay loam and brownish yellow (10YR 6/6) loam; massive, hard, and slightly brittle interiors of mottled parts; few fine roots; common thin clay films on faces of peds; common fine vesicular pores in the loam and few fine vesicular pores in the matrix; very strongly acid; gradual wavy boundary.
Bt3—33 to 42 inches; red (2.5YR 4/6) sandy loam; few fine brownish yellow (10YR 6/6) streaks; weak coarse subangular blocky structure; friable; few fine roots; common thin clay films on faces of peds; common fine vesicular pores; few thin coatings of clean sand along vertical cracks; about 10 percent, by volume, ironstone nodules, as much as 2 inches in diameter, the centers of which are filled with loose sand; very strongly acid; gradual smooth boundary.
Bt4—42 to 60 inches; red (2.5YR 4/6) sandy loam; weak coarse prismatic structure parting to weak coarse subangular blocky; friable; common thin clay films on faces of peds; many fine vesicular pores; few 1- to 3-inch pockets of yellowish brown (10YR 5/4) clean sand; about 10 percent, by volume, ironstone nodules; very strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The A horizon has hue of 10YR and has value of 4 and chroma of 2 or 3 or value of 3 and chroma of 2. The Ap horizon, if it occurs, has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. It is loam or sandy loam.

The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is loam or sandy loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 6 or 8. In some pedons it is mottled in shades of brown, yellow, or red. The upper part of this horizon is clay loam, sandy clay loam, or loam, and the lower part is sandy loam or loam and has pockets of uncoated sand grains. The content of ironstone and quartz pebbles ranges, by volume, from 0 to 10 percent.

Waverly Series

The Waverly series consists of deep, poorly drained soils on low flood plains. These soils formed in thinly stratified, silty alluvium that washed from soils on loess-covered uplands. Slopes are 0 to 1 percent.

Waverly soils are on the same landscape as Falaya and Collins soils and are commonly adjacent to those soils. Falaya soils are somewhat poorly drained and are at intermediate levels on the bottom land. The upper part of their C horizon is brown and has gray mottles. Collins soils are moderately well drained and are on the highest parts of the flood plains. They are dominantly brown in the upper 20 inches.

Typical pedon of Waverly silt loam, in an area of Waverly and Rosebloom silt loams, frequently flooded; 1,500 feet south of Mud Creek and 4,100 feet east of the Obion County line:

Ap—0 to 6 inches; brown (10YR 5/3) silt loam; common medium faint gray (10YR 6/1) and dark yellowish brown (10YR 4/4) and few fine distinct strong brown (7.5YR 5/6) mottles; dominantly weak coarse granular structure but massive in some parts; friable; common medium and many fine roots; remnants of weak thin depositional strata in the massive parts; strongly acid; abrupt wavy boundary.
Bg1—6 to 13 inches; light brownish gray (10YR 6/2) silt loam; common coarse faint brown (10YR 5/3) and common coarse distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine black stains; strongly acid; clear smooth boundary.
Bg2—13 to 29 inches; gray (10YR 6/1) silt loam; common medium faint brown (10YR 5/3) and common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; very few fine roots; common fine black stains; very strongly acid; clear smooth boundary.
Cg—29 to 70 inches; gray (10YR 6/1) silt loam; few coarse faint brown (10YR 5/3) mottles; massive; friable; strongly acid.

Reaction is strongly acid or very strongly acid throughout the profile unless lime has been recently added to the surface layer.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. The Bg horizon has hue of 10YR or

2.5Y and value of 6 or 7 and chroma of 2 or value of 4 to 7 and chroma of 1, or it is neutral in hue. It has common or few mottles in shades of brown or yellow.

Some pedons have buried A and B horizons below a depth of 20 inches. The Cg horizon has colors and textures similar to those of the Bg horizon.

Formation of the Soils

This section relates the factors of soil formation to the soils in Weakley County. Soils differ from one another because of variations in the material in which they formed and in the environment affecting the parent material. By studying the characteristics of an existing soil, one can build a model that shows the stages and many of the interrelated processes of soil formation. The soil characteristics provide a basis for classifying the soil in the taxonomic system.

Soils form as a result of the interaction of parent material, climate, living organisms, topography, and time *(3)*. All of these factors influence the formation of every soil, but the extent to which each factor affects soil formation varies from place to place. The effect of any one factor is modified to some extent by the effects of the other four.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. It determines the limits of the mineralogical and chemical characteristics of the soil.

Most of the soils on uplands in Weakley County formed in chemically altered deposits of loess, but a few of these soils formed in loamy old Coastal Plain deposits. Loring, Grenada, Memphis, and Calloway are examples of soils that formed in thick deposits of loess. They have a high content of silt and a very low content of sand. Smithdale soils formed in thick deposits of loamy Coastal Plain sediments. They have a high content of sand.

The soils on flood plains in Weakley County formed in material washed from the uplands. Their characteristics reflect those of the soils in the uplands from which the sediments originated. Thus, Collins, Falaya, and Rosebloom soils have a high content of silt because they formed in silty alluvium derived from soils on loess-covered uplands.

Climate

Climate directly affects the accumulation of parent material and the development of soil horizons. It regulates the rate of physical and chemical weathering in the parent material, including the processes of leaching, eluviation, and illuviation. Climate also influences the plant and animal life in a given locality.

The warm and humid, temperate climate in Weakley County favors the rapid physical and chemical decomposition of soil particles, minerals, and organic matter. Leaching, eluviation, illuviation, and oxidation are intensive. The resulting soils generally have a low content of organic matter and a medium or low supply of bases.

The local differences in climate caused by variations in slope, drainage, and kind of landform affect soil formation. The steeper slopes are more rapidly eroded and have higher rates of runoff than the more gentle slopes. Areas that are nearly level or concave accumulate water from the surrounding areas and may have several times as much water available for infiltration, percolation, and leaching. North- and east-facing slopes are generally cooler and stay moist longer than equivalent south- and west-facing slopes.

Living Organisms

Many of the processes through which parent material is transformed into soil are strongly influenced by living organisms and their remains and by-products. Plant remains make up the main part of the organic matter that is incorporated into a soil. Other living organisms, including earthworms, fungi, bacteria, insects, and various micro-organisms, also contribute organic matter to the soil.

