SOIL SURVEY OF

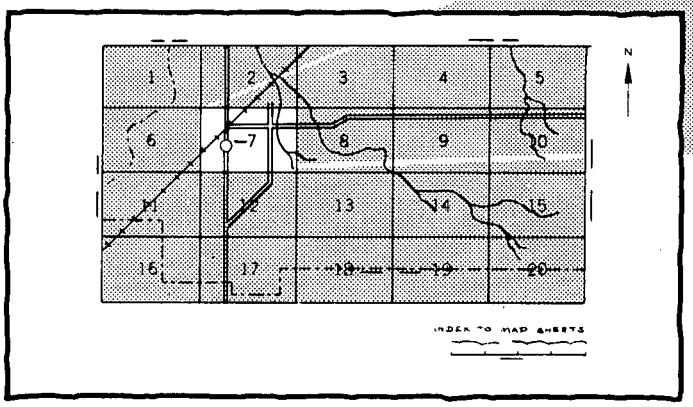
Forrest County, Mississippi

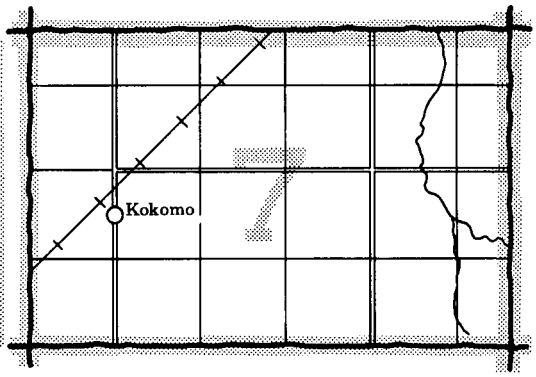
United States Department of Agriculture
Soil Conservation Service and Forest Service

In cooperation with
Mississippi Agricultural and Forestry Experiment Station

HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).





2. Note the number of the map sheet and turn to that sheet.

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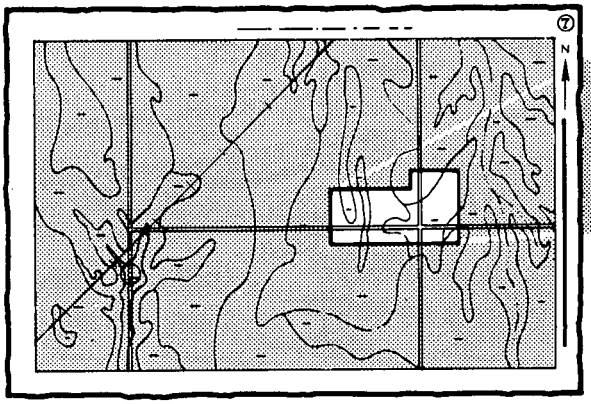
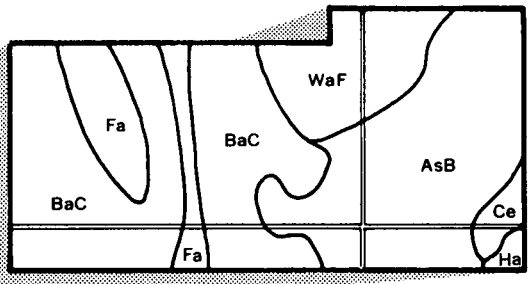
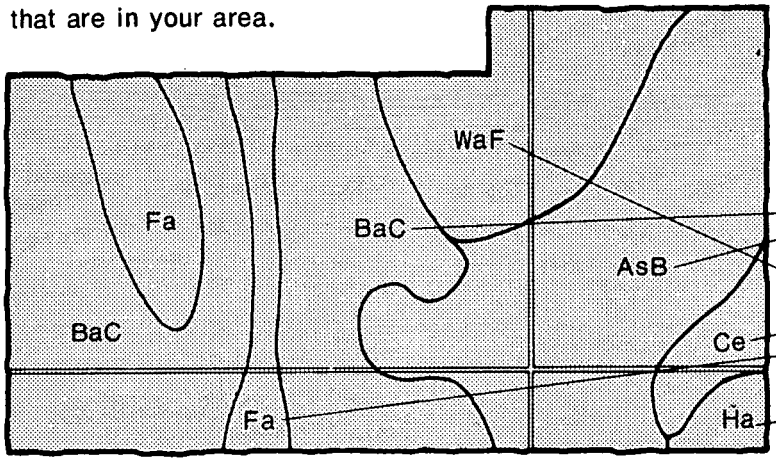




4. List the mapping unit symbols that are in your area.

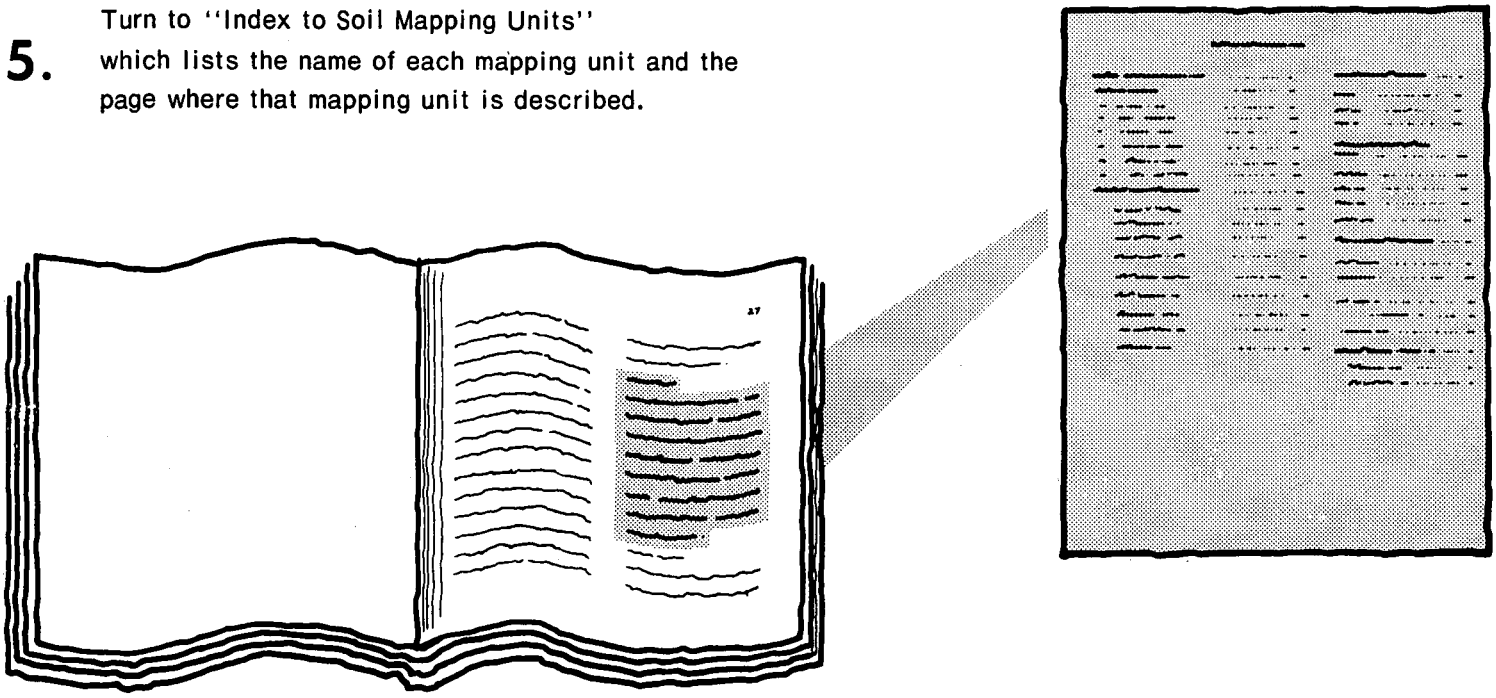


Symbols

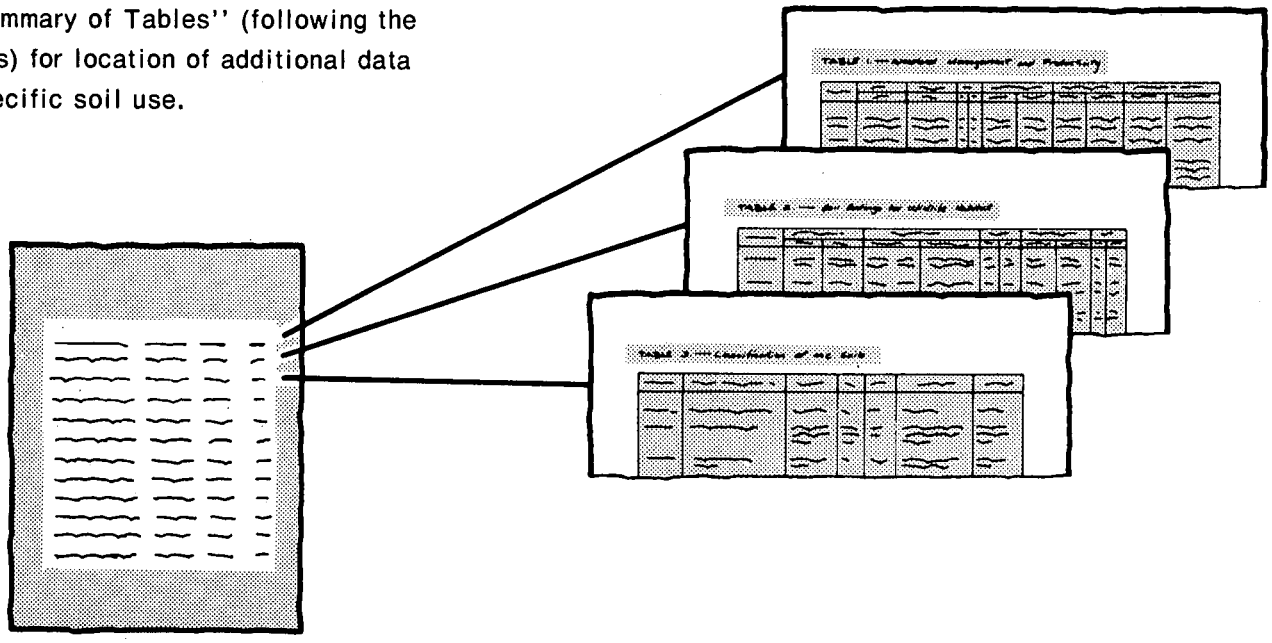
- AsB
- BaC
- Ce
- Fa
- Ha
- WaF

THIS SOIL SURVEY

5. Turn to "Index to Soil Mapping Units" which lists the name of each mapping unit and the page where that mapping unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1969-75. Soil names and descriptions were approved in 1975. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1975. This survey was made cooperatively by the Soil Conservation Service, the Forest Service, and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Forrest County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: Cabin in an area of the McLaurin-Benndale association, rolling. The lake in the background provides an excellent place for recreation.

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Foreword

The Soil Survey of Forrest County, Mississippi contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

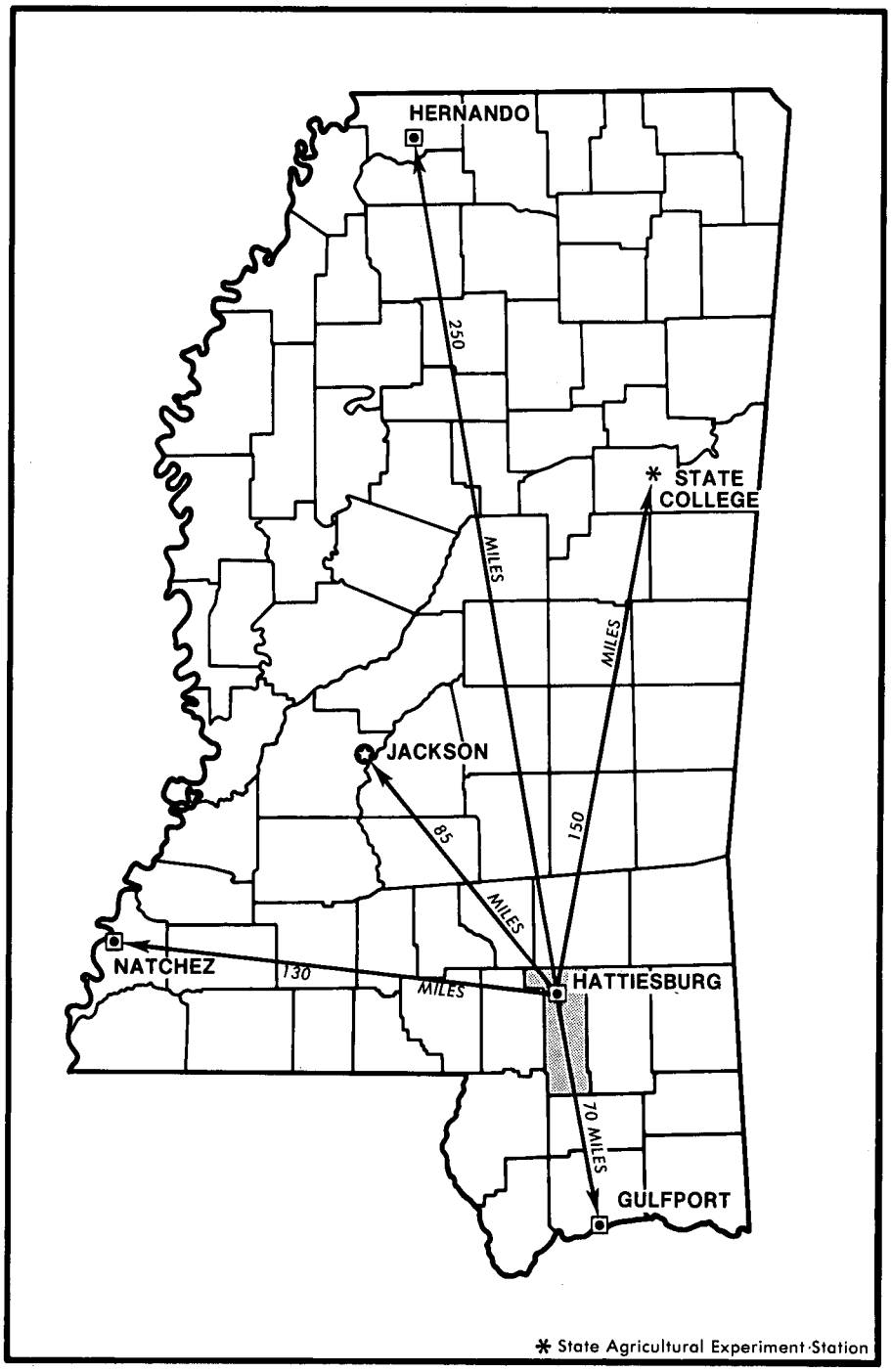
Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption 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 kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

Chester F. Bellard

Chester F. Bellard
State Conservationist
Soil Conservation Service



Location of Forrest County in Mississippi.

SOIL SURVEY OF FORREST COUNTY, MISSISSIPPI

By Rex E. Davis and Kenneth H. Byers, Soil Conservation Service

United States Department of Agriculture,
Soil Conservation Service and Forest Service,
in cooperation with the
Mississippi Agricultural and Forestry Experiment Station

FORREST COUNTY is in the southeastern part of Mississippi (see map on facing page). Hattiesburg, the county seat, had a population of 38,277 in 1970, and the entire county had a population of 57,849. The total area of Forrest County is 300,160 acres, or 469 square miles.

The county is in the Lower Coastal Plain. The Leaf River flows diagonally across the northeastern part of the county, and Black Creek flows across the southern half from west to east. Broad terraces border each of these streams. The uplands are mostly rolling but range from level to very steep. They are dissected by many small streams.

Forrest County is bounded on the north by Covington and Jones Counties, on the east by Perry County, on the south by Stone County, and on the west by Lamar and Pearl River Counties. The county is about 36 miles long and 12 miles wide except at its northern end, where it is 18 miles wide because one township is offset to the northwest.

General nature of the county

In this section is general information concerning the county. Climate, settlement, farming, and natural resources are discussed.

Climate

Forrest County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year. It peaks slightly in winter, and prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Hattiesburg, Mississippi, for the period 1951-73. 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 51 degrees F, and the average daily minimum is 39 degrees. The lowest temperature on record, 7 degrees, occurred at Hattiesburg on January 24, 1963. In summer the average temperature is 81 degrees, and the average daily maximum is 92 degrees. The highest temperature, 106 degrees, was recorded on June 14, 1963.

Growing degree days, shown in table 1, are equivalent to "heat units." Beginning in spring, 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.

Of the total annual precipitation, 28 inches, or 48 percent, usually falls during the period April through September, which includes the growing season for most crops. Two years in 10, the April-September rainfall is less than 24 inches. The heaviest 1-day rainfall during the period of record was 7.02 inches at Hattiesburg on February 18, 1961. Thunderstorms number about 60 each year, 27 in summer.

Snowfall is rare. In 82 percent of the winters there is no measureable snowfall, and in 86 percent, the snowfall is less than 3 inches. The heaviest snowfall ever observed in 1 day was more than 7 inches.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night in all seasons, and the average at dawn is about 90 percent. Prevailing winds are southerly. Average windspeed is highest, 8 miles per hour, in March.

Severe local storms, including tornadoes, strike occasionally in or near the county. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rains for 1 to 3 days.

Settlement

The area that is now Forrest County was ceded to the United States by the Choctaw Indians in the Treaty of Mount Dexter on November 16, 1805. Monroe, about 6 miles north of Hattiesburg on the banks of the Leaf River, is probably the oldest settlement. Other early towns were Maxie, McLaurin, McCallum, Ralston, and Hattiesburg. These early towns were mill towns associated with large sawmills. Most of the early settlers were of Scottish, Irish, and English extraction from Georgia and the Carolinas. A few migrated into the area to farm, and others came to harvest the virgin pine timberland.

Hattiesburg was incorporated in 1884, and it became the county seat in 1906 when the second judicial district of Perry County became Forrest County by an act of the state legislature. Hattiesburg became known as "The Hub" because of its location with respect to leading cities of Mississippi and Gulf Coast: Mobile, Gulfport, New Orleans, Jackson, and Meridian.

Hattiesburg early became the main railroad junction in Southeast Mississippi. The New Orleans and Northeastern; the Gulf and Ship Island; the Mississippi Central; and the Mobile, Jackson, and Kansas City Railroads all passed through the city.

Farming

Soybeans and corn are the main crops harvested in the county, and the raising of beef cattle is the main livestock enterprise. Truck crops—mostly watermelons and turnip greens—are grown on a small acreage.

In 1958 about 32,000 acres was cropland, and about 20,000 acres pasture. In 1975 about 29,800 acres was cropland and 43,400 acres pasture (*8*). The yield of soybeans increased from an average of 18.5 bushels per acre in 1964 to an average of 23 bushels per acre in 1973. Acreage and yields of corn have decreased over the the same period.

Natural resources

The most important natural resource in the county is the timberlands. Large acreages of longleaf pine, slash pine, loblolly pine, and shortleaf pine grow on the uplands, and hardwoods grow on the flood plains. About 72 percent of the county is in commercial forest. Most of the timber from these forests is made into lumber, paper, plywood, and naval stores.

Clay, sand, and gravel are mined in the county. Most of the clay is used for making brick, and the sand and gravel are shipped throughout the South.

Oil and gas are produced in the Pistol Ridge field in the southern end of the county near Carnes.

Ground water is available in sufficient quantity for industrial and residential uses in the county. Good quality ground water occurs throughout the county.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit 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 other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Table 4 shows the extent of the map units shown on the general soil map and gives general ratings of the potential of each, in relation to the other map units, for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each map unit is rated for *cultivated farm crops*, *pasture*, *woodland*, *urban uses*, and *recreation areas*. Cultivated farm crops are those grown extensively by farmers in the survey area. Pasture refers to land grazed by domesticated animals. Woodland refers to land that is producing either trees native to the area or introduced species. Urban uses include residential, commercial, and industrial developments. Intensive recreation areas include campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic. Extensive recreation areas include those used for nature study and as wilderness.

Nearly level to steep soils on uplands

The soils in these units are dominantly deep, nearly level to gently sloping soils on ridgetops and deep, sloping to steep soils on dissected side slopes of the Coastal Plain.

1. Prentiss-Lucedale

Nearly level and gently sloping, moderately well drained and well drained, loamy soils

These soils are in three small areas in the northern and central parts of the county. These areas are old marine terraces that are generally higher than the surrounding topography.

This unit occupies about 2 percent of the county. About 60 percent of the area is Prentiss soils, 10 percent is Lucedale soils, and the remaining 30 percent is minor soils.

Most of the well drained Lucedale soils are at higher elevations than the moderately well drained Prentiss soils. Both soils have a loamy surface layer and subsoil, and the Prentiss soils have a fragipan at a depth of about 27 inches.

Minor soils in this unit are the moderately well drained Malbis soils, the well drained McLaurin soils, the somewhat poorly drained Pheba soils, and the poorly drained Trebloc soils.

This area is used mainly for cultivated crops (fig. 1) and pasture. Most of the acreage has been cleared. This unit has high potential for cultivated crops and pasture plants. Field ditches are needed in some cultivated areas to remove excess water. Potential for woodland is high. There are no significant limitations to woodland use and management.

Potential for residential, industrial, and commercial use is medium because of wetness and low strength. If Prentiss soils are used for these purposes, larger septic tank fields should be used. This unit has high potential for most recreational uses and for openland wildlife habitat.

2. Benndale-McLaurin-Heidel

Gently sloping to steep, well drained, loamy and sandy soils

These soils are in the southern half of the county. Elevation of this unit is generally higher than that of the surrounding topography.

This unit occupies about 18 percent of the county. About 60 percent of the area is Benndale soils, 20 percent is McLaurin soils, 10 percent is Heidel soils, and the remaining 10 percent is minor soils.

The well drained McLaurin and Benndale soils are on ridges and the upper parts of side slopes. The sandy McLaurin soils are slightly higher and more convex than the loamy Benndale soils. The well drained, loamy Heidel soils are on the steeper side slopes.

Minor soils in this unit are the somewhat excessively drained Troup soils and the somewhat poorly drained Susquehanna soils.

This unit is used mainly for woodland (fig. 2), but some tracts are used for cultivated crops and pasture. Smoother areas are generally in crops and pasture, and steeper areas are in woodland. Exceptions to this are the large areas of commercial forest and the DeSoto National Forest, which are partly in smoother areas. This unit has medium potential for cultivated crops because of slope and the erosion hazard. To achieve this potential, erosion control practices are needed. This unit has high potential for pasture and woodland.

Potential for residential, commercial, industrial, and intensive recreational uses is medium because of slope if precautions are taken to prevent excessive erosion. Potential for extensive recreation areas and for openland and woodland wildlife habitat is high.

3. McLaurin-Heidel-Prentiss

Gently sloping to steep, well drained and moderately well drained, sandy and loamy soils

This unit is in the northern two-thirds of the county. These areas are marine deposits dissected by many small drainageways, and they make up much of the interfluvial area between major streams.

This unit occupies about 42 percent of the county. About 32 percent of the area is McLaurin soils, 24 percent is Heidel soils, 10 percent is Prentiss soils, and the remaining 34 percent is minor soils.

The well drained McLaurin soils and the moderately well drained Prentiss soils make up the ridgetops and smoother areas. The sandy McLaurin soils are generally slightly higher and more convex than the loamy Prentiss soils. The well drained, loamy Heidel soils form the steeper side slopes. All three major soils have a loamy subsoil, and Prentiss soils have a fragipan.

Minor soils in this unit are the well drained Bassfield, Benndale, and Cahaba soils; the moderately well drained Malbis soils; and the somewhat poorly drained Susquehanna soils.

This area is used mainly for woodland. Pasture and cropland are common in some areas. This unit has medium potential for cultivated crops because of slope and the erosion hazard. To achieve this potential, erosion control practices are needed. This area has high potential for pasture plants and for woodland.

Potential is medium for residential, commercial, industrial, and intensive recreation uses because of slope and wetness if precautions are taken to prevent excessive erosion. Because of wetness, larger septic tank filter fields are needed on Prentiss soils. Potential for extensive recreation areas and for openland and woodland wildlife habitat is high.

4. Prentiss-Benndale-Pheba

Nearly level to gently sloping, moderately well drained to somewhat poorly drained, loamy and silty soils

These soils are in the northeastern part of the county east of Petal. These areas are old marine terraces that are higher than the surrounding topography.

This unit occupies about 2 percent of the county. About 30 percent of the area is Prentiss soils, 30 percent is Benndale soils, 15 percent is Pheba soils, and the remaining 25 percent is minor soils.

The moderately well drained, loamy Prentiss soils and the somewhat poorly drained, silty Pheba soils make up the broad, nearly level to gently sloping areas. Both soils have a fragipan. The well drained, loamy Benndale soils are more convex and are better drained.

Minor soils in this unit are the poorly drained Trebloc soils and the well drained Heidel soils.

This unit is used mainly for pasture and cultivated crops. Most of the acreage has been cleared. This area has high potential for cultivated crops, pasture, and woodland.

Potential for residential, commercial, industrial, and intensive recreation uses is medium because of wetness and low strength. Buildings on Prentiss and Pheba soils need a larger septic tank filter field to offset these limitations. Grading and drainage can improve these soils for intensive recreation uses. This area has high potential for extensive recreation use and for openland wildlife habitat.

5. Prentiss-Susquehanna-Falkner

Gently sloping to strongly sloping, moderately well drained and somewhat poorly drained, loamy soils

These soils are in the northern third of the county mostly west of the Leaf River.

This unit occupies about 12 percent of the county. About 32 percent of the area is Prentiss soils, about 25 percent is Susquehanna soils, about 7 percent is Falkner soils, and the remaining 36 percent is minor soils.

The moderately well drained Prentiss soils and the somewhat poorly drained Falkner soils make up the ridgetops and higher elevations, and the somewhat poorly drained Susquehanna soils are generally on the sloping land and at lower elevations. Prentiss and Falkner soils have a fragipan.

Minor soils in this unit are the well drained Bassfield and Benndale soils; the moderately well drained Cadeville Variant, Malbis, and Petal soils; and the somewhat poorly drained Stough soils.

This unit is used mainly for woodland. Only small isolated areas are used for cropland or pasture. This soil area has medium potential for cultivated crops because of clayey texture and slope. To achieve this potential, erosion control practices are needed. Potential for pasture and woodland is high.

Potential is low for residential, commercial, and industrial uses because of wetness, clayey textures, slope, the erosion hazard, and high shrink-swell potential. Soils that have a clayey subsoil require larger septic tank filter fields, stronger than normal foundations, and erosion control practices to offset these limitations. This area has medium potential for intensive recreation uses because of wetness, clayey texture, and slope. Drainage and erosion control are needed when the soils are used for these purposes. Potential for extensive recreation use and for openland wildlife habitat is high.

6. Poarch-Susquehanna-Saucier

Gently sloping to strongly sloping, well drained to somewhat poorly drained, loamy soils

These soils are in the southern third of the county south of Black Creek. This area is marine deposits dissected by many small drainageways.

This unit occupies about 7 percent of the county. About 32 percent is Poarch soils, 21 percent is Susquehanna soils, 10 percent is Saucier soils, and the remaining 37 percent is minor soils.

The well drained Poarch soils are on the ridgetops at higher elevations, and the moderately well drained Saucier soils and the somewhat poorly drained Susquehanna soils are on the side slopes and at lower elevations.

Minor soils in this unit are the well drained Malbis and Heidel soils, the moderately well drained Cadeville Variant and Petal soils, and the somewhat poorly drained Falkner soils.

This area is used mainly for woodland. Small tracts of cropland and pasture are in some areas. Part of the unit is in the DeSoto National Forest. This area has medium potential for cultivated crops and pasture because of wetness and clayey texture. If these soils are cultivated, erosion control is necessary. Potential for woodland is high.

Potential is medium for residential, commercial, and industrial uses; wetness, high shrink-swell potential, and slope are the main hazards. Soils that have a clayey subsoil require larger septic tank filter fields and stronger foundations. Sloping soils should be protected from erosion. Potential is low for intensive recreation uses because of wetness, slope, and clayey textures. Potential for extensive recreation use and for woodland wildlife habitat is high.

Nearly level soils on terraces

The soils in this unit are dominantly deep, nearly level soils on broad terraces of major streams.

7. Bassfield-Harleston-Stough

Nearly level, well drained to somewhat poorly drained, loamy soils

These soils border the flood plain of the Leaf River and are in the northern half of the county. These areas are old river terraces between the uplands and the flood plain.

This unit occupies about 6 percent of the county. About 28 percent of the area is Bassfield soils, 21 percent is Harleston soils, 21 percent is Stough soils, and the remaining 30 percent is minor soils.

The well drained Bassfield soils are slightly higher than the moderately well drained Harleston soils and the somewhat poorly drained Stough soils.

Minor soils in this unit are the poorly drained Trebloc soils and the excessively drained Bigbee soils.

This area is used mainly for pasture, cropland, and urban uses. Most of the land has been cleared. This unit has high potential for cultivated crops, pasture plants, and woodland.

Potential for residential, commercial, and industrial uses is medium because of wetness. If somewhat poorly drained and moderately well drained soils are used for these purposes, larger septic tank filter fields are needed. This area has high potential for most recreation uses and for openland wildlife habitat. Some small areas need drainage when used for intensive recreation.

Nearly level soils on flood plains

The soils in these units are dominantly deep, nearly level soils that are subject to flooding.

8. Jena-Nugent

Nearly level, well drained and excessively drained, loamy and sandy soils

These soils make up the flood plains of the Leaf and Bowie Rivers in the northern half of the county. The area is flooded frequently, and most deposits are recent.

This unit occupies about 6 percent of the county. About 42 percent of the area is Jena soils, about 26 percent is Nugent soils, and the remaining 32 percent is minor soils.

The well drained, loamy Jena soils are generally smoother and occupy the area where floodwater velocities are low. The excessively drained, sandy Nugent soils are natural levees; they are on the insides of river bends and in other areas where floodwater velocities are high.

Minor soils in this unit are poorly drained and somewhat poorly drained loamy soils in depressions and old channels.

This unit is used mainly for woodland; very little of the area has been cleared. Flooding is the main limitation to use of these soils for farming. This area has low potential for cultivated crops and medium potential for pasture because of frequent flooding. Flooding limits grazing to the summer months in most years. This area has high potential for woodland. Severe limitations caused by flooding restrict managing and harvesting operations to dry seasons.

Because of frequent flooding, this area has low potential for residential, commercial, and industrial uses. If protected from flooding, the area has moderate limitations for these uses. Potential is low for most recreation uses except hunting and fishing.

9. Trebloc-Latonia

Nearly level, poorly drained and well drained, silty and loamy soils

These soils are in the southern half of the county. They make up the flood plains of Black Creek, Double Branch, and Red Creek.

This unit occupies about 5 percent of the county. About 45 percent of the area is Trebloc soils, about 27 percent is Latonia soils, and the remaining 28 percent is minor soils.

The well drained, loamy Trebloc soils are in lower areas and have slow surface drainage. The poorly drained, silty Latonia soils are higher and better drained than the surrounding soils.

Minor soils in this unit are the well drained Benndale soils and the somewhat excessively drained Alaga soils.

Almost all of this unit is in woodland. A few areas have been cleared and are used for cropland and pasture. This area has low potential for cropland because of occasional flooding and wetness; without flood control and removal of surface water, moderate to severe crop damage results. This area has high potential for pasture and woodland. Equipment limitations and seedling mortality are severe restrictions to use of the poorly drained soils in this unit. Harvesting should be done in the dry season. Draining the soils and reducing plant competition reduce seedling mortality.

Potential is low for residential, commercial, and industrial uses because of flooding and wetness. Wet soils are not suited to these uses but can be improved by drainage. If flooding is controlled, limitations are moderate for these uses. Potential for recreation uses other than hunting and fishing is low. This area has high potential for woodland wildlife habitat.

