United States
Department of
Agriculture

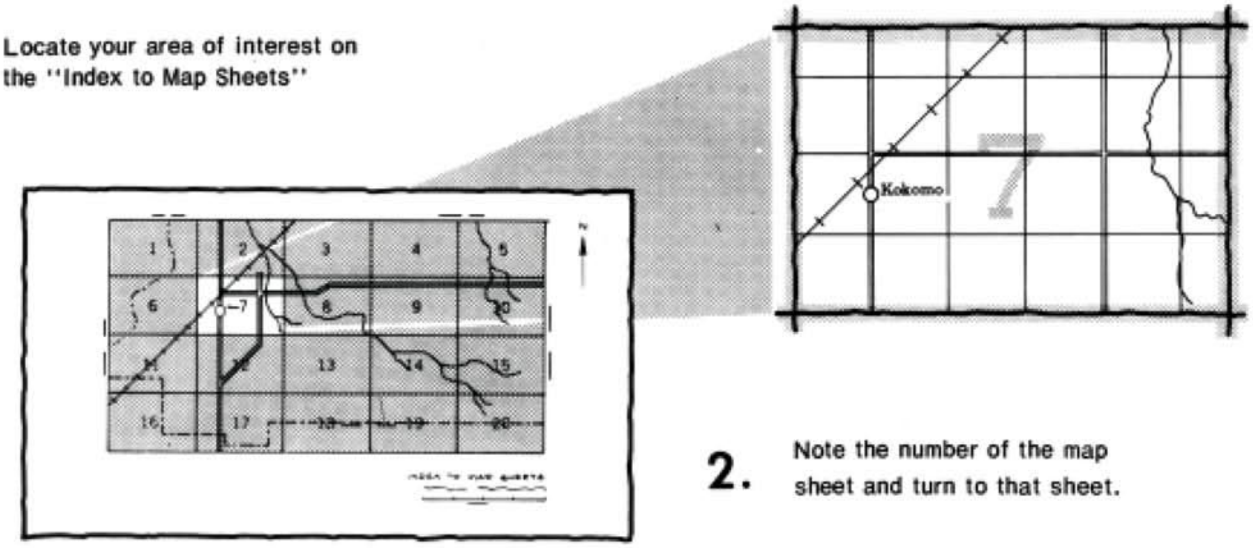
Soil
Conservation
Service

In cooperation with
South Carolina
Agricultural Experiment
Station and
South Carolina
Land Resources
Conservation Commission

Soil Survey of Williamsburg County, South Carolina

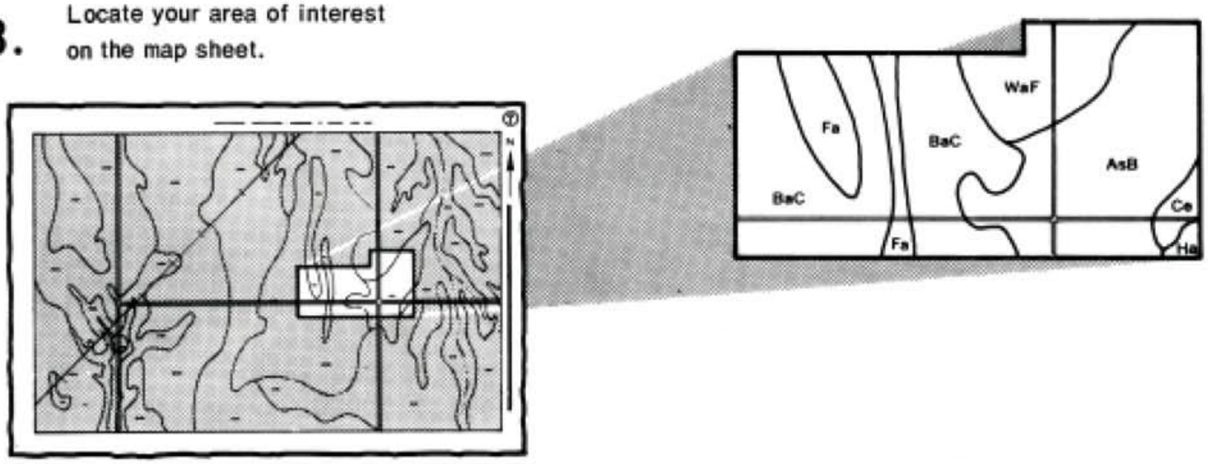
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets"