Living organisms bring about both physical and chemical changes in soils. Mechanical mixing, separation of soil and rock particles, and reconstitution result from physical ingestion by the simpler animals, the formation of tunnels and burrows, and the prying and penetrating action of roots. These mechanical changes in the soil result in deeper penetration of water and air and increase the depth of chemical weathering.

Plant roots absorb nutrients from deep within the soil material and transport them into leaf, twig, and stem tissues, which eventually die, fall to the surface, and enrich the soil. Organic acids resulting from the decay of organisms are leached downward into the soil,

removing bases and chemically altering clay minerals.

The soils in Weakley County formed almost entirely under a hardwood forest. There were differences in the density of the stands, in the relative proportions of species, and in the kinds of associated ground cover. These differences alone, however, were not sufficient to account for the marked differences in properties among the more strongly developed soils in the county.

Topography

Topography, including relief, slope, kind of landform, and aspect, influences or modifies the effects of the other soil-forming factors. The steepness, shape, and length of slopes directly influence the rate of water infiltration and the runoff rate. If other factors are equal, areas where runoff is more rapid are more eroded than other areas. Gullies have formed on some of the steeper slopes, in effect removing the soils that formed in deposits of loess and exposing the ancient Smithdale soils, which formed in loamy Coastal Plain sediments before the loess was deposited.

Water tends to concentrate in concave areas. The amount of water that penetrates the surface is greater on the gentler slopes than on the steeper slopes. Free water moving downward through many of the soils in the county is trapped or perched above a relatively impermeable fragipan, where it stands for days or weeks or in places moves away laterally.

The soils on the flood plains in the county are periodically covered with fresh sediments washed from the uplands. This repeated deposition results in stratified soils that are characterized by minimal profile development.

Time

The time required for a soil to form depends on the combined influences of the other factors of soil formation. The accumulation of parent material generally requires much more time than the development of soil horizons. Less time is generally required for a soil to form in a warm, humid region that has luxuriant vegetation than in a dry, cold region that has sparse vegetation. Much less time is required if the parent material is permeable, is on gentle slopes, and is highly weatherable.

The soils in Weakley County range from young to very old. Most of the soils on flood plains are young. Examples are Collins, Falaya, and Waverly soils. Most of the soils on uplands are considerably older. They formed in deposits of silty loess that were subject to repeated cycles of weathering over several thousand years. Examples are Memphis, Loring, and Grenada soils.

The oldest soils in the county are those that formed in ancient Coastal Plain sediments. They underlie the deposits of loess throughout the county. They are exposed as Smithdale soils in steep areas where the loess is washed away. Smithdale soils formed over many thousands of years in sediments deposited millions of years ago.

References

(1) American Association of State Highway and Transportation Officials. 1982. Standard specifications for highway materials and methods of sampling and testing. Ed. 13, 2 vols., illus.

(2) American Society for Testing and Materials. 1988. Standard test method for classification of soils for engineering purposes. ASTM Stand. D 2487.

(3) Jenny, Hans. 1941. Factors of soil formation. 281 pp., illus.

(4) Soil Science Society of America and American Society of Agronomy. 1966. Soil surveys and land use planning. 196 pp., illus.

(5) United States Department of Agriculture. 1951 (being revised). Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus.

(6) United States Department of Agriculture. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210, 21 pp.

(7) United States Department of Agriculture. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric. Handb. 436, 754 pp., illus.

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.

Alkali (sodic) soil. Soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

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 40-inch profile or to a limiting layer is expressed as:

Very low	less than 2.0
Low	2.0 to 4.0
Moderate	4.0 to 6.0
High	greater than 6.0

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.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay 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 constructing terraces, diversions, and other water-control measures 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.

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.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another

within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

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 the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay are 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.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

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

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

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.

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.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

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.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

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.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

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).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma.

For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value 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 in moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

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.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rooting depth (in tables). There is a 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 groundwater 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.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

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

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

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.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

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.

Skeletans. Small, patchy grayish areas within a soil that have been largely stripped or eluviated of iron and clay, leaving mostly bleached silt-sized particles of quartz. May be considered an early step in the formation of E horizons, silt coatings, and silt tongues.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil is generally silty or clayey, is slippery when wet, and is low in productivity.

Slippage (in tables). The soil mass is susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

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 water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

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

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). An otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

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.

Unstable fill (in tables). There is a risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-80 at Martin, 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	45.9	26.5	36.2	72	-1	37	4.32	2.08	6.25	7	2.8
February	50.6	29.6	40.1	75	4	50	4.21	2.20	5.96	7	1.0
March	60.0	38.1	49.1	82	15	150	5.84	2.97	8.34	8	1.5
April	72.1	48.5	60.3	87	29	317	5.02	3.14	6.70	9	.1
May	80.1	56.9	68.5	93	37	574	4.72	2.67	6.53	8	.0
June	88.0	64.7	76.4	99	49	792	4.42	2.26	6.31	6	.0
July	90.6	68.1	79.4	99	55	911	4.87	2.39	7.02	7	.0
August	90.1	66.3	78.2	100	52	874	3.29	1.21	5.02	5	.0
September	84.3	59.9	72.1	97	41	663	3.72	1.38	5.66	5	.0
October	73.9	47.4	60.7	90	28	346	2.66	1.18	3.94	5	.0
November	60.2	38.0	49.1	82	15	84	4.50	2.32	6.39	6	.0
December	49.8	31.0	40.4	72	5	27	4.44	2.22	6.37	7	.7
Yearly:											
Average	70.5	47.9	59.2	---	---	---	---	---	---	---	---
Extreme	---	---	---	102	-4	---	---	---	---	---	---
Total	---	---	---	---	---	4,825	52.01	42.97	60.63	80	6.1

* 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 1951-80 at Martin, 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--	Apr. 9	Apr. 11	Apr. 21
2 years in 10 later than--	Mar. 31	Apr. 6	Apr. 17
5 years in 10 later than--	Mar. 14	Mar. 27	Apr. 7
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 31	Oct. 24	Oct. 17
2 years in 10 earlier than--	Nov. 5	Oct. 29	Oct. 20
5 years in 10 earlier than--	Nov. 15	Nov. 7	Oct. 27