Broad land use considerations

The units on the General Soil Map vary widely in their potential for major land uses, as indicated in table 4. For each land use, general ratings of the potential of each unit, in relation to the other units, are indicated. Kinds of soil limitations are also indicated in general terms. The ratings of soil potential reflect the relative cost of such practices and also the hazard of continuing soil-related problems after such practices are installed. The ratings do not consider location in relation to existing transportation systems or other kinds of facilities.

Kinds of land uses considered include cultivated farm crops, pasture, woodland, urban uses, intensive recreation areas, and extensive recreation areas. Cultivated farm crops include corn and soybeans. Pasture includes bahiagrass and improved bermudagrass. Woodland refers to land that supports commercial species of trees. Urban uses include residential, commercial, and industrial land uses. Intensive recreation areas include playgrounds for baseball, softball, football, badminton, volleyball, and other similar organized games. Extensive recreation areas include nature study trails, bridle trails, hunting areas, and fishing areas.

About 10 percent of Forrest County is in cultivated crops, about 17 percent is pastured, about 70 percent is woodland, and about 3 percent is urban or built-up land.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have a profile that is almost alike make up a *soil series*. Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, McLaurin loamy sand, 2 to 5 percent slopes, is one of several phases within the McLaurin series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes, soil associations, and undifferentiated groups.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Trebloc-Escambia complex, 0 to 2 percent slopes, is an example.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Jena-Nugent association, frequently flooded, 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 there is little value in separating them. The pattern and proportion of the soils are not uniform. An area shown on the map has at least one of the dominant (named) soils or may have all of them. Bibb and Jena soils, frequently flooded, is an undifferentiated group in this survey area.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

Most mapped areas include places that have little or no soil material and support little or no vegetation. Such places are called *miscellaneous areas*; they are delineated on the soil map and given descriptive names. Urban land is an example. Some of these areas are too small to be delineated and are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 5, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

AaA—Alaga loamy sand, 0 to 5 percent slopes. This is a somewhat excessively drained soil in broad, flat areas adjacent to large streams.

Typically the surface layer is very dark grayish brown loamy sand about 8 inches thick. This is underlain by dark yellowish brown loamy sand to a depth of about 24 inches, strong brown loamy sand to a depth of about 52 inches, and yellowish brown sand to a depth of about 90 inches.

This soil is strongly acid or very strongly acid. Permeability is rapid. Available water capacity is low. Runoff is slow. This soil tends to be droughty.

Included with this soil in mapping are small areas of Bassfield and Troup soils.

Most of this soil is used for woodland, and the rest is pasture and row crops. Corn, pasture plants, and pine trees are suited.

This soil has medium potential for row crops and pasture plants and is limited mostly by its tendency to be droughty. Corn and deep-rooted pasture plants such as bahiagrass and improved bermudagrass are suited. This soil has moderately high potential for loblolly pine, slash pine, and longleaf pine.

Potential for most urban uses is high. This soil has medium potential for openland and woodland wildlife habitat because of sandy texture. Potential for recreational uses is medium because of sandy texture. Capability unit IIIs-1; woodland suitability group 3s2.

BaA—Bassfield fine sandy loam, 0 to 2 percent slopes. This is a well drained soil on broad, flat terraces adjacent to large streams.

Typically the surface layer is dark brown fine sandy loam about 10 inches thick. The subsoil is yellowish red sandy loam that extends to a depth of about 41 inches. This is underlain to a depth of about 56 inches by reddish yellow loamy sand that contains common fine to coarse quartz pebbles and to a depth of about 70 inches by very pale brown sand that contains some medium gravel.

This soil is strongly acid or very strongly acid throughout. Permeability is moderately rapid. Available water capacity is medium. Runoff is slow. This soil tends to be slightly droughty.

Included with this soil in mapping are small areas of Prentiss soils and small areas of soils that have a finer textured subsoil. Also included are small areas of soils in which the sandy substratum is less than 40 inches deep.

Most of this soil is in cropland and pasture, and rest is in woodland. The soil has high potential for cultivated crops such as corn and soybeans. The use of adequate fertilization and conservation practices, such as row arrangement and return of crop residues, helps reduce runoff, control erosion, and improve infiltration.

This soil has high potential for pasture plants such as bahiagrass and improved bermudagrass. It also has high potential for loblolly pine, shortleaf pine, cherrybark oak, and sweetgum. There are no significant concerns in woodland use and management.

Potential is high for most urban uses and for woodland and openland wildlife habitat. Capability unit IIs-l; woodland suitability group 2o7.

BbA—Bassfield-Urban land complex, 0 to 2 percent slopes. This is a complex of nearly level, well drained soils on terraces within the city limits of Hattiesburg and Petal. Individual areas range from 60 to 2,000 acres.

This unit consists of an intricate pattern of Bassfield soils and Urban land. It is 40 percent Bassfield soils and 35 percent Urban land.

The well drained Bassfield soils have a surface layer of dark brown fine sandy loam about 10 inches thick. The subsoil is yellowish red sandy loam that extends to a depth of about 41 inches. The underlying material is reddish yellow and very pale brown loamy sand and sand that contains some gravel and that extends to a depth of 70 inches or more.

Bassfield soils are strongly acid or very strongly acid throughout. Permeability is moderately rapid. Available water capacity is medium. Runoff is slow. The soil is slightly droughty.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. These areas are mostly occupied by house sites and by the adjoining streets. A few light industrial and commercial buildings and paved parking lots are in this map unit.

Included with this unit in mapping are small areas of Bigbee, Latonia, Stough, and Cahaba soils. These are poorly drained soils along drainageways and in depressions.

Potential for most urban uses is high. Not assigned to a capability unit; Bassfield soil in woodland suitability group 2o7, Urban land not assigned to a woodland suitability group.

BcA—Bassfield-Urban land complex, occasionally flooded. This is a complex of nearly level soils on terraces that are occasionally flooded. Slopes are 0 to 2 percent. Most of this complex is within the city limits of Hattiesburg and Petal. Individual areas range from 40 to 1,500 acres.

This unit consists of an intricate pattern of Bassfield soils and Urban land. It is 40 percent Bassfield soils and 35 percent Urban land.

The well drained Bassfield soils have a surface layer of dark brown fine sandy loam about 10 inches thick. The subsoil is yellowish red sandy loam that extends to a depth of about 41 inches. The underlying material is reddish yellow and very pale brown loamy sand and sand that contains some gravel and that extends to a depth of 70 inches or more.

Bassfield soils are strongly acid or very strongly acid throughout. Permeability is moderately rapid. Available water capacity is medium. Runoff is slow. The soil is slightly droughty.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile or only remnants of a profile. A few light industrial and commercial buildings and paved parking lots are in this map unit.

Included with this unit in mapping are small areas of Bigbee, Latonia, and Stough soils and small areas of poorly drained soils.

Potential for urban uses is low because of flooding; potential is high if flooding is controlled. Not assigned to a capability unit; Bassfield soil in woodland suitability group 2o7, Urban land not assigned to a woodland suitability group.

BeB—Benndale fine sandy loam, 2 to 5 percent slopes. This is well drained soil of the uplands.

Typically the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer is brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown loam to a depth of 36 inches; yellowish brown loam mottled with red to a depth of 45 inches; and mottled yellowish red, strong brown, and yellowish brown loam to a depth of about 60 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is slow. The erosion hazard is slight. This soil has good tilth and is easily worked.

Included with this soil in mapping are small areas of McLaurin and Prentiss soils. Also included are small areas of soils that are yellowish red in the lower part of the subsoil.

Most of this soil is used for woodland, and the rest is in pasture and row crops. This soil has high potential for row crops such as corn and soybeans. Adequate fertilization, return of crop residue, contour cultivation, and minimum tillage are needed.

Potential is high for pasture plants such as bahiagrass and improved bermudagrass. Adequate fertilization, proper stocking, and controlled grazing help reduce erosion. This soil has high potential for pine trees. Moderate plant competition is a concern in some areas.

Potential is high for most urban uses. Low strength is a hazard for roads and streets, but this can be overcome by proper construction. Potential is high for woodland and openland wilflife habitat. Capability unit IIe-2; woodland suitability group 2o1.

BeC—Benndale fine sandy loam, 5 to 8 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is grayish brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown loam to a depth of about 38 inches; yellowish brown loam mottled with red to a depth of about 45 inches; and mottled yellowish red, strong brown, and yellowish brown loam to a depth of about 60 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium. The erosion hazard is moderate. These soils have good tilth and are easy to work.

Included with this soil in mapping are small areas of McLaurin and Prentiss soils.

Most of this soil is used for woodland, and the rest is in pasture and row crops.

This soil has medium potential for row crops such as corn and soybeans because of slope and the erosion hazard. Corn, soybeans, oats, pasture plants, and pine trees are well suited. Where the soil is cultivated, the use of adequate fertilization and conservation practices, such as stripcropping, minimum tillage, parallel terraces, grassed waterways, and the return of crop residue, are needed. Potential for pasture grasses such as bahiagrass and improved bermudagrass is high. Adequate fertilization, proper stocking, and controlled grazing help control erosion. Potential for pine trees is high. Moderate plant competition is a concern in some areas.

Potential for most urban uses is medium because of slope and low strength. These limitations can be overcome for many uses by proper installation of erosion control measures and with adequately designed foundations. Potential is high for woodland and openland wildlife habitat and for most recreational uses. Capability unit IIIe-1; woodland suitability group 2o1.

BeD—Benndale fine sandy loam, 8 to 12 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam to a depth of about 17 inches; brownish yellow sandy loam mottled with pale brown to a depth of about 38 inches; and strong brown sandy loam mottled in shades of gray and red to a depth of about 64 inches.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium, and the erosion hazard is moderate.

Included with this soil in mapping are small areas of McLaurin and Prentiss soils.

Most of this soil is in pines and hardwoods. A small acreage is used for pasture and cropland.

Potential for row crops is medium because of slope and the erosion hazard. If the soil is used for row crops, adequate fertilization and erosion control measures such as terracing, stripcropping, minimum tillage, grassed

waterways, and return of crop residue help control erosion. Potential for pasture plants such as bahiagrass and improved bermudagrass is medium. Adequate fertilization, proper stocking, and controlled grazing help control erosion. Potential for pine trees is high. Moderate plant competition is a concern in some areas.

Potential is medium to low for most urban uses. Slope and low strength are the main limitations. These limitations can be overcome for some uses by proper installation of erosion control measures and by proper construction. Potential is high for woodland and openland wildlife habitat and for most recreational uses. Capability unit IVe-1; woodland suitability group 2o1.

Bf—Bibb silt loam. This is a poorly drained soil on narrow flood plains. Slopes are 0 to 2 percent.

Typically the surface layer is mostly gray loam about 3 inches thick. The underlying material to a depth of 27 inches is light gray loam mottled in shades of yellow and brown. To a depth of about 65 inches or more, it is light gray sandy loam mottled in shades of yellow.

This soil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is very slow. These soils are flooded several times each year and have a water table near the surface much of the time.

Included with this soil in mapping are small areas of Stough soils and small areas of soils that have a thick, organic surface layer.

Most of this soil is in woodland, and the rest is in pasture.

This soil has low potential for cultivated crops and pasture because of wetness and flooding. Potential for trees such as loblolly pine, sweetgum, and water oak is high. Wetness is a severe limitation to the operation of equipment in this area, and seedling mortality and plant competition can be concerns. Scheduling operations for dry seasons and managing the woodland properly help overcome these limitations.

Potential for most urban uses is low because of wetness and flooding. Potential is medium for woodland wildlife habitat and high for wetland wildlife habitat. Potential is low for most recreational uses because of wetness and flooding. These limitations are difficult to overcome. Capability unit Vw-1; woodland suitability group 2w9.

BG—Bibb and Jena soils, frequently flooded. This map unit consists of poorly drained and well drained soils on the flood plains of smaller streams. Slopes are 0 to 2 percent. Generally there are one to several poorly defined channels that overflow frequently. Mapped areas range from 160 to 500 acres.

The composition of this unit is more variable than that of others in the county. Bibb soils make up about 40 percent of the unit, and Jena soils, about 20 percent. Not all mapped areas contain both soils.

The poorly drained Bibb soils are in low, flat areas. They have a surface layer of dark grayish brown silt loam about 6 inches thick. The underlying material to a depth of about 36 inches is gray sandy loam mottled in shades of brown and yellow. To a depth of about 60 inches, it is light gray sandy loam mottled in shades of brown and yellow.

Bibb soils are strongly acid or very strongly acid. Permeability is moderate. Available water capacity is high. Runoff is very slow. The water table is at or near the surface much of the time.

The well drained Jena soils are adjacent to stream channels and occupy natural levees. The surface layer is dark grayish brown fine sandy loam about 7 inches thick. The subsoil to a depth of about 29 inches is brown loam that has yellowish brown mottles in the upper part; to a depth of about 42 inches, it is yellowish brown loam that has light gray mottles; and to a depth of about 60 inches, it is pale brown loam that has strong brown mottles.

Jena soils are strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium.

Included with these soils in mapping are small areas of Dorovan, Pamlico, and Stough soils and small areas of poorly drained soils that are generally adjacent to uplands.

Most of this map unit is in hardwood and pine forest.

These soils have low potential for cultivated crops and pasture because of frequent flooding. Potential for woodland is high, but wetness and flooding are hazards to the operation of equipment. This can be overcome by scheduling operations during dry seasons. Plant competition is a concern.

Potential for urban uses is low because of wetness and flooding. These limitations are difficult to overcome. Potential for woodland and wetland wildlife habitat is high. Potential for most recreational uses is low because of wetness and flooding. Bibb soil in capability unit Vw-1; woodland suitability group 2w9. Jena soil in capability unit Vw-2; woodland suitability group 1w7.

Bh—Bigbee loamy sand. This is an excessively drained soil on terraces near larger streams. Slopes are 0 to 2 percent.

Typically the surface layer is very dark grayish brown loamy sand about 7 inches thick. The underlying material is dark yellowish brown, strong brown, brownish yellow, and yellow loamy sand to a depth of about 72 inches and white sand below.

This soil is strongly acid or very strongly acid. Permeability is rapid. Available water capacity is low. Runoff is slow. This soil tends to be droughty.

Included with this soil in mapping are small areas of Bassfield soils.

Most of this soil is used for woodland, and the rest is in pasture and cropland. These soils are flooded occasionally.

This soil has medium potential for row crops such as corn because of droughtiness and flooding. Crops planted early receive better rainfall distribution, and this helps reduce the effects of drought. Potential for pasture plants such as bahiagrass is medium because of droughtiness. Adequate fertilization, proper stocking rates, and weed control make best use of the moisture available. Potential

for loblolly pine is high, but the sandy texture causes some limitations to the operation of equipment and some seedling mortality.

Potential for urban uses is low because of occasional flooding. If flooding is controlled, however, potential is high. This soil has medium potential for openland wildlife habitat because of droughtiness. Potential is medium for most recreational uses because of flooding and sandy texture. Capability unit IIIs-l; woodland suitability group 2s2.

CaF—Cadeville Variant silt loam, 15 to 60 percent slopes. This is a moderately well drained soil of the uplands.

Typically the surface layer is dark grayish brown silt loam about 2 inches thick. The subsoil is brown clay to a depth of about 9 inches; yellowish red clay mottled with light brownish gray to a depth of about 14 inches; and clay mottled in shades of brown, red, and gray to a depth of about 34 inches. The underlying material to a depth of 60 inches is light olive gray silty clay loam.

The soil is strongly acid or very strongly acid. Permeability is slow. Available water capacity is high. Runoff is very rapid. These soils have a severe erosion hazard.

Included with this soil in mapping are small areas of Alaga soils on the upper parts of slopes adjacent to ridgetops and small benches. Also included are small areas of well drained and moderately well drained, loamy soils near the ridgetops and small areas of the poorly drained Bibb soils on narrow flood plains.

Almost all areas of this soil are in mixed hardwood and pine forest.

Potential for cultivated crops and pasture is low because of very steep slopes and clayey texture. Potential for hardwood and pine trees is high. Operation of equipment is limited by the very steep slopes.

This soil has low potential for urban uses because of very steep slopes and clayey texture. These limitations are very difficult to overcome. Potential is high for woodland wildlife habitat. Potential is low for most recreational uses because of very steep slopes and clayey texture. Capability unit VIIe-1; woodland suitability group 2r9.

ChA—Cahaba sandy loam, 0 to 2 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark brown sandy loam about 9 inches thick. The subsoil is yellowish red sandy loam over yellowish red sandy clay loam that extends to a depth of about 58 inches. This is underlain by yellowish red loamy sand that extends to a depth of about 85 inches or more.

This soil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is slow. These soils have good tilth and are easy to work.

Included with this soil in mapping are small areas of Benndale and McLaurin soils.

Most of this soil is cultivated or used for pasture, and the rest is in woodland.

This soil has high potential for cultivated crops such as corn, cotton, and soybeans (fig. 3). Adequate fertilization and conservation practices such as row arrangement and return of crop residue to the land help reduce runoff, control erosion, and improve infiltration. Potential is high for pasture plants such as bahiagrass and improved bermudagrass. Potential is high for loblolly pine, slash pine, yellow-poplar, sweetgum, southern red oak, white oak, and cherrybark oak. There are no significant limitations to woodland use and management.

Potential for urban uses, for woodland and openland wildlife habitat, and for most recreational uses is high. Capability unit I-1; woodland suitability group 2o7.

FaB—Falkner silt loam, 2 to 5 percent slopes. This is a somewhat poorly drained soil on uplands.

Typically the surface layer is very dark grayish brown silt loam about 4 inches thick. The subsurface layer is yellowish brown silt loam about 3 inches thick. The subsoil is yellowish brown silt loam to a depth of about 18 inches; light yellowish brown silty clay loam that has brownish and reddish mottles to a depth of about 26 inches; clay mottled in shades of brown, gray, and red to a depth of about 33 inches; and gray clay mottled in shades of yellow and red to a depth of 60 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is very slow. Available water capacity is high. Runoff is medium. Erosion is a hazard if protective cover is removed. This soil has a seasonal high water table at a depth of 18 to 30 inches, mostly in winter and spring. It has fair tilth and tends to crust.

Included with this soil in mapping are small areas of Cadeville Variant and Susquehanna soils.

Most of this soil is in woodland, and the rest is in pasture and row crops.

This soil has medium potential for cultivated crops such as cotton, corn, and soybeans because of wetness. Crop residue should be returned to the land to help prevent crusting. Minimum tillage, adequate fertilization, and row arrangement are needed. This soil has high potential for pasture plants such as bahiagrass and improved bermudagrass. Potential for trees such as cherrybark oak, loblolly pine, shortleaf pine, and sweetgum is high. Management and harvest operations should be planned for drier periods to avoid problems related to wetness.

Potential for urban uses is low because of wetness, low strength, and high shrink-swell potential. When the soil is used for urban development, specially designed foundations and adequate drainage are needed. This soil has high potential for woodland and openland wildlife habitat. Potential is medium for most recreational uses because of wetness. Capability unit IIIe-2; woodland suitability group 2w8.

FsB—Falkner-Susquehanna-Urban land complex, 2 to 5 percent slopes. This complex consists of somewhat poorly drained soils in Hattiesburg and Camp Shelby. Areas of this map unit range from 200 to 1,500 acres.

The unit consists of an intricate pattern of Falkner soils, Susquehanna soils, and Urban land. It is 30 percent

Falkner soils, 25 percent Susquehanna soils, and 30 percent Urban land.

The somewhat poorly drained Falkner soils are on ridgetops and the upper parts of side slopes. Typically, they have a surface layer of very dark grayish brown silt loam about 4 inches thick. The subsurface layer is yellowish brown silt loam about 3 inches thick. The upper part of the subsoil is yellowish brown silt loam over light yellowish brown silty clay loam that has brownish and reddish mottles and that extends to a depth of 26 inches. The lower part of the subsoil is clay mottled in shades of brown, gray, and red over gray clay that is mottled in shades yellow and red and that extends to a depth of 60 inches.

Falkner soils are strongly acid or very strongly acid throughout. Permeability is very slow. Available water capacity is high. Runoff is medium. The erosion hazard is severe.

The somewhat poorly drained Susquehanna soils are on side slopes. Typically, they have a surface layer of grayish brown silt loam about 4 inches thick. The subsurface layer is brownish yellow silt loam about 5 inches thick. The subsoil is yellowish brown clay mottled in shades of gray and red to a depth of about 16 inches; gray clay mottled in shades of yellow and gray to a depth of about 49 inches; and light gray clay that has brownish mottles to a depth of 68 inches or more.

Susquehanna soils are strongly acid or very strongly acid throughout. Permeability is very slow. Available water capacity is high. Runoff is rapid. The erosion hazard is severe. Shrink-swell potential is high.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. These areas are mostly occupied by house sites and by the adjoining streets, and there are also a few shopping centers and other public service areas with paved parking lots, and a few large buildings. In the Camp Shelby area, areas mapped as Urban land are mostly abandoned streets and building foundations.

Included with this unit in mapping are small areas of Benndale, Prentiss, and Stough soils and small areas of poorly drained soils along small streams.

Potential for most urban uses is low because of wetness, low strength, high shrink-swell potential, clayey texture, and erosion. Building and road foundations need to be strengthened to lessen cracking and settling. Adequate drainage is necessary to lessen the wetness hazard. Erosion control practices are needed to avoid excessive soil loss and sedimentation. Not assigned to a capability unit; Falkner soil in woodland suitability group 2w8, Susquehanna soil in woodland suitability group 3c2.

HaA—Harleston fine sandy loam, 0 to 2 percent slopes. This a moderately well drained soil on stream terraces.

Typically the surface layer is dark grayish brown fine sandy loam about 6 inches thick. The subsoil is yellowish brown loam to a depth of 11 inches; strong brown loam to a depth of about 19 inches; and loam or sandy loam mottled in shades of gray, yellow, red, and brown to a depth of 65 inches or more.

This soil is strongly acid or very strongly acid throughout, except for the surface layer in limed areas. Permeability is moderate. Available water capacity is medium. Runoff is slow to medium. This soil has a seasonal high water table at a depth of about 24 to 36 inches. The soil has good tilth and is easy to cultivate.

Included with this soil in the mapping are small areas of Latonia, Stough, and Trebloc soils.

About half of the acreage of this soil is used for cropland. The remainder is used for pasture and woodland.

This soil has high potential for cultivated crops such as corn and soybeans, and for pasture plants such as bahiagrass and improved bermudagrass. Potential for loblolly pine and slash pine is high. Wetness can be a limitation to equipment use during rainy periods. This can be avoided by scheduling management and harvesting operations during the drier seasons.

Potential for urban purposes is medium because of wetness, but this limitation can be overcome with proper drainage. This soil has high potential for openland and woodland wildlife habitat and for most recreational uses. Capability unit IIw-2; woodland suitability group 2w2.

HeD—Heidel sandy loam, 8 to 12 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark grayish brown sandy loam about 5 inches thick. The subsurface layer is yellowish brown sandy loam about 3 inches thick. The subsoil is yellowish red or red sandy loam that extends to a depth of more than 78 inches.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium to rapid. The erosion hazard is moderate.

Included with this soil in mapping are small areas of McLaurin and Alaga soils.

Most of this soil is in woodland or pasture.

This soil has medium potential for cultivated crops because of the erosion hazard. If it is used for this purpose, conservation practices such as terracing, contour cultivation, stripcropping, minimum tillage, and grassed waterways are needed to prevent excessive erosion. Potential for pasture plants such as bahiagrass and improved bermudagrass is medium because of the erosion hazard. Adequate fertilization, proper stocking, and controlled grazing reduce the erosion hazard. Potential for pine trees is high. There are no significant limitations to the use of this soil for woodland.

Potential for urban uses is medium because of slope. When the soil is used for this purpose, conservation practices to control erosion are needed. This soil has high potential for woodland and openland wildlife habitat. Potential for most recreational uses is moderate because of slope. Capability unit IVe-1; woodland suitability group 2o1.

HeE—Heidel sandy loam, 12 to 30 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark grayish brown sandy loam about 5 inches thick. The subsurface layer is yellowish brown sandy loam about 3 inches thick. The subsoil is yellowish red or red sandy loam to a depth of more than 78 inches.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is rapid. The erosion hazard is severe.

Included with this soil in mapping are small areas of Cadeville Variant, McLaurin, and Petal soils.

Most of the acreage of this soil is used for woodland, and a small acreage is used for pasture.

This soil has low potential for cropland because of slope and the erosion hazard. Potential is medium for pasture plants such as bahiagrass. The main limitations are slope and the erosion hazard. Adequate fertilization, proper stocking, and controlled grazing help control soil loss from erosion. Potential is high for pine trees.

When this soil is used for urban purposes, its potential is low because of slope and the erosion hazard. If it is used for these purposes, conservation practices are needed to control erosion. Potential is high for woodland and openland wildlife habitat. Potential is low for most recreational uses because of slope. Capability unit VIe-1; woodland suitability group 2o1.

JN—Jena-Nugent association, frequently flooded. This association consists of well drained and excessively drained soils on the flood plains of larger streams. Oxbow lakes and natural levees adjacent to old stream channels are common. Slopes are 0 to 3 percent. These areas range from one-fourth mile to 1 mile in width.

The composition of this unit is more variable than that of most of the others in the county, but mapping has been controlled well enough for the expected use of the soils. Jena soils make up about 34 percent of the unit, and Nugent soils, about 24 percent.

The well drained Jena soils are primarily in broad, flat areas between old stream channels. Typically they have a surface layer of dark brown fine sandy loam about 8 inches thick. The subsoil is yellowish brown fine sandy loam to a depth of more than 60 inches; it has gray mottles below a depth of 42 inches.

Jena soils are strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is slow.

The excessively drained Nugent soils are mostly on old natural levees and in areas, such as the inside parts of river bends, where floodwaters have higher velocity. Typically they have a surface layer of brown loamy sand about 9 inches thick. The underlying material is alternating layers of yellowish brown fine sandy loam and very pale brown sand that extend to a depth of about 70 inches or more.

Nugent soils are strongly acid or very strongly acid throughout. Permeability is moderately rapid. Available water capacity is low. Runoff is slow.

Included with this soil in mapping are small areas of Bibb and Bigbee soils and small areas of well drained and moderately well drained soils that have a loamy subsoil high in silt content. These included soils are generally in slackwater areas.

Most of this association is in hardwood forest.

These soils have low potential for cropland because of frequent flooding. Where flooding is controlled, Jena soils have high potential for cultivated crops. Potential is low for pasture plants such as bahiagrass and improved bermudagrass because of flooding. Most flooding occurs in winter. Grazing should be restricted to the summer months. Potential is high for loblolly pine, slash pine, white oak, water oak, sweetgum, and red oak. The use of equipment is severely limited during winter and spring because of flooding and wetness. Management and harvesting operations should be scheduled for drier periods.

Potential for most urban uses is low because of flooding, which is a difficult limitation to overcome. Potential is high for woodland and openland wildlife habitat. Potential is low for most recreational uses because of flooding. Capability unit Vw-2; Jena soil in woodland suitability group 1w9, Nugent soil in woodland suitability group 2s8.

LaA—Latonia fine sandy loam, 0 to 2 percent slopes. This is a well drained soil in broad, flat areas adjacent to large streams.

Typically the surface layer is grayish brown fine sandy loam about 6 inches thick. The subsoil is light olive brown sandy loam to a depth of about 14 inches and brownish yellow fine sandy loam to a depth of about 36 inches. The substratum is yellowish brown loamy sand, mottled in shades of yellow and brown, to a depth of about 42 inches and very pale brown sand that has grayish mottles and that extends to a depth of about 64 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is moderately rapid. Available water capacity is medium. Runoff is slow. This soil is slightly droughty, and crops suffer during long, dry periods.

Included with this soil in mapping are small areas of Bassfield, Jena, Harleston, and Prentiss soils.

Most of this soil is used for woodland, and the rest is in pasture and row crops.

This soil has high potential for cultivated crops such as corn and soybeans. Shallow-rooted crops suffer in places during long, dry periods. Potential is high for pasture plants such as bahiagrass and improved bermudagrass. Potential is high for longleaf pine, loblolly pine, and slash pine. There are no significant management concerns.

Potential for most urban uses, for woodland and openland wildlife habitat, and for most recreational uses is high. Capability unit IIs-1; woodland suitability group 2o1.

LT—Latonia-Trebloc association, occasionally flooded. This association consists of well drained and poorly drained soils on terraces along larger streams. These terraces are flooded occasionally, but they are higher than the main flood plain, which is flooded frequently. Slopes are 0 to 2 percent. These areas range

from one-fourth mile to 1 mile in width and from about 160 to 800 acres in size.

The composition of this unit is more variable than that of most of the others in the county, but mapping has been controlled well enough for the expected use of the soils. Latonia soils make up about 38 percent of the unit, and Trebloc soils, about 28 percent.

The well drained Latonia soils are in higher areas and in areas that are dissected by small stream channels, which provide subsurface drainage. Typically the surface layer is grayish brown fine sandy loam about 5 inches thick. The subsoil is light olive brown sandy loam to a depth of about 14 inches and brownish yellow fine sandy loam to a depth of 36 inches. This is underlain by yellowish brown loamy sand that has brownish mottles to a depth of 42 inches and by very pale brown sand that has grayish mottles and that extends to a depth of 64 inches or more.

Latonia soils are strongly acid or very strongly acid throughout. Permeability is moderately rapid. Available water capacity is medium. Runoff is slow.

The poorly drained Trebloc soils are in lower areas usually adjacent to the uplands and in depressions. They are flooded more often than the Latonia soils. Typically the surface layer is dark gray or light brownish gray silt loam about 7 inches thick. The subsoil is light brownish gray silt loam that has yellowish mottles to a depth of about 15 inches and light brownish gray silty clay loam that has brownish mottles to a depth of 65 inches or more.

Trebloc soils are strongly acid or very strongly acid throughout. Permeability is slow. Available water capacity is high. Runoff is slow, and ponding occurs during wet periods.

Included with these soils in mapping are small areas of Benndale and Alaga soils, small areas of well drained and moderately well drained soils that have a loamy subsoil high in silt content, and small areas of poorly drained soils along old depressions and in stream channels.

The Latonia soil has high potential for cultivated crops such as corn and soybeans if flooding is controlled. The Trebloc soil has low potential for cultivated crops because of wetness and flooding. Potential is high for pasture plants such as bahiagrass and improved bermudagrass, but wetness and flooding are concerns. The Latonia soil has high potential for loblolly pine, slash pine, and longleaf pine, and the Trebloc soil has high potential for loblolly pine, sweetgum, water oak, and willow oak. In low-lying areas, wetness is a limitation to equipment operations. Scheduling management and harvesting operations for dry seasons helps avoid this problem.

Potential for most urban uses is low because of flooding and wetness. The Latonia soil has high potential for openland and woodland wildlife habitat, and the Trebloc soil has high potential for wetland wildlife habitat. Potential for most recreational uses is low because of wetness. Latonia soil in capability unit IIs-1; woodland suitability group 2o1. Trebloc soil in capability unit IIIw-1; woodland suitability group 2w9.

LuA—Lucedale loam, 0 to 2 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark reddish brown loam about 5 inches thick. The subsoil is dark reddish brown loam underlain by dark red sandy clay loam to a depth of about 90 inches or more.

This soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate. Available water capacity is high. Runoff is slow. The soil has good tilth and is easy to cultivate.

Included with this soil in mapping are small areas of McLaurin soils.

Most of this soil is used for pasture or row crops, and the rest is in woodland.

This soil has high potential for cultivated crops such as cotton, corn, and soybeans; pasture plants such as bahiagrass and improved bermudagrass; and loblolly pine, shortleaf pine, and slash pine.

Potential is high for most urban uses, high for woodland and openland wildlife habitat, and high for most recreational uses. Capability unit I-1; woodland suitability group 2o1.

MaB—Malbis loam, 2 to 5 percent slopes. This is a moderately well drained soil of the uplands.