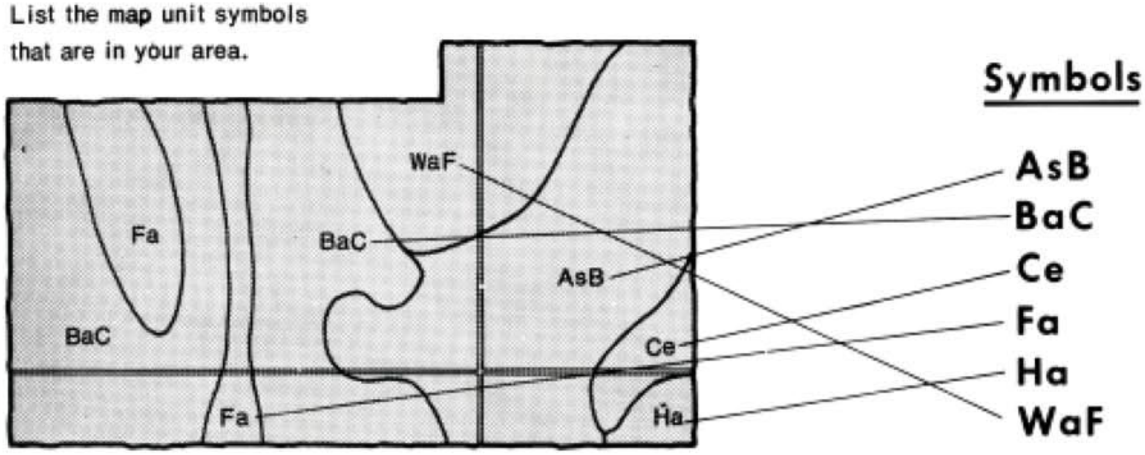


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

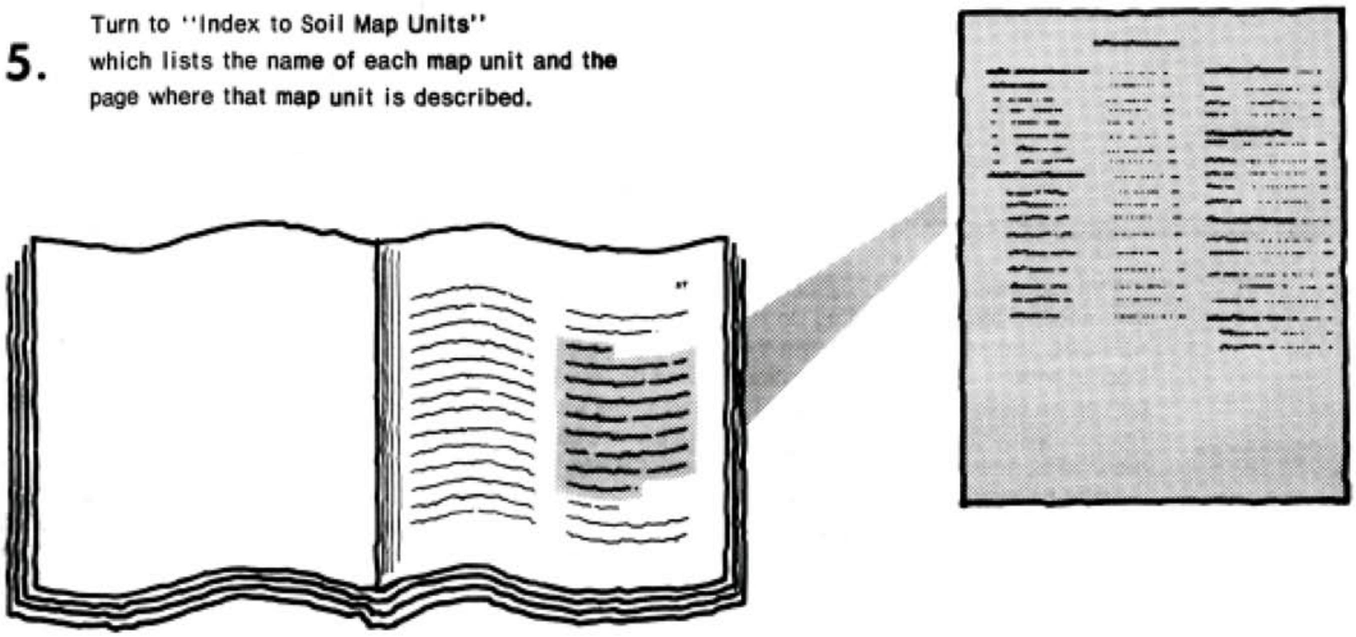


4. List the map unit symbols that are in your area.

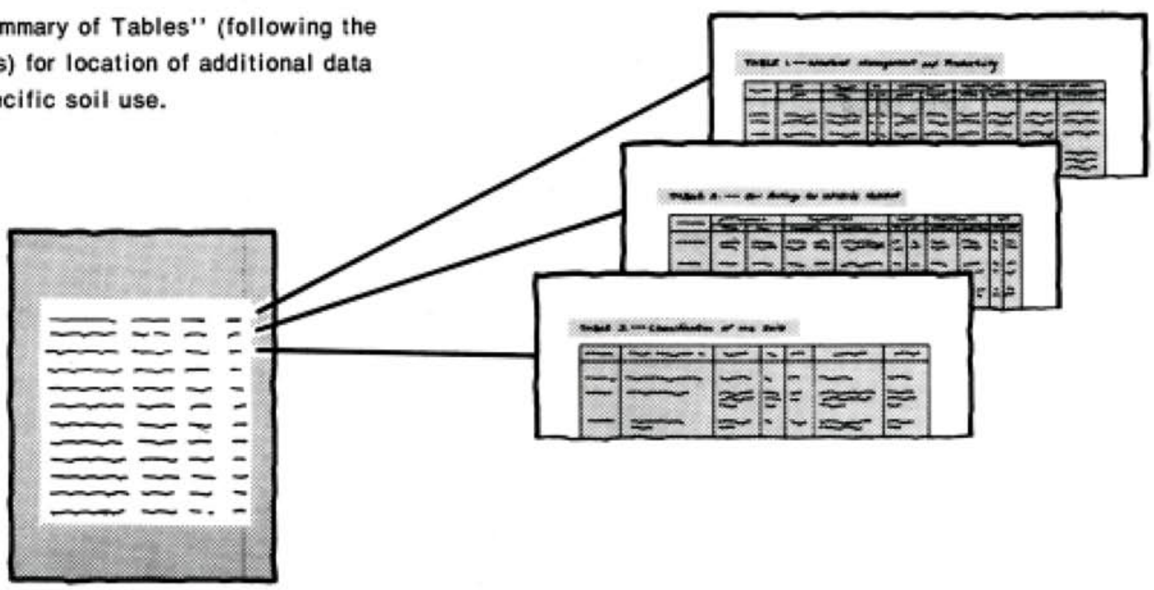


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map 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 soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1984. Soil names and descriptions were approved in 1985. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This soil survey was made cooperatively by the Soil Conservation Service and the South Carolina Agricultural Experiment Station and South Carolina Land Resources Conservation Commission. It is part of the technical assistance furnished to the Williamsburg Soil and Water Conservation District.

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

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

Cover: The scenic Black River is a major drainageway for much of Williamsburg County. Mouzon and Hobcaw soils, frequently flooded, are common in the Black River Swamp.