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-80 at Martin, 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	214	205	186
8 years in 10	225	212	192
5 years in 10	245	224	202
2 years in 10	266	236	213
1 year in 10	276	243	218

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Ca	Calloway silt loam	11,023	3.0
Ce	Center silt loam	3,902	1.1
Cn	Collins silt loam, rarely flooded	4,568	1.2
Co	Collins silt loam, occasionally flooded	27,866	7.6
Fa	Falaya silt loam, rarely flooded	3,523	1.0
Fb	Falaya silt loam, occasionally flooded	26,556	7.2
GrB2	Grenada silt loam, 2 to 5 percent slopes, eroded	25,582	6.9
GrC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded	11,591	3.1
LeB2	Lexington silt loam, 2 to 5 percent slopes, eroded	735	0.2
LeC3	Lexington silt loam, 5 to 8 percent slopes, severely eroded	1,466	0.4
LeD3	Lexington silt loam, 8 to 12 percent slopes, severely eroded	4,351	1.2
LeE3	Lexington silt loam, 12 to 20 percent slopes, severely eroded	3,641	1.0
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	53,180	14.5
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	26,861	7.3
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	50,439	13.7
LoE3	Loring silt loam, 12 to 20 percent slopes, severely eroded	7,165	1.9
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded	10,345	2.8
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded	3,856	1.0
Oc	Ochlockonee loam, rarely flooded	500	0.1
Oh	Ochlockonee loam, occasionally flooded	4,326	1.2
RO	Rosebloom silt loam, ponded	4,770	1.3
Rt	Routon silt loam	18,243	4.9
SmF2	Smithdale-Loring complex, 15 to 35 percent slopes, eroded	18,485	5.0
SpF	Smithdale-Pikeville complex, 20 to 45 percent slopes	813	0.2
UPF	Udorthents-Pits complex, steep	1,686	0.5
USF	Udorthents-Smithdale complex, gullied	9,951	2.7
Wa	Waverly silt loam, rarely flooded	815	0.2
WR	Waverly and Rosebloom silt loams, frequently flooded	31,169	8.5
	Water	1,192	0.3
	Total	368,600	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)

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Wheat	Alfalfa hay	Tall fescue
		Bu	Bu	Bu	Bu	Tons	AUM*
Ca---- Calloway	IIe	85	75	30	35	---	8.0
Ce---- Center	IIw	90	80	35	40	---	8.0
Cn---- Collins	I	120	95	45	50	4.0	9.5
Co---- Collins	IIw	115	95	45	45	3.7	9.5
Fa---- Falaya	IIw	105	90	40	40	---	8.0
Fb---- Falaya	IIw	100	85	40	35	---	8.0
GrB2---- Grenada	IIe	80	70	30	40	---	7.5
GrC3---- Grenada	IVe	---	---	20	30	---	6.0
LeB2---- Lexington	IIe	85	75	35	45	4.0	8.0
LeC3---- Lexington	IVe	65	55	25	40	3.7	6.5
LeD3---- Lexington	VIe	---	---	---	30	3.2	5.0
LeE3---- Lexington	VIe	---	---	---	---	---	4.5
LoB2---- Loring	IIe	90	75	35	45	3.8	7.5
LoC3---- Loring	IVe	65	55	20	35	---	6.0
LoD3---- Loring	VIe	---	---	---	30	---	5.5
LoE3---- Loring	VIIe	---	---	---	---	---	5.0
MeB2---- Memphis	IIe	100	85	40	45	4.5	8.5
MeC2---- Memphis	IIIe	85	75	35	40	4.2	7.5
Oc---- Ochlockonee	I	110	90	40	45	4.0	9.5

See footnote at end of table.

TABLE 5.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Wheat	Alfalfa hay	Tall fescue
		Bu	Bu	Bu	Bu	Tons	AUM*
Oh--Ochlockonee	IIw	110	90	40	40	---	9.5
RO--Rosebloom	VIw	---	---	---	---	---	---
Rt--Routon	IIIw	70	65	35	35	---	7.0
SmF2--Smithdale-Loring	VIIe	---	---	---	---	---	---
SpF--Smithdale-Pikeville	VIIe	---	---	---	---	---	---
UPF. Udorthents-Pits							
USF--Udorthents-Smithdale	VIIe	---	---	---	---	---	---
Wa--Waverly	IIIw	70	70	25	---	---	7.5
WR--Waverly and Rosebloom	Vw	---	---	---	---	---	6.5

* 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

(Miscellaneous areas are excluded. Absence of an entry indicates no acreage)

Class	Total acreage	Major management concerns (Subclass)	
		Erosion (e)	Wetness (w)
		Acres	Acres
I	5,068	---	---
II	167,038	100,865	66,173
III	22,914	3,856	19,058
IV	39,918	39,918	---
V	31,169	---	31,169
VI	63,201	58,431	4,770
VII	36,414	36,414	---
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)