Typically the surface layer is dark grayish brown loam about 4 inches thick. The subsurface layer is yellowish brown fine sandy loam that extends to a depth of about 11 inches. The subsoil is strong brown loam to a depth of about 24 inches, strong brown clay loam that has red nodules to a depth of about 46 inches, and clay loam mottled in shades of red, brown, and yellow to a depth of 60 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is moderately slow. Available water capacity is medium to high. Runoff is slow. This soil has a slight erosion hazard if protective cover is removed. The soil has good tilth and is easy to cultivate.

Included with this soil in mapping are small areas of Poarch and Prentiss soils.

Most of this soil is cultivated or used for pasture, and the rest is in woodland.

This soil has high potential for cultivated crops such as cotton, corn, and soybeans. Minimum tillage, return of crop residue, fertilization, and contour cultivation help control erosion in cultivated areas. Potential is high for pasture plants such as bahiagrass and improved bermudagrass. Adequate fertilization, proper stocking, and controlled grazing reduce the erosion hazard. This soil has high potential for loblolly pine, slash pine, longleaf pine, and shortleaf pine.

Potential for most urban uses is medium because of low strength and moderately slow permeability. Foundations of buildings need to be stronger than normal. Septic tank filter fields should be made larger to compensate for moderately slow permeability. This soil has high potential for woodland and openland wildlife habitat and for most recreational uses. Capability unit IIe-1; woodland suitability group 2o1.

MbB—McLaurin loamy sand, 2 to 5 percent slopes. This is a well drained soil on uplands.

Typically the surface layer is very dark grayish brown loamy sand about 5 inches thick. The subsurface layer is dark grayish brown loamy sand about 3 inches thick over yellowish brown sandy loam about 6 inches thick. The subsoil is yellowish red fine sandy loam and sandy loam to a depth of about 38 inches, yellowish red loamy fine sand to a depth of about 49 inches, and red sandy clay loam to a depth of about 60 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is slow. The erosion hazard is slight. This soil is slightly droughty. It has good tilth and is easy to work.

Included with this soil in mapping are small areas of Benndale and Lucedale soils.

Most of this soil is used for woodland, and the rest is in pasture or row crops.

This soil has high potential for cultivated crops such as cotton, corn, and soybeans. Where this soil is cultivated, adequate fertilization and the use of conservation practices such as stripcropping, grassed waterways, row management, and the return of crop residue helps control erosion. Potential for pasture plants such as bahiagrass and improved bermudagrass is high. Adequate fertilization, proper stocking, and controlled grazing help control erosion. Potential is high for loblolly pine, slash pine, and longleaf pine. There are no significant concerns in use and management for woodland.

Potential for most urban uses, for woodland and openland wildlife habitat, and for most recreational uses is high. Capability unit IIe-2; woodland suitability group 2o1.

MbC—McLaurin loamy sand, 5 to 8 percent slopes. This is a well drained soil on uplands.

Typically the surface layer is brown loamy sand about 10 inches thick. The subsoil is yellowish red sandy loam to a depth of about 34 inches, strong brown loamy sand with yellow mottles to a depth of about 55 inches, and red sandy loam to a depth of about 64 inches or more.

This soil is strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium. The erosion hazard is slight. Tilth is good, and the soil is easy to work.

Included with this soil in mapping are small areas of Benndale soils.

Most of this soil is used for woodland, and the rest is in pasture or row crops. The soil has medium potential for cultivated crops such as cotton, corn, and soybeans because of the erosion hazard. Where this soil is cultivated, adequate fertilization and the use of conservation practices such as stripcropping, grassed waterways, minimum tillage, parallel terraces, and the proper use of crop residue helps reduce erosion. Potential for pasture plants such as bahiagrass and improved bermudagrass is high. Adequate fertilization, proper stocking rates, and controlled grazing helps reduce erosion. Potential for loblolly pine, slash pine, and longleaf pine is high. There are no significant concerns in use and management for woodland.

This soil has medium potential for most urban uses because of erosion. The use of erosion control practices helps reduce soil loss. This soil has high potential for woodland and openland wildlife habitat. Potential is high for most recreational uses. Capability unit IIIe-1; woodland suitability group 2o1.

MCB—McLaurin association, undulating. This association consists of well drained soils on broad ridgetops in wooded areas. These areas range from 300 feet to 1/3 mile in width and from 40 to 300 acres in size. Slopes are 2 to 5 percent.

The composition of this unit is not so uniform as that of most of the others in the county, but mapping has been controlled well enough for the expected use of the soils. McLaurin soils and closely similar soils make up about 85 percent of the unit.

The well drained McLaurin soils have a surface layer of dark brown loamy sand about 8 inches thick. The subsoil is yellowish red sandy loam to a depth of about 33 inches, yellowish red loamy sand with light yellowish brown mottles to a depth of 56 inches, and yellowish red sandy loam below that.

McLaurin soils are strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is slow to medium. The erosion hazard is slight. Tilth is good, and the soils are easy to work.

Included with this soil in mapping are small areas of well drained soils that have a sandy substratum. A few small areas of soils that have slopes of more than 5 percent and small areas of Benndale soils are also included.

Almost all of this association is in woodland because of ownership or location. Potential is high for cultivated crops such as cotton, corn, and soybeans and for pasture plants such as bahiagrass and improved bermudagrass. The use of adequate fertilization, proper stocking rates, controlled grazing, return of crop residue, and other erosion control practices reduce soil loss. Potential for loblolly pine, slash pine, and longleaf pine is high. There are no significant limitations to woodland use and management.

Potential for most urban uses, for woodland and openland wildlife habitat, and for most recreational uses is high. Capability unit IIe-2; woodland suitability group 2o1.

MLD—McLaurin-Benndale association, rolling. This association consists of well drained McLaurin and Benndale soils in wooded areas of 160 to 2,000 acres. In most places, these soils are on broad to narrow ridges, and in a few places, they are on complex side slopes. Slopes are 2 to 12 percent.

The composition of this unit is more variable than that of others in the county, but mapping has been controlled well enough for the expected use of the soils. About 45 percent of the association is McLaurin soils and closely

similar soils, and about 35 percent is Benndale soils and closely similar soils.

McLaurin soils have a surface layer of very dark grayish brown loamy sand about 5 inches thick. The subsurface layer is yellowish brown loamy sand about 6 inches thick. The subsoil is yellowish red sandy loam, strong brown loamy sand mottled in shades of brown, and red sandy loam mottled in shades of yellow. It extends to a depth of about 65 inches or more.

McLaurin soils are strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium. The soil is subject to erosion if vegetative cover is removed. Tilth is good, and the soil is easy to work.

Benndale soils have a surface layer of dark grayish brown fine sandy loam about 6 inches thick. The subsoil is yellowish brown sandy loam to a depth of about 38 inches, yellowish brown sandy loam mottled in shades of red to a depth of about 40 inches, and red loam mottled in shades of brown to a depth of 65 inches or more.

Benndale soils are strongly acid or very strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is medium. The soil is subject to erosion if vegetative cover is removed. The soil has good tilth and is easy to work.

Included with these soils in mapping are mainly Susquehanna soils, which are somewhat poorly drained soils that have a clayey subsoil; moderately well drained, loamy soils in which the lower part of the subsoil is clayey; and Troup soils, which are well drained, loamy soils that have a surface layer of loamy sand more than 40 inches thick. These included soils are mainly on the middle and lower parts of side slopes but are on narrow ridges in places.

This association has low potential for cultivated crops because of slope and the erosion hazard. Small areas of included soils, however, have high potential for use as cropland if erosion is controlled. This association has high potential for pasture plants such as bahiagrass and improved bermudagrass. Adequate fertilization, proper stocking rates, and controlled grazing help control erosion. Potential is high for loblolly pine, slash pine, and longleaf pine. There are no significant limitations to use and management.

Potential for most urban uses is medium because of slope and the erosion hazard. Conservation practices are needed to control erosion and sedimentation. This association has high potential for woodland and openland wildlife habitat and for most recreational uses. Capability unit VIe-1; woodland suitability group 2o1.

PD—Pamlico-Dorovan association. This association consists of very poorly drained, organic soils on flood plains. Slopes are 0 to 2 percent. These flood plains are 100 to 600 feet wide and 1 to 3 miles long. Channels are braided and generally poorly defined. The soils are saturated most of the year; the water table is above or near the surface.

The composition of this unit is more variable than that of most of the others in the county, but mapping has been controlled well enough to be interpreted for the expected use of the soils. Pamlico soils make up about 43 percent of the unit, and Dorovan soils, about 35 percent.

The very poorly drained Pamlico soils are generally along the outer edges of the flood plain. Typically the surface layer is very dark gray muck about 6 inches thick. The next layer is black muck that extends to a depth of about 36 inches. The underlying material is dark grayish brown sand.

Pamlico soils are strongly acid or very strongly acid. Permeability is moderate. Runoff is very slow to ponded. Available water capacity is very high.

The very poorly drained Dorovan soils are generally along the central part of the flood plain. Typically the surface layer is very dark gray muck about 4 inches thick. The next layer is black muck that extends to a depth of about 56 inches. The underlying material is very dark grayish brown sand.

Dorovan soils are strongly acid or very strongly acid. Permeability is very slow. Available water capacity is very high. Runoff is very slow, and water ponds on the surface.

Included with these soils in mapping are small areas of soils that are similar to Pamlico and Dorovan soils except that they are underlain by loamy materials. Also included are small areas of Bibb soils and small areas of poorly drained mineral soils that have a thick, dark surface layer and that occur along the edges of the flood plain.

Most of this association is in hardwood forest. Frequent flooding prevents the use of this association for cropland or pasture. Wetland hardwoods are suited.

This association has low potential for use as cropland, pasture, or urban land because of wetness, flooding, and the organic nature of the soils. Most of the soils in this association are boggy and will not support animal traffic. They are saturated most of the time. The lack of outlets for drainage and the unstable condition of the organic soils make these limitations very difficult to overcome. This association has medium potential for wetland hardwoods such as swamp bay, blackgum, and loblolly pine. Wetness, flooding, the high water table, and the organic nature of the soils severely limit the operation of equipment. Potential for wetland wildlife habitat is high. Potential for recreational uses is low because of wetness and flooding. Capability unit VIIw-1; woodland suitability group 4w3.

PEC—Petal-Susquehanna-Benndale association, rolling. This association consists of somewhat poorly drained to well drained, loamy soils. These soils are on rolling uplands. Slopes are 2 to 12 percent. Areas range from 500 to 2,500 acres.

These soils are associated in a fairly uniform pattern. Composition of this unit is more variable than that of most of the others in the county, but mapping has been controlled well enough for the expected use of the soils. Petal soils make up about 29 percent of the unit;

Susquehanna soils, about 26 percent; and Benndale soils, about 21 percent.

Petal soils are mostly on the upper parts of slopes. Typically the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer is yellowish brown fine sandy loam that extends to a depth of about 8 inches. The subsoil is yellowish red clay loam to a depth of about 17 inches; yellowish red clay loam mottled in shades of red and gray to a depth of 23 inches; and clay loam and silty clay mottled in shades of brown, red, and gray to a depth of 65 inches or more.

Petal soils are strongly acid or very strongly acid. Permeability is slow. Available water capacity is high. Runoff is medium to rapid. These soils are subject to erosion if vegetative cover is removed.

Susquehanna soils are mostly on the lower parts of ridgetops and on the upper parts of slopes, but in places they are on the lower and middle parts of slopes. Typically the surface layer is dark grayish brown silt loam about 4 inches thick. The subsurface layer is yellowish brown silt loam that extends to a depth of about 9 inches. The upper part of the subsoil is yellowish red clay that has yellowish brown, gray, and red mottles and that extends to a depth of about 19 inches. The lower part is clay that is mottled in shades of gray, yellow, and red and that extends to a depth of 60 inches or more.

Susquehanna soils are strongly acid or very strongly acid. Permeability is very slow. Available water capacity is high. Runoff is medium to rapid. These soils are subject to erosion if vegetative cover is removed. Shrink-swell potential is high.

Benndale soils are mostly on ridgetops and the upper parts of slopes. Typically the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer is light yellowish brown fine sandy loam about 3 inches thick. The upper part of the subsoil extends to a depth of 32 inches; it is yellowish brown loam and has strong brown mottles below a depth of 22 inches. The lower part extends to a depth of 65 inches or more; it is loam mottled in shades of yellow, brown, and gray.

Benndale soils are strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is medium. These soils are subject to erosion if vegetative cover is removed.

Included with these soils in mapping on the lower parts of slopes are small areas of poorly drained and somewhat poorly drained soils that have a loamy subsoil, small areas of Pamlico soils along and adjacent to drainageways, and small areas of McLaurin soils on higher ridges.

Most of this association is in woodland.

This association has low potential for cultivated crops because of the erosion hazard and the variability of the soils. Small areas of included soils on narrow ridgetops can be used as cropland if erosion is controlled.

Potential for pasture plants such as bahiagrass, improved bermudagrass, and tall fescue is medium because of the clayey texture of the Susquehanna soils and because of the erosion hazard. Adequate fertilization, proper stocking rates, and controlled grazing are needed.

Benndale and Petal soils have high potential for loblolly pine, slash pine, and longleaf pine. Susquehanna soils have moderately high potential for pine trees because of their clayey subsoil. The equipment limitation on Susquehanna soils is moderate because the subsoil does not support logging vehicles well during the wet season. Scheduling management and harvesting operations for drier periods, however, helps overcome this limitation.

These soils have low potential for most urban uses. Shrink-swell potential and slope are limitations, but these can be partly overcome through the use of special foundations and design. Potential for woodland and openland wildlife habitat is high. Petal soil in capability unit IVe-2; woodland suitability group 2o1. Susquehanna soil in capability unit VIe-2; woodland suitability group 3c2. Benndale soil in capability unit IVe-1; woodland suitability group 2o1.

PhA—Pheba silt loam, 0 to 2 percent slopes. This is a somewhat poorly drained soil on broad flats on uplands.

The surface layer is dark gray silt loam about 3 inches thick. The subsurface layer is pale brown silt loam about 5 inches thick. The subsoil is light yellowish brown silt loam that is mottled in shades of brown and gray and that extends to a depth of about 16 inches. The next layer is pale brown silt loam that has gray mottles and that extends to a depth of about 21 inches. The fragipan extends to a depth of 60 inches; it is yellowish brown and brownish yellow silt loam and is mottled in shades of brown, gray, and yellow in the lower part.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow. The soil has a seasonal high perched water table at a depth of about 18 to 24 inches. Tilth is fair, and the soil tends to crust and pack because of silty texture.

Included with this soil in mapping are small areas of Prentiss and Trebloc soils.

Most of this soil is in woodland, and the rest is in pasture and row crops.

This soil has medium potential for cultivated crops such as cotton, corn, and soybeans because of wetness. Row arrangement and field ditches help remove excess water from the surface. Returning crop residue to the land helps reduce crusting. The soil has high potential for pasture plants such as bahiagrass and improved bermudagrass. Water can be removed from the surface by field ditches. Grazing should be limited during wet seasons to avoid soil compaction. Potential for loblolly pine, shortleaf pine, and slash pine is high. Wetness limits the use of equipment during wet periods. Scheduling management and harvesting operations for drier seasons helps avoid this problem.

This soil has medium potential for most urban uses. Wetness is the main limitation, but this limitation can be overcome by adequate drainage measures. The lower part of the subsoil has moderately slow permeability, and this can be partly overcome by increasing the size of the septic tank absorption area or by modifying the filter field.

Potential for woodland and openland wildlife habitat is high. Capability unit IIIw-2; woodland suitability group 2w8.

Pn—Pits. This unit consists of gravel pits, sand pits, and borrow pits ranging from 3 to 500 acres in size.

Gravel pits are open excavations from which gravel has been mined. The largest of the pits borders the city of Hattiesburg on the north side, along Bowie Creek. This and other gravel pits along rivers consist mainly of sandy tailings from hydraulic dredging operations. Other smaller pits are the result of mechanical excavation. Sand pits are those from which sand has been removed. Borrow pits are those from which soil and the underlying material have been removed and used in the construction of roads or used as fill material in other areas.

Major reclamation is needed before pits can be used for cropland or pasture. Pine trees protect against erosion, but they grow slowly because of low fertility in the exposed substratum.

PoB—Poarch fine sandy loam, 2 to 5 percent slopes. This is a well drained soil of the uplands. It is mostly in the southern half of the county.

Typically the surface layer is dark grayish brown fine sandy loam about 6 inches thick. The upper part of the subsoil is yellowish brown loam that extends to a depth of about 39 inches; content of nodules of plinthite in the lower 11 inches ranges from 10 to 15 percent. The lower part is loam that is mottled in shades of red, gray, and brown and that extends to a depth of 60 inches.

This soil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Runoff is slow. The soil is subject to erosion if vegetative cover is removed. It has good tilth and is easy to work.

Included with this soil in mapping are small areas of Benndale and Prentiss soils.

Most of this soil is cultivated or used for pasture. The remainder is in woodland.

Potential is high for cultivated crops such as cotton, corn, and soybeans and for pasture plants such as bahiagrass and improved bermudagrass. Conservation practices such as parallel terraces, row arrangement, minimum tillage, and return of crop residue to the land help control erosion on cropland. Adequate fertilization, proper stocking rates, and controlled grazing help control erosion on pastureland. Potential for loblolly pine, slash pine, and longleaf pine (fig. 4) is high. There are no significant limitations to use and management.

This soil has medium potential for most uses because of a slowly permeable layer and low strength. Larger septic tank filter fields and specially designed foundations help overcome these limitations. This soil has high potential for woodland and openland wildlife habitat and for most recreational uses. Capability unit IIe-2; woodland suitability group 2o1.

PoC—Poarch fine sandy loam, 5 to 8 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The upper part of the subsoil is yellowish brown loam that extends to a depth of about 28 inches. The lower part extends to a depth of more than 60 inches. It is brownish yellow loam that has grayish mottles and red, firm nodules.

The soil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is medium. The soil is subject to erosion if vegetative cover is removed. It has good tilth and is easy to work.

Included with this soil in mapping are small areas of McLaurin and Benndale soils.

This soil has medium potential for cultivated crops such as corn and soybeans because of slope and the erosion hazard. Erosion control practices such as parallel terraces, stripcropping, minimum tillage, and grassed waterways help control erosion. Potential for pasture plants such as bahiagrass and improved bermudagrass is high. Adequate fertilization, proper stocking rates, and controlled grazing help control erosion. This soil has high potential for loblolly pine, slash pine, and longleaf pine. There are no significant limitations to use and management.

This soil has medium potential for most urban uses because of a slowly permeable layer and low strength. Larger septic tank filter fields and specially designed foundations help overcome these limitations. Potential for woodland and openland wildlife habitat is high. Capability unit IIIe-1; woodland suitability group 2o1.

PSB—Poarch-Saucier association, undulating. This association consists of well drained and moderately well drained soils on uplands. Slopes are 0 to 8 percent. Areas are broad and are dissected by small drainageways. Areas range from 600 to 2,000 acres.

The composition of this unit is more variable than that of most of the others in the county, but mapping has been controlled well enough for the expected use of the soils. Poarch soils make up about 45 percent of the unit, and Saucier soils, about 24 percent.

The well drained Poarch soils are on convex ridgetops and at higher elevations. Typically the surface layer is grayish brown fine sandy loam about 2 inches thick. The subsurface layer is light yellowish brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown sandy loam to a depth of 12 inches; yellowish brown loam to a depth of 25 inches; yellowish brown loam that contains red nodules to a depth of 51 inches; and mottled red, gray, and brownish yellow loam to a depth of 65 inches or more.

Poarch soils are strongly acid or very strongly acid. Available water capacity is medium. Permeability is moderate. Runoff is medium. This soil is subject to erosion if vegetative cover is removed.

The moderately well drained Saucier soils are mostly on side slopes and at lower elevations. Typically the surface layer is very dark grayish brown fine sandy loam about 5 inches thick. The subsoil is yellowish brown loam to a depth of about 20 inches; yellowish brown loam that

is mottled in shades of red and brown and that contains plinthite nodules to a depth of about 25 inches; mottled light gray, red, and yellow clay loam to a depth of about 39 inches; and light gray clay mottled in shades of brown and red to a depth of about 62 inches or more.

Saucier soils are strongly acid or very strongly acid. Available water capacity is high. Permeability is slow. Runoff is slow to medium. This soil is subject to erosion if vegetative cover is removed.

Included with these soils in mapping are small areas of McLaurin soils; small areas of moderately well drained, loamy soils underlain by a layer that contains soft, yellowish red nodules; and small areas of poorly drained organic and mineral soils on flood plains.

Most of this association is in pine forest, mostly in the DeSoto National Forest.

This association has medium potential for cultivated crops such as cotton, corn, and soybeans because of slope, the erosion hazard, and the variability of the soils. Such erosion control measures as parallel terraces, stripcropping, grassed waterways, and crop residue management help prevent excessive soil loss. Potential for pasture plants such as bahiagrass is high. Adequate fertilization, proper stocking rates, and controlled grazing help control erosion. This association has high potential for longleaf pine, loblolly pine, and slash pine. Equipment limitations on the Saucier soil, however, are moderate because of wetness and low strength. Scheduling operations for drier periods helps avoid these limitations.

Potential is medium for most urban uses because of wetness and low strength. Poarch soils have fewer limitations than Saucier soils; permeability is slow in Saucier soils, and the lower part of the subsoil is clayey. Larger septic tank filter fields and specially designed foundations help overcome these limitations. Potential is high for woodland and openland wildlife habitat and for most recreational uses. Capability unit IIIe-1; Poarch soil in woodland suitability group 2o1, Saucier soil in woodland suitability group 2w8.

PtA—Prentiss loam, 0 to 2 percent slopes. This is a moderately well drained soil on broad flats on uplands.

Typically the surface layer is dark brown loam about 7 inches thick. The upper part of the subsoil is yellowish brown loam that extends to a depth of about 26 inches. Below this to a depth of about 30 inches is yellowish brown loam that has strong brown mottles. This layer is underlain to a depth of 60 inches or more by a compact and brittle fragipan of yellowish brown loam mottled with yellowish red and gray.

This soil is strongly acid or very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. Available water capacity is medium. Runoff is slow. A seasonal high water table is at a depth of about 24 to 36 inches.

Included with this soil in mapping are small areas of Bassfield, Benndale, Malbis, and Stough soils.

About half of this soil is in cropland or pasture. The rest is in woodland.

This soil has high potential for cultivated crops such as cotton, corn, and soybeans and for pasture plants such as bahiagrass, tall fescue, and improved bermudagrass. Adequate fertilization, return of crop residue, row arrangement, and surface field drains are needed in areas used for crops and pasture. Potential is also high for loblolly pine, slash pine, and longleaf pine. There are no significant limitations to use and management for woodland.

Potential is medium for most urban uses because of wetness and low strength. Larger septic tank filter fields, surface drainage, and specially designed foundations overcome these limitations. Potential is high for woodland and openland wildlife habitat and for most recreational uses. Capability unit IIw-1; woodland suitability group 2o7.

PtB—Prentiss loam, 2 to 5 percent slopes. This is a moderately well drained soil of the uplands.

Typically the surface layer is dark grayish brown loam about 6 inches thick. The upper part of the subsoil is yellowish brown loam that extends to a depth of about 18 inches. Below this to a depth of about 27 inches is yellowish brown loam mottled with strong brown. This layer is underlain by a compact and brittle fragipan of loam that is mottled in shades of brown and gray in the upper part and is yellowish brown mottled with grayish and brownish colors in the lower part.

The soil is strongly acid or very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. Available water capacity is medium. Runoff is medium, and the erosion hazard is moderate if vegetative cover has been removed. A water table is perched above the fragipan during wet seasons.

Included with this soil in mapping are small areas of Benndale and Pheba soils.

Most of this soil is in woodland, and the rest is in pasture or cropland.

This soil has high potential for cultivated crops such as cotton, corn, and soybeans. When used for crops, it needs adequate fertilization, return of crop residue, contour cultivation, minimum tillage, and terraces. Potential is high for pasture plants such as bahiagrass, tall fescue, and Coastal bermudagrass. Potential is also high for loblolly pine, slash pine, and longleaf pine. There are no significant limitations to use and management for woodland.

This soil has medium potential for most urban uses because of wetness and low strength. Larger septic tank filter fields and specially designed foundations help overcome these limitations. This soil has high potential for woodland and openland wildlife habitat and for most recreational uses. Capability unit IIe-3; woodland suitability group 2o7.

Pu—Prentiss-Urban land complex. This complex consists of gently sloping and sloping, moderately well drained soils and Urban land on uplands in metropolitan Hattiesburg and in the Camp Shelby area. Slopes are 2 to 8 percent. Areas range from 40 to 500 acres.

This unit consists of an intricate pattern of Prentiss soils and Urban land. It is about 40 percent Prentiss loam and about 35 percent Urban land.

The moderately well drained Prentiss soils have a surface layer of dark grayish brown loam about 6 inches thick. The upper part of the subsoil extends to a depth of 29 inches; it is yellowish brown loam that has strong brown mottles in the lower 9 inches. The lower part of the subsoil is a compact and brittle fragipan; to a depth of 37 inches, it is loam that is mottled in shades of brown and gray, and to a depth of 60 inches or more, it is brown loam that is mottled with gray.

Prentiss soils are strongly acid or very strongly acid. Permeability is moderate in the upper part and moderately slow in the fragipan. Available water capacity is medium. Runoff is medium. A water table is perched above the fragipan during wet seasons.

Urban land is mostly altered or reworked soil material that has no identifiable soil profile. These areas are mostly occupied by house sites and the adjoining streets. A few shopping centers and other public service areas that have paved parking lots are also in this map unit.

Included with this unit in mapping are small areas of McLaurin, Susquehanna, and Trebloc soils and small areas of poorly drained soils on narrow flood plains.

This unit has medium potential for most urban uses. Wetness and low strength are the main limitations. These limitations can be overcome through the use of specially designed foundations and by increasing the area of septic tank filter fields. Not assigned to a capability unit; Prentiss soil in woodland suitability group 2o7, Urban land not assigned to a woodland suitability group.

StA—Stough loam, 0 to 2 percent slopes. This is a somewhat poorly drained soil on broad flats.

Typically the surface layer is dark gray loam about 4 inches thick. The subsurface layer is grayish brown loam about 4 inches thick. The upper part of the subsoil is loam that is mottled in shades of brown and gray and that extends to a depth of about 15 inches. The lower part is loam that is mottled in shades of gray, brown, yellow, and red and that is partially compact and brittle; it extends to a depth of about 63 inches or more.

This soil is strongly acid or very strongly acid. Permeability is moderately slow. Available water capacity is medium. Runoff is slow. A water table is perched at a depth of about 12 to 18 inches during the wet season.

Included with this soil in mapping are small areas of Prentiss and Trebloc soils.

Most of this soil is in woodland, and the rest is in pasture and row crops.

Potential for cultivated crops such as cotton, corn, and soybeans and for pasture plants such as bahiagrass, tall fescue, and improved bermudagrass is high. Ditches are needed to remove excess water from the surface. This soil has high potential for loblolly pine and slash pine. Wetness and plant competition are the main limitations to use and management for woodland. These limitations can be partially avoided by scheduling operations for the dry season and through the use of management practices that eliminate plant competition.

This soil has medium potential for most urban uses because of wetness. This limitation can be partially overcome by adequate surface drainage. Septic tank filter fields should be designed larger than normal because of wetness. This soil has high potential for woodland and openland wildlife habitat. Potential is medium for most recreational uses because of wetness. Capability unit IIw-2; woodland suitability group 2w8.

SuB—Susquehanna silt loam, 2 to 5 percent slopes. This is a somewhat poorly drained soil on uplands.

Typically the surface layer is grayish brown silt loam about 4 inches thick. The subsurface layer is brownish yellow silt loam about 5 inches thick. The upper part of the subsoil is clay that is mottled in shades of brown, red, and gray and that extends to a depth of about 16 inches. The middle part is clay that is mottled in shades of red and gray and that extends to a depth of about 38 inches. The lower part is gray and light gray clay that is mottled in shades of brown and gray and that extends to a depth of 68 inches or more.

This soil is strongly acid or very strongly acid except for the surface layer in limed areas. Permeability is very slow. Available water capacity is high. Runoff is medium. The erosion hazard is slight to moderate. This soil has high shrink-swell potential.

Included with this soil in mapping are small areas of nearly level Falkner and Prentiss soils.

Most of this soil is in woodland, and the rest is in pasture.

This soil has low potential for cultivated crops because of the erosion hazard and the clayey texture. Potential for pasture plants such as bahiagrass and tall fescue is medium because of clayey texture. Adequate fertilization, proper stocking rates, and controlled grazing help prevent soil loss. This soil has moderately high potential for loblolly pine and shortleaf pine. Low strength is a moderate limitation to equipment operation, but scheduling operations for drier seasons overcomes this limitation.

This soil has low potential for most urban uses because of low strength, high shrink-swell potential, clayey texture, and wetness. Specially designed foundations, adequate drainage, and larger septic tank filter fields help overcome these limitations. This soil has a high potential for woodland and openland wildlife habitat. Potential is medium for most recreational uses because of wetness. Capability unit IVe-3; woodland suitability group 3c2.

SuD—Susquehanna silt loam, 5 to 12 percent slopes. This is a somewhat poorly drained soil on uplands.

Typically the surface layer is dark gray silt loam about 5 inches thick. The subsurface layer is light yellowish brown silt loam about 3 inches thick. The upper part of the subsoil is yellowish red silty clay that has yellowish mottles. The middle part is silty clay mottled in shades of red, gray, and brown. The lower part of the subsoil is clay mottled in shades of gray and red over gray clay mottled in shades of yellow; it extends to a depth of 65 inches or more.

This soil is strongly acid or very strongly acid. Permeability is very slow. Available water capacity is high. Runoff is rapid. The erosion hazard is moderate. This soil has high shrink-swell potential.

Included with this soil in mapping are small areas of Falkner, Petal, and Prentiss soils.

Most of this soil is in woodland, and the rest is in pasture.

This soil has low potential for cultivated crops because of slope and the erosion hazard. Potential is medium for pasture plants such as bahiagrass and tall fescue. Adequate fertilization, proper stocking rates, and controlled grazing help control erosion. Potential for loblolly pine and shortleaf pine is moderately high. Operation of equipment is limited because of clayey texture and wetness. Scheduling operations for drier seasons helps overcome this limitation.

This soil has low potential for most urban uses because of slope, the erosion hazard, low strength, and high shrink-swell potential. Stronger than normal foundations, larger septic tank filter fields, and conservation practices to prevent erosion help overcome these limitations. Potential for woodland and openland wildlife habitat is high. Potential is medium for most recreational uses. Capability unit VIe-2; woodland suitability group 3c2.

Tb—Trebloc silt loam. This is a poorly drained soil in broad, flat areas adjacent to large streams. Slopes are 0 to 2 percent.

Typically the surface layer is dark gray silt loam about 5 inches thick. The subsurface layer is light brownish gray silt loam about 2 inches thick. The upper part of the subsoil is light brownish gray silt loam that is mottled in shades of yellow and that extends to a depth of about 15 inches. The lower part is light brownish gray silty clay loam that is mottled in shades of brown and yellow and that extends to a depth of about 65 inches or more.

This soil is strongly acid or very strongly acid. Permeability is slow. Available water capacity is high. Runoff is slow. A water table is at a depth of about 6 to 12 inches during wet periods. Water ponds in low areas.

Included with this soil in mapping are small areas of Stough and Bibb soils.

Most of this soil is in woodland, and the rest is used for pasture.

This soil has medium potential for cultivated crops such as soybeans because of wetness. Installation of field ditches to remove seepage water helps overcome wetness. Potential is high for pasture plants such as bahiagrass, improved bermudagrass, and tall fescue. Grazing during wet periods causes compaction. This soil has high potential for loblolly pine, slash pine, sweetgum, water oak, and willow oak. Windthrow and plant competition are moderate limitations. The operation of equipment is severely limited because of wetness, but scheduling operations for drier seasons helps avoid this limitation.