Contents

Soil Series

Issued May 1989

Index to Map Units

Summary of Tables

Foreword

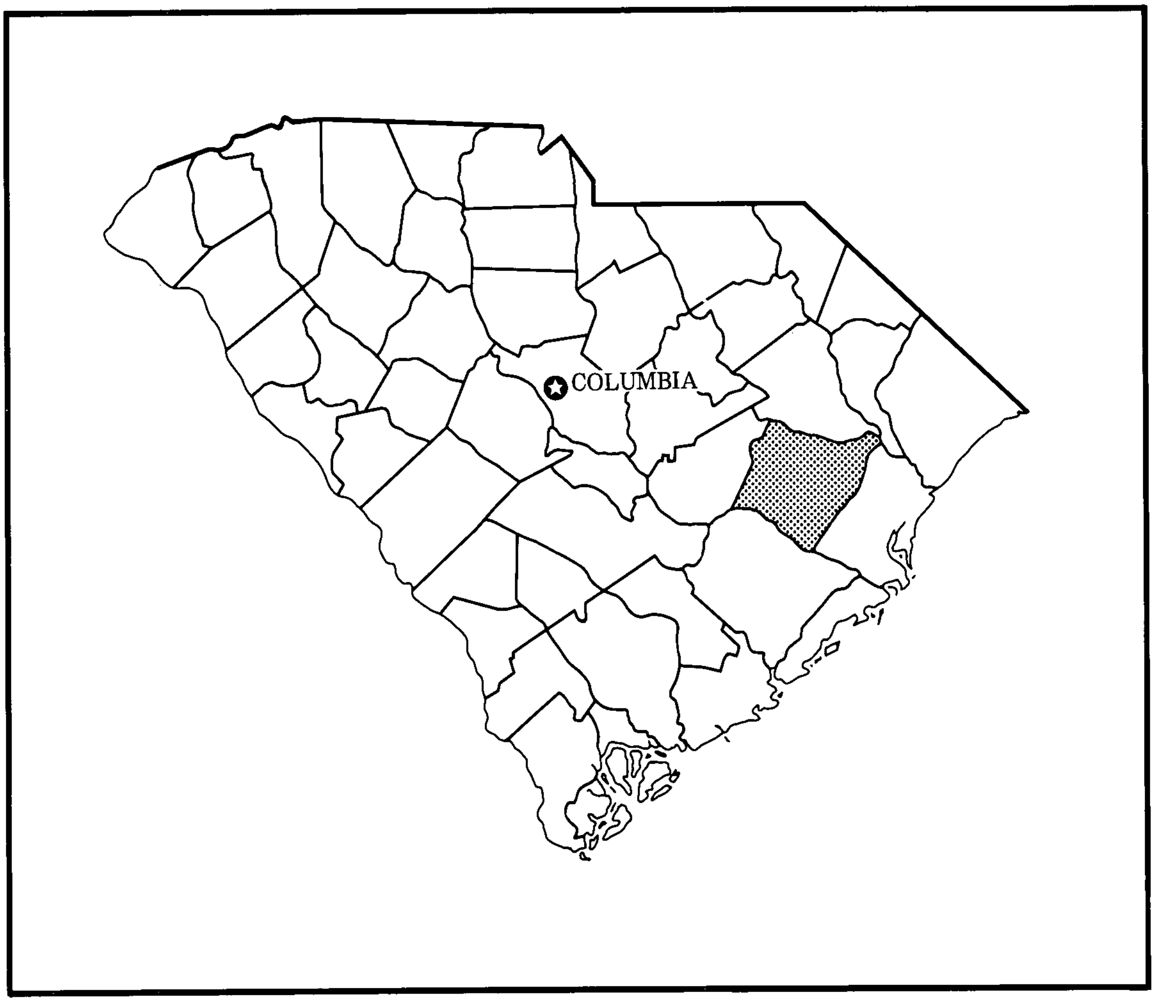
This soil survey contains information that can be used in land-planning programs in Williamsburg County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

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

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

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

Billy R. Abercrombie
State Conservationist
Soil Conservation Service



Location of Williamsburg County in South Carolina.

Soil Survey of Williamsburg County, South Carolina

By Bobby J. Ward, Soil Conservation Service

Soils surveyed by Bobby J. Ward, Ronald Morton, Leander Brown, and Ben Stuckey, Soil Conservation Service; and J.J. Pitts, South Carolina Land Resources Conservation Commission

United States Department of Agriculture, Soil Conservation Service
In cooperation with
South Carolina Agricultural Experiment Station and
South Carolina Land Resources Conservation Commission

WILLIAMSBURG COUNTY is in the eastern part of South Carolina. According to the 1980 census, Kingstree, the county seat, has a population of about 4,147. The county has a population of about 38,226 and a total area of 931 square miles, or 596,000 acres. It is predominantly rural. Much of the land is used for the production of row crops, small grains, sawtimber, and pulpwood.

Williamsburg County is in the Atlantic Coast Flatwoods Land Resource Area. The county is bordered on the east by Georgetown County and separated from Marion County on the northeast by the Great Pee Dee River. It is bordered on the north by Florence County and on the west by Clarendon County. It is separated from Berkeley County on the south by the Santee River.

The elevation of Williamsburg County ranges from about 8 feet above sea level along the Black River in the eastern part of the county to about 90 feet in the northwestern part of the county.