Map symbol and soil name	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
Ca Calloway	Slight	Moderate	Slight	Moderate	Loblolly pine Cherrybark oak Shortleaf pine Sweetgum Water oak	80 80 70 80 80	129 114 114 86 72	Sweetgum, loblolly pine.
Ce Center	Slight	Moderate	Slight	Moderate	Southern red oak Eastern cottonwood Water oak Sweetgum Yellow poplar American sycamore Cherrybark oak	75 95 85 90 90 90 85	157 114 86 100 86 100 114	Eastern cottonwood, water oak, sweetgum, American sycamore, southern red oak, cherrybark oak.
Cn, Co Collins	Slight	Moderate	Slight	Severe	Green ash Eastern cottonwood Cherrybark oak Yellow poplar	95 115 110 110	129 143 186 114	Green ash, eastern cottonwood, cherrybark oak, yellow poplar.
Fa, Fb Falaya	Slight	Moderate	Slight	Severe	Eastern cottonwood Cherrybark oak Nuttall oak Water oak Green ash	100 102 109 102 92	129 157 100 100 129	Eastern cottonwood, green ash, cherrybark oak, yellow poplar, sweetgum.
GrB2 Grenada	Slight	Moderate	Slight	Moderate	Loblolly pine Southern red oak Cherrybark oak Shortleaf pine Sweetgum	85 80 85 75 80	114 57 100 114 86	Water oak, Shumard oak, cherrybark oak, loblolly pine, white oak, shortleaf pine, sweetgum.
GrC3 Grenada	Moderate	Moderate	Slight	Moderate	Loblolly pine Southern red oak Cherrybark oak Shortleaf pine Sweetgum	85 80 85 75 80	114 57 100 114 86	Water oak, Shumard oak, cherrybark oak, loblolly pine, white oak, shortleaf pine, slash pine, sweetgum.
LeB2 Lexington	Slight	Moderate	Slight	Moderate	Southern red oak Cherrybark oak Loblolly pine Shortleaf pine Sweetgum Yellow poplar	70 85 80 70 89 90	57 114 114 114 100 86	Cherrybark oak, yellow poplar, sweetgum, loblolly pine, shortleaf pine, southern red oak.
LeC3, LeD3 Lexington	Moderate	Moderate	Slight	Moderate	Southern red oak Cherrybark oak Loblolly pine Shortleaf pine Sweetgum Yellow poplar	70 80 80 70 89 90	57 100 114 114 100 86	Cherrybark oak, yellow poplar, sweetgum, loblolly pine, shortleaf pine, southern red oak.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
LeE3---------- Lexington	Severe	Moderate	Slight	Moderate	Southern red oak----	70	57	Cherrybark oak, yellow poplar, sweetgum, loblolly pine, shortleaf pine, southern red oak.
					Cherrybark oak------	80	100	
					Loblolly pine-------	80	114	
					Shortleaf pine------	70	114	
					Sweetgum------------	89	100	
					Yellow poplar-------	90	86	
LoB2---------- Loring	Slight	Moderate	Slight	Moderate	Southern red oak----	74	57	Yellow poplar, cherrybark oak, southern red oak, loblolly pine, shortleaf pine.
					Cherrybark oak------	86	100	
					Sweetgum------------	90	100	
					Loblolly pine-------	85	114	
					Yellow poplar-------	90	86	
LoC3, LoD3------ Loring	Moderate	Moderate	Slight	Moderate	Southern red oak----	74	57	Yellow poplar, cherrybark oak, southern red oak, loblolly pine, shortleaf pine.
					Cherrybark oak------	86	100	
					Sweetgum------------	90	100	
					Loblolly pine-------	85	114	
					Yellow poplar-------	90	86	
LoE3---------- Loring	Severe	Moderate	Slight	Moderate	Southern red oak----	74	57	Yellow poplar, cherrybark oak, southern red oak, loblolly pine, shortleaf pine.
					Cherrybark oak------	86	100	
					Sweetgum------------	90	100	
					Loblolly pine-------	85	114	
					Yellow poplar-------	90	86	
MeB2---------- Memphis	Slight	Moderate	Slight	Moderate	Loblolly pine-------	90	129	Cherrybark oak, loblolly pine, yellow poplar.
					Cherrybark oak------	90	114	
					Sweetgum------------	90	100	
					Yellow poplar-------	95	100	
MeC2---------- Memphis	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	90	129	Cherrybark oak, loblolly pine, yellow poplar.
					Cherrybark oak------	90	114	
					Sweetgum------------	90	100	
					Yellow poplar-------	95	100	
Oc, Oh---------- Ochlockonee	Slight	Moderate	Slight	Moderate	Eastern cottonwood--	100	129	Yellow poplar, eastern cottonwood, cherrybark oak.
					Yellow poplar-------	110	129	
					Sweetgum------------	90	100	
					Green ash-----------	100	114	
					Cherrybark oak------	100	143	
RO---------- Rosebloom	Slight	Severe	Severe	Slight	Baldcypress---------	80	57	Baldcypress.
					Water tupelo--------	---	---	
					Black willow--------	---	---	
Rt---------- Routon	Slight	Moderate	Moderate	Moderate	Southern red oak----	80	57	Cherrybark oak, eastern cottonwood, American sycamore, white ash, sweetgum.
					Cherrybark oak------	100	143	
					White oak-----------	80	57	
					Willow oak----------	90	86	
					Sweetgum------------	105	157	
					White ash-----------	90	---	
					Eastern cottonwood--	105	143	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Management concerns				Potential productivity			Trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Volume*	
SmF2:								
Smithdale	Moderate	Moderate	Slight	Moderate	Loblolly pine	80	57	Loblolly pine.
					Shortleaf pine	69	57	
Loring	Severe	Moderate	Slight	Moderate	Southern red oak	74	57	Yellow poplar,
					Cherrybark oak	86	100	cherrybark oak,
					Sweetgum	90	100	southern red oak,
					Loblolly pine	85	114	loblolly pine,
								shortleaf pine.
SpF:								
Smithdale	Moderate	Moderate	Slight	Moderate	Loblolly pine	80	57	Loblolly pine.
					Shortleaf pine	69	57	
Pikeville	Moderate	Moderate	Slight	Moderate	Loblolly pine	80	57	Loblolly pine.
					Shortleaf pine	70	57	
					Virginia pine	70	72	
USF:								
Udorthents.								
Smithdale	Moderate	Moderate	Slight	Moderate	Loblolly pine	80	57	Loblolly pine.
					Shortleaf pine	69	57	
Wa	Slight	Moderate	Moderate	Severe	Cherrybark oak	100	143	Cherrybark oak,
Waverly					Eastern cottonwood	105	143	eastern
					Nuttall oak	100	100	cottonwood, water
					Water oak	95	86	oak, willow oak,
					Willow oak	95	86	sweetgum, American
					Sweetgum	100	143	sycamore, water
								tupelo, loblolly
								pine.
WR:								
Waverly	Slight	Moderate	Severe	Severe	Cherrybark oak	100	143	Cherrybark oak,
					Eastern cottonwood	105	143	eastern
					Nuttall oak	100	100	cottonwood, water
					Water oak	95	86	oak, willow oak,
					Willow oak	95	86	sweetgum, American
					Sweetgum	100	143	sycamore, water
								tupelo, loblolly
								pine.
Rosebloom	Slight	Moderate	Severe	Severe	Cherrybark oak	95	129	Cherrybark oak,
					Green ash	95	72	green ash,
					Eastern cottonwood	100	129	eastern
					Nuttall oak	95	86	cottonwood,
					Water oak	95	86	Nuttall oak,
					Willow oak	90	86	water oak, willow
					Sweetgum	95	114	oak, loblolly
					American sycamore	80	86	pine, sweetgum.