This soil has low potential for most urban uses because of wetness. Grading and shaping to remove water from the surface and using larger than normal septic tank filter fields help overcome this limitation. This soil has high potential for wetland wildlife habitat. Potential is low for most recreational uses. Capability unit IIIw-1; woodland suitability group 2w9.

TeA—Trebloc-Escambia complex, 0 to 2 percent slopes. This complex consists of low, flat areas mostly in the southern half of the county. Areas range from 20 to 250 acres.

These soils are in an intricate pattern on the landscape; the pattern changes within short distances, and separate mapping at the scale used was impractical. Trebloc soils make up about 35 percent of the complex, and Escambia soils, about 30 percent.

The poorly drained Trebloc soils are in flat areas that are ponded during wet periods and that are subject to flooding. Typically the surface layer is very dark grayish brown silt loam about 5 inches thick. The subsurface layer is grayish brown silt loam that has brownish mottles and that extends to a depth of about 12 inches. The upper part of the subsoil is light brownish gray silty clay loam that has yellowish brown mottles and that extends to a depth of about 36 inches. The lower part is gray silty clay loam that extends to a depth of about 60 inches or more.

Trebloc soils are strongly acid or very strongly acid. Permeability is slow. Available water capacity is high. Runoff is very slow. A water table is at or near the surface during wet periods.

The somewhat poorly drained Escambia soils are on low ridges that have surface drainage. They are not subject to frequent flooding. Typically the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsoil to a depth of 13 inches is brownish yellow loam; to a depth of 22 inches it is brownish yellow loam that has strong brown and yellowish red mottles and that contains firm, yellowish red bodies; to a depth of 32 inches it is brownish yellow loam that has grayish mottles; and to a depth of 60 inches or more it is light gray loam mottled in shades of brown.

Escambia soils are strongly acid or very strongly acid. Permeability is moderate. Available water capacity is medium. Runoff is slow. A water table is perched at a depth of about 18 to 30 inches during the wet season.

Included with these soils in mapping are small areas of well drained, loamy soils and small areas of poorly drained, loamy and sandy soils.

Most of this complex is in pine and hardwood forest.

This complex has low potential for cultivated crops because of wetness and the variability of the soils. Potential is medium for pasture plants such as improved bermudagrass and tall fescue because of wetness. Allowing grazing during wet periods invites compaction of the soil. These soils have high potential for loblolly pine, slash pine, sweetgum, water oak, and willow oak. Equipment limitations are severe because of wetness, but these limitations can be avoided by scheduling operations for drier periods. Windthrow hazard and plant competition are concerns on the Trebloc soils.

This complex has low potential for most urban uses because of wetness and flooding. If the soils are used for urban purposes, they must be shaped and graded to remove water from the surface, and larger than normal septic tank filter fields are needed. Trebloc soils have high potential for wetland wildlife habitat, and Escambia soils have high potential for woodland and openland wildlife habitat. Potential is low for most recreational uses because of wetness and flooding. Capability unit Vw-1; Trebloc soil in woodland suitability group 2w9, Escambia soil in woodland suitability group 2w2.

TrB—Troup loamy fine sand, 0 to 8 percent slopes. This is a well drained soil of the uplands.

Typically the surface layer is dark grayish brown loamy fine sand about 3 inches thick. The subsurface layer is yellowish brown loamy fine sand about 23 inches thick. The next layer is yellowish red and red loamy sand that extends to a depth of about 64 inches. The subsoil is red sandy loam that extends to a depth of about 91 inches or more.

This soil is strongly acid or very strongly acid. Permeability is rapid in the thick, sandy surface layer and moderate in the subsoil. Available water capacity is low in the sandy layers and medium in the subsoil. Runoff is slow. The erosion hazard is slight. This soil tends to be droughty.

Included with this soil in mapping are small areas of Alaga, Heidel, and McLaurin soils.

Most of this soil is in woodland.

This soil has medium potential for cultivated crops such as corn and soybeans because of low available water capacity in the sandy layers. Early planting helps to avoid the driest part of the growing season. Potential is medium for pasture plants such as bahiagrass and improved bermudagrass because of sandy texture. Adequate fertilization, proper stocking, and weed control help preserve moisture and maintain a good grass coverage. This soil has moderately high potential for loblolly pine, longleaf pine, and slash pine. Moisture is the limiting factor. Seedling mortality and equipment limitations are concerns because of sandy texture. Equipment operates best on this soil during wetter periods.

This soil has high potential for most urban uses. Potential for woodland and openland wildlife habitat is medium because of droughtiness. Potential is medium for most recreational uses. Capability unit IIIs-1; woodland suitability group 3s2.

Ur—Urban land. Most of this map unit is in Hattiesburg, and a smaller amount is in Camp Shelby (Mississippi National Guard). About 70 to 95 percent of the area is covered with industrial, commercial, military, or residential development, such as railroad yards, buildings, streets, and parking lots. In the Camp Shelby area, warehouses, maintenance shops, parking areas, and vehicle storage areas cover this map unit.

Cuts and fills for the purpose of installing works and structures have altered and obscured soil features to the point that the soil can no longer be identified as a soil series. Most of the original soils were well drained and moderately well drained.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, rangeland, and woodland, as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities, and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil,

including some not commonly grown in the survey area, are discussed; 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 presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

Cultivated crops.—Cultivation of the soils causes leaching of plant nutrients and increases the hazard of erosion. Suitable cropping systems are therefore needed to maintain organic-matter content, to help control erosion, and to increase the level of fertility.

Close-growing or sod crops and annual cover crops grown in sequence with row crops help to maintain organic-matter content, control erosion, and build up fertility of soils. The length of time that the cover is needed, in proportion to the length of time a row crop is grown, depends on the type of soil, the slope, and the degree of erosion hazard.

Fertilizers are needed on all cropland to increase yields. Crops residue should be shredded following harvest and left on the surface or disked into the surface layer of soils that are subject to flooding. The need for fertilizer varies with the soils and the type of crop. Soil tests help determine the correct amount and type of fertilizer to add. Recommendations can be obtained from the local office of the Extension Service and from the Mississippi Agricultural and Forestry Experiment Station.

Some of the soils in the county have limitations caused by surface and internal drainage. These soils need drainage mains and laterals and the surface field drains that lead into them. Diversions are needed to protect bottom lands from excessive runoff from higher elevations. Contour farming is needed on gently sloping soils to help control erosion and conserve moisture.

Pasture.—Good, well managed sods of grasses and legumes help prevent the soil from eroding, provide forage and feed for livestock, and build up the organic-matter content of the soils.

The soils of Forrest County are suited to a wide variety of grasses and legumes. Some soils are better suited than others. The local office of the Soil Conservation Service can suggest suitable plants for individual soils. The type of livestock enterprise and the individual needs of the farmer should also be considered.

Perennial grasses that are widely adapted to the soils are improved bermudagrass, bahiagrass, and tall fescue. Legumes that are well adapted are white clover, crimson clover, arrowleaf clover, and annual lespedeza.

Regular additions of fertilizer and lime are beneficial to all pastures. The amount, type, and frequency of application should be determined by a soil test. Grasses and legumes grow better and produce more forage when overgrazing is prevented by proper stocking rates and rotation grazing.

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 6. 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. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil or that a given crop is not commonly irrigated.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 6.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; 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 residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils 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 6 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. (*7*).The soils are classed according to their limitations

when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forest trees, or for engineering purposes.

In the capability system, all kinds of soil are grouped at three levels: capability class, subclass, and unit. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

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

Class I soils have few limitations that restrict their use.

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

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

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

Class V soils are not likely to erode but 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 landforms 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 limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

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

The acreage of soils in each capability class and subclass is indicated in table 7. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability unit is identified in the description of each soil mapping unit in the section "Soil maps for detailed planning." Capability units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-2 or IIIe-4.

Woodland management and productivity

ROBERT L. GRIGSBY, forester, Soil Conservation Service, helped prepare this section.

Soils influence tree growth by providing a reservoir of moisture, all essential elements for growth except those derived from the atmosphere (carbon from carbon dioxide and oxygen), and the medium in which a tree is anchored. Studies have shown a strong correlation between production of wood crops and various soil characteristics. The growth of trees and the species that grow on a particular soil show a direct relationship between soil depth, texture, structure, topographic position, and inherent fertility.

"Forest type" is a descriptive term used to group stands of trees of similar character and development due to certain ecological factors. In Forrest County five forest types make up the 216,200 acres of woodland. The longleaf-slash pine type is the largest, and it occupies 98,700 acres; the loblolly-shortleaf pine type occupies 47,000 acres; the oak-pine type occupies 32,900 acres; the oak-gum-cypress type occupies 23,500 acres; and the oak-hickory type occupies 14,100 acres.

Five species of southern pine are adapted in the county. Their variation in occurrence is due to both the various soils and the past treatment of the soil and forest resources by man.

Farmers and miscellaneous private owners control approximately 64 percent of the woodland, national forest makes up 22 percent, the forest industry owns 9 percent, and other public ownership makes up 5 percent (*4*).

The soils of Forrest County have been assigned to 14 woodland suitability groups. Each group consists of soils that have about the same suitability for wood crops, potential productivity, and management requirements. These factors depend on such soil characteristics as depth, drainage, degree of erosion, slope, and wetness. To learn the woodland suitability group in which a particular soil has been placed, refer to the map unit description or to table 8.

Table 8 contains information useful to woodland owners or forest managers planning use of soils for wood crops.

Mapping unit symbols for soils suitable for wood crops are listed, and the woodland suitability group symbol for each soil is given. All soils bearing the same woodland suitability group symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *woodland suitability group*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

The third element in the symbol, a numeral, indicates the kind of trees for which the soils in the group are best suited and also indicates the severity of the hazard or limitation. The numerals 1, 2, and 3 indicate slight, moderate, and severe limitations, respectively, and suitability for broadleaf trees. The numerals 4, 5, and 6 indicate slight, moderate, and severe limitations, respectively, and suitability for broadleaf trees. The numerals 7, 8, and 9 indicate slight, moderate, and severe limitations, respectively, and suitability for both needleleaf and broadleaf trees.

In table 8 the soils are also rated for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations (*5*).

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade or grow if openings are made in the tree canopy. The invading plants compete with native plants or planted seedlings by impeding or preventing their growth. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* means that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

The *potential productivity* of merchantable or *important trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain at age 50. The site index applies to fully stocked, even-aged, unmanaged stands. Important trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Woodland understory vegetation

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some types of forest, under proper management, can produce enough understory vegetation to support grazing of livestock or wildlife, or both.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees, the density of the canopy, and the depth and condition of the forest litter. The density of the forest canopy affects the amount of light that understory plants receive during the growing season.

Table 9 shows, for each soil suitable for woodland, the potential for producing understory vegetation. The table also lists the common names of the characteristic vegetation that grows on a specified soil and the percentage composition, by air-dry weight, of each kind of plant. The kind and percentage of understory plants listed in the table are those to be expected where canopy density is most nearly typical of forests that yield the highest production of wood crops.

The total production of understory vegetation is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year the soil moisture is above average during the optimum part of the growing season; in a normal year soil moisture is average; and in an unfavorable year it is below average.

Engineering

H.C. HUEY, engineer, Soil Conservation Service, helped prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 10 shows, for each kind of soil, the degree and kind of limitations for building site development; table 11, for sanitary facilities; and table 13, for water management. Table 12 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 10. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 10 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 10 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 11 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory (*11*).

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold 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. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The

best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 11 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 12 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 16 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 12 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 16.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 13 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment (fig. 5). Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of a soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 13 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, presence of salts and alkali, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

Grassed waterways are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

Recreation

The soils of the survey area are rated in table 14 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the 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 14 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 11, and interpretations for dwellings without basements and for local roads and streets, given in table 10.

Camp areas require such site preparation as shaping and leveling for 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 for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as 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 or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas (fig. 6).

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

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

Wildlife habitat

D.R. THOMAS, biologist, Soil Conservation Service, helped prepare this section.

Of all the factors that affect wildlife populations, the way man uses the land is the most important. Regardless of how well suited a soil may be for producing wildlife habitat, if the present land use eliminates the plant associations which that soil is capable of producing for wildlife habitat, the animals will not be there. For this reason, the kinds and numbers of wild animals in Forrest County have varied over the years since the area was settled.

Before Forrest County was settled, the area was predominantly forest. Pines were dominant, and hardwoods grew along the streams. Animals adapted to forests were abundant. Some of these were squirrels, deer, turkeys, bobcats, wolves, eagles, and many kinds of birds, including the now-extinct passenger pigeon.

As this area was settled, logging and land clearing pushed the woodland animals farther back to remote areas. In their place came animals adapted to open land. Clearing of fields, logging, burning, and other soil disturbances created vegetative patterns which met the needs of bobwhite quail, rabbits, doves, many types of ground- and brush-inhabiting songbirds, rodents, and reptiles.

These conditions were responsible for some of the highest populations of bobwhite quail anywhere in the country. As this trend continued, the numbers of forest animals further declined. First wolves and panthers and then deer and turkeys disappeared. But agricultural and industrial demands and methods continued to change. After World War II, reforestation and wildlife management efforts began. With restocking and management, deer and turkeys have been restored to the land. More intensive farming methods have caused some decline in the numbers of farm animals and openland wild animals. The kinds and numbers of wild animals will continue to change as man's methods and demands on the land change.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, inadequate, or inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 15, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and 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* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe, and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

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

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the

growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, sorghum, millet, cowpeas, sunflowers, and soybeans.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties 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 are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, alfalfa, switchgrass, orchardgrass, trefoil, and crownvetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, indiangrass, pokeweed, partridgepea, and fescue.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, poplar, cherry, sweetgum, persimmon, sassafras, sumac, hazelnut, black walnut, grape, blackhaw, viburnum, bayberry, briers, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Cedar is an example of a coniferous plant.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, and cattail and rushes, sedges, and reeds.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat 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. The kinds of wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, killdeer, woodchuck, cottontail rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, vireos, woodpeckers, squirrels, gray fox, raccoon, deer, opossum, and bear.

Wetland habitat consists of open or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, rails, kingfishers, muskrat, mink, and beaver.

Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of en-

gineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 16 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 16 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 16 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 soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains gravel or other particles coarser than sand, an appropriate modifier is added, for example, "gravelly loam." Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (Unified) (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*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, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging 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. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection. The estimated classification, without group index numbers, is given in table 16.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in both the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and plasticity index are estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 17 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. The soil erodibility factor (K) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest K values are the most erodible. K values range from 0.10 to 0.64. To estimate annual soil loss per acre, the K value of a soil is modified by factors representing plant cover, grade and length of slope, management practices, and climate. The soil-loss tolerance factor (T) is the maximum rate of soil erosion, whether from rainfall or soil blowing, that can occur without reducing crop production or environmental quality. The rate is expressed in tons of soil loss per acre per year.

Soil and water features

Table 18 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received 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 chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 18 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such in-

formation is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Depth to bedrock is shown for all soils that are underlain by bedrock at a depth of 5 to 6 feet or less. For many soils, the limited depth to bedrock is a part of the definition of the soil series. The depths shown are based on measurements made in many soil borings and on other observations during the mapping of the soils. The kind of bedrock and its hardness as related to ease of excavation is also shown. Rippable bedrock can be excavated with a single-tooth ripping attachment on a 200-horsepower tractor, but hard bedrock generally requires blasting.

Chemical analyses

By DR. D.E. PETTRY, agronomist, Department of Agronomy, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University.

Soil chemical properties, in combination with other features such as permeability, structure, texture, and consistence, influence the limitations and potentials of an individual soil. Chemical properties are not evident in visual observations of a soil, and laboratory analyses are necessary to define the soil's characteristics. The amount and type of clay minerals present and the organic matter content largely regulate the chemical nature of soils. These substances have the capacity to attract and hold cations. Exchangeable cations are positively charged elements that are bonded to clay minerals and to organic matter, which have a negative charge. Laboratory data for the McLaurin soils are presented in table 19. These data are useful to properly classify the soils and manage them effectively.

The analyses were made in the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station. Standard methods were used to analyze the soils (Soil Survey Investigation Report No. 1) (*9*). Representative soil samples were collected from excavated pits in Forrest County. Samples were prepared by airdrying, careful crushing, and screening through a standard 20-mesh sieve.

Organic matter was determined by a wet combustion method using sulfuric acid and potassium dichromate mixture, and back titration with ferrous sulfate.

Soil reaction (pH) was determined with a Coleman pH meter using a glass electrode and a 1:1 ratio of soil and water.

Exchangeable bases were extracted with neutral-normal ammonium acetate. Calcium, magnesium, potassium, and sodium were determined with a Perkins-Elmer atomic absorption instrument using strontium chloride to suppress interference. Extractable acidity (hydrogen + aluminum) was extracted with barium chloride triethanolamine solution buffered to pH 8.2 and determined via back titration with standard hydrochloric acid.

Base saturation is the percentage that extractable bases comprise of the cation exchange capacity, by the summation of the cations.

Soil chemical data are expressed as milliequivalents (meq) per 100 grams of dry soil. It is useful to convert milliequivalents per 100 grams of the various cations to the common units of pounds per acre for the surface plow layer. An acre of plow layer, or topsoil, of average soils to a depth of 6.67 inches weighs about 2,000,000 pounds. The conversions for the cations listed in table 19 are as follows:

Calcium meq/100 grams x 400 = pounds per acre.
Magnesium meq/100 grams x 240 = pounds per acre.
Potassium meq/100 grams x 780 = pounds per acre.
Sodium meq/100 grams x 460 = pounds per acre.
Hydrogen meq/100 grams x 20 = pounds per acre.
Aluminum meq/100 grams x 180 = pounds per acre.

The exchangeable cations can be removed or exchanged through leaching or plant uptake. It is through cation exchange that soil acidity can be corrected by liming. It is useful to note that 1 meq/100 g of extractable acidity (hydrogen + aluminum) requires 1,000 pounds of calcium carbonate lime per acre to neutralize it.

Many of the soils in Forrest County are acid and have a relatively low capacity to retain plant nutrients (cations) because of the influence of their coarse siliceous parent materials. Deep, well drained, loamy soils at higher elevations, such as Lucedale, Benndale, McLaurin soils, are acid to very strongly acid and have relatively low capacity to retain plant nutrients (cations). These soils, however, respond to proper fertilization and management. Related siliceous soils on the terraces and flood plains of the Leaf River have similar chemical properties.

Susquehanna and Falkner soils make up large areas in the northwestern and southwestern portions of the county. These soils are underlain by clays and silts, and they have base saturation levels greater than 35 percent in the subsoil. The clayey Susquehanna soils have a relatively high cation exchange capacity, which is related to the expansive montmorillonitic type of clay it contains.

Physical analyses

By DR. D.E. PETTRY, agronmist, Department of Agronomy, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University.

The particle size analyses of the McLaurin soils were obtained using the hydrometer method of Day (*3*). Forty grams of soil were dispersed in a 0.5 percent Calgon solution (sodium phosphate) by mixing for 5 minutes in a milk shaker. The dispersed soil was transferred to a sedimentation cylinder, made to 1,000 ml, and equilibrated overnight in a water bath at 30 degrees Celsius. The suspension was then mixed and allowed to settle. Hydrometer readings were taken at predetermined times to determine the clay content. The sand was separated on a 325 mesh sieve, dried, and weighed. All results are expressed on the basis of oven-dry weight at 110 degrees Celsius. Data are shown in table 20.

The physical properties of soils, such as water infiltration and conduction, shrink-swell potential, crusting, ease of tillage, consistence, and available water capacity, are closely related to soil texture (the percentage of sand, silt, and clay).

The deep, sloping, loamy soils of the ridgetops, such as McLaurin, Lucedale, Heidel, and Prentiss soils, have high sand content. The coarse textured surface layer enhances rapid water infiltration, and the soils tend to be droughty. The deep, level, sandy soils on the flood plains and terraces of the Leaf and Bowie Rivers, Alaga, Bigbee, and Nugent soils, also have rapid infiltration and low available water capacity. The associated Trebloc soils on the flood plains have much higher silt content and available water capacity.

The clayey Susquehanna soils in the northwestern and southwestern parts of the county have high content of expansive clays. These soils have high available water capacity, but they tend to shrink and swell upon drying and wetting. The plastic nature of these clayey soils requires special management.

Engineering test data

Table 21 contains engineering test data for the McLaurin series. These tests were made to help evaluate the soils for engineering purposes. The engineering classifications given are based on data obtained by mechanical analyses and by tests to determine liquid limits and plastic limits. The mechanical analyses were made by combined sieve and hydrometer methods.

Moisture-density (compaction) data are important in earthwork. If a soil material is compacted at successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, density decreases with increase in moisture content. The highest dry density obtained in the compactive test is termed "maximum dry density." As a rule, maximum strength of earthwork is obtained if the soil is compacted to the maximum dry density.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic state. If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from a semisolid to a plastic state; the liquid limit is the moisture content at which the soil material changes from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Soil series and morphology

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

Characteristics of the soil and the material in which it formed are discussed for each series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*6*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. The soil is then compared to similar soils and to nearby soils of other series. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Alaga series

The Alaga series consists of somewhat excessively drained soils that formed in sandy material. Slopes are 0 to 5 percent.

Typical pedon of Alaga loamy sand, 0 to 5 percent slopes, in a wooded area about 1,300 feet south of a county road and about 3 miles southeast of Leaf River bridge, NW1/4NW1/4 sec. 11, T. 3 N., R. 12 W.:

A1—0 to 8 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

C1—8 to 24 inches; dark yellowish brown (10YR 4/4) loamy sand; single grained; loose; few coatings on sand grains; very strongly acid; gradual wavy boundary.

C2—24 to 52 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; few pockets of uncoated sand grains; very strongly acid; gradual smooth boundary.

C3—52 to 90 inches; yellowish brown (10YR 5/6) sand; single grained; loose; few pockets of uncoated sand grains; very strongly acid.

The A horizon is dark gray, very dark grayish brown, or dark yellowish brown. The C horizon is brown, reddish yellow, strong brown, yellowish brown, or dark yellowish brown. Texture is sand or loamy sand. Reaction is strongly acid or very strongly acid throughout.

Alaga soils are associated with Bassfield soils. Alaga soils are sandier and less red than Bassfield soils.

Bassfield series

The Bassfield series consists of well drained soils that formed in loamy terrace material. Slopes are 0 to 2 percent.

Typical pedon of Bassfield fine sandy loam from an area of Bassfield fine sandy loam, 0 to 2 percent slopes, in the edge of a pasture north of Glendale-Maybank road, one-fourth mile southeast of Interstate Highway 59, SE1/4NW1/4 sec. 29, T. 5 N., R. 13 W.:

Ap—0 to 10 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

B21t—10 to 34 inches; yellowish red (5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B22t—34 to 41 inches; yellowish red (5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

IIC1—41 to 56 inches; reddish yellow (7.5YR 6/6) loamy sand; single grained; loose; common fine to coarse quartz pebbles; very strongly acid; gradual wavy boundary.

IIC2—56 to 70 inches; very pale brown (10YR 7/4) sand; 10 to 20 percent medium gravel; single grained; loose; very strongly acid.

Thickness of the solum ranges from 40 to 60 inches. Reaction is strongly acid or very strongly acid. The A horizon is dark brown, brown, or dark grayish brown. The Bt horizon is yellowish red or reddish brown sandy loam or loam. The IIC horizon is reddish yellow or very pale brown or is mottled in shades of brown, yellow, and gray. Texture is sand or loamy sand. Gravel content ranges from 0 to 20 percent in the C horizon.

Bassfield soils are associated with Alaga, Latonia, and Prentiss soils. Bassfield soils are not so sandy in the upper part of the solum as Alaga soils. They are redder than Latonia soils. They are also redder than Prentiss soils, and they do not have the compact, brittle fragipan characteristic of Prentiss soils.

Benndale series

The Benndale series consists of well drained soils that formed in loamy mateials. Slopes are 2 to 12 percent.

Typical pedon of Benndale fine sandy loam, 2 to 5 percent slopes, in an area of woodland about 50 feet west of county road and about three-fourths mile south of Elder, NE1/4SW1/4 sec. 6, T. 1 S., R. 13 W.:

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; friable; strongly acid; clear smooth boundary.

A2—4 to 9 inches; brown (10YR 5/3) fine sandy loam; weak medium granular structure; friable; strongly acid; clear smooth boundary.

B21t—9 to 36 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B22t—36 to 45 inches; yellowish brown (10YR 5/6) loam; common medium distinct red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B23t—45 to 60 inches; mottled yellowish red (5YR 4/6), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; firm; patchy clay films on faces of peds; strongly acid.

The A1 horizon is very dark grayish brown or dark grayish brown. The Ap horizon is dark grayish brown or grayish brown. The A2 horizon, where present, is brown or light yellowish brown. The upper part of the Bt horizon is yellowish brown or strong brown loam or sandy loam. The lower part is yellowish brown, yellowish red, or red or is mottled in shades of yellow, red, brown, and gray; it is loam or sandy loam. Reaction is strongly acid or very strongly acid throughout.

Benndale soils associated with McLaurin, Prentiss, and Susquehanna soils. Benndale soils have a browner B horizon than the reddish McLaurin soils, and they do not have the fragipan characteristic of Prentiss soils. Benndale soils have a less clayey B horizon than and are not so red and mottled as Susquehanna soils.

Bibb series

The Bibb series consists of poorly drained alluvial soils that formed in loamy materials. Slopes are 0 to 2 percent.

Representative profile of Bibb silt loam on Forrest Creek Ranch, 1 mile west of headquarters in pasture near cross-fence, NE1/4SE1/4 sec. 19, T. 2 N., R. 13 W.:

A11—0 to 1 inch; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; strongly acid; abrupt smooth boundary.

A12g—1 to 3 inches; gray (10YR 5/1) loam; weak medium granular structure; friable; very strongly acid; clear smooth boundary.

Clg—3 to 27 inches; light gray (10YR 6/1) loam; common medium distinct brownish yellow (10YR 6/6) mottles; structureless; friable; very strongly acid; gradual smooth boundary.

C2g—27 to 65 inches; light gray (10YR 7/1) sandy loam; common medium distinct yellow (10YR 7/6) mottles; structureless; friable; very strongly acid.

The A horizon is dark grayish brown, dark gray, or gray. The C horizon is gray or light gray and is mottled in shades of yellow and brown. Texture is loam or sandy loam. Reaction is strongly acid or very strongly acid throughout.

Bibb soils are associated with Jena, Stough, and Trebloc soils. Bibb soils are more poorly drained than Jena and Stough soils, and they have a less clayey subsoil than Trebloc soils. They do not have the argillic horizon characteristic of Stough and Trebloc soils.

Bigbee series

The Bigbee series consists of excessively drained soils that formed in sandy material. Slopes are 0 to 2 percent.

Typical pedon of Bigbee loamy sand in an area of pasture 1.5 miles west of Eastabutchie, 150 feet east of gravel road, and 300 feet south of Jones County line, NE1/4NW1/4 sec. 4, T. 5 N., R. 13 W.:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) loamy sand; weak medium granular structure; very friable; common fine roots; very strongly acid; abrupt smooth boundary.

C1—7 to 16 inches; dark yellowish brown (10YR 4/4) loamy sand; single grained; loose; very strongly acid; clear smooth boundary.

C2—16 to 32 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; very strongly acid; gradual wavy boundary.

C3—32 to 43 inches; brownish yellow (10YR 6/6) loamy sand; single grained; loose; very strongly acid; gradual wavy boundary.

C4—43 to 72 inches; yellow (10YR 7/6) loamy sand; common coarse pockets of white (10YR 8/2) sand grains; single grained; loose; very strongly acid; gradual wavy boundary.

C5—72 to 84 inches; white (10YR 8/2) sand; single grained; loose; very strongly acid.

The A horizon is dark grayish brown or very dark grayish brown. The upper part of the C horizon is yellowish brown, strong brown, brownish yellow, light yellowish brown, or yellow sand or loamy sand. The lower part is very pale brown or white loamy sand or sand. Some pedons have mottles in shades of brown. Reaction is strongly acid or very strongly acid. The water table is between depths of 40 and 70 inches for several months each year.

Bigbee soils are associated with Bassfield and Latonia soils. Bigbee soils are less red than Bassfield soils and do not have the B horizon characteristic of Bassfield and Latonia soils.

Cadeville Variant

The Cadeville Variant consists of moderately well drained soils that formed in clayey material. Slopes are 15 to 60 percent.

Typical pedon of Cadeville silt loam from an area of Cadeville Variant silt loam, 15 to 60 percent slopes, in a wooded area one-half mile west of Perry County line, one-fourth mile north of U.S. Highway 98, 50 feet east of woods road, NE1/4NW1/4 sec. 24, T. 3 N., R. 12 W.:

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; strongly acid; clear smooth boundary.

B21t—2 to 9 inches; brown (10YR 5/3) clay; moderate medium subangular blocky structure; firm, plastic; patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—9 to 14 inches; yellowish red (5YR 5/6) clay; common medium prominent light brownish gray (10YR 6/2) mottles; moderate fine angular blocky structure; plastic; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—14 to 34 inches; mottled brown (7.5YR 5/4), light olive gray (5Y 6/2), and yellowish red (5YR 5/8) clay; weak medium angular blocky structure; firm, plastic; few patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

C—34 to 60 inches; light olive gray (5YR 6/2) silty clay loam; weak coarse subangular blocky structure; firm, very strongly acid.

Thickness of the solum is 30 to 40 inches. The A1 horizon is grayish brown, dark grayish brown, very dark grayish brown, brown, or light yellowish brown. The upper part of the B2t horizon is brown, reddish brown, yellowish red, or red. The lower part is mottled in shades of red, brown, and gray. Texture of the B2t horizon is clay or silty clay. The C horizon is light gray or light olive gray silty clay loam. Reaction is strongly acid or very strongly acid throughout.

Cadeville Variant soils are associated with McLaurin and Susquehanna soils. Cadeville Variant soils have a more clayey B horizon than McLaurin soils. They have a thinner solum and are better drained than Susquehanna soils. They are on steeper landscapes than the associated soils.

Cahaba series

The Cahaba series consists of well drained soils that formed on terraces of larger streams. Slopes are 0 to 2 percent.

Typical pedon of Cahaba sandy loam from an area of Cahaba sandy loam, 0 to 2 percent slopes, in a cultivated field 1.25 miles north of junction of Indian Springs road and River Road and 1,500 feet west of a farmstead near a row of large pecan trees, SW1/4SW1/4 sec. 36, T. 4 N., R. 12 W.:

Ap—0 to 9 inches; dark brown (10YR 4/3) sandy loam; weak fine granular structure; friable; strongly acid; abrupt smooth boundary.

B1—9 to 15 inches; yellowish red (5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B2t—15 to 58 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

C—58 to 85 inches; yellowish red (5YR 4/8) loamy sand; single grained; loose; very strongly acid.

Solum thickness ranges from 36 to 58 inches. The Ap horizon is brown or dark brown. The B2t horizon is red, reddish brown, or yellowish red sandy clay loam or loam. The C horizon is red or yellowish red sandy loam or loamy sand. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

Cahaba soils are associated with McLaurin soils. Cahaba soils have a thinner solum than McLaurin soils.

Dorovan series

The Dorovan series consists of very poorly drained soils that formed in thick accumulations of decayed organic material and that are underlain by sand. Slopes are 0 to 2 percent.

Typical pedon of Dorovan muck, in an area of Pamlico-Dorovan association, in a wooded area about 50 feet east of west edge of a flood plain near the south end of the north-south runway of the National Guard airport at Camp Shelby, NW1/4NW1/4 sec. 3, T. 2 N., R. 12 W.:

Oe—0 to 4 inches; very dark gray (10YR 3/1) hemic material; 50 percent fiber content after rubbing; massive; nonsticky; fibers are of leaves, roots, bark, and twigs; many medium and coarse woody roots; very strongly acid; gradual boundary.