This soil survey supersedes the survey of Williamsburg County published in 1928 by the Bureau of Chemistry and Soils. It updates the earlier survey and gives additional data about the county.

General Nature of the Survey Area

The first settlement in Williamsburg County was at Willtown Landing on Black Mingo Creek in 1725. In 1732, a party of Scotch-Irish immigrants settled in what is now Kingstree. Shortly afterwards, French Huguenots settled along the Santee River bluffs.

In 1663, King Charles II of England granted the territory known as the Carolinas to eight lords proprietors. The proprietors relinquished these lands back to the Crown in 1729, and the region was divided into the royal provinces of North Carolina and South Carolina. In 1730, the king ordered Governor Robert Johnson to lay out 11 townships on the banks of navigable streams. Williamsburgh Township by the Black River, then called the Wee Nee River, was one of these. Williamsburgh Township was a part of Craven County, one of the original political divisions of South Carolina.

At the time the first land grant was given to the settlers, the king made a resolution that the straightest and biggest white pines were to be reserved for the king's naval stores. These trees were to be used as masts on the royal navy's ships. As the settlers built their community, they promptly named a large pine on the west bank of the Black River the "King's Tree." It became synonymous with the town, which later became Kingstree.

Each family of the original settlers was allocated a half-acre town lot and 50 acres within the township. A meeting ground was in the center of town, and a stockade was on the site of the present Williamsburg Cemetery. The first Williamsburg Presbyterian Meeting House, which became a mother church for several states, was also built on this site.

Williamsburg County was organized in 1785. Kingstree became the county seat in 1820 and was incorporated in 1886.

The early economy was based on agriculture. Many of the settlers were rice planters, and many Scotch settlers were flax growers and weavers. In 1736, the General Assembly offered bonus payments to encourage hemp and flax production. The indigo was of exceptionally fine quality and brought wealth to the township. Corn and tobacco were important crops, and cattle were also important to the economy in the early years. Shortly after the Civil War, cotton became the chief money crop.

The economy is based heavily on agriculture, forest products, and industry. The main money crops are corn, soybeans, and tobacco, but small grains are increasing in importance. Livestock is an important part of the economy. Williamsburg County is among the top hog-producing counties in the state.

Forest products are also a major source of income. Timber and pulpwood companies manage a large acreage of timberland for commercial uses. The area is recognized for its hunting and fishing, but neither contribute significantly to the economy. Major industries produce pharmaceuticals, synthetic rubber, and household plastics.

Williamsburg County has the typical physiographic features of the Atlantic Coast Flatwoods Land Resource Area. The surface is level to undulating and is dissected by drainageways and flood plains. The better drained soils are in the nearly level to gently sloping areas adjacent to the drainageways. These soils merge outward into the wider flats or extensive plains that are nearly level and are broken by slight elevations, small depressions, and Carolina Bays. Small streams are in these depressions and bays. The Carolina Bays, the flood plains, and a well defined sand ridge are the most prominent physiographic features of the county. The sand ridge is 10 to 15 feet above the general land level. It extends from near Kingstree in a northeast direction to Lake Swamp and extends south of Black River for a short distance.

The large flood plain of the Santee River ranges from 1 mile to 4 miles wide. The flood plain of the Black River averages about 2 miles across, and the flood plains of Lake Swamp-Lynches River and the Pee Dee River range from 0.5 mile to 2 miles wide. The Black Mingo Creek flood plain ranges from several hundred feet to more than 1 mile wide.

The slopes along the Santee River flood plain are more strongly sloping than the slopes along the other streams. The bluffs along the Santee River are 30 to 45 feet above the water level of the streams. The bluffs along the Black River and other larger streams are 20 to 30 feet above the stream level. Along the smaller streams, they are 5 to 10 feet to about 1 foot above the water level where the streams head.

The larger streams have rapid currents. The Black River flows at an elevation of about 50 feet above sea level where it enters the county in the northwest part and reaches tide level where it leaves in the southeast part, having a gradient of about 1.3 feet per mile. The smaller streams have a swift current where they break from the upland to where they enter the rivers but are sluggish elsewhere. These small streams, called swamps, tend to spread out over the flood plain rather than follow a well defined channel. The larger streams that have well defined channels are designated as creeks, rivers, branches, or runs.