* 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)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ca Calloway	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Ce Center	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Cn Collins	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
Co Collins	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Slight	Moderate: flooding.
Fa, Fb Falaya	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, flooding.
GrB2 Grenada	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
GrC3 Grenada	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness.
LeB2 Lexington	Slight	Slight	Moderate: slope.	Slight	Slight.
LeC3 Lexington	Slight	Slight	Severe: slope.	Slight	Slight.
LeD3 Lexington	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
LeE3 Lexington	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
LoB2 Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Slight.
LoC3 Loring	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight	Slight.
LoD3 Loring	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
LoE3 Loring	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
MeB2 Memphis	Slight	Slight	Moderate: slope.	Slight	Slight.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
MeC2---------- Memphis	Slight	Slight	Severe: slope.	Slight	Slight.
Oc---------- Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Slight.
Oh---------- Ochlockonee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
RO---------- Rosebloom	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Rt---------- Routon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
SmF2:					
Smithdale----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Loring----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
SpF:					
Smithdale----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pikeville----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
UPF:					
Udorthents.					
Pits.					
USF:					
Udorthents.					
Smithdale----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wa---------- Waverly	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
WR:					
Waverly----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Rosebloom----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.

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)

Map symbol and soil name	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
Ca---- Calloway	Fair	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
Ce---- Center	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Cn, Co---- Collins	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Fa, Fb---- Falaya	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
GrB2---- 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.
LeB2---- Lexington	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LeC3, LeD3---- Lexington	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LeE3---- Lexington	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
LoB2---- Loring	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LoC3, LoD3---- Loring	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LoE3---- Loring	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MeB2---- Memphis	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MeC2---- Memphis	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Oc, Oh---- Ochlockonee	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RO---- Rosebloom	Very poor.	Poor	Poor	Poor	---	Good	Good	Poor	Poor	Good.
Rt---- Routon	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
SmF2:										
Smithdale----	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Loring----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	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
SpF:										
Smithdale	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Pikeville	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
UPF:										
Udorthents.										
Pits.										
USF:										
Udorthents.										
Smithdale	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Wa	Poor	Fair	Good	Fair	---	Good	Fair	Fair	Fair	Fair.
Waverly										
WR:										
Waverly	Poor	Fair	Fair	Fair	---	Good	Fair	Fair	Fair	Fair.
Rosebloom	Poor	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.

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; it does not eliminate the need for onsite investigation)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ca Calloway	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
Ce Center	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength.	Moderate: wetness.
Cn Collins	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Slight.
Co Collins	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
Fa Falaya	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Moderate: low strength, wetness, flooding.	Moderate: wetness.
Fb Falaya	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.
GrB2 Grenada	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Moderate: wetness.
GrC3 Grenada	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Moderate: wetness.
LeB2 Lexington	Severe: cutbanks cave.	Slight	Slight	Slight	Severe: low strength.	Slight.
LeC3 Lexington	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
LeD3 Lexington	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
LeE3 Lexington	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
LoB2 Loring	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Slight.
LoC3 Loring	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength.	Slight.
LoD3 Loring	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength.	Moderate: slope.
LoE3 Loring	Severe: wetness, slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
MeB2--- Memphis	Slight	Slight	Slight	Slight	Severe: low strength.	Slight.
MeC2--- Memphis	Slight	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
Oc--- Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Slight.
Oh--- Ochlockonee	Moderate: wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
RO--- Rosebloom	Severe: ponding, cutbanks cave.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
Rt--- Routon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
SmF2:						
Smithdale---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Loring---	Severe: wetness, slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
SpF:						
Smithdale---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Pikeville---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
UPF:						
Udorthents.						
Pits.						
USF:						
Udorthents.						
Smithdale---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Wa--- Waverly	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, low strength.	Severe: wetness.
WR:						
Waverly---	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, low strength.	Severe: wetness, flooding.
Rosebloom---	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.

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; it does not eliminate the need for onsite investigation)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ca Calloway	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ce Center	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Cn Collins	Severe: wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Co Collins	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Fa Falaya	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Fb Falaya	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
GrB2, GrC3 Grenada	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: wetness.
LeB2, LeC3 Lexington	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too clayey.
LeD3 Lexington	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.
LeE3 Lexington	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
LoB2, 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.	Fair: wetness, slope.
LoE3 Loring	Severe: wetness, percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
MeB2, MeC2 Memphis	Slight	Moderate: seepage, slope.	Slight	Slight	Good.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Oc Ochlockonee	Severe: wetness.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: wetness.
Oh Ochlockonee	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: wetness.
RO Rosebloom	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
Rt Routon	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
SmF2: Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Loring	Severe: wetness, percs slowly, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
SpF: Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Pikeville	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
UPF: Udorthents.					
Pits.					
USF: Udorthents.					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Wa Waverly	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
WR: Waverly	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Rosebloom	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: 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; it does not eliminate the need for onsite investigation)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ca Calloway	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Ce Center	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Cn, Co Collins	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Fa, Fb Falaya	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
GrB2, GrC3 Grenada	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
LeB2, LeC3 Lexington	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
LeD3 Lexington	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
LeE3 Lexington	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
LoB2, 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.
LoE3 Loring	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MeB2, MeC2 Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Oc, Oh Ochlockonee	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
RO Rosebloom	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Rt Routon	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
SmF2:				
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Loring	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
SpF:				
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Pikeville	Poor: slope.	Improbable: excess fines.	Probable	Poor: small stones, area reclaim, slope.
UPF:				
Udorthents.				
Pits.				
USF:				
Udorthents.				
Smithdale	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Wa	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Waverly				
WR:				
Waverly	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Rosebloom	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

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; it does not eliminate the need for onsite investigation)