Oa—4 to 56 inches; black (10YR 2/1) sapric material; 5 percent fibric material after rubbing; massive; nonsticky; common medium and coarse woody roots; very strongly acid; gradual boundary.

IIC—56 to 65 inches; very dark grayish brown (10YR 3/2) sand; single grained; nonsticky; very strongly acid.

The organic material ranges from 51 to 60 inches in thickness. Reaction is strongly acid or very strongly acid throughout. The Oe layer is very dark gray or black hemic material, and fiber content is 40 to 60 percent before rubbing. The Oa layer is very dark gray or black sapric material, and fiber content is 10 to 30 percent before rubbing. A few logs and large fragments of wood are in the lower part of the organic layer in some pedons. The IIC horizon is very dark grayish brown, dark grayish brown, or gray sand or loamy sand.

Dorovan soils are associated with Pamlico soils, which are similar but have an organic layer less than 40 inches thick.

Escambia series

The Escambia series consists of somewhat poorly drained soils that formed in loamy materials and that occupy low-lying ridges on stream terraces. Slopes are 0 to 2 percent.

Typical pedon of Escambia fine sandy loam from an area of Trebloc-Escambia complex, 0 to 2 percent slopes, in a wooded area, 3 miles south of Rock Hill, one-fourth mile north of Big Creek, and one-fourth mile west of pipeline, SW1/4NE1/4 sec. 16, T. 1 N., R. 13 W.:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; very strongly acid; clear smooth boundary.

B21—5 to 13 inches; brownish yellow (10YR 6/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few uncoated sand grains; very strongly acid; gradual wavy boundary.

B22t—13 to 22 inches; brownish yellow (10YR 6/6) loam; common medium distinct strong brown (7.5YR 5/6) mottles and few medium prominent yellowish red (5YR 5/6) mottles; weak medium subangu-

lar blocky structure; friable; sand grains coated and bridged with clay; about 10 percent plinthite nodules; very strongly acid; gradual wavy boundary.

B23t—22 to 32 inches; brownish yellow (10YR 6/6) loam; common coarse distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B24t—32 to 60 inches; light gray (10YR 7/2) loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

The A1 horizon is very dark gray or dark grayish brown fine sandy loam. The B21t horizon is brownish yellow or light olive brown loam, sandy loam, or fine sandy loam. The B22t and B23t horizons are brownish yellow and have mottles in shades of yellow, red, brown, and gray, or they are mottled in shades of red, yellow, brown, and gray. Textures are loam and fine sandy loam. The B24t horizon is gray or light gray and has mottles in shades of red, yellow, and brown, or it is mottled red, yellow, brown, and gray. Textures are loam and sandy loam. Reaction is strongly acid or very strongly acid. Content of plinthite nodules ranges from 5 to 15 percent.

Escambia soils are associated with Trebloc soils. Escambia soils are better drained than Trebloc soils and have a less clayey Bt horizon.

Falkner series

The Falkner series consists of somewhat poorly drained soils that formed in silty and clayey material. Slopes are 2 to 5 percent.

Typical pedon of Falkner silt loam, 2 to 5 percent slopes, in an open area west of U.S. Highway 49 on the north side of a powerline right-of-way, 100 feet west of poles, 1.5 miles south of cloverleaf at Hattiesburg, NW1/4NE1/4 sec. 28, T. 4 N., R. 13 W.:

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; very strongly acid; clear smooth boundary.

A2—4 to 7 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct very dark grayish brown (10YR 3/2) mottles; weak medium granular structure; friable; very strongly acid; gradual wavy boundary.

B21t—7 to 18 inches; yellowish brown (10YR 5/6) silt loam; common medium faint light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; few fine dark brown concretions; very strongly acid; gradual wavy boundary.

B22t—18 to 26 inches; light yellowish brown (10YR 6/4) silty clay loam; many medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; clay films on faces of peds; very strongly acid; gradual wavy boundary.

IIB23t—26 to 33 inches; mottled gray (10YR 6/1), pale brown (10YR 6/3), and red (2.5YR 4/6) clay; moderate fine angular blocky structure; hard, plastic; clay films on faces of peds; many pressure faces; very strongly acid; gradual wavy boundary.

IIB24tg—33 to 60 inches; gray (10YR 6/1) clay; common medium distinct reddish yellow (7.5YR 6/8) and common fine prominent red mottles; moderate fine angular blocky structure; hard, very plastic; patchy clay films on faces of peds; very strongly acid.

The A1 horizon is dark gray, dark grayish brown, or very dark grayish brown. The A2 horizon, where present, is yellowish brown or light yellowish brown. The upper part of the Bt horizon is yellowish brown or light yellowish brown silt loam or silty clay and has brownish mottles. The IIBt horizon is gray mottled in shades of red, yellow, and brown, or it is mottled in shades of gray, red, yellow, and brown. Texture is clay or silty clay. Reaction is strongly acid or very strongly acid throughout.

Falkner soils are associated with Malbis and Susquehanna soils. Falkner soils are not so well drained as Malbis soils and do not have the plinthite characteristic of Malbis soils. The upper part of the Bt horizon in Falkner soils is less clayey than the corresponding layer in Susquehanna soils.

Harleston series

The Harleston series consists of moderately well drained, loamy soils of stream terraces. Slopes are 0 to 2 percent.

Typical pedon of Harleston fine sandy loam from an area of Harleston fine sandy loam, 0 to 2 percent slopes, in a field 600 feet north of U.S. Highway 98, 1 mile east of McCallum, NW1/4SW1/4 sec. 10, T. 3 N., R. 12 W.:

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

B21t—6 to 11 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—11 to 19 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—19 to 26 inches; mottled yellowish red (5YR 5/6), brownish yellow (10YR 6/6), and light gray (10YR 7/2) sandy loam; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24t—26 to 65 inches; mottled light gray (10YR 7/1), brownish yellow (10YR 6/8), and dark brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; few clay films in pores.

The A horizon is dark grayish brown or dark brown. The upper part of the Bt horizon is yellowish brown or strong brown loam or sandy loam. The lower part is yellowish brown or strong brown and has mottles in shades of brown, yellow, gray, and red, or it is mottled in shades of brown, red, and gray. Texture of the Bt horizon is sandy loam or loam. The soil is strongly acid or very strongly acid except for the surface layer in limed areas.

Harleston soils are associated with Latonia, Stough, and Trebloc soils. Harleston soils are better drained than Stough and Trebloc soils and are less gray in the B horizon. Harleston soils also have less silt than Trebloc soils. Harleston soils have a thicker solum than Latonia soils, are less well drained, and are more gray in the B horizon.

Heidel series

The Heidel series consists of well drained soils that formed in loamy material. Slopes are 8 to 30 percent.

Typical pedon of Heidel sandy loam from an area of Heidel sandy loam, 12 to 30 percent slopes, 40 feet east of county road on a north slope, NW1/4 sec. 10, T. 5 N., R. 12 W.:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—5 to 8 inches; yellowish brown (10YR 5/4) sandy loam; weak medium granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

B21t—8 to 17 inches; yellowish red (5YR 4/6) sandy loam; weak medium subangular structure; friable; sand grains coated and bridged with clay; few medium chert pebbles; very strongly acid; gradual wavy boundary.

B22t—17 to 59 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B23t—59 to 78 inches; red (2.5YR 4/8) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

The A1 horizon is very dark grayish brown or dark grayish brown. The A2 horizon, where present, is brown, yellowish brown, light yellowish brown, or pale brown. The Bt horizon is red or yellowish red sandy loam. Reaction is strongly acid or very strongly acid.

Heidel soils are associated with McLaurin and Troup soils. Heidel soils do not have the bisequal profile characteristic of McLaurin soils or the thick, sandy surface horizon characteristic of Troup soils.

Jena series

The Jena series consists of well drained alluvial soils that formed in loamy materials. Slopes are 0 to 3 percent.

Typical pedon of Jena fine sandy loam in an area of Jena-Nugent association, frequently flooded, in a wooded area 2 miles south of the Jones County line and one-half mile west of U.S. Highway 11, on the south side of a woods road, SW1/4SE1/4 sec. 10, T. 5 N., R. 13 W.:

A1—0 to 8 inches; dark brown (10YR 4/3) fine sandy loam; weak medium granular structure; friable; strongly acid; clear smooth boundary.

B21—8 to 42 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; strongly acid; clear smooth boundary.

B22—42 to 60 inches; yellowish brown (10YR 5/4) fine sandy loam; few medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; strongly acid.

The A horizon is dark brown or dark grayish brown. The upper part of the B horizon is yellowish brown or brown loam or fine sandy loam. The lower part is yellowish brown or pale brown and is mottled in shades of gray and brown, or it is mottled in shades of brown and gray. Texture is fine sandy loam or loam. Reaction is strongly acid or very strongly acid throughout.

Jena soils are associated with Bibb, Latonia, and Nugent soils. Jena soils are better drained than Bibb soils. They do not have the argillic horizon characteristic of Latonia soils. They are not so sandy throughout as Nugent soils.

Latonia series

The Latonia series consists of well drained soils that formed in loamy material. Slopes are 0 to 2 percent.

Typical pedon of Latonia fine sandy loam, 0 to 2 percent slopes, in a wooded area 350 feet southeast of the point where Big Creek empties into Black Creek, 1,400 feet west of boat launching ramp on Black Creek, 3 1/2 miles east of Rock Hill, NE1/SW1/4 sec. l, T. 1 N., R. 13 W.:

A1—0 to 5 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium granular structure; very friable; very strongly acid; clear smooth boundary.

B21t—5 to 14 inches; light olive brown (2.5Y 5/4) sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B22t—14 to 36 inches; brownish yellow (10YR 6/6) fine sandy loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

IIC1—36 to 42 inches; yellowish brown (10YR 5/4) loamy sand; common coarse faint light yellowish brown (10YR 6/4) pockets of uncoated sand grains; single grained; very friable; very strongly acid; gradual wavy boundary.

IIC2—42 to 64 inches; very pale brown (10YR 7/4) sand; many coarse faint light gray (10YR 7/1) pockets of uncoated sand grains; single grained; loose; very strongly acid.

Thickness of the solum ranges from 30 to 45 inches. The A horizon is brown, grayish brown, or dark grayish brown. The Bt horizon is light olive brown, yellowish brown, brown, dark yellowish brown, or brownish yellow loam, fine sandy loam, or sandy loam. The C horizon is yellowish brown, very pale brown, light yellowish brown, or white sand or loamy sand. Reaction is strongly acid or very strongly acid throughout.

Latonia soils are associated with Bassfield, Bigbee, Harleston, and Jena soils. Latonia soils are less red in the subsoil than Bassfield soils. They are not so sandy in the upper part as Bigbee soils. Latonia soils are better drained and have a thinner solum than Harleston soils. They are similar to Jena soils but have an argillic horizon.

Lucedale series

The Lucedale series consists of well drained soils that formed in loamy material. Slopes are 0 to 2 percent.

Typical pedon of Lucedale loam, 0 to 2 percent slopes, in a cultivated field northwest of Eatonville school and one-eighth mile west of F.A.A. radio beacon station, 30 feet west of cattle guard, NE1/4NE1/4NW1/4 sec. 7, T. 5 N., R. 13 W.:

Ap—0 to 5 inches; dark reddish brown (5YR 3/4) loam; weak fine granular structure; friable; slightly acid; abrupt smooth boundary.

B21t—5 to 10 inches; dark reddish brown (2.5YR 3/4) loam; weak medium subangular blocky structure; friable; few patchy clay films on faces of peds; slightly acid; clear smooth boundary.

B22t—10 to 57 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B23t—57 to 90 inches; dark red (2.5YR 3/6) sandy clay loam; weak coarse subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid.

The Ap horizon is dark reddish brown or dark brown. The Bt horizon is dark red or dark reddish brown. Texture of the Bt horizon is sandy loam, sandy clay loam, or loam. Reaction is strongly acid or very strongly acid throughout except in the surface layer in limed areas.

Lucedale soils are associated with Prentiss soils. Lucedale soils are redder than Prentiss soils, have more clay in the B horizon, and do not have the fragipan characteristic of Prentiss soils.

Malbis series

The Malbis series consists of moderately well drained soils that formed in loamy materials. Slopes are 2 to 5 percent.

Typical pedon of Malbis loam from an area of Malbis loam, 2 to 5 percent slopes, in an area of woodland 3 miles south of Elder Ridge, 1 mile east of Pearl River County, and 15 feet east of oilfield road, SE1/4NE1/4 sec. 7, T. 1 S., R. 13 W.:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; friable; many fine roots; very strongly acid; clear smooth boundary.

A2—4 to 11 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; friable; very strongly acid; clear smooth boundary.

B21t—11 to 24 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—24 to 46 inches; strong brown (7.5YR 5/8) clay loam; moderate medium angular and subangular blocky structure; firm; 10 percent plinthite nodules; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—46 to 60 inches; mottled red (2.5YR 4/6), strong brown (7.5YR 5/6), and brownish yellow (10YR 6/6) clay loam; moderate medium angular blocky structure; firm; few plinthite nodules; patchy clay films on faces of peds; very strongly acid.

The A horizon is grayish brown, dark grayish brown, or very dark grayish brown. The A2 horizon, where present, is yellowish brown, brown, or light yellowish brown. The B21t horizon is strong brown or yellowish brown loam or sandy clay loam. The B22t horizon has colors similar to those in the B21t horizon but has mottles in shades of red, brown, and yellow. The B23t horizon is mottled in shades of red, brown, and yellow. Texture of the B22t and B23t horizons is loam, clay loam, or sandy clay loam. The soil is strongly acid or very strongly acid throughout. Content of plinthite ranges from 5 to 25 percent.

Malbis soils are associated with Falkner, Poarch, and Prentiss soils. The lower part of the Bt horizon in Malbis soils is not so clayey as the corresponding layer in Falkner soils, but Malbis soils have a more clayey Bt horizon than Poarch soils. Malbis soils do not have the fragipan characteristic of Prentiss soils.

McLaurin series

The McLaurin series consists of well drained soils that formed in loamy material. Slopes are 2 to 12 percent.

Typical profile of McLaurin loamy sand, 2 to 5 percent slopes, 2 miles west of McLaurin, about 300 feet west of junction of county road and U.S. Highway 49, NW1/4NW1/4 sec. 6, T. 2 N., R. 12 W.:

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine and medium granular structure; very friable; many fine, medium, and coarse roots; common fine pores; strongly acid; clear smooth boundary.

A2—5 to 8 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine and medium granular structure; very friable; many fine, medium, and coarse roots; common fine pores; strongly acid; clear wavy boundary.

A3—8 to 14 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; common fine pores; mixing in upper part by earthworm action; strongly acid; gradual wavy boundary.

B21t—14 to 20 inches; yellowish red (5YR 5/6) fine sandy loam; weak fine and medium subangular blocky structure; very friable; common fine and medium roots; common fine pores; clay bridging of sand grains and thin patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—20 to 32 inches; yellowish red (5YR 4/6) fine sandy loam; weak medium and coarse subangular blocky structure; friable; common fine and medium roots; common fine pores; clay bridging of sand grains and thin patchy clay films on faces of peds; strongly acid; diffuse wavy boundary.

B23t—32 to 38 inches; yellowish red (5YR 4/6) sandy loam; weak coarse subangular blocky structure; very friable; common fine and medium roots; common fine pores; clay bridging of sand grains; strongly acid; diffuse wavy boundary.

B&A'2—38 to 49 inches; yellowish red (5YR 4/8) loamy fine sand; weak coarse subangular blocky structure; very friable; common fine roots; common fine pores; many fine reddish yellow pockets of uncoated sand grains; very strongly acid; diffuse irregular boundary.

B't—49 to 60 inches; red (2.5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; very friable; common fine roots; few fine pores; sand grains coated and bridged with clay; very strongly acid.

The A1 horizon is very dark grayish brown, dark brown, or brown. The Ap or A2 horizon is dark grayish brown, grayish brown, or brown. Texture of the A horizon is loamy sand or sandy loam. The upper part of the Bt horizon is yellowish red or red sandy loam or fine sandy loam. The B&A'2 horizon is yellowish red or strong brown loamy sand or sandy loam. The B't horizon is red, yellowish red, or strong brown sandy loam, loam, or sandy clay loam that extends to a depth of more than 60 inches. Reaction is strongly acid or very strongly acid throughout.

McLaurin soils are associated with Cadeville, Cahaba, Benndale, and Heidel soils. McLaurin soils have a less clayey Bt horizon than Cadeville and Cahaba soils. They are redder than Benndale soils. They have an A'2 horizon, and Heidel soils do not.

Nugent series

The Nugent series consists of excessively drained alluvial soils that formed in sandy material. Slopes are 0 to 3 percent.

Typical pedon of Nugent loamy sand from an area of Jena-Nugent association, frequently flooded, on the east side of the Leaf River, 100 feet north of McCallum bridge, NW1/4SW1/4 sec. 32, T. 4 N., R. 12 W.:

A1—0 to 9 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; loose; few pockets of sand; very strongly acid; clear smooth boundary.

C1—9 to 13 inches; very pale brown (10YR 7/3) sand; single grained; loose; very strongly acid; clear smooth boundary.

C2—13 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam; structureless; very friable; thin strata of sand; very strongly acid; clear smooth boundary.

C3—20 to 29 inches; very pale brown (10YR 7/3) sand; single grained; loose; very strongly acid; clear smooth boundary.

C4—29 to 60 inches; yellowish brown (10YR 5/4) fine sandy loam; structureless; very friable; thin strata of sand and loamy sand; very strongly acid; clear smooth boundary.

C5—60 to 70 inches; very pale brown (10YR 7/3) sand; single grained; loose; very strongly acid.

The A horizon is dark brown, brown, or dark grayish brown. The C horizon is yellowish brown, light yellowish brown, pale brown, very pale brown, or brown. The average texture of the C horizon is loamy sand or sand, and strata of fine sandy loam or silt loam occur throughout most of the C horizon. The soil is strongly acid or very strongly acid throughout.

Nugent soils are associated with Jena soils. Nugent soils are sandier and do not have the B horizon characteristic of Jena soils.

Pamlico series

The Pamlico series consists of very poorly drained, nearly level muck over sandy material. Pamlico soils are on flood plains. Slopes are 0 to 2 percent.

Typical pedon of Pamlico muck, in an area of Pamlico-Dorovan association, in a wooded area 100 feet south of the north-south runway of the National Guard airport at Camp Shelby, NW1/4NW1/4 sec. 3, T. 2 N.; R. 12 W.:

Oe—0 to 6 inches; very dark gray (10YR 3/1) hemic material; 20 percent fiber content after rubbing; nonsticky; fibers are of leaves, roots, twigs; many medium and coarse woody roots; very strongly acid; gradual wavy boundary.

Oa—6 to 36 inches; black (10YR 2/1) sapric material; 10 percent fiber content after rubbing; nonsticky; common medium and coarse tree roots; very strongly acid; gradual wavy boundary.

IIC—36 to 65 inches; dark grayish brown (10YR 4/2) sand; single grained; nonsticky; strongly acid.

Depth to the underlying sandy material ranges from 16 to 40 inches. The Oe horizon is black, very dark gray, or very dark brown. Fiber content ranges from 30 to 60 percent before rubbing. The Oa horizon is very dark gray or black. Fiber content is 10 to 30 percent before rubbing. The IIC horizon is gray through very dark grayish brown. Reaction is strongly acid or very strongly acid.

Pamlico soils are associated with Dorovan soils. Pamlico soils have a thinner organic layer than Dorovan soils.

Pheba series

The Pheba series consists of somewhat poorly drained soils that formed in silty material. Slopes are 0 to 2 percent.

Typical pedon of Pheba silt loam, 0 to 2 percent slopes, in an area one-half mile north of Eatonville interchange and Interstate Highway 59 north of Hattiesburg, Mississippi, four-tenths mile west of blacktop road, 30 feet south of cyclone fence on south side of dragstrip, NW1/4NW1/4 sec. 20, T. 5 N., R. 13 W.:

A1—0 to 3 inches; dark gray (10YR 4/1) silt loam; weak medium granular structure; friable; many fine roots; few fine fragments of charcoal; few worm casts; strongly acid; clear wavy boundary.

A2—3 to 8 inches; pale brown (10YR 6/3) silt loam; weak fine subangular blocky structure; friable; few fine roots; many fine worm casts; strongly acid; clear wavy boundary.

B2—8 to 16 inches; light yellowish brown (10YR 6/4) silt loam; common fine faint yellowish brown and light brownish gray mottles; weak medium subangular blocky structure; friable; few fine roots; many fine pores; few pockets of uncoated sand grains; few worm casts; common fine and medium strong brown concretions; strongly acid; clear wavy boundary.

A'2—16 to 21 inches; pale brown (10YR 6/3) silt loam; few fine faint gray mottles; weak medium subangular blocky structure; friable; many fine pores and vesicles; few fine and medium brown concretions; strongly acid; abrupt irregular boundary.

B'x1—21 to 33 inches; yellowish brown (10YR 5/8) silt loam; many medium faint light yellowish brown (2.5Y 6/4) mottles; moderate coarse prismatic structure parting to moderate medium angular and subangular blocky; firm; brittle and compact in about 70 percent of the volume; many fine voids; few patchy clay films on ped faces; gray silt coatings between prisms; few fine and medium strong brown and black concretions; strongly acid; gradual wavy boundary.

B'x2—33 to 46 inches; brownish yellowish (10YR 6/8) silt loam; many coarse distinct light gray (10YR 6/1) and strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brittle and compact in about 70 percent of the volume; many fine voids; patchy clay films on ped faces; 1/2 to 1 inch wide seams of polygonal gray sandy clay loam between prisms; few medium strong brown concretions; strongly acid; gradual wavy boundary.

B'x3—46 to 60 inches; mottled yellowish brown (10YR 5/8), gray (10YR 6/1), strong brown (7.5YR 5/8), and red (2.5YR 4/6) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brittle and compact in about 50 percent of the volume; many fine voids; gray sandy clay loam between prisms; strongly acid.

The A1 horizon is dark gray or dark grayish brown. The A2 horizon is pale brown, grayish brown, or light gray. The B horizon is light yellowish brown or yellowish brown and has few to many mottles in shades of gray. The A'2 horizon is pale brown or gray. Some pedons have a B'x&A'2 horizon that is mottled brown and gray. The B'x horizon is yellowish brown or brownish yellow and is mottled in shades of brown, gray, and red. Texture of the B horizon is silt loam or loam. Reaction is strongly acid or very strongly acid throughout the soil.

Pheba soils are associated with Prentiss and Trebloc soils. Pheba soils are not so well drained as Prentiss soils and have more silt in the B horizon. Pheba soils are better drained than Trebloc soils and have a fragipan, which is not a characteristic of Trebloc soils.

Poarch series

The Poarch series consists of well drained soils that formed in loamy material. Slopes are 2 to 8 percent.

Typical profile of Poarch fine sandy loam from an area of Poarch fine sandy loam, 2 to 5 percent slopes, in the edge of a pasture behind a farmhouse, 300 feet east of county road, 3 miles south of Carnes, NE1/4SW1/4 sec. 14, T. 1 S., R. 13 W.:

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

B21t—6 to 16 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B22t—16 to 28 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few medium nodules of plinthite; very strongly acid; gradual wavy boundary.

B23t—28 to 39 inches; yellowish brown (10YR 5/8) loam; common medium distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable; 10 to 15 percent nodules of plinthite; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B24t—39 to 60 inches; mottled strong brown (7.5YR 5/6), gray (10YR 6/1), yellowish red (5YR 5/6), and yellowish brown (10YR 5/6) loam; weak medium angular and subangular blocky structure; friable to firm; patchy clay films in yellowish red and strong brown part; 5 to 10 percent nodules of plinthite; very strongly acid.

Thickness of the solum is more than 60 inches. Depth to subhorizons in which plinthite content is more than 5 percent is 25 to 31 inches. The A1 horizon is dark grayish brown or grayish brown. The A2 horizon, where present, is light yellowish brown or brown. The upper part of the B2t horizon is yellowish brown loam or sandy loam. The lower part is

brownish yellow or yellow brown loam mottled in shades of red, brown, and gray or is mottled red, brown, and gray. Plinthite content ranges from 5 to 20 percent. Reaction is strongly acid or very strongly acid throughout.

Poarch soils are associated with Saucier and Malbis soils. Poarch soils are better drained and have a coarser textured Bt horizon than Malbis and Saucier soils. The lower part of the B horizon in Poarch soils is not clayey, as it is in Saucier soils.

Prentiss series

The Prentiss series consists of moderately well drained soils that formed in loamy material. Slopes are 0 to 5 percent.

Typical pedon of Prentiss loam, 2 to 5 percent slopes, in an area of pasture and pecan orchard, 3.5 miles east of U.S. Highway 11 on Mississippi Highway 42, one-half mile north and 300 feet east of county road, SW1/4NW1/4 sec. 33, T. 5 N., R. 12 W.:

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

B1—6 to 8 inches; yellowish brown (10YR 5/6) loam; common fine distinct dark grayish brown worm casts; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid; clear smooth boundary.

B21—8 to 18 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22—18 to 27 inches; yellowish brown (10YR 5/6) loam; many medium distinct mottles of strong brown (7.5YR 5/6); weak medium subangular blocky structure; friable; strong brown part is firm; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bx1—27 to 39 inches; mottled yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) loam; weak medium prismatic structure parting to weak medium angular and subangular blocky; firm, compact and brittle; many voids and vesicules; few patchy clay films on faces of prisms; gray material between prisms is sandy loam and is friable; very strongly acid; gradual wavy boundary.

Bx2—39 to 60 inches; yellowish brown (10YR 5/4) loam; common coarse distinct strong brown (7.5YR 5/6), brown (7.5YR 4/4), and gray (10YR 6/1) mottles; weak coarse prismatic structure parting to weak coarse angular blocky; firm; compact and brittle; gray material between prisms is friable; few patchy clay films on faces of prisms; strongly acid.

The A1 or Ap horizon is dark grayish brown or dark brown. The A2 horizon, where present, is light yellowish brown or brownish yellow. The B horizon is yellowish brown or light olive brown. Texture is loam, fine sandy loam, or sandy loam. The Bx horizon is mottled in shades of gray, brown, red, and yellow, or it has colors similar to those in the B horizon and is mottled. Texture is loam or sandy loam. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

Prentiss soils are associated with Bassfield, Benndale, Lucedale, Malbis, Pheba, and Stough soils. Prentiss soils are less red than Bassfield soils. They are not so well drained as Bassfield soils and have more mottles in the lower part of the subsoil than those soils. Prentiss soils are similar to Benndale soils but have a fragipan. Prentiss soils are not so clayey in the B horizon as the Lucedale and Malbis soils, and Lucedale and Malbis soils do not have the fragipan characteristic of Prentiss soils. Prentiss soils are better drained than Pheba and Stough soils.

Saucier series

The Saucier series consists of moderately well drained soils that formed in loamy material. Slopes are 0 to 8 percent.

Typical pedon of Saucier fine sandy loam, in an area of Poarch-Saucier association, undulating, 1.5 miles west of U.S. Highway 49, 1.5 miles north of Stone County line, 100 feet west of powerline, NW1/4 SW1/4 sec. 28, T. 1 S., R. 12 W.:

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak medium granular structure; friable; very strongly acid; clear smooth boundary.

B1—5 to 13 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; friable; very strongly acid; clear smooth boundary.

B21t—13 to 20 inches; yellowish brown (10YR 5/8) loam; common faint pale brown mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; few sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B22t—20 to 25 inches; brownish yellow (10YR 6/8) loam; common medium prominent mottles of red (10YR 4/6) and few medium distinct mottles of very pale brown (10YR 7/3); moderate medium subangular blocky structure; firm; 10 to 20 percent nodules of plinthite; patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B23tg—25 to 39 inches; mottled light gray (10YR 7/1), red (10R 4/8), and brownish yellow (10YR 6/6) clay loam; moderate medium angular blocky structure; firm; about 5 percent nodules of plinthite; patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

IIB24tg—39 to 62 inches; mottled light gray (10YR 7/1), dark red (10YR 3/6), and strong brown (7.5YR 5/6) clay; moderate medium angular blocky structure; firm; patchy clay films on faces of peds; very strongly acid.

The A1 horizon is very dark grayish brown, dark grayish brown, gray, grayish brown, or dark gray. The B21t horizon is yellowish brown or brownish yellow loam. The B22t and B23t horizons are yellowish brown or brownish yellow loam or clay loam and have mottles in shades of red, yellow, brown, and gray. The IIBt horizon is mottled in shades of gray, brown, and red. Texture is clay loam or clay. Depth to a layer that contains plinthite ranges from 20 to 28 inches, and plinthite makes up 5 to 20 percent of the volume. Reaction is strongly acid or very strongly acid in all horizons.

Saucier soils are associated with Poarch soils. The Saucier soils have a more clayey Bt horizon and are not so well drained as Poarch soils.

Stough series

The Stough series consists of somewhat poorly drained soils that formed in loamy material. Slopes are 0 to 2 percent.

Typical pedon of Stough loam, 0 to 2 percent slopes, in an area of woodland 0.7 miles east of Black Creek, 60 feet north of blacktop road, and 600 feet west of crossroad, NW1/4SE1/4 sec. 22, T. 2 N., R. 13 W.:

A1—0 to 4 inches; dark gray (10YR 4/1) loam; weak fine granular structure; friable; strongly acid; clear smooth boundary.

A2—4 to 8 inches; grayish brown (10YR 5/2) loam; many fine faint brownish yellow mottles; weak fine granular structure; friable; very strongly acid; clear smooth boundary.

B21t—8 to 15 inches; mottled yellowish brown (10YR 5/6), light yellowish brown (10YR 6/4), and light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B22t—15 to 33 inches; mottled light gray (10YR 6/1), yellowish brown (10YR 5/6), and yellowish red (5YR 5/6) loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brown and red areas are compact and brittle and make up 40 to 50 percent of the volume; few voids and vesicules; patchy clay films on faces of peds; few strong brown concretions; very strongly acid; gradual smooth boundary.

B23t—33 to 63 inches; mottled light gray (10YR 6/1) and yellowish brown (10YR 5/6) loam; weak coarse prismatic structure parting to weak coarse angular and subangular blocky; firm; brown and yellow parts are brittle and compact and make up about 40 percent of the volume; uncoated sand grains in vertical cracks between prisms; very strongly acid.

The A1 horizon is dark gray or dark grayish brown. The A2 horizon is light yellowish brown, grayish brown, or pale brown. The upper part of the Bt horizon is yellowish brown or light yellowish brown, or it is mottled in shades of brown, yellow, and gray. The lower part of the Bt horizon is mottled in shades of brown, gray, and red. It is brittle in 40 to 50 percent of the volume. Texture of the Bt horizon is loam or fine sandy loam. Reaction is strongly acid or very strongly acid throughout.

Stough soils are associated with Bibb, Harleston, Prentiss, and Trebloc soils. Stough soils are better drained than the Bibb soils, and they have the B horizon that Bibb soils do not have. They are similar to Harleston soils, but the lower part of the B horizon is brittle and compact. Stough soils are not so well drained as Prentiss soils, have grayish mottles in the upper part of the B horizon, and do not have the Bx horizon characteristic of Prentiss soils. Stough soils are better drained than Trebloc soils, and the Bt horizon is less clayey.

Susquehanna series

The Susquehanna series consists of somewhat poorly drained soils that formed in clayey materials. Slopes are 2 to 12 percent.

Typical pedon of Susquehanna silt loam, 2 to 5 percent slopes, in a wooded area about 1 mile southwest of Rawls Springs and about 50 feet north of road, NW1/4SW1/4 sec. 27, T. 5 N., R. 14 W.:

A1—0 to 4 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; very strongly acid; clear smooth boundary.

A2—4 to 9 inches; brownish yellow (10YR 6/6) silt loam; weak fine granular structure; friable; very strongly acid; clear smooth boundary.

B21t—9 to 16 inches; mottled yellowish brown (10YR 5/4), dark red (2.5YR 3/6), and light gray (10YR 7/1) clay; moderate fine angular blocky structure; firm, plastic; clay films on faces of peds; very strongly acid; gradual smooth boundary.

B22tg—16 to 38 inches; mottled gray (10YR 6/1) and red (2.5YR 4/6) clay; moderate fine angular blocky structure; firm, plastic; patchy clay films on faces of peds; few pressure faces; very strongly acid; gradual smooth boundary.

B23tg—38 to 49 inches; gray (10YR 6/1) clay; many medium distinct strong brown (7.5YR 5/6) and common medium faint light brownish gray (2.5Y 6/2) mottles; moderate fine angular blocky structure; firm, plastic; patchy clay films or pressure faces on peds; very strongly acid; gradual smooth boundary.

B24tg—49 to 68 inches; light gray (10YR 7/2) clay; common coarse faint light olive gray (5Y 6/2) and few medium distinct strong brown (7.5YR 5/6) mottles; weak fine angular blocky structure; plastic; patchy clay films or pressure faces on peds; very strongly acid.

The A1 horizon is grayish brown, brown, dark gray, or dark grayish brown. The A2 horizon is light yellowish brown, pale brown, or brownish yellow. The upper part of the Bt horizon is strong brown or yellowish red and is mottled in shades of brown, red, and gray, or it is mottled in shades of red, brown, and gray. It is clay or silty clay. The lower part of the Bt horizon is gray or light gray clay or silty clay mottled in shades of brown, gray, yellow, and red. Reaction is strongly acid or very strongly acid throughout.

Susquehanna soils are associated with Cadeville, Falkner, and Petal soils. Susquehanna soils have a thicker solum than Cadeville soils. The upper part of the Bt horizon is more clayey in Susquehanna soils than it is in Falkner and Petal soils.

Trebloc series

The Trebloc series consists of poorly drained soils that formed in silty material. Slopes are 0 to 2 percent.

Typical pedon of Trebloc silt loam, 0 to 2 percent slopes, in a cultivated area about 30 feet east of private road, about 600 feet north of River Road, and 300 feet west of junction of old McCallum Road and River Road, SW1/4NE1/4 sec. 3, T. 3 N., R. 12 W.:

Ap—0 to 5 inches; dark gray (10YR 4/1) silt loam; weak medium granular structure; friable; slightly acid; abrupt smooth boundary.

A2g—5 to 7 inches; light brownish gray (10YR 6/2) silt loam; weak fine platy structure; firm; slightly compacted; medium acid; clear smooth boundary.

B21tg—7 to 15 inches; light brownish gray (10YR 6/2) silt loam; common coarse distinct olive yellow (2.5Y 6/6) mottles; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B22tg—15 to 27 inches; light brownish gray (10YR 6/2) silty clay loam; common coarse distinct light olive brown (2.5Y 5/4) mottles; moderate medium subangular blocky structure; slightly sticky; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—27 to 65 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; slightly sticky; clay films on faces of peds; very strongly acid.

Solum thickness ranges from 60 to 80 inches. The A1 horizon is very dark grayish brown, gray, dark gray, or dark grayish brown. The A2 horizon, where present, is light brownish gray or grayish brown. The upper part of the Bt horizon is light brownish gray or gray silty clay loam or silt loam that is mottled in shades of brown. The lower part is gray, light brownish gray, or light gray silty clay loam or silt loam mottled in shades of yellow and brown. Reaction is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

Trebloc soils are associated with Escambia, Harleston, Pheba, Stough, and Bibb soils. Trebloc soils are more poorly drained and have more clay and silt in the B horizon than Escambia, Harleston, Pheba, and Stough soils. Trebloc soils have a B horizon, which Bibb soils do not have, and more silt and clay throughout than Bibb soils.

Troup series

The Troup series consists of well drained soils that formed in sandy over loamy materials. Slopes are 0 to 8 percent.

Typical pedon of Troup loamy fine sand, 0 to 8 percent slopes, in woodland about 300 feet north of pasture fence and about 1,000 feet east of public road, NE1/4NW1/4 sec. 4, T. 3 N., R. 13 W.:

A1—0 to 3 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak medium granular structure; very friable; few fine and medium roots; very strongly acid; clear smooth boundary.

A21—3 to 26 inches; yellowish brown (10YR 5/6) loamy fine sand; weak fine granular structure; loose; few medium pebbles; very strongly acid; gradual wavy boundary.

A22—26 to 42 inches; yellowish red (5YR 5/6) loamy sand; single grained; few fine pebbles; very strongly acid; clear wavy boundary.

A23&Bt—42 to 64 inches; red (2.5YR 4/8) loamy sand; single grained; loose; common reddish yellow (7.5YR 6/6) sandy loam spheroidal bodies that have weak medium subangular blocky structure and that have sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B2t—64 to 91 inches; red (2.5YR 4/8) sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; few pockets of sand about 1 to 6 inches wide decreasing in size with depth; very strongly acid.

The A1 horizon is very dark grayish brown. The A2 horizon is pale brown, light yellowish brown, yellowish brown, or reddish yellow. Thickness of the A horizon ranges from 40 to 72 inches. The Bt horizon is yellowish red or red sandy loam. In unlimed areas, reaction is strongly acid or very strongly acid.

Troup soils are associated with Heidel soils. Troup soils differ from Heidel soils by having a sandy A horizon more than 40 inches thick.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*10*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 22, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to 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 expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Fluvaquents (*Fluv*, meaning simple horizons, plus *aquent*, the suborder of Entisols that have an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceeding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Formation of the soils

This section has two main parts. In the first, the five major factors of soil formation are described; in the second, the processes involved in soil horizon differentiation are described.

Factors of soil formation

Soil is the product of the interaction of five major factors of soil formation: climate, living organisms, parent material, relief, and time. The kind of soil that formed in one area differs from the kind that formed in another area if there has been a difference between the two areas in any factor of soil formation.

Climate

Forrest County has the warm, humid, subtropical climate characteristic of much of the southeastern United States. This type of climate affects the physical, chemical, and biological relationships in soils, primarily through high temperature and precipitation.

Water dissolves minerals, supports biological activity, and transports minerals and organic residue in the soil profile. The amount of water that percolates through the soil depends mainly on rainfall, relative humidity, and the physiographic position, topography, and permeability of the soil.

Living organisms

Plants, animals, insects, bacteria, and fungi affect the formation of soils. Gains in organic matter and nitrogen, gains or losses in plant nutrients, and alterations in structure and porosity are some of the changes caused by living organisms.

Vegetation, mainly pine trees, has probably affected soil formation in Forrest County more than other living organisms have. The soils on uplands formed under dense forest dominated by pine trees, and the soils on flood plains formed under mixed hardwood and pine forest. The soils that formed under trees have lower organic-matter content than soils that formed under grasses.

Earthworms and other small invertebrates are most active in the upper part of the soil, and they continuously mix the soil. Rodents and other animals burrow in the soil and contribute to mixing. Little is known about fungi and other micro-organisms in the soils of Forrest County, but it is known that micro-organisms aid in weathering, decomposing organic matter, and fixing nitrogen in the soils.

Parent material

Parent material, the unconsolidated mass from which soil forms, has much to do with the chemical and mineral composition of the soil. The parent material of the soils in Forrest County is mainly marine deposits of sandy, loamy, and clayey material.

The clayey soils formed mostly in the Hattiesburg Clay and Pascagoula Clay Formations of Miocene age. The loamy and sandy soils are derived mostly from the Citronelle Formation of Pliocene age. The soils on flood plains are derived from material eroded from the nearby uplands. Organic soils formed in an accumulation of plant debris under saturated conditions. The soils that formed in clayey material are generally less weathered and contain more bases than those derived from the loamy material.

Relief

Relief affects soil formation through its influence on drainage, erosion, plant cover, and soil temperature. The relief in Forrest County ranges from nearly level to steep. Most of the nearly level land is on flood plains or stream terraces. Many of the soils are poorly drained or very poorly drained. Soils on ridgetops are mostly gently sloping or moderately sloping and are better drained than soils on flood plains or stream terraces. The steep soils are generally between the ridgetops and the flood plains. Runoff from them is greater, and as a result they generally show less horizon development than soils on ridgetops.

Time

The length of time required for soil development depends largely on the effects of the other four factors of soil formation. Less time is generally required for a soil to develop in warm, humid regions where the vegetation is luxuriant than in cold, dry regions where the vegetation is scant. Also, other factors being equal, less time is required if the parent material is coarse textured rather than fine textured.

Fairly stable, nearly level soils on interstream divides have more strongly developed horizons than sloping soils in which the rate of geologic erosion approaches that of soil development, and a smaller amount of total rainfall percolates through the profile. Soils on flood plains in Forrest County formed in deposits washed from uplands. Many of these soils, however, are old enough and have received such a small amount of sediment in recent times that they have formed thick, well drained horizons.

Processes of soil formation

The main processes involved in the formation of horizons are the accumlation of organic matter; the leaching of calcium carbonates and bases; the formation and translocation of silicate clay; and the reduction, segregation, and transfer of iron.

Accumulation of organic matter in the upper part of the soil profile contributes to the formation of an A1 horizon. Organic-matter content in the soils of Forrest County ranges from low to very high.

Carbonates and bases have been leached from nearly all the soils, and most are moderately to strongly leached. Leaching of bases from the upper horizons of a soil commonly preceded the translocation of silicate clay.

Translocation of silicate clay has occurred in many of the soils. This contributes to the development of an eluviated A2 horizon that contains less clay and that generally is lighter in color than the B horizon. The B horizon commonly has clay accumulations in films, in

pores, and on the surfaces of peds. McLaurin soils, for example, have films of translocated clay in the B horizon.

Reduction, segregation, and transfer of iron, a process called gleying, is evident in the poorly drained soils of the county. Reduction and loss of iron are indicated by gray colors in the subsoil. Segregation of iron is indicated by reddish brown mottles and concretions.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	More than 9

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

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.

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 coat, clay skin.

Coarse textured (light textured) soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.

Complex, soil. A map unit of two or more kinds of soil occurring in such an intricate pattern that they cannot be shown separately on a soil map at the selected scale of mapping and publication.

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.

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 (or contour farming). 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.

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. Unstable walls of cuts made by earthmoving equipment. The soil sloughs easily.

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 for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

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

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

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

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

Erosion. The wearing away of the land surface by running 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, for example, fire, that exposes a bare surface.

Excess fines. Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

Favorable. Favorable soil features for the specified use.

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 (heavy textured) soil. Sandy clay, silty clay, and clay.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

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

Forage. Plant material used as feed by domestic animals. Forage can be grazed or cut for hay.

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. A soil having one or more neutral gray horizons as a result of waterlogging and lack of oxygen. The term "gleyed" also designates gray horizons and horizons having yellow and gray mottles as a result of intermittent waterlogging.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table, which is the upper limit of saturation.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming 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.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks 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 from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

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

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-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.

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, as contrasted 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.

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.

Low strength. Inadequate strength for supporting loads.

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

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is greater than that of organic soil.

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

Miscellaneous areas. Areas that have little or no natural soil, are too nearly inaccessible for orderly examination, or cannot otherwise be feasibly classified.

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).

Muck. Dark colored, finely divided, well decomposed organic soil material mixed with mineral soil material. The content of organic matter is more than 20 percent.

Munsell notation. A designation of color by degrees of the three single variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Plant nutrients are nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil; and carbon, hydrogen, and oxygen obtained largely from the air and water.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

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. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characterisitc that affects management. These differencees are too small to justify separate series.

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

Piping. Moving water of subsurface tunnels or pipelike cavities in the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

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

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents that commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on exposure to repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade, whereas ironstone cannot be cut but can be broken or shattered with a spade. Plinthite is one form of the material that has been called laterite.

Productivity (soil). The capability of a soil for producing a specified plant or sequence of plants under a specified system of management. Productivity is measured in terms of output, or harvest, in relation to input.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

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

Rooting depth. Shallow root zone. The soil is shallow over a layer that greatly restricts roots. See Root zone.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineralogical and chemical composition.

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

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

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

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

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

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

Soil. A natural, three-dimensional body at the earth's surface that 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.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining 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).

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 A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. 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."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

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, silt loam, 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. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

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

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but the limited geographic soil area does not justify creation of a new series.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

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

Illustrations

Figure 1.—Soybeans in an area of the Prentiss-Lucedale unit. Loblolly pines are in the background.

Figure 2.—These 2-year-old pines are in an area of the Benndale-McLaurin-Heidel unit. This area was clear cut and chopped before planting.

Figure 3.—Soybean stubble in an area of Cahaba sandy loam, 0 to 2 percent slopes.

Figure 4.—Longleaf pines in an area of Poarch fine sandy loam, 2 to 5 percent slopes.

Figure 5.—This farm pond provides water for livestock as well as an area for recreation.

Figure 6.—Picnic area on Benndale fine sandy loam, 2 to 5 percent slopes.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Recorded in the period 1951-73 at Hattiesburg, Mississippi]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- 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----	60.6	37.0	48.8	80	15	117	4.45	2.78	5.95	7	.4
February---	64.5	39.8	52.2	81	18	177	5.86	2.79	8.37	7	.4
March------	70.7	45.7	58.2	86	25	282	6.06	2.85	8.67	7	0
April------	79.3	54.6	67.0	90	34	510	5.06	2.59	7.07	6	0
May--------	85.4	60.7	73.1	95	42	716	4.76	2.31	6.75	6	0
June-------	91.4	67.4	79.5	100	53	885	4.17	2.50	5.66	7	0
July-------	92.7	70.2	81.5	100	62	977	5.31	3.73	6.75	9	0
August-----	92.4	69.4	80.9	100	58	958	5.07	2.87	6.87	8	0
September--	88.5	65.1	76.8	98	47	804	4.00	1.08	6.33	5	0
October----	80.1	52.7	66.4	93	30	508	2.67	.76	4.20	4	0
November---	69.9	43.4	56.7	86	23	216	3.66	1.89	5.10	5	0
December---	63.2	39.4	51.3	81	16	134	6.66	3.41	9.32	7	0
Year-----	78.2	53.8	66.0	101	14	6,284	57.73	48.42	66.65	78	.8

[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 F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-73 at Hattiesburg, Miss.]

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--	March 2	March 24	April 7
2 years in 10 later than--	February 19	March 16	April 1
5 years in 10 later than--	January 30	February 28	March 21
First freezing temperature in fall:			
1 year in 10 earlier than--	November 8	October 30	October 20
2 years in 10 earlier than--	November 18	November 6	October 26
5 years in 10 earlier than--	December 7	November 21	November 5

TABLE 3.--GROWING SEASON LENGTH

[Recorded in the period 1951-73 at Hattiesburg, Miss.]

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	271	235	208
8 years in 10	284	245	215
5 years in 10	309	265	228
2 years in 10	337	285	242
1 year in 10	361	296	249

TABLE 4.--POTENTIALS AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR SPECIFIED USES

Map unit	Extent of area	Cultivated farm crops	Pasture	Woodland	Urban uses	Intensive recreation areas	Extensive recreation areas
	Pct						
1. Prentiss-Lucedale---	2	High--------	High--------	High--------	Medium: wetness, low strength.	High--------	High.
2. Benndale-McLaurin-Heidel.	18	Medium: slope.	High--------	High--------	Medium: slope.	Low: slope.	High.
3. McLaurin-Heidel-Prentiss.	42	Medium: slope.	High--------	High--------	Medium: slope, wetness.	Low: slope.	High.
4. Prentiss-Benndale-Pheba.	2	High--------	High--------	High--------	Medium: wetness.	Medium: wetness.	High.
5. Prentiss-Susquehanna Falkner.	12	Medium: clayey textures, slope.	High--------	High--------	Low: wetness, clayey textures, slope, shrink-swell.	Medium: wetness, slope.	High.
6. Poarch-Susquehanna-Saucier.	7	Medium: wetness, slope, clayey textures.	Medium: wetness, clayey textures.	High--------	Medium: wetness, shrink-swell, slope.	Low: wetness, slope.	High.
7. Bassfield-Harleston-Stough.	6	High--------	High--------	High--------	Medium: wetness.	High--------	High.
8. Jena-Nugent---------	6	Low: floods.	Medium: floods.	High--------	Low: floods.	Low: floods.	High.
9. Trebloc-Latonia-----	5	Low: floods, wetness.	High--------	High--------	Low: floods, wetness.	Low: floods, wetness.	High.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AaA	Alaga loamy sand, 0 to 5 percent slopes	1,200	0.4
BaA	Bassfield fine sandy loam, 0 to 2 percent slopes	4,040	1.3
BbA	Bassfield-Urban land complex, 0 to 2 percent slopes	1,380	0.5
BcA	Bassfield-Urban land complex, occasionally flooded	1,100	0.4
BeB	Benndale fine sandy loam, 2 to 5 percent slopes	8,405	2.8
BeC	Benndale fine sandy loam, 5 to 8 percent slopes	3,900	1.3
BeD	Benndale fine sandy loam, 8 to 12 percent slopes	2,100	0.7
Bf	Bibb silt loam	2,400	0.8
BG	Bibb and Jena soils, frequently flooded	4,800	1.6
Bh	Bigbee loamy sand	1,200	0.4
CaF	Cadeville Variant silt loam, 15 to 60 percent slopes	1,160	0.4
ChA	Cahaba sandy loam, 0 to 2 percent slopes	820	0.3
FaB	Falkner silt loam, 2 to 5 percent slopes	1,180	0.4
FsB	Falkner-Susquehanna-Urban land complex, 2 to 5 percent slopes	2,100	0.7
HaA	Harleston fine sandy loam, 0 to 2 percent slopes	3,902	1.3
HeD	Heidel sandy loam, 8 to 12 percent slopes	1,850	0.6
HeE	Heidel sandy loam, 12 to 30 percent slopes	34,078	11.3
JN	Jena-Nugent association, frequently flooded	19,510	6.5
LaA	Latonia fine sandy loam, 0 to 2 percent slopes	1,100	0.4
LT	Latonia-Trebloc association, occasionally flooded	7,800	2.6
LuA	Lucedale loam, 0 to 2 percent slopes	600	0.2
MaB	Malbis loam, 2 to 5 percent slopes	1,500	0.5
MbB	McLaurin loamy sand, 2 to 5 percent slopes	15,008	5.0
MbC	McLaurin loamy sand, 5 to 8 percent slopes	2,720	0.9
MCB	McLaurin association, undulating	2,700	0.9
MLD	McLaurin-Benndale association, rolling	75,191	25.0
PD	Pamlico-Dorovan association	5,020	1.7
PEC	Petal-Susquehanna-Benndale association, rolling	33,017	10.9
PhA	Pheba silt loam, 0 to 2 percent slopes	1,030	0.3
Pn	Pits	890	0.3
PoB	Poarch fine sandy loam, 2 to 5 percent slopes	2,100	0.7
PoC	Poarch fine sandy loam, 5 to 8 percent slopes	600	0.2
PSB	Poarch-Saucier association, undulating	8,900	3.0
PtA	Prentiss loam, 0 to 2 percent slopes	6,606	2.2
PtB	Prentiss loam, 2 to 5 percent slopes	19,706	6.6
Pu	Prentiss-Urban land complex	4,300	1.4
StA	Stough loam, 0 to 2 percent slopes	3,800	1.3
SuB	Susquehanna silt loam, 2 to 5 percent slopes	1,800	0.6
SuD	Susquehanna silt loam, 5 to 12 percent slopes	2,577	0.9
Tb	Trebloc silt loam	4,290	1.4
TeA	Trebloc-Escambia complex, 0 to 2 percent slopes	860	0.3
TrB	Troup loamy fine sand, 0 to 8 percent slopes	300	0.1
Ur	Urban land	2,020	0.7
W	Water	600	0.2
	Total	300,160	100.0

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[All yields were estimated for a high level of management in 1975. Absence of a yield figure indicates the crop is seldom grown or is not suited]

Soil name and map symbol	Cotton lint	Corn	Soybeans	Bahiagrass	Improved bermuda-grass	Tall fescue	Common bermuda-grass
	Lb	Bu	Bu	AUM[1]	AUM[1]	AUM[1]	AUM[1]
Alaga:							
AaA	---	60	---	7.0	7.5	---	---
Bassfield:							
BaA, [2]BbA, [2]BcA	---	75	30	8.5	10.0	---	---
Benndale:							
BeB	---	75	30	8.5	10.5	---	---
BeC	---	70	25	8.0	9.0	---	---
BeD	---	60	20	7.5	8.0	---	---
Bibb:							
Bf	---	---	---	---	---	8.0	---
[2]BG	---	---	---	---	---	---	---
Bigbee:							
Bh	---	50	---	7.5	---	---	7.5
Cadeville Variant:							
CaF	---	---	---	---	---	---	---
Cahaba:							
ChA	800	90	35	8.5	10.0	---	---
Falkner:							
FaB	600	70	30	8.5	9.0	7.5	---
[2]FsB	---	---	25	7.6	---	7.6	---
Harleston:							
HaA	---	90	35	9.0	11.0	---	---
Heidel:							
HeD	---	60	20	6.0	7.5	---	---
HeE	---	---	---	5.0	---	---	---
Jena:							
[2]JN:							
Jena part	---	---	---	---	---	---	6.5
Nugent part	---	---	---	---	---	3.5	3.0
Latonia:							
LaA	---	60	25	8.5	9.5	---	---
[2]LT:							
Latonia part	---	60	25	8.5	9.5	---	---
Trebloc part	---	---	25	8.0	8.0	8.0	---
Lucedale:							
LuA	750	80	40	10.0	10.0	---	---
Malbis:							
MaB	750	95	37	8.5	9.5	---	---
McLaurin:							
MbB, [2]MCB	600	75	25	8.0	10.0	---	---
MbC.							

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Cotton lint	Corn	Soybeans	Bahiagrass	Improved bermuda-grass	Tall fescue	Common bermuda-grass
	Lb	Bu	Bu	AUM[1]	AUM[1]	AUM[1]	AUM[1]
McLaurin:							
[2]MLD:							
McLaurin part	---	70	25	7.0	8.5	---	---
Benndale part	---	60	20	7.5	8.0	---	---
Pamlico:							
[2]PD:							
Pamlico part	---	---	---	---	---	---	---
Dorovan part	---	---	---	---	---	---	---
Petal:							
[2]PEC:							
Petal part	---	---	---	---	6.0	6.0	5.0
Susquehanna part	---	---	---	5.5	---	6.5	5.0
Benndale part	---	60	20	7.5	8.0	---	---
Pheba:							
PhA	575	75	30	8.0	8.5	7.0	---
Pits:							
Pn.							
Poarch:							
PoB	650	80	---	9.5	5.5	---	---
PoC	600	75	---	9.0	5.0	---	---
[2]PSB:							
Poarch part	650	80	---	9.5	5.5	---	---
Saucier part	---	75	25	8.0	9.0	7.0	---
Prentiss:							
PtA, [2]Pu	750	85	30	9.0	9.0	8.0	---
PtB	750	80	30	9.0	9.0	8.0	---
Stough:							
StA	725	80	25	8.0	8.0	8.0	---
Susquehanna:							
SuB	---	---	20	6.5	---	7.5	6.0
SuD	---	---	---	5.5	---	6.5	5.0
Trebloc:							
Tb	---	---	---	7.0	6.0	4.0	---
[2]TeA	---	---	---	---	7.5	6.5	---
Troup:							
TrB	---	60	---	7.2	7.5	---	---
Urban land:							
Ur.							

[1]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 a period of 30 days.

[2]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas excluded. Absence of an entry means no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	1,420	---	---	---
II	71,831	49,419	14,308	8,104
III	27,504	17,300	7,504	2,700
IV	22,259	22,259	---	---
V	27,570	---	27,570	---
VI	120,430	120,430	---	---
VII	6,180	1,160	5,020	---
VIII	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed in this table. Absence of an entry in a column means the information was not available]

Soil name and map symbol	Woodland suitability group	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Important trees	Site index	Trees to plant
Alaga:								
AaA	3s2	Slight	Moderate	Moderate	Moderate	Loblolly pine	80	Slash pine, loblolly pine.
						Longleaf pine	70	
						Slash pine	80	
Bassfield:								
BaA, [1]BbA, [1]BcA	2o7	Slight	Slight	Slight	Slight	Cherrybark oak	90	Cherrybark oak, loblolly pine, sweetgum.
						Loblolly pine	90	
						Shortleaf pine	80	
						Sweetgum	90	
Benndale:								
BeB, BeC, BeD	2o1	Slight	Slight	Slight	Moderate	Loblolly pine	94	Loblolly pine, slash pine.
						Longleaf pine	79	
						Slash pine	94	
Bibb:								
Bf	2w9	Slight	Severe	Severe	Severe	Loblolly pine	90	Eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
						Sweetgum	90	
						Water oak	90	
[1]BG:								
Bibb part	2w9	Slight	Severe	Severe	Severe	Loblolly pine	90	Eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
						Sweetgum	90	
						Water oak	90	
Jena part	1w7	Slight	Severe	Moderate	--------	Loblolly pine	100	Loblolly pine, slash pine, American sycamore, eastern cottonwood.
						Sweetgum	90	
						Water oak	80	
						Southern red oak	---	
						White oak	---	
						Slash pine	---	
Bigbee:								
Bh	2s2	Slight	Moderate	Moderate	Slight	Loblolly pine	88	Loblolly pine.
Cadeville Variant:								
CaF	2r9	Slight	Severe	Moderate	--------	Cherrybark oak	95	Cherrybark oak, sweetgum, yellow-poplar, loblolly pine.
						Sweetgum	90	
						Shumard oak	90	
						Southern red oak	85	
						Yellow-poplar	95	
Cahaba:								
ChA	2o7	Slight	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine, slash pine, yellow-poplar, cherrybark oak.
						Slash pine	90	
						Yellow-poplar	90	
						Sweetgum	85	
						Southern red oak	80	
						White oak	80	
						Cherrybark oak	90	
Falkner:								
FaB	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine	85	Cherrybark oak, loblolly pine, shortleaf pine, sweetgum.
						Shortleaf pine	75	
						Sweetgum	90	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Woodland suitability group	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Important trees	Potential productivity: Site index	Trees to plant
Falkner:								
[1]FsB:								
Falkner part	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine Shortleaf pine Sweetgum	85 75 90	Cherrybark oak, loblolly pine, shortleaf pine, sweetgum.
Susquehanna part	3c2	Slight	Moderate	Slight	Moderate	Loblolly pine Shortleaf pine	78 68	Loblolly pine, shortleaf pine.
Harleston:								
HaA	2w2	Slight	Moderate	Slight	Slight	Loblolly pine Shortleaf pine Sweetgum	90 80 75	Loblolly pine, slash pine.
Heidel:								
HeD, HeE	2o1	Slight	Slight	Slight	Slight	Loblolly pine Shortleaf pine Slash pine	90 72 90	Loblolly pine, slash pine.
Jena:								
[1]JN:								
Jena part	1w9	Slight	Severe	Moderate	--------	Loblolly pine Sweetgum Water oak Southern red oak White oak Slash pine	100 90 80 --- --- ---	Loblolly pine, slash pine, American sycamore, eastern cottonwood.
Nugent part	2s8	Slight	Moderate	Moderate	Slight	Loblolly pine Slash pine Sweetgum Water oak Willow oak	90 90 95 85 85	Loblolly pine, slash pine, sweetgum, water oak, yellow-poplar.
Latonia:								
LaA	2o1	Slight	Slight	Slight	Slight	Loblolly pine Longleaf pine Slash pine	90 70 90	Loblolly pine, slash pine.
[1]LT:								
Latonia part	2o1	Slight	Slight	Slight	Slight	Loblolly pine Longleaf pine Slash pine	90 70 90	Loblolly pine, slash pine.
Trebloc part	2w9	Slight	Severe	Severe	Moderate	Loblolly pine Sweetgum Water oak Willow oak	95 90 85 80	Green ash, loblolly pine, Nuttall oak, Shumard oak, sweetgum.
Lucedale:								
LuA	2o1	Slight	Slight	Slight	Slight	Loblolly pine Longleaf pine Slash pine	90 75 90	Loblolly pine, slash pine.
Malbis:								
MaB	2o1	Slight	Slight	Slight	--------	Loblolly pine Slash pine Longleaf pine	90 90 80	Loblolly pine, slash pine.
McLaurin:								
MbB, MbC, [1]MCB	2o1	Slight	Slight	Slight	Slight	Loblolly pine Longleaf pine Slash pine	90 72 90	Loblolly pine, slash pine.