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ca Calloway	Moderate: seepage.	Severe: thin layer.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, rooting depth.	Wetness, erodes easily, rooting depth.
Ce Center	Slight	Severe: piping, wetness.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
Cn Collins	Moderate: seepage.	Severe: piping.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
Co Collins	Moderate: seepage.	Severe: piping.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Erodes easily.
Fa Falaya	Moderate: seepage.	Severe: piping, wetness.	Poor outlets	Wetness, percs slowly, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
Fb Falaya	Moderate: seepage.	Severe: piping, wetness.	Flooding, poor outlets.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
GrB2, GrC3 Grenada	Moderate: seepage, slope.	Severe: piping.	Percs slowly, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Erodes easily, rooting depth.
LeB2, LeC3 Lexington	Severe: seepage.	Severe: thin layer.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
LeD3, LeE3 Lexington	Severe: seepage, slope.	Severe: thin layer.	Deep to water	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
LoB2, LoC3 Loring	Moderate: seepage, slope.	Moderate: piping, wetness.	Slope, percs slowly.	Percs slowly, rooting depth, slope.	Erodes easily, wetness, rooting depth.	Erodes easily, rooting depth.
LoD3, LoE3 Loring	Severe: slope.	Moderate: piping, wetness.	Slope, percs slowly.	Percs slowly, rooting depth, slope.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
MeB2, MeC2 Memphis	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
Oc, Oh Ochlockonee	Severe: seepage.	Severe: piping.	Deep to water	Flooding	Favorable	Favorable.
RO Rosebloom	Moderate: seepage.	Severe: ponding.	Ponding, flooding.	Ponding, erodes easily, flooding.	Erodes easily, ponding.	Wetness, erodes easily.
Rt Routon	Slight	Severe: piping, wetness.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
SmF2:						
Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
Loring	Severe: slope.	Moderate: piping, wetness.	Slope, percs slowly.	Percs slowly, rooting depth, slope.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
SpF:						
Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
Pikeville	Severe: seepage, slope.	Severe: seepage.	Deep to water	Slope	Slope, erodes easily.	Slope, erodes easily.
UPF:						
Udorthents.						
Pits.						
USF:						
Udorthents.						
Smithdale	Severe: seepage, slope.	Severe: piping.	Deep to water	Slope	Slope	Slope.
Wa Waverly	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
WR:						
Waverly	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.
Rosebloom	Moderate: seepage.	Severe: wetness.	Flooding	Wetness, erodes easily, flooding.	Erodes easily, wetness.	Wetness, erodes easily.

TABLE 14.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Ca Calloway	0-22	Silt loam	CL-ML, CL	A-4, A-6	100	100	100	90-100	25-35	5-15
	22-51	Silt loam, silty clay loam.	CL	A-6	100	100	100	90-95	30-40	12-20
	51-66	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	100	100	100	90-100	25-35	5-15
Ce Center	0-7	Silt loam	ML, CL, CL-ML	A-4, A-6	100	95-100	90-100	80-100	<30	3-11
	7-45	Silty clay loam, silt loam.	CL, ML	A-6, A-4	100	95-100	95-100	90-100	28-40	8-16
	45-60	Silt loam	ML, CL, CL-ML	A-4, A-6	100	95-100	90-100	80-100	<30	3-11
Cn, Co Collins	0-8	Silt loam	ML, CL, CL-ML	A-4	100	100	85-100	70-90	<30	NP-8
	8-70	Silt loam, silt	ML, CL-ML	A-4	100	100	100	90-100	<35	NP-10
Fa, Fb Falaya	0-62	Silt loam	ML, CL-ML, CL	A-4	100	100	100	95-100	<30	NP-10
GrB2 Grenada	0-6	Silt loam	ML, CL-ML	A-4	100	100	95-100	90-100	25-31	4-7
	6-24	Silt loam, silty clay loam.	CL	A-6, A-4	100	100	95-100	90-100	27-40	8-19
	24-28	Silt loam	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	28-65	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-7, A-4	100	100	95-100	90-100	25-45	5-24
GrC3 Grenada	0-6	Silt loam	ML, CL-ML	A-4	100	100	95-100	90-100	25-31	4-7
	6-14	Silt loam, silty clay loam.	CL	A-6, A-4	100	100	95-100	90-100	27-40	8-19
	14-18	Silt loam	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	18-60	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-7, A-4	100	100	95-100	90-100	25-45	5-24
LeB2 Lexington	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	100	95-100	90-100	70-100	25-42	5-16
	5-42	Silty clay loam, silt loam.	CL	A-6, A-7	100	95-100	90-100	75-100	27-45	11-25
	42-65	Sandy loam, loam, sandy clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	100	95-100	50-85	20-65	22-35	5-15
LeC3, LeD3, LeE3- Lexington	0-5	Silt loam	ML, CL, CL-ML	A-4, A-6, A-7	100	95-100	90-100	70-100	25-42	5-16
	5-36	Silty clay loam, silt loam.	CL	A-6, A-7	100	95-100	90-100	75-100	27-45	11-25
	36-60	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	100	95-100	50-85	20-65	22-35	5-15
LoB2 Loring	0-6	Silt loam	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	<35	NP-15
	6-29	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	100	100	95-100	90-100	32-48	10-20
	29-65	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	10-22