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Woodland suitability group	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Important trees	Site index	Trees to plant
McLaurin:								
[1]MLD:								
McLaurin part	2o1	Slight	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine, slash pine.
						Slash pine	72	
						Longleaf pine	90	
Benndale part	2o1	Slight	Slight	Slight	Moderate	Loblolly pine	94	Loblolly pine, slash pine.
						Longleaf pine	79	
						Slash pine	94	
Pamlico:								
[1]PD:								
Pamlico part	4w3	Slight	Severe	Severe	--------	Slash pine	70	Slash pine, loblolly pine.
						Pond pine	55	
						Baldcypress	---	
						Water tupelo	---	
Dorovan part	4w3	Slight	Severe	Severe	--------	Blackgum	70	Slash pine, baldcypress.
						Sweetbay	---	
Petal:								
[1]PEC:								
Petal part	2o1	Slight	Slight	Slight	Slight	Loblolly pine	90	Loblolly pine, longleaf pine, slash pine.
						Longleaf pine	75	
						Shortleaf pine	80	
						Slash pine	85	
Susquehanna part	3c2	Slight	Moderate	Slight	Moderate	Loblolly pine	78	Loblolly pine, shortleaf pine.
						Shortleaf pine	68	
Benndale part	2o1	Slight	Slight	Slight	Moderate	Loblolly pine	94	Loblolly pine, slash pine.
						Longleaf pine	79	
						Slash pine	94	
Pheba:								
PhA	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine	90	Loblolly pine, slash pine.
						Shortleaf pine	80	
						Sweetgum	90	
						Slash pine	90	
Poarch:								
PoB, PoC	2o1	Slight	Slight	Slight	Slight	Slash pine	90	Slash pine, loblolly pine, longleaf pine.
						Loblolly pine	90	
						Longleaf pine	73	
[1]PSB:								
Poarch part	2o1	Slight	Slight	Slight	Slight	Slash pine	90	Slash pine, loblolly pine, longleaf pine.
						Loblolly pine	90	
						Longleaf pine	73	
Saucier part	2w8	Slight	Moderate	Slight	Moderate	Loblolly pine	80	Loblolly pine, slash pine.
						Longleaf pine	60	
						Slash pine	80	
Prentiss:								
PtA, PtB, [1]Pu	2o7	Slight	Slight	Slight	Slight	Loblolly pine	88	Loblolly pine, slash pine, cherrybark oak, sweetgum.
						Shortleaf pine	79	
						Sweetgum	90	
						Cherrybark oak	90	
						White oak	80	
Stough:								
StA	2w8	Slight	Moderate	Slight	Moderate	Cherrybark oak	85	Loblolly pine, slash pine, sweetgum.
						Loblolly pine	90	
						Slash pine	86	
						Sweetgum	85	
						Water oak	80	

See footnote at end of table.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Woodland suitability group	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Potential productivity: Important trees	Site index	Trees to plant
Susquehanna:								
SuB, SuD	3c2	Slight	Moderate	Slight	Moderate	Loblolly pine	78	Loblolly pine, shortleaf pine.
						Shortleaf pine	68	
Trebloc:								
Tb	2w9	Slight	Severe	Severe	Moderate	Loblolly pine	95	Green ash, loblolly pine, Nuttall oak, Shumard oak, sweetgum.
						Sweetgum	90	
						Water oak	85	
						Willow oak	80	
[1]TeA:								
Trebloc part	2w9	Slight	Severe	Severe	Moderate	Loblolly pine	95	Green ash, loblolly pine, Nuttall oak, Shumard oak, sweetgum.
						Sweetgum	90	
						Water oak	85	
						Willow oak	80	
Escambia part	2w2	Slight	Moderate	Slight	Slight	Loblolly pine	90	Loblolly pine, slash pine.
						Longleaf pine	80	
						Slash pine	90	
						Sweetgum	90	
Troup:								
TrB	3s2	Slight	Moderate	Moderate	--------	Loblolly pine	80	Loblolly pine, longleaf pine, slash pine.
						Longleaf pine	70	
						Slash pine	80	

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION

[Only the soils suitable for production of commercial trees are listed in this table]

Soil name and map symbol	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
		Lb/acre		Pct
Alaga:				
AaA	Favorable	---	Pinehill bluestem	50
	Normal	800	Threeawn	13
	Unfavorable	---	Panicum	12
Bassfield:				
BaA, [1]BbA, [1]BcA	Favorable	---	Slender bluestem	20
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Pinehill bluestem	15
			Little bluestem	15
Benndale:				
BeB, BeC, BeD	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Little bluestem	20
	Unfavorable	---	Beaked panicum	20
Bibb:				
Bf	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Grassleaf goldaster	13
			Beaked panicum	7
[1]BG:				
Bibb part	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Grassleaf goldaster	13
			Beaked panicum	7
Jena part	Favorable	---	Pinehill bluestem	60
	Normal	1,200	Longleaf uniola	20
	Unfavorable	---	Beaked panicum	10
Bigbee:				
Bh	Favorable	---	Pinehill bluestem	38
	Normal	800	Panicum	13
	Unfavorable	---	Threeawn	13
			Grassleaf goldaster	12
			Pineywoods dropseed	12
Cadeville Variant:				
CaF	Favorable	---	Pinehill bluestem	34
	Normal	1,200	Beaked panicum	18
	Unfavorable	---	Panicum	12
Cahaba:				
ChA	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Slender bluestem	20
	Unfavorable	---	Beaked panicum	20
Falkner:				
FaB	Favorable	---	Pinehill bluestem	30
	Normal	1,800	Switch cane	22
	Unfavorable	---	Longleaf uniola	18
[1]FsB:				
Falkner part	Favorable	---	Pinehill bluestem	30
	Normal	1,800	Switch cane	22
	Unfavorable	---	Longleaf uniola	18
Susquehanna part	Favorable	---	Pinehill bluestem	34
	Normal	1,200	Beaked panicum	18
	Unfavorable	---	Panicum	12

See footnotes at end of table.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION--Continued

Soil name and map symbol	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
		Lb/acre		Pct
Harleston:				
HaA	Favorable	---	Longleaf uniola	33
	Normal	1,800	Common carpetgrass	28
	Unfavorable	---	Pinehill bluestem	22
Heidel:				
HeD, HeE	Favorable	---	Pinehill bluestem	20
	Normal	1,000	Slender bluestem	20
	Unfavorable	---	Beaked panicum	15
Jena:				
[1]JN:				
Jena part	Favorable	---	Pinehill bluestem	60
	Normal	1,200	Longleaf uniola	20
	Unfavorable	---	Beaked panicum	10
Nugent part	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Longleaf uniola	30
	Unfavorable	---	Beaked panicum	15
			Panicum	10
			Slender bluestem	5
			Grassleaf goldaster	5
Latonia:				
LaA	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Little bluestem	20
[1]LT:				
Latonia part	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Little bluestem	20
Trebloc part	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Beaked panicum	9
Lucedale:				
LuA	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Little bluestem	20
Malbis:				
MaB	Favorable	---	Slender bluestem	20
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Little bluestem	15
			Pinehill bluestem	15
McLaurin:				
MbB, MbC, MCB	Favorable	---	Slender bluestem	20
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Pinehill bluestem	15
			Little bluestem	15
MLD:				
McLaurin	Favorable	---	Slender bluestem	20
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Pinehill bluestem	15
			Little bluestem	15
Benndale part	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Little bluestem	20
	Unfavorable	---	Beaked panicum	20
Pamlico-Dorovan:				
[2]PD.				

See footnotes at end of table.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION--Continued

Soil name and map symbol	Total production: Kind of year	Total production: Dry weight	Characteristic vegetation	Composition
		Lb/acre		Pct
Petal:				
[1]PEC:				
Petal part	Favorable	---	Pinehill bluestem	30
	Normal	1,800	Switch cane	22
	Unfavorable	---	Longleaf uniola	18
Susquehanna part	Favorable	---	Pinehill bluestem	34
	Normal	1,200	Beaked panicum	18
	Unfavorable	---	Panicum	12
Benndale part	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Little bluestem	20
	Unfavorable	---	Beaked panicum	20
Pheba:				
PhA	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Longleaf uniola	17
	Unfavorable	---	Cutover muhly	17
Poarch:				
PoB, PoC	Favorable	---	Slender bluestem	20
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Little bluestem	15
			Pinehill bluestem	15
[1]PSB:				
Poarch part	Favorable	---	Slender bluestem	20
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Little bluestem	15
			Pinehill bluestem	15
Saucier part	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Beaked panicum	20
	Unfavorable	---	Slender bluestem	20
Prentiss:				
PtA, PtB, [1]Pu	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Longleaf uniola	30
	Unfavorable	---	Beaked panicum	10
Stough:				
StA	Favorable	---	Pinehill bluestem	30
	Normal	1,000	Longleaf uniola	30
	Unfavorable	---	Beaked panicum	15
Susquehanna:				
SuB, SuD	Favorable	---	Pinehill bluestem	34
	Normal	1,200	Beaked panicum	18
	Unfavorable	---	Panicum	12
Trebloc:				
Tb	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Beaked panicum	9
[1]TeA:				
Trebloc part	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Beaked panicum	9
Escambia part	Favorable	---	Longleaf uniola	33
	Normal	1,800	Common carpetgrass	28
	Unfavorable	---	Pinehill bluestem	22

See footnotes at end of table.

TABLE 9.--WOODLAND UNDERSTORY VEGETATION--Continued

Soil name and map symbol	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
Troup:				
TrB	Favorable	---	Pinehill bluestem	50
	Normal	800	Threeawn	13
	Unfavorable	---	Panicum	12

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.
[2]These soils do not support significant amounts of woodland understory vegetation.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Alaga:					
AaA	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
Bassfield:					
BaA, [1]BbA.	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
[1]BcA	Severe: cutbanks cave, floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Benndale:					
BeB	Slight	Slight	Slight	Slight	Moderate: low strength.
BeC	Slight	Slight	Slight	Moderate: slope.	Moderate: low strength.
BeD	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.
Bibb:					
Bf	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
[1]BG:					
Bibb part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Jena part	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Bigbee:					
Bh	Severe: floods, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Cadeville Variant:					
CaF	Severe: slope, too clayey.	Severe: slope, low strength, shrink-swell.	Severe: slope, low strength, shrink-swell.	Severe: slope, low strength, shrink-swell.	Severe: slope, low strength, shrink-swell.
Cahaba:					
ChA	Slight	Slight	Slight	Slight	Slight.
Falkner:					
FaB	Severe: wetness, too clayey.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.
[1]FsB:					
Falkner part	Severe: wetness, too clayey.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Falkner:					
Susquehanna part	Severe: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, corrosive, shrink-swell.	Severe: low strength, shrink-swell.
Harleston:					
HaA	Moderate: wetness.	Moderate: wetness, slope.	Severe: wetness.	Slight	Slight.
Heidel:					
HeD	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
HeE	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Jena:					
[1]JN:					
Jena part	Severe: floods, too sandy, cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Nugent part	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Latonia:					
LaA	Severe: cutbanks cave.	Slight	Slight	Slight	Slight.
[1]LT:					
Latonia part	Severe: cutbanks cave, floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Trebloc part	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: floods, wetness, low strength.
Lucedale:					
LuA	Slight	Slight	Slight	Slight	Slight.
Malbis:					
MaB	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Moderate: low strength.
McLaurin:					
MbB, [1]MCB	Slight	Slight	Slight	Slight	Slight.
MbC	Slight	Slight	Slight	Moderate: slope.	Slight.
[1]MLD:					
McLaurin part	Slight	Slight	Slight	Moderate: slope.	Slight.
Benndale part	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.
Pamlico:					
[1]PD:					
Pamlico part	Severe: floods, wetness.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Pamlico:					
Dorovan part	Severe: wetness, floods, excess humus.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.
Petal:					
[1]PEC:					
Petal part	Moderate: slope, wetness, too clayey.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope, shrink-swell.	Moderate: shrink-swell, slope.
Susquehanna part	Severe: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, corrosive, shrink-swell.	Severe: low strength, shrink-swell.
Benndale part	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.
Pheba:					
PhA	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, corrosive.	Moderate: low strength, wetness.
Pits:					
Pn.					
Poarch:					
PoB, PoC	Moderate: wetness.	Moderate: low strength.	Moderate: wetness.	Moderate: low strength.	Moderate: low strength.
[1]PSB:					
Poarch part	Moderate: wetness.	Moderate: low strength.	Moderate: wetness.	Moderate: low strength.	Moderate: low strength.
Saucier part	Moderate: wetness, too clayey.	Moderate: wetness, low strength.	Moderate: wetness, low strength.	Moderate: wetness, low strength, slope.	Moderate: low strength.
Prentiss:					
PtA, PtB, [1]Pu	Moderate: wetness.	Moderate: wetness, low strength.	Severe: wetness.	Moderate: wetness, low strength.	Moderate: low strength.
Stough:					
StA	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Susquehanna:					
SuB, SuD	Severe: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, corrosive, shrink-swell.	Severe: low strength, shrink-swell.
Trebloc:					
Tb	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: floods, wetness, low strength.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
Trebloc:					
[1]TeA:					
Trebloc part---	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: floods, wetness, low strength.
Escambia part--	Severe: wetness.	Moderate: wetness, low strength.	Severe: wetness.	Moderate: wetness, low strength.	Moderate: wetness, low strength.
Troup:					
TrB----------	Severe: cutbanks cave.	Slight----------	Slight----------	Slight----------	Slight.
Urban land:					
Ur.					

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 11.--SANITARY FACILITIES

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Alaga:					
AaA	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Bassfield:					
BaA, [1]BbA	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
[1]BcA	Severe: floods.	Severe: seepage, floods.	Severe: seepage, floods.	Severe: seepage, floods.	Good.
Benndale:					
BeB, BeC	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
BeD	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
Bibb:					
Bf	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
[1]BG:					
Bibb part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Jena part	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
Bigbee:					
Bh	Severe: floods.	Severe: floods, seepage.	Severe: seepage, floods.	Severe: seepage, floods.	Fair: too sandy.
Cadeville Variant:					
CaF	Severe: percs slowly, slope.	Severe: slope.	Severe: percs slowly.	Severe: slope.	Poor: slope, too clayey.
Cahaba:					
ChA	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
Falkner:					
FaB	Severe: percs slowly, wetness.	Moderate: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Fair: too clayey.
[1]FsB:					
Falkner part	Severe: percs slowly, wetness.	Moderate: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Fair: too clayey.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Falkner:					
Susquehanna part	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey.
Harleston:					
HaA	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Heidel:					
HeD	Moderate: slope.	Severe: slope.	Moderate: seepage.	Moderate: slope.	Fair: slope.
HeE	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Jena:					
[1]JN:					
Jena part	Severe: floods.	Severe: floods, seepage.	Severe: floods, too sandy, seepage.	Severe: floods, seepage.	Good.
Nugent part	Severe: floods, wetness.	Severe: seepage, floods.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Fair: too sandy.
Latonia:					
LaA	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
[1]LT:					
Latonia part	Severe: floods.	Severe: seepage, floods.	Severe: seepage, floods.	Severe: seepage, floods.	Good.
Trebloc part	Severe: wetness, floods, percs slowly.	Slight	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Lucedale:					
LuA	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
Malbis:					
MaB	Moderate: percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Good.
McLaurin:					
MbB, MbC, [1]MCB	Slight	Severe: seepage.	Slight	Slight	Good.
[1]MLD:					
McLaurin part	Slight	Severe: seepage.	Slight	Slight	Good.
Benndale part	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
Pamlico:					
[1]PD:					
Pamlico part	Severe: wetness, floods.	Severe: wetness, floods, excess humus.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness, excess humus, hard to pack.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Pamlico:					
Dorovan part	Severe: wetness, floods.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods.	Poor: wetness, floods, excess humus.
Petal:					
[1]PEC:					
Petal part	Severe: percs slowly, wetness.	Severe: slope.	Moderate: too clayey, wetness.	Moderate: wetness, slope.	Fair: thin layer.
Susquehanna part	Severe: percs slowly.	Severe: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey.
Benndale part	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.	Fair: slope.
Pheba:					
PhA	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: thin layer.
Pits:					
Pn.					
Poarch:					
PoB, PoC	Severe: wetness.	Moderate: slope, seepage.	Severe: wetness.	Moderate: wetness.	Good.
[1]PSB:					
Poarch part	Severe: wetness.	Moderate: slope, seepage.	Severe: wetness.	Moderate: wetness.	Good.
Saucier part	Severe: percs slowly, wetness.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: too clayey.
Prentiss:					
PtA, PtB, [1]Pu	Severe: percs slowly, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Good.
Stough:					
StA	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Susquehanna:					
SuB	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey.
SuD	Severe: percs slowly.	Severe: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey.
Trebloc:					
Tb	Severe: wetness, floods, percs slowly.	Slight	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Trebloc:					
[1]TeA:					
Trebloc part	Severe: wetness, floods, percs slowly.	Slight	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Escambia part	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Good.
Troup:					
TrB	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
Urban land:					
Ur.					

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 12.--CONSTRUCTION MATERIALS

["Shrink-swell" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," and "unsuited." Absence of an entry means soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Alaga:				
AaA	Good	Fair: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Bassfield:				
BaA, [1]BbA, [1]BcA	Good	Poor: excess fines.	Unsuited: excess fines.	Good.
Benndale:				
BeB, BeC	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
BeD	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Moderate: slope.
Bibb:				
Bf	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
[1]BG:				
Bibb part	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Jena part	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Bigbee:				
Bh	Good	Fair: excess fines.	Poor: excess fines.	Poor: too sandy.
Cadeville Variant:				
CaF	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope, too clayey.
Cahaba:				
ChA	Good	Poor: excess fines.	Unsuited: excess fines.	Fair: thin layer, slope.
Falkner:				
FaB	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
[1]FsB:				
Falkner part	Poor: low strength, shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Susquehanna part	Poor: shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Harleston:				
HaA	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Heidel:				
HeD	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
HeE	Poor: slope.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: slope.

See footnotes at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Jena:				
[1]JN:				
Jena part	Fair: low strength.	Poor: excess fines.	Unsuited: excess fines.	Good.
Nugent part	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
Latonia:				
LaA	Good	Poor: excess fines.	Unsuited: excess fines.	Good.
[1]LT:				
Latonia part	Good	Poor: excess fines.	Unsuited: excess fines.	Good.
Trebloc part	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Lucedale:				
LuA	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Malbis:				
MaB	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
McLaurin:				
MbB,MbC, [1]MCB	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
[1]MLD:				
McLaurin part	Good	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Benndale part	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: slope.
Pamlico:				
[1]PD:				
Pamlico part	Poor: wetness, excess humus.	Poor: excess humus.	Unsuited: excess humus.	Poor: wetness.
Dorovan part	Poor: wetness, excess humus.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, excess humus.
Petal:				
[1]PEC:				
Petal part	Poor: shrink-swell, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Susquehanna part	Poor: shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
Benndale part	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Moderate: slope.
Pheba:				
PhA	Fair: low strength, wetness.	Unsuited	Unsuited	Good.
Pits:				
Pn.				

See footnotes at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Poarch:				
PoB, PoC	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
[1]PSB:				
Poarch part	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Saucier part	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Prentiss:				
PtA, PtB, [1]Pu	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Stough:				
StA	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Susquehanna:				
SuB, SuD	Poor: shrink-swell.	Unsuited	Unsuited	Poor: too clayey.
Trebloc:				
Tb	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
[1]TeA:				
Trebloc part	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Escambia part	Fair: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Troup:				
TrB	Good	Fair: excess fines.	Poor: excess fines.	Poor: too sandy.
Urban land:				
Ur.				

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 13.--WATER MANAGEMENT

["Seepage" and some of the other terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not evaluated]

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Alaga:							
AaA	Severe: seepage.	Moderate: piping, seepage, unstable fill.	Severe: no water.	Not needed	Droughty, fast intake, seepage.	Erodes easily, too sandy.	Droughty, erodes easily.
Bassfield:							
BaA, [1]BbA, [1]BcA	Severe: seepage.	Severe: piping.	Severe: deep to water.	Not needed	Fast intake, droughty.	Favorable	Favorable.
Benndale:							
BeB, BeC, BeD	Moderate: seepage.	Moderate: piping, seepage.	Severe: no water.	Not needed	Fast intake, slope.	Erodes easily	Erodes easily, slope.
Bibb:							
Bf	Moderate: seepage.	Moderate: piping.	Severe: no water.	Floods, wetness.	Floods, wetness.	Not needed	Not needed.
[1]BG:							
Bibb part	Moderate: seepage.	Moderate: piping.	Severe: no water.	Floods, wetness.	Floods, wetness.	Not needed	Not needed.
Jena part	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed	Floods	Not needed	Erodes easily.
Bigbee:							
Bh	Severe: seepage.	Severe: seepage, piping.	Severe: deep to water.	Floods, cutbanks cave.	Seepage, floods, droughty.	Too sandy	Droughty.
Cadeville Variant:							
CaF	Slight	Moderate: low strength, compressible.	Severe: no water.	Not needed	Slope, erodes easily, slow intake.	Slope, erodes easily, percs slowly.	Slope.
Cahaba:							
ChA	Severe: seepage.	Moderate: piping, erodes easily.	Severe: deep to water.	Not needed	Favorable	Favorable	Favorable.
Falkner:							
FaB	Slight	Moderate: compressible, erodes easily.	Severe: no water.	Slope	Slow intake, percs slowly.	Erodes easily, percs slowly.	Erodes easily, percs slowly.

See footnotes at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Falkner:							
[1]FsB:							
Falkner part	Slight	Moderate: compressible, erodes easily.	Severe: no water.	Slope	Slow intake, percs slowly.	Erodes easily, percs slowly.	Erodes easily, percs slowly.
Susquehanna part	Slight	Moderate: hard to pack, shrink-swell.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Harleston:							
HaA	Moderate: seepage.	Moderate: piping.	Severe: no water.	Wetness	Favorable	Favorable	Favorable.
Heidel:							
HeD, HeE	Moderate: seepage.	Moderate: piping, seepage.	Severe: deep to water.	Not needed	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
Jena:							
[1]JN:							
Jena part	Severe: seepage.	Moderate: low strength, seepage, piping.	Severe: no water.	Not needed	Floods	Not needed	Erodes easily.
Nugent part	Severe: seepage.	Moderate: piping, seepage.	Severe: deep to water.	Floods	Fast intake, seepage, floods.	Erodes easily	Erodes easily, droughty.
Latonia:							
LaA	Severe: seepage.	Severe: piping.	Severe: deep to water.	Not needed	Fast intake, droughty.	Favorable	Favorable.
[1]LT:							
Latonia part	Severe: seepage.	Severe: piping.	Severe: deep to water.	Not needed	Fast intake, droughty.	Favorable	Favorable.
Trebloc part	Moderate: seepage.	Moderate: low strength, piping.	Severe: no water.	Percs slowly, wetness.	Slow intake, wetness.	Not needed	Wetness, percs slowly.
Lucedale:							
LuA	Moderate: seepage.	Moderate: compressible, piping.	Severe: no water.	Not needed	Favorable	Favorable	Favorable.
Malbis:							
MaB	Moderate: seepage.	Slight	Severe: no water.	Not needed	Slope	Favorable	Favorable.

See footnotes at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
McLaurin:							
MbB, MbC, [1]MCB	Severe: seepage.	Moderate: piping, seepage.	Severe: no water.	Not needed	Fast intake, slope.	Favorable	Favorable.
[1]MLD:							
McLaurin part	Severe: seepage.	Moderate: piping, seepage.	Severe: no water.	Not needed	Fast intake, slope.	Favorable	Favorable.
Benndale part	Moderate: seepage.	Moderate: piping, seepage.	Severe: no water.	Not needed	Fast intake, slope.	Erodes easily	Erodes easily, slope.
Pamlico:							
[1]PD:							
Pamlico part	Severe: seepage.	Severe: piping.	Slight	Floods, poor outlets.	Wetness, floods.	Not needed	Not needed.
Dorovan part	Severe: seepage.	Severe: unstable fill, excess humus.	Severe: excess humus.	Floods	Floods	Not needed	Not needed.
Petal:							
[1]PEC:							
Petal part	Slight	Moderate: unstable fill.	Severe: deep to water.	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.	Slope, percs slowly.
Susquehanna part	Slight	Moderate: hard to pack, shrink-swell.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Benndale part	Moderate: seepage.	Moderate: piping, seepage.	Severe: no water.	Not needed	Fast intake, slope.	Erodes easily	Erodes easily, slope.
Pheba:							
PhA	Moderate: seepage.	Moderate: compressible, piping.	Severe: deep to water.	Wetness, percs slowly.	Slow intake, wetness.	Not needed	Favorable.
Pits:							
Pn.							
Poarch:							
PoB, PoC	Moderate: seepage.	Moderate: piping, low strength.	Severe: deep to water.	Not needed	Favorable	Favorable	Favorable.
[1]PSB:							
Poarch part	Moderate: seepage.	Moderate: piping, low strength.	Severe: deep to water.	Not needed	Favorable	Favorable	Favorable.

See footnotes at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Poarch: Saucier part	Slight	Moderate: piping.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, piping.	Percs slowly.
Prentiss: PtA, PtB, [1]Pu	Moderate: seepage.	Moderate: compressible, piping.	Severe: slow refill, deep to water.	Percs slowly, wetness, slope.	Percs slowly, wetness.	Percs slowly, wetness, slope.	Percs slowly, wetness, slope.
Stough: StA	Moderate: seepage.	Moderate: piping, low strength.	Severe: no water.	Percs slowly, wetness, slope.	Percs slowly, wetness.	Percs slowly, wetness.	Percs slowly, wetness.
Susquehanna: SuB, SuD	Slight	Moderate: hard to pack, shrink-swell.	Severe: deep to water.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
Trebloc: Tb	Moderate: seepage.	Moderate: low strength, piping.	Severe: no water.	Percs slowly, wetness.	Slow intake, wetness.	Not needed	Wetness, percs slowly.
[1]TeA: Trebloc part	Moderate: seepage.	Moderate: low strength, piping.	Severe: no water.	Percs slowly, wetness.	Slow intake, wetness.	Not needed	Wetness, percs slowly.
Escambia part	Moderate: seepage.	Moderate: piping, low strength.	Severe: deep to water.	Favorable	Favorable	Favorable	Favorable.
Troup: TrB	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed	Droughty, fast intake, seepage.	Too sandy, erodes easily, piping.	Droughty, erodes easily.
Urban land: Ur.							

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 14.--RECREATIONAL DEVELOPMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Alaga:				
AaA	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.
Bassfield:				
BaA, [1]BbA	Slight	Slight	Slight	Slight.
[1]BcA	Moderate: floods.	Moderate: floods.	Moderate: floods.	Moderate: floods.
Benndale:				
BeB	Slight	Slight	Moderate: slope.	Slight.
BeC	Slight	Slight	Severe: slope.	Slight.
BeD	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Bibb:				
Bf	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
[1]BG:				
Bibb part	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Jena part	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Bigbee:				
Bh	Severe: floods, too sandy.	Moderate: too sandy, floods.	Severe: floods, too sandy.	Moderate: floods, too sandy.
Cadeville Variant:				
CaF	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Cahaba:				
ChA	Slight	Slight	Slight	Slight.
Falkner:				
FaB	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: slope, percs slowly, wetness.	Moderate: wetness.
[1]FsB:				
Falkner part	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: slope, percs slowly, wetness.	Moderate: wetness.
Susquehanna part	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 14.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Harleston:				
HaA	Slight	Slight	Slight	Slight.
Heidel:				
HeD	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
HeE	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Jena:				
[1]JN:				
Jena part	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Nugent part	Severe: floods.	Severe: floods.	Severe: floods.	Moderate: floods.
Latonia:				
LaA	Slight	Slight	Slight	Slight.
[1]LT:				
Latonia part	Severe: floods.	Moderate: floods.	Moderate: floods.	Moderate: floods.
Trebloc part	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Lucedale:				
LuA	Slight	Slight	Slight	Slight.
Malbis:				
MaB	Slight	Slight	Moderate: slope.	Slight.
McLaurin:				
MbB, [1]MCB	Slight	Slight	Moderate: slope.	Slight.
MbC	Slight	Slight	Severe: slope.	Slight.
[1]MLD:				
McLaurin part	Slight	Slight	Severe: slope.	Slight.
Benndale part	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Pamlico:				
[1]PD:				
Pamlico part	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Dorovan part	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.	Severe: wetness, floods, excess humus.
Petal:				
[1]PEC:				
Petal part	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Slight.

See footnote at end of table.

TABLE 14.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
Petal:				
Susquehanna part	Moderate: percs slowly, wetness.	Moderate: wetness.	Severe: slope.	Moderate: wetness.
Benndale part	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Pheba:				
PhA	Moderate: percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
Pits:				
Pn.				
Poarch:				
PoB, PoC	Slight	Slight	Moderate: slope.	Slight.
[1]PSB:				
Poarch part	Slight	Slight	Moderate: slope.	Slight.
Saucier part	Slight	Slight	Severe: slope.	Slight.
Prentiss:				
PtA, [1]Pu	Slight	Slight	Slight	Slight.
PtB	Slight	Slight	Moderate: slope.	Slight.
Stough:				
StA	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
Susquehanna:				
SuB	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.
SuD	Moderate: percs slowly, wetness.	Moderate: wetness.	Severe: slope.	Moderate: wetness.
Trebloc:				
Tb	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
[1]TeA:				
Trebloc part	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Escambia part	Moderate: wetness, percs slowly.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
Troup:				
TrB	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Moderate: too sandy.
Urban land:				
Ur.				

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 15.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Alaga:										
AaA	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Bassfield:										
BaA, [1]BbA	Good	Good	Good	Good	Poor	Very poor.	Very poor.	Good	Good	Very poor.
[1]BcA	Good	Good	Good	Good	Poor	Very poor.	Very poor.	Good	Good	Very poor.
Benndale:										
BeB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BeC, BeD	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Bibb:										
Bf	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
[1]BG:										
Bibb part	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Jena part	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
Bigbee:										
Bh	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
Cadeville Variant:										
CaF	Poor	Fair	Good	---	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Cahaba:										
ChA	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Falkner:										
FaB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
[1]FsB:										
Falkner part	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Susquehanna part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Harleston:										
HaA	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Heidel:										
HeD	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HeE	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
Jena:										
[1]JN:										
Jena part	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.

See footnote at end of table.

TABLE 15.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Jena:										
Nugent part	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Latonia:										
LaA	Good	Good	Good	Good	Poor	Very poor.	Very poor.	Good	Good	Very poor.
[1]LT:										
Latonia part	Good	Good	Good	Good	Poor	Very poor.	Very poor.	Good	Good	Very poor.
Trebloc part	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Lucedale:										
LuA	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Malbis:										
MaB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
McLaurin:										
MbB, [1]MCB	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MbC	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
[1]MLD:										
McLaurin part	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Benndale part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Pamlico:										
[1]PD:										
Pamlico part	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Dorovan part	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Petal:										
[1]PEC:										
Petal part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Susquehanna part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Benndale part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Pheba:										
PhA	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Pits:										
Pn.										
Poarch:										
PoB, PoC	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
[1]PSB:										
Poarch part	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

See footnote at end of table.

TABLE 15.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Poarch:										
Saucier part	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Prentiss:										
PtA, PtB, [1]Pu	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Stough:										
StA	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Susquehanna:										
SuB, SuD	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Trebloc:										
Tb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
[1]TeA:										
Trebloc part	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Escambia part	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Troup:										
TrB	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban land:										
Ur.										

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 16.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Alaga:										
AaA	0-8	Loamy sand	SM, SW-SM	A-2, A-3	100	100	40-70	5-35	---	NP
	8-90	Loamy sand, loamy fine sand, fine sand.	SM, SW-SM	A-2, A-3	100	100	50-80	5-35	---	NP
Bassfield:										
BaA, [1]BbA, [1]BcA	0-10	Fine sandy loam	SM, ML	A-2, A-4	90-100	85-100	55-96	25-58	<20	NP-3
	10-41	Sandy loam, loam	SM, SC, SM-SC	A-2, A-4	90-100	85-100	60-92	30-50	<20	NP-10
	41-70	Loamy sand, sand	SP-SM, SM	A-2, A-3	90-100	80-100	65-85	5-20	<20	NP-3
Benndale:										
BeB, BeC, BeD	0-9	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-4, A-2-4	100	100	60-85	30-55	<25	NP-7
	9-60	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-4	100	100	70-95	40-75	15-22	3-7
Bibb:										
Bf	0-1	Silt loam	SM, SM-SC, ML, CL-ML	A-2, A-4	95-100	90-100	60-90	30-60	<30	NP-7
	1-65	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	60-100	50-100	40-100	30-90	<30	NP-7
[1]BG:										
Bibb part	0-1	Silt loam	SM, SM-SC, ML, CL-ML	A-2, A-4	95-100	90-100	60-90	30-60	<30	NP-7
	1-65	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	60-100	50-100	40-100	30-90	<30	NP-7
Jena part	0-8	Fine sandy loam	ML, SM	A-4	100	100	60-85	40-55	<22	NP-4
	8-42	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	100	100	55-90	25-70	<22	NP-4
	42-60	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	100	100	50-80	20-50	<22	NP
Bigbee:										
Bh	0-72	Loamy sand	SM, SP-SM	A-2-4, A-3	100	95-100	80-95	5-30	---	NP
	72-84	Sand, fine sand	SP-SM, SM	A-2-4, A-3	85-100	85-100	80-100	5-20	---	NP
Cadeville Variant:										
CaF	0-2	Silt loam	ML, CL-ML	A-4	100	100	95-100	55-65	<28	NP-7
	2-34	Clay, silty clay	CH, CL	A-7-6	100	100	95-100	80-95	41-60	22-35
	34-60	Clay, silty clay, silty clay loam.	CH, CL	A-7-6, A-6	100	100	95-100	75-95	30-55	12-30
Cahaba:										
ChA	0-15	Sandy loam	SM	A-4, A-2-4	95-100	95-100	65-90	30-45	---	NP
	15-58	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	90-100	80-100	75-90	40-75	22-35	8-15
	58-85	Sand, loamy sand, fine sandy loam.	SM, SP-SM	A-2-4	95-100	90-100	60-85	10-35	---	NP

See footnote at end of table.