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
LoC3---------- Loring	0-5	Silt loam--------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	<35	NP-15
	5-20	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	100	100	95-100	90-100	32-48	10-20
	20-56	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	10-22
	56-65	Silt loam--------	CL, ML	A-4, A-6	100	100	95-100	70-100	28-40	7-16
LoD3, LoE3------- Loring	0-5	Silt loam--------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	<35	NP-15
	5-17	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	100	100	95-100	90-100	32-48	10-20
	17-53	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	10-22
	53-65	Silt loam--------	CL, ML	A-4, A-6	100	100	95-100	70-100	28-40	7-16
MeB2---------- Memphis	0-8	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	8-29	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	100	90-100	35-48	15-25
	29-65	Silt loam--------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
MeC2---------- Memphis	0-6	Silt loam--------	ML, CL-ML, CL	A-4	100	100	100	90-100	<30	NP-10
	6-26	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	100	90-100	35-48	15-25
	26-65	Silt loam--------	ML, CL	A-4, A-6	100	100	100	90-100	30-40	6-15
Oc, Oh---------- Ochlockonee	0-6	Loam----------	ML, CL-ML	A-4	100	95-100	95-100	50-90	<30	NP-7
	6-33	Fine sandy loam, sandy loam, silt loam.	SM, ML, SC, CL	A-4	100	95-100	95-100	36-75	<32	NP-9
	33-65	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	100	95-100	85-99	13-80	<32	NP-9
RO---------- Rosebloom	0-5	Silt loam--------	CL, CL-ML	A-4, A-6	100	100	90-100	80-95	28-40	9-20
	5-62	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	90-100	85-100	28-45	11-25
Rt---------- Routon	0-18	Silt loam--------	ML, CL, CL-ML	A-4, A-6	100	100	90-100	85-95	16-32	3-12
	18-51	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	100	100	90-100	90-95	20-40	5-17
	51-60	Silt loam--------	ML, CL, CL-ML	A-4, A-6	100	100	90-100	85-95	16-32	3-12
SmF2:										
Smithdale-------	0-7	Loam----------	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	7-33	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	33-60	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
Loring----------	0-5	Silt loam--------	ML, CL-ML, CL	A-4, A-6	100	100	95-100	90-100	<35	NP-15
	5-20	Silt loam, silty clay loam.	CL, ML	A-6, A-7, A-4	100	100	95-100	90-100	32-48	10-20
	20-56	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	100	100	95-100	90-100	30-45	10-22
	56-65	Silt loam--------	CL, ML	A-4, A-6	100	100	95-100	70-100	28-40	7-16

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
SpF:										
Smithdale	0-7	Loam	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	7-36	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	36-60	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
Pikeville	0-9	Sandy loam	SM, ML	A-4	90-100	90-100	50-85	36-60	<30	NP-4
	9-60	Gravelly sandy loam, gravelly loam, gravelly sandy clay loam.	SC, SM, GM	A-1-b, A-2, A-4, A-6	60-90	50-85	45-75	20-45	25-48	2-18
UPF:										
Udorthents.										
Pits.										
USF:										
Udorthents.										
Smithdale	0-5	Fine sandy loam	SM, SM-SC	A-4, A-2	100	85-100	60-95	28-49	<20	NP-5
	5-30	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	100	85-100	80-96	45-75	23-38	7-16
	30-60	Loam, sandy loam	SM, ML, CL, SC	A-4	100	85-100	65-95	36-70	<30	NP-10
Wa	0-6	Silt loam	ML, CL, CL-ML	A-4	100	100	90-100	65-95	<25	NP-9
Waverly	6-70	Silt, silt loam	ML, CL, CL-ML	A-4	100	100	95-100	85-100	20-30	3-10
WR:										
Waverly	0-6	Silt loam	ML, CL, CL-ML	A-4	100	100	90-100	65-95	<25	NP-9
	6-70	Silt, silt loam	ML, CL, CL-ML	A-4	100	100	95-100	85-100	20-30	3-10
Rosebloom	0-5	Silt loam	CL	A-4, A-6	100	100	90-100	80-95	28-40	9-20
	5-62	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	90-100	85-100	28-45	11-25

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
Ca	0-22	10-27	1.40-1.55	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3	.5-2
Calloway	22-51	10-32	1.35-1.55	0.06-0.2	0.09-0.12	4.5-6.0	Low	0.43		
	51-66	16-32	1.45-1.55	0.06-0.2	0.09-0.12	5.1-6.0	Low	0.43		
Ce	0-7	12-24	1.35-1.50	0.6-2.0	0.18-0.22	5.1-6.5	Low	0.49	5	1-3
Center	7-45	18-32	1.30-1.50	0.2-0.6	0.16-0.20	5.1-6.5	Low	0.43		
	45-60	15-25	1.30-1.50	0.2-0.6	0.16-0.20	5.6-7.3	Low	0.49		
Cn, Co	0-8	7-16	1.40-1.50	0.6-2.0	0.16-0.24	4.5-5.5	Low	0.43	5	.5-2
Collins	8-70	5-18	1.40-1.50	0.6-2.0	0.20-0.24	4.5-5.5	Low	0.43		
Fa, Fb	0-62	6-18	1.25-1.45	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.49	5	.5-3
Falaya										
GrB2	0-6	12-16	1.40-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3	.5-2
Grenada	6-24	18-30	1.40-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.43		
	24-28	12-16	1.35-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49		
	28-65	15-32	1.45-1.60	0.06-0.2	0.10-0.12	4.5-6.0	Low	0.37		
GrC3	0-6	12-16	1.40-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3	.5-2
Grenada	6-14	18-30	1.40-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.43		
	14-18	12-16	1.35-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49		
	18-60	15-32	1.45-1.60	0.06-0.2	0.10-0.12	4.5-6.0	Low	0.37		
LeB2	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	3	.5-2
Lexington	5-42	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	42-65	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
LeC3, LeD3, LeE3-	0-5	12-30	1.30-1.50	0.6-2.0	0.17-0.22	4.5-6.0	Low	0.49	3	.5-2
Lexington	5-36	20-33	1.40-1.55	0.6-2.0	0.16-0.21	4.5-6.0	Low	0.43		
	36-60	15-29	1.30-1.50	2.0-6.0	0.06-0.12	4.5-6.0	Low	0.24		
LoB2	0-6	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3	.5-2
Loring	6-29	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	29-65	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		
LoC3	0-5	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3	.5-2
Loring	5-20	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	20-56	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		
	56-65	10-25	1.30-1.60	0.2-2.0	0.06-0.13	4.5-6.0	Low	0.43		
LoD3, LoE3	0-5	8-18	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	3	.5-2
Loring	5-17	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	17-53	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		
	53-65	10-25	1.30-1.60	0.2-2.0	0.06-0.13	4.5-6.0	Low	0.43		
MeB2	0-8	8-22	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	5	1-2
Memphis	8-29	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49		
	29-65	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49		
MeC2	0-6	8-22	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49	5	1-2
Memphis	6-26	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.49		
	26-65	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	Low	0.49		
Oc, Oh	0-6	7-22	1.40-1.60	2.0-6.0	0.10-0.20	4.5-5.5	Low	0.32	5	.5-2
Ochlockonee	6-33	8-18	1.40-1.60	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.32		
	33-65	3-18	1.40-1.70	2.0-6.0	0.06-0.12	4.5-5.5	Low	0.24		