TABLE 16.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Falkner:										
FaB	0-7	Silt loam	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	7-26	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-30
	26-60	Silty clay, clay	CH	A-7	100	100	90-100	85-95	51-75	30-50
[1]FsB:										
Falkner part	0-7	Silt loam	CL-ML, CL	A-4	100	100	95-100	90-100	20-30	5-10
	7-26	Silt loam, silty clay loam.	CL	A-6, A-7	100	100	95-100	85-95	30-45	15-30
	26-60	Silty clay, clay	CH	A-7	100	100	90-100	85-95	51-75	30-50
Susquehanna part	0-9	Silt loam	ML, CL	A-4, A-6	100	100	85-100	70-95	20-35	5-15
	9-68	Clay, silty clay loam, silty clay.	CH, MH	A-7	100	100	88-100	80-98	50-90	28-56
Harleston:										
HaA	0-6	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	90-100	85-100	60-85	30-55	<25	NP-7
	6-65	Sandy loam, loam	SC, CL, CL-ML, SM-SC	A-2, A-4	90-100	85-100	60-95	30-70	20-30	5-10
Heidel:										
HeD, HeE	0-8	Sandy loam	SM	A-4	90-100	85-100	70-85	36-45	<30	NP-4
	8-78	Fine sandy loam, sandy loam. loam.	ML, CL-ML, SM, SM-SC	A-4	90-100	85-100	60-85	36-55	15-25	4-7
Jena:										
[1]JN:										
Jena part	0-8	Fine sandy loam	ML, SM	A-4	100	100	60-85	40-55	<22	NP-4
	8-42	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	100	100	55-90	25-70	<22	NP-4
	42-60	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	100	100	50-80	20-50	<22	NP
Nugent part	0-9	Loamy sand	SM, SP-SM	A-2	85-100	75-100	50-100	10-30	---	NP
	9-70	Stratified loamy sand to fine sandy loam.	SM, SP-SM	A-2	85-100	75-100	60-100	10-30	<25	NP-3
Latonia:										
LaA	0-5	Fine sandy loam	SM	A-2-4, A-4	90-100	85-100	60-75	30-50	---	NP
	5-36	Sandy loam, loam, fine sandy loam.	SM	A-2-4, A-4	90-100	85-100	60-85	30-50	---	NP
	36-64	Sand, loamy sand	SM, SP-SM	A-2-4	90-100	85-100	50-75	10-30	---	NP
[1]LT:										
Latonia part	0-5	Fine sandy loam	SM	A-2-4, A-4	90-100	85-100	60-75	30-50	---	NP
	5-36	Sandy loam, loam, fine sandy loam.	SM	A-2-4, A-4	90-100	85-100	60-85	30-50	---	NP
	36-64	Sand, loamy sand	SM, SP-SM	A-2-4	90-100	85-100	50-75	10-30	---	NP

See footnote at end of table.

TABLE 16.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Latonia:										
Trebloc part----	0-7	Silt loam-------	ML, CL-ML	A-4	100	100	85-100	60-90	<30	NP-7
	7-27	Silt loam, silty clay loam, loam.	CL	A-4, A-6	100	100	85-100	85-100	25-40	8-16
	27-65	Silty clay loam, silty clay, clay loam.	CL	A-6, A-7	100	100	85-100	85-100	30-48	12-21
Lucedale:										
LuA----------	0-5	Loam----------	SM, ML	A-2, A-4	100	95-100	80-95	25-65	<30	NP-3
	5-90	Sandy clay loam, clay loam, loam.	CL-ML, SC, CL, SM-SC	A-4, A-6, A-2	95-100	95-100	80-100	30-75	25-40	4-15
Malbis:										
MaB----------	0-11	Loam----------	SM, ML	A-4	100	97-100	92-97	40-62	<30	NP-5
	11-24	Loam, sandy clay loam, clay loam.	CL-ML, CL, ML	A-4	99-100	95-99	91-97	55-62	26-31	5-9
	24-60	Sandy clay loam, clay loam.	ML	A-4, A-5, A-7	98-100	96-100	90-97	56-71	36-46	4-13
McLaurin:										
MbB, MbC, [1]MCB----	0-14	Loamy sand-------	SM	A-2	90-100	90-100	50-75	15-30	<20	NP-4
	14-38	Sandy loam, fine sandy loam.	SM, SC, SM-SC	A-4	90-100	90-100	85-95	36-45	<30	NP-10
	38-49	Loamy fine sand	SM	A-2	90-100	90-100	50-75	15-30	<20	NP-4
	49-60	Sandy loam, sandy clay loam, loam.	SM-SC, SC, ML, CL	A-4, A-6	90-100	90-100	70-80	36-55	30-40	6-15
[1]MLD:										
McLaurin part---	0-14	Loamy sand-------	SM	A-2	90-100	90-100	50-75	15-30	<20	NP-4
	14-38	Sandy loam, fine sandy loam.	SM, SC, SM-SC	A-4	90-100	90-100	85-95	36-45	<30	NP-10
	38-49	Loamy fine sand	SM	A-2	90-100	90-100	50-75	15-30	<20	NP-4
	49-60	Sandy loam, sandy clay loam, loam.	SM-SC, SC, ML, CL	A-4, A-6	90-100	90-100	70-80	36-55	30-40	6-15
Benndale part---	0-9	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-4, A-2-4	100	100	60-85	30-55	<25	NP-7
	9-60	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-4	100	100	70-95	40-75	15-22	3-7
Pamlico:										
[1]PD:										
Pamlico part----	0-36	Muck----------	Pt	---	---	---	---	---	---	---
	36-65	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	100	100	70-95	5-20	---	NP
Dorovan part----	0-4	Muck----------	Pt	---	---	---	---	---	---	---
	4-56	Muck----------	Pt	---	---	---	---	---	---	---
	56-65	Sand----------	SP-SM	A-1, A-3	100	100	5-70	5-10	---	NP
Petal:										
[1]PEC:										
Petal part------	0-8	Fine sandy loam	SM, CL, ML, CL-ML	A-4	100	95-100	60-90	40-70	<30	NP-8
	8-32	Loam, sandy clay loam, clay loam.	CL	A-4, A-6	100	95-100	80-95	55-75	25-40	7-20
	32-65	Clay loam, silty clay, clay.	CL, CH	A-6, A-7	100	95-100	90-100	80-95	40-55	20-30

See footnote at end of table.

TABLE 16.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Petal:										
Susquehanna part	0-9	Silt loam--------	ML, CL	A-4, A-6	100	100	85-100	70-95	20-35	5-15
	9-68	Clay, silty clay loam, silty clay.	CH, MH	A-7	100	100	88-100	80-98	50-90	28-56
Benndale part---	0-9	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-4, A-2-4	100	100	60-85	30-55	<25	NP-7
	9-60	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-4	100	100	70-95	40-75	15-22	3-7
Pheba:										
PhA----------	0-8	Silt loam--------	ML, CL, CL-ML	A-4	100	100	85-100	55-90	<25	NP-8
	8-21	Silt loam, loam	ML, CL, CL-ML	A-4	100	100	90-100	75-90	<25	NP-8
	21-60	Silt loam, loam, silty clay loam.	CL, ML	A-6, A-4	100	100	90-100	75-95	30-40	11-16
Pits:										
Pn.										
Poarch:										
PoB, PoC----------	0-6	Fine sandy loam	SM, SM-SC	A-4, A-2-4	95-100	95-100	70-95	30-55	<25	NP-5
	6-39	Loam, fine sandy loam, silt loam.	ML, CL-ML, CL	A-4	95-100	95-100	85-95	51-75	<30	NP-10
	39-60	Loam, fine sandy loam, silt loam.	ML, CL	A-4	85-100	85-100	85-95	51-75	20-30	2-10
[1]PSB:										
Poarch part-----	0-6	Fine sandy loam	SM, SM-SC	A-4, A-2-4	95-100	95-100	70-95	30-55	<25	NP-5
	6-39	Loam, fine sandy loam, silt loam.	ML, CL-ML, CL	A-4	95-100	95-100	85-95	51-75	<30	NP-10
	39-60	Loam, fine sandy loam, silt loam.	ML, CL	A-4	85-100	85-100	85-95	51-75	20-30	2-10
Saucier part----	0-13	Fine sandy loam	SM, ML	A-4	100	95-100	70-80	40-55	<20	NP-3
	13-25	Loam, clay loam	CL	A-6, A-4	95-100	85-95	85-95	60-75	25-38	8-15
	25-39	Silty clay loam, clay loam.	CL	A-7, A-6	100	90-100	90-100	82-95	35-48	18-25
	39-62	Clay, silty clay	CH, MH	A-7	100	90-100	90-100	80-90	52-60	23-30
Prentiss:										
PtA, PtB, [1]Pu-----	0-27	Loam----------	ML, CL, CL-ML	A-4	100	100	75-100	50-90	<30	NP-10
	27-60	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	100	100	70-100	40-75	20-35	4-12
Stough:										
StA----------	0-15	Loam----------	ML, CL-ML	A-4	100	100	75-95	50-65	<25	NP-7
	15-33	Loam, fine sandy loam.	ML, CL, CL-ML	A-4	100	100	75-95	50-75	<25	NP-8
	33-63	Sandy loam, sandy clay loam, loam.	SC, CL	A-4, A-6	100	100	65-90	40-65	25-40	8-15

See footnote at end of table.

TABLE 16.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	4	10	40	200		
	In								Pct	
Susquehanna:										
SuB, SuD	0-9	Silt loam	ML, CL	A-4, A-6	100	100	85-100	70-95	20-35	5-15
	9-68	Clay, silty clay loam, silty clay.	CH, MH	A-7	100	100	88-100	80-98	50-90	28-56
Trebloc:										
Tb	0-7	Silt loam	ML, CL-ML	A-4	100	100	85-100	60-90	<30	NP-7
	7-27	Silt loam, silty clay loam, loam.	CL	A-4, A-6	100	100	85-100	85-100	25-40	8-16
	27-65	Silty clay loam, silty clay, clay loam.	CL	A-6, A-7	100	100	85-100	85-100	30-48	12-21
[1]TeA:										
Trebloc part	0-7	Silt loam	ML, CL-ML	A-4	100	100	85-100	60-90	<30	NP-7
	7-27	Silt loam, silty clay loam, loam.	CL	A-4, A-6	100	100	85-100	85-100	25-40	8-16
	27-65	Silty clay loam, silty clay, clay loam.	CL	A-6, A-7	100	100	85-100	85-100	30-48	12-21
Escambia part	0-5	Fine sandy loam	SM, SM-SC	A-4	95-100	95-100	70-90	40-65	<25	NP-7
	5-22	Fine sandy loam, loam.	SC, SM-SC, CL, CL-ML	A-4, A-6	95-100	95-100	70-90	40-75	15-30	5-15
	22-60	Fine sandy loam, loam.	SC, CL	A-4, A-5	85-95	85-95	60-90	35-80	20-35	8-20
Troup:										
TrB	0-26	Loamy fine sand	SM	A-2	100	100	50-80	15-35	---	NP
	26-64	Loamy sand	SM	A-2	100	100	50-75	15-30	---	NP
	64-91	Sandy clay loam, sandy loam.	SC, SM-SC, CL-ML, CL	A-4	95-100	95-100	80-90	36-55	20-30	4-10
Urban land:										
Ur.										

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means greater than. The erosion tolerance factor (T) is for the entire profile. Absence of an entry means data were not available or were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Alaga:									
AaA	0-8	>6.0	0.05-0.09	4.5-6.0	Low	Low	Moderate	0.17	5
	8-90	>6.0	0.05-0.09	4.5-6.0	Low	Low	Moderate	0.17	
Bassfield:									
BaA, [1]BbA, [1]BcA	0-10	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	4
	10-41	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
	41-70	6.0-20	0.05-0.08	4.5-5.5	Very low	Low	Moderate	0.17	
Benndale:									
BeB, BeC, BeD	0-9	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	5
	9-60	0.6-2.0	0.12-0.18	4.5-5.5	Low	Low	Moderate	0.32	
Bibb:									
Bf	0-1	0.6-2.0	0.12-0.18	4.5-5.5	Low	High	Moderate	0.20	---
	1-65	0.6-2.0	0.12-0.20	4.5-5.5	Low	High	Moderate	0.37	
[1]BG:									
Bibb part	0-1	0.6-2.0	0.12-0.18	4.5-5.5	Low	High	Moderate	0.20	---
	1-65	0.6-2.0	0.12-0.20	4.5-5.5	Low	High	Moderate	0.37	
Jena part	0-8	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	---	---
	8-42	0.6-2.0	0.10-0.20	4.5-5.5	Low	Low	High	---	
	42-60	2.0-6.0	0.08-0.14	4.5-5.5	Low	Low	High	---	
Bigbee:									
Bh	0-72	6.0-20	0.05-0.10	4.5-6.0	Low	Low	Moderate	0.17	5
	72-84	6.0-20	0.05-0.08	4.5-6.0	Low	Low	Moderate	0.17	
Cadeville Variant:									
CaF	0-2	0.6-2.0	0.14-0.22	5.1-6.0	Low	Moderate	Moderate	0.43	3
	2-34	<0.06	0.18-0.20	4.5-5.5	High	High	High	0.32	
	34-60	<0.2	0.18-0.20	4.5-5.5	High	High	High	0.32	
Cahaba:									
ChA	0-15	2.0-6.0	0.05-0.14	4.5-6.0	Very low	Low	Moderate	0.24	4
	15-58	0.6-2.0	0.12-0.15	4.5-6.0	Low	Moderate	Moderate	0.28	
	58-85	6.0-20	0.05-0.10	4.5-6.0	Very low	Low	Moderate	0.24	
Falkner:									
FaB	0-7	0.2-0.6	0.20-0.22	4.5-6.0	Low	High	Moderate	0.43	4
	7-26	0.2-0.6	0.19-0.22	4.5-6.0	Moderate	High	Moderate	0.43	
	26-60	0.06-0.2	0.16-0.18	4.5-6.5	High	High	Moderate	0.24	
[1]FsB:									
Falkner part	0-7	0.2-0.6	0.20-0.22	4.5-6.0	Low	High	Moderate	0.43	4
	7-26	0.2-0.6	0.19-0.22	4.5-6.0	Moderate	High	Moderate	0.43	
	26-60	0.06-0.2	0.16-0.18	4.5-6.5	High	High	Moderate	0.24	
Susquehanna part	0-9	0.6-2.0	0.18-0.20	4.5-5.5	Low	High	High	0.43	3
	9-68	<0.06	0.15-0.20	4.5-5.5	High	High	High	0.32	
Harleston:									
HaA	0-6	0.6-6.0	0.08-0.16	3.6-5.5	Low	Moderate	High	0.20	5
	6-65	0.6-2.0	0.13-0.16	4.5-5.5	Low	Moderate	High	0.32	
Heidel:									
HeD, HeE	0-8	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	High	0.20	5
	8-78	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	High	0.20	

See footnote at end of table.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Jena:									
[1]JN:									
Jena part	0-8	0.6-2.0	0.12-0.20	4.5-6.0	Low	Low	High	---	---
	8-42	0.6-2.0	0.10-0.20	4.5-5.5	Low	Low	High	---	
	42-60	2.0-6.0	0.08-0.14	4.5-5.5	Low	Low	High	---	
Nugent part	0-9	6.0-20	0.05-0.10	4.5-6.5	Low	Low	Moderate	0.17	---
	9-70	2.0-6.0	0.05-0.10	4.5-6.5	Low	Low	Moderate	0.17	
Latonia:									
LaA	0-5	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	4
	5-36	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
	36-64	6.0-20	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.17	
[1]LT:									
Latonia part	0-5	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	4
	5-36	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
	36-64	6.0-20	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.17	
Trebloc part	0-7	0.6-2.0	0.16-0.20	4.5-5.5	Low	High	High	0.37	3
	7-27	0.2-0.6	0.15-0.20	4.5-5.5	Moderate	High	High	0.37	
	27-65	0.2-0.6	0.14-0.18	4.5-5.5	Moderate	High	High	0.37	
Lucedale:									
LuA	0-5	0.6-2.0	0.15-0.20	5.1-6.5	Low	Moderate	Moderate	0.24	5
	5-90	0.6-2.0	0.14-0.18	4.5-5.5	Low	Moderate	Moderate	0.24	
Malbis:									
MaB	0-11	0.6-2.0	0.10-0.15	5.1-6.0	Low	Low	Moderate	0.28	5
	11-24	0.6-2.0	0.12-0.20	4.5-5.5	Low	Moderate	Moderate	0.28	
	24-60	0.6-2.0	0.12-0.17	4.5-5.5	Low	Moderate	Moderate	0.28	
McLaurin:									
MbB, MbC, [1]MCB	0-14	6.0-20	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.17	5
	14-38	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
	38-49	2.0-6.0	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.20	
	49-60	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
[1]MLD:									
McLaurin part	0-14	6.0-20	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.17	5
	14-38	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
	38-49	2.0-6.0	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.20	
	49-60	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	
Benndale part	0-9	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	5
	9-60	0.6-2.0	0.12-0.18	4.5-5.5	Low	Low	Moderate	0.32	
Pamlico:									
[1]PD:									
Pamlico part	0-36	0.6-2.0	0.24-0.26	3.6-4.4	---	High	High	---	---
	36-65	6.0-20	0.03-0.06	3.6-5.5	Low	High	High	---	
Dorovan part	0-4	<0.06	0.25-0.50	4.5-5.5	---	High	High	---	---
	4-56	<0.06	0.25-0.50	4.5-5.5	---	High	High	---	
	56-65	6.0-20	0.05-0.08	4.5-5.5	Low	High	High	---	
Petal:									
[1]PEC:									
Petal part	0-8	0.6-2.0	0.10-0.15	4.5-5.5	Low	Moderate	High	0.24	5
	8-32	0.2-0.6	0.15-0.18	4.5-5.5	Moderate	High	High	0.32	
	32-65	0.06-0.2	0.15-0.18	4.5-5.5	High	High	High	0.32	
Susquehanna part	0-9	0.6-2.0	0.18-0.20	4.5-5.5	Low	High	High	0.43	3
	9-68	<0.06	0.15-0.20	4.5-5.5	High	High	High	0.32	
Benndale part	0-9	0.6-2.0	0.10-0.15	4.5-5.5	Low	Low	Moderate	0.20	5
	9-60	0.6-2.0	0.12-0.18	4.5-5.5	Low	Low	Moderate	0.32	

See footnote at end of table.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T
	In	In/hr	In/in	pH					
Pheba:									
PhA	0-8	0.6-2.0	0.16-0.22	4.0-5.5	Low	High	High	0.49	3
	8-21	0.6-2.0	0.16-0.22	4.0-5.5	Low	High	High	0.49	
	21-60	0.2-0.6	0.05-0.10	4.0-5.5	Low	High	High	0.43	
Pits:									
Pn.									
Poarch:									
PoB, PoC	0-6	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	High	0.20	5
	6-39	0.6-2.0	0.10-0.20	4.5-5.5	Low	Low	High	0.24	
	39-60	0.2-2.0	0.10-0.20	4.5-5.5	Low	Low	High	0.24	
[1]PSB:									
Poarch part	0-6	2.0-6.0	0.10-0.15	4.5-5.5	Low	Low	High	0.20	5
	6-39	0.6-2.0	0.10-0.20	4.5-5.5	Low	Low	High	0.24	
	39-60	0.2-2.0	0.10-0.20	4.5-5.5	Low	Low	High	0.24	
Saucier part	0-13	2.0-6.0	0.12-0.15	4.5-5.5	Low	Moderate	High	0.24	4
	13-25	0.6-2.0	0.16-0.19	4.5-5.5	Low	Moderate	High	0.32	
	25-39	0.06-0.2	0.16-0.20	4.5-5.5	Moderate	Moderate	High	0.32	
	39-62	0.06-0.2	0.16-0.20	4.5-5.5	Moderate	Moderate	High	0.32	
Prentiss:									
PtA, PtB, [1]Pu	0-27	0.6-2.0	0.12-0.16	4.5-5.5	Low	Moderate	High	0.24	3
	27-60	0.2-0.6	0.06-0.09	4.5-5.5	Low	Moderate	High	0.24	
Stough:									
StA	0-15	0.6-2.0	0.12-0.18	4.5-5.5	Low	Moderate	High	0.28	3
	15-33	0.2-0.6	0.07-0.11	4.5-5.5	Low	Moderate	High	0.37	
	33-63	0.2-0.6	0.07-0.11	4.5-5.5	Low	Moderate	High	0.37	
Susquehanna:									
SuB, SuD	0-9	0.6-2.0	0.18-0.20	4.5-5.5	Low	High	High	0.43	3
	9-68	<0.06	0.15-0.20	4.5-5.5	High	High	High	0.32	
Trebloc:									
Tb	0-7	0.6-2.0	0.16-0.20	4.5-5.5	Low	High	High	0.37	3
	7-27	0.2-0.6	0.15-0.20	4.5-5.5	Moderate	High	High	0.37	
	27-65	0.2-0.6	0.14-0.18	4.5-5.5	Moderate	High	High	0.37	
[1]TeA:									
Trebloc part	0-7	0.6-2.0	0.16-0.20	4.5-5.5	Low	High	High	0.37	3
	7-27	0.2-0.6	0.15-0.20	4.5-5.5	Moderate	High	High	0.37	
	27-65	0.2-0.6	0.14-0.18	4.5-5.5	Moderate	High	High	0.37	
Escambia part	0-5	2.0-6.0	0.11-0.15	5.1-5.5	Low	Moderate	High	0.24	4
	5-22	0.6-2.0	0.15-0.20	4.5-5.5	Low	Moderate	High	0.24	
	22-60	0.06-0.6	0.12-0.18	4.5-5.5	Low	Moderate	High	0.28	
Troup:									
TrB	0-26	6.0-20	0.05-0.08	4.5-5.5	Very low	Low	Moderate	0.17	5
	26-64	6.0-20	0.05-0.10	4.5-5.5	Very low	Low	Moderate	0.20	
	64-91	0.6-2.0	0.10-0.13	4.5-5.5	Low	Low	Moderate	0.20	
Urban land:									
Ur.									

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 18.--SOIL AND WATER FEATURES

[Absence of an entry indicates the feature is not a concern. See text for descriptions of symbols and such terms as "rare," "brief," and "perched." The symbol < means less than; > means greater than]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock
		Frequency	Duration	Months	Depth	Kind	Months	Depth
					Ft			In
Alaga: AaA	A	None to rare	Brief	Nov-Apr	>6.0	---	---	>60
Bassfield: BaA, [1]BbA, [1]BcA	B	None to common.	Very brief	Nov-Apr	>6.0	---	---	>60
Benndale: BeB, BeC, BeD	B	None	---	---	>6.0	---	---	>60
Bibb: Bf	C	Common	Brief	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60
[1]BG: Bibb part	C	Common	Brief	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60
Jena part	B	Rare to common.	Very brief to long.	Dec-Apr	>6.0	---	---	>60
Bigbee: Bh	A	Rare to common.	Brief	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	>60
Cadeville Variant: CaF	D	None	---	---	>6.0	---	---	>60
Cahaba: ChA	B	None	---	---	>6.0	---	---	>72
Falkner: FaB	C	None	---	---	1.5-2.5	Perched	Jan-Mar	>60
[1]FsB: Falkner part	C	None	---	---	1.5-2.5	Perched	Jan-Mar	>60
Susquehanna part	D	None	---	---	>6.0	---	---	>60
Harleston: HaA	C	None to occasional.	Very brief	Nov-Apr	2.0-3.0	Apparent	Nov-Mar	>60
Heidel: HeD, HeE	B	None	---	---	>6.0	---	---	>60
Jena: [1]JN: Jena part	B	Rare to common.	Very brief to long.	Dec-Apr	>6.0	---	---	>60
Nugent part	A	Common	Brief to long.	Dec-Mar	>3.5	Apparent	Jan-Apr	>60
Latonia: LaA	B	None to common.	Very brief	Nov-Apr	>6.0	---	---	>60
[1]LT: Latonia part	B	None to common.	Very brief	Nov-Apr	>6.0	---	---	>60

See footnote at end of table.

TABLE 18.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock
		Frequency	Duration	Months	Depth	Kind	Months	Depth
					Ft			In
Latonia:								
Trebloc part---	D	None to common.	Very brief	Jan-Apr	0.5-1.0	Apparent	Jan-Apr	>60
Lucedale:								
LuA----------	B	None---------	---	---	>6.0	---	---	>60
Malbis:								
MaB----------	B	None---------	---	---	2.5-4.0	Perched	Dec-Mar	>60
McLaurin:								
MbB, MbC, [1]MCB---	B	None---------	---	---	>6.0	---	---	>60
[1]MLD:								
McLaurin part--	B	None---------	---	---	>6.0	---	---	>60
Benndale part--	B	None---------	---	---	>6.0	---	---	>60
Pamlico:								
[1]PD:								
Pamlico part---	D	Frequent----	Very long	Nov-Jun	(1)-1.0	Apparent	Nov-Jul	>60
Dorovan part---	D	Frequent----	Very long	Jan-Dec	<0.5	Apparent	Jan-Dec	>60
Petal:								
[1]PEC:								
Petal part-----	C	None---------	---	---	2.5-3.5	Perched	Jan-Apr	>60
Susquehanna part----------	D	None---------	---	---	>6.0	---	---	>60
Benndale part--	B	None---------	---	---	>6.0	---	---	>60
Pheba:								
PhA----------	C	None---------	---	---	1.5-2.0	Perched	Jan-Mar	>60
Pits:								
Pn.								
Poarch:								
PoB, PoC---------	B	None---------	---	---	2.5-5.0	Apparent	Dec-Mar	>60
[1]PSB:								
Poarch part----	B	None---------	---	---	2.5-5.0	Apparent	Dec-Mar	>60
Saucier part---	C	None---------	---	---	2.5-4.0	Perched	Jan-Mar	>60
Prentiss:								
PtA, PtB, [1]Pu----	C	None---------	---	---	2.0-2.5	Perched	Jan-Mar	>60
Stough:								
StA----------	C	None---------	---	---	1.0-1.5	Perched	Jan-Apr	>60
Susquehanna:								
SuB, SuD---------	D	None---------	---	---	>6.0	---	---	>60
Trebloc:								
Tb----------	D	None to common.	Very brief	Jan-Apr	0.5-1.0	Apparent	Jan-Apr	>60
[1]TeA:								
Trebloc part---	D	None to common.	Very brief	Jan-Apr	0.5-1.0	Apparent	Jan-Apr	>60
Escambia part--	C	None---------	---	---	1.5-2.5	Apparent	Dec-Mar	>60
Troup:								
TrB----------	A	None---------	---	---	>6.0	---	---	>60

See footnote at end of table.

TABLE 18.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock
		Frequency	Duration	Months	Depth	Kind	Months	Depth
					Ft			In
Urban land: Ur.								

[1]This map unit is made up of two or more dominant kinds of soil. See map unit description for the composition and behavior of the whole map unit.

TABLE 19.--CHEMICAL ANALYSES

[Analyzed by the Soil genesis and morphology laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series	Horizon	Depth	Reaction	Organic matter	Extractable cations				Extractable acidity	Sum of cations	Base saturation
					Ca++	Mg++	K+	Na+			
		In	pH	Pct	meq/100 g						Pct
McLaurin.	A1	0-5	5.2	2.0	0.9	0.2	0.1	---	2.3	3.5	34.3
	A2	5-8	5.6	0.8	0.5	0.1	---	---	1.7	2.3	26.1
	A3	8-14	5.4	0.6	0.5	0.2	---	---	1.1	1.8	38.8
	B21t	14-20	5.4	0.5	1.1	0.5	0.1	---	3.6	5.3	32.1
	B22t	20-32	5.4	0.2	1.1	0.9	0.1	---	4.8	6.9	30.4
	B23t	32-38	5.4	0.1	0.6	0.6	---	---	3.6	4.8	25.0
	B&A'2	38-49	5.3	---	0.2	0.2	---	---	1.3	1.7	23.5
	B't	49-60	5.3	0.2	0.3	0.4	---	---	3.3	4.0	17.5

TABLE 20.--PHYSICAL ANALYSES

[Analyzed by the Soil genesis and morphology laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series	Horizon	Depth	Particle size distribution					
			Very coarse sand to medium sand (2.0-0.25 mm)	Fine sand (0.25-0.10 mm)	Very fine sand (0.10-0.05 mm)	Total sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002mm)
			Pct	Pct	Pct	Pct	Pct	Pct
McLaurin.	A1	0-5	63.6	18.5	1.6	83.6	13.9	2.5
	A2	5-8	59.4	18.8	2.1	80.4	17.1	2.5
	A3	8-14	51.4	11.0	2.4	78.4	22.7	2.5
	B21t	14-20	46.8	15.2	2.2	64.2	24.4	11.4
	B22t	20-32	39.4	18.8	2.2	60.4	24.4	15.2
	B23t	32-38	47.6	19.4	2.6	69.6	19.0	11.4
	B&A'2	38-49	62.9	17.6	1.6	82.2	14.8	3.0
	B't	49-60	48.6	17.7	2.2	68.7	11.6	19.7

TABLE 21.--ENGINEERING TEST DATA

[Tests performed by the Mississippi State Highway Department, in cooperation with the Federal Highway Administration, Department of Transportation, in accordance with standard procedures of the American Association of State Highway and Transportation Officials (AASHTO) (1). NP means nonplastic]

Soil name and location	Laboratory number	Depth	Moisture-density[1]		Mechanical analyses[2]							Liquid limit	Plasticity index	Classification	
			Standard density	Optimum moisture	Percentage passing sieve--			Percentage smaller than--						AASHTO	Unified
					No. 10	No. 40	No. 200	0.05 mm	0.02 mm	0.005 mm	0.002 mm				
		In	Pct	Pct								Pct			
McLaurin loamy sand: 2 miles west of McLaurin, 300 feet west of U.S. Highway 49, NW1/4NW1/4 sec. 6, T. 2 N., R. 12 W.	C-4	0-5	113.7	10.4	---	---	18	18	18	2	2	---	NP	A-2	SM
	C-5	20-32	121.0	11.6	100	95	41	38	32	21	18	24	8	A-4	SC
	C-6	38-49	119.8	8.8	100	93	21	21	15	7	5	---	NP	A-2	SM
	C-7	49-60	118.7	12.0	100	94	34	32	28	23	21	25	6	A-2	SM-SC

[1]Based on AASHTO Designation: T99-57, Method A (1).
[2]Mechanical analyses according to AASHTO Designation T 88-57 (1). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHTO procedure, the fine material is analyzed by the hydrometer method and the various grain-sized fractions are calculated on the basis of all the material including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-sized fractions. The mechanical analysis data used in this table are not suitable for naming textural classes for soils.

TABLE 22.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Alaga	Thermic, coated Typic Quartzipsamments
Bassfield	Coarse-loamy, siliceous, thermic Typic Hapludults
Benndale	Coarse-loamy, siliceous, thermic Typic Paleudults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Bigbee	Thermic, coated Typic Quartzipsamments
Cadeville Variant	Fine, montmorillonitic, thermic Typic Hapludalfs
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Dorovan	Dysic, thermic Typic Medisaprists
Escambia	Coarse-loamy, siliceous, thermic Plinthaquic Paleudults
Falkner	Fine-silty, siliceous, thermic Aquic Paleudalfs
Harleston	Coarse-loamy, siliceous, thermic Aquic Paleudults
Heidel	Coarse-loamy, siliceous, thermic Typic Paleudults
Jena	Coarse-loamy, siliceous, thermic Fluventic Dystrochrepts
Latonia	Coarse-loamy, siliceous, thermic Typic Hapludults
Lucedale	Fine-loamy, siliceous, thermic Rhodic Paleudults
Malbis	Fine-loamy, siliceous, thermic Plinthic Paleudults
McLaurin	Coarse-loamy, siliceous, thermic Typic Paleudults
Nugent	Sandy, siliceous, thermic Typic Udifluvents
Pamlico	Sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists
Petal	Fine-loamy, siliceous, thermic Typic Paleudalfs
Pheba	Coarse-silty, siliceous, thermic Glossaquic Fragiudults
Poarch	Coarse-loamy, siliceous, thermic Plinthic Paleudults
Prentiss	Coarse-loamy, siliceous, thermic Glossic Fragiudults
Saucier	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Stough	Coarse-loamy, siliceous, thermic Fragiaquic Paleudults
Susquehanna	Fine, montmorillonitic, thermic Vertic Paleudalfs
Trebloc	Fine-silty, siliceous, thermic Typic Paleaquults
Troup	Loamy, siliceous, thermic Grossarenic Paleudults

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