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
RO	0-5	15-27	1.40-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	5	1-3
Rosebloom	5-62	20-35	1.40-1.55	0.6-2.0	0.18-0.21	4.5-5.5	Low	0.37		
Rt	0-18	15-25	1.40-1.55	0.6-2.0	0.20-0.24	4.5-6.5	Low	0.49	5	.5-2
Routon	18-51	20-35	1.35-1.50	0.06-0.2	0.18-0.22	4.5-6.5	Low	0.49		
	51-60	18-27	1.35-1.55	0.06-0.2	0.20-0.24	5.1-6.5	Low	0.49		
SmF2:										
Smithdale	0-7	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	7-33	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	33-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
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	.5-2
	5-20	18-32	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low	0.43		
	20-56	15-30	1.50-1.70	0.06-0.2	0.06-0.13	4.5-6.0	Low	0.43		
	56-65	10-25	1.30-1.60	0.2-2.0	0.06-0.13	4.5-6.0	Low	0.43		
SpF:										
Smithdale	0-7	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	7-36	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	36-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Pikeville	0-9	6-15	---	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.24	4	.5-2
	9-60	18-35	---	2.0-6.0	0.05-0.10	4.5-5.5	Low	0.10		
UPF:										
Udorthents.										
Pits.										
USF:										
Udorthents.										
Smithdale	0-5	2-15	1.40-1.50	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	.5-2
	5-30	18-33	1.40-1.55	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	30-60	12-27	1.40-1.55	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Wa	0-6	6-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	5	1-3
Waverly	6-70	10-18	1.40-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43		
WR:										
Waverly	0-6	6-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	5	1-3
	6-70	10-18	1.40-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43		
Rosebloom	0-5	15-27	1.40-1.55	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.43	5	1-3
	5-62	18-35	1.40-1.55	0.6-2.0	0.18-0.21	4.5-5.5	Low	0.37		

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)

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
Ca---------- Calloway	C	None--------	---	---	1.0-2.0	Perched	Jan-Apr	High-----	Moderate.
Ce---------- Center	C	None--------	---	---	1.0-2.5	Apparent	Jan-Apr	High-----	Moderate.
Cn---------- Collins	C	Rare--------	---	---	2.0-3.0	Apparent	Jan-Apr	Moderate	Moderate.
Co---------- Collins	C	Occasional	Brief to very long.	Jan-Apr	2.0-3.0	Apparent	Jan-Apr	Moderate	Moderate.
Fa---------- Falaya	D	Rare--------	---	---	1.0-2.0	Apparent	Dec-Apr	High-----	Moderate.
Fb---------- Falaya	D	Occasional	Brief to long.	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	High-----	Moderate.
GrB2, GrC3-------- Grenada	C	None--------	---	---	1.5-2.5	Perched	Jan-Apr	Moderate	Moderate.
LeB2, LeC3, LeD3, LeE3---------- Lexington	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
LoB2, LoC3, LoD3, LoE3---------- Loring	C	None--------	---	---	2.0-3.0	Perched	Jan-Apr	Moderate	Moderate.
MeB2, MeC2-------- Memphis	B	None--------	---	---	>6.0	---	---	Moderate	Moderate.
Oc---------- Ochlockonee	B	Rare--------	---	---	3.0-5.0	Apparent	Jan-Apr	Low------	High.
Oh---------- Ochlockonee	B	Occasional	Very brief	Dec-Apr	3.0-5.0	Apparent	Jan-Apr	Low------	High.
RO---------- Rosebloom	D	Frequent----	Brief to long.	Jan-Apr	+2-1.0	Apparent	Dec-Jun	High-----	High.
Rt---------- Routon	D	None--------	---	---	0-1.0	Apparent	Dec-Apr	High-----	Moderate.
SmF2:									
Smithdale--------	B	None--------	---	---	>6.0	---	---	Low------	Moderate.
Loring----------	C	None--------	---	---	2.0-3.0	Perched	Jan-Apr	Moderate	Moderate.
SpF:									
Smithdale--------	B	None--------	---	---	>6.0	---	---	Low------	Moderate.
Pikeville--------	B	None--------	---	---	>6.0	---	---	Low------	Moderate.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
UPF:									
Udorthents.									
Pits.									
USF:									
Udorthents.									
Smithdale	B	None	---	---	>6.0	---	---	Low	Moderate.
Wa Waverly	B/D	Rare	---	---	0.5-1.0	Apparent	Dec-Apr	High	Moderate.
WR:									
Waverly	B/D	Frequent	Brief to long.	Jan-Mar	0.5-1.0	Apparent	Dec-Apr	High	Moderate.
Rosebloom	D	Frequent	Brief to very long.	Jan-Mar	0-1.0	Apparent	Dec-Apr	High	Moderate.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Calloway	Fine-silty, mixed, thermic Glossaquic Fragiudalfs
Center	Fine-silty, mixed, thermic Aquic Hapludalfs
Collins	Coarse-silty, mixed, acid, thermic Aquic Udifluvents
Falaya	Coarse-silty, mixed, acid, thermic Aeric Fluvaquents
Grenada	Fine-silty, mixed, thermic Glossic Fragiudalfs
Lexington	Fine-silty, mixed, thermic Typic Paleudalfs
Loring	Fine-silty, mixed, thermic Typic Fragiudalfs
Memphis	Fine-silty, mixed, thermic Typic Hapludalfs
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
*Pikeville	Fine-loamy, siliceous, thermic Typic Paleudults
Rosebloom	Fine-silty, mixed, acid, thermic Typic Fluvaquents
Routon	Fine-silty, mixed, thermic Typic Ochraqualfs
Smithdale	Fine-loamy, siliceous, thermic Typic Hapludults
Udorthents	Udorthents
Waverly	Coarse-silty, mixed, acid, thermic Typic Fluvaquents

* 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.

NRCS Accessibility Statement

This document is not accessible by screen-reader software. The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.