The general slope of the land is to the southeast, with a fall of about 1 foot to the mile. The relief is greatest in areas adjacent to the three major rivers and their tributaries. The southwest and southeast areas of the county are drained primarily by the Santee River. The central, south-central, west, and northwest areas are drained by the Black River and Black Mingo Creek. The northeast area is drained by Lake Swamp, Muddy Creek, Lynches River, and the Great Pee Dee River. Much of the interior of this county is drained by small depressions and Carolina Bays, such as the Morass, Dobson, Smiths, Sandy, Alligator, Butlers, Rutlege, Oak Ridge, Wee Tee, and Findley Bays. Sinkholes in the southeast part of the county drain adjacent areas.

Climate

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

Table 1 gives data on temperature and precipitation for the survey area as recorded at Kingstree in the period 1951 to 1980. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 46 degrees F, and the average daily minimum temperature is 33 degrees. The lowest temperature on record, which occurred at Kingstree on February 13, 1973, is 0 degrees. In summer the average temperature is 79 degrees, and the average daily maximum temperature is 90 degrees. The highest recorded temperature, which occurred at Kingstree on June 27, 1952, is 106 degrees.

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

The total annual precipitation is 50 inches. Of this, 29 inches usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 23 inches. The heaviest 1-day rainfall during the period of record was 5.8 inches at Kingstree on September 5, 1979. Thunderstorms occur on about 53 days each year, and most occur in the summer.

The average seasonal snowfall is 2 inches. The greatest snow depth at any one time during the period of record was 13 inches. On an average of 1 day at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 50 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 65 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 8 miles per hour, in the spring.

How This Survey Was Made

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

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

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, distribution of plant roots, acidity, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by several kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

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

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

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, 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 can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

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

Each map unit is rated for *cultivated crops, woodland,* and *urban uses*. Cultivated crops are those grown extensively in the survey area. Woodland refers to areas of native or introduced trees. Urban uses include residential, commercial, and industrial developments.

Dominantly Nearly Level Soils That are Moderately Well Drained to Somewhat Excessively Drained; on Low Ridges and River Terraces

The soils in this group make up about 7 percent of the survey area. The major soils are Foreston, Autryville, and Candor soils. These soils are on low ridges that are generally 10 to 20 feet higher than the surrounding landscape and on river terraces that parallel the Black River.

1. Foreston-Autryville-Candor

Nearly level, moderately well drained to somewhat excessively drained soils that have a loamy and sandy subsoil

The landscape is low ridges and river terraces. Slopes range from 0 to 2 percent. The ridges generally are 10 to 20 feet higher than the surrounding landscape. They are flat with a few shallow drainageways and many shallow depressions and bays. Some of the major drainageways in the county head at the base of this map unit. The river terraces are flat and parallel to the Black River. The natural vegetation is predominantly pines. Many houses, farmsteads, and public roads are a part of this map unit.

This map unit makes up about 7 percent of the survey area. It is about 43 percent Foreston soils, 7 percent Autryville soils, 6 percent Candor soils, and 44 percent soils of minor extent.

The Foreston soils are moderately well drained and are at lower elevations. Typically, these soils have a grayish fine sand surface layer and a fine sandy loam subsoil that is yellowish in the upper part and yellowish with grayish mottles in the lower part.

The Autryville soils are well drained and are at intermediate elevations. Typically, these soils have a thick brownish sand surface layer and a sandy loam and loamy sand subsoil that is brownish in the upper part and brownish with grayish mottles in the lower part.

The Candor soils are somewhat excessively drained and are at higher elevations. Typically, these soils have a thick brownish sand surface layer. The upper part of the subsoil is brownish loamy sand. The next layer is grayish sand. The lower part of the subsoil is gray sandy loam.

Of minor extent in this map unit are the Foxworth, Noboco, Goldsboro, Tomahawk, Rains, Leon, Lynchburg, Rutlege, and Paxville soils. The Foxworth, Noboco, and Goldsboro soils have drainage similar to that of the major soils. The Tomahawk, Rains, Leon, Lynchburg, Rutlege, and Paxville soils are more poorly drained.

About 75 percent of the acreage in this map unit has been cleared for use as cropland. Tobacco, corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

The soils of this map unit are well suited to very poorly suited to row crops and small grains. Soil blowing and droughtiness are the main concerns in management. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture. Planting windstrips and arranging rows perpendicular to prevailing wind direction reduce soil blowing. Irrigation and split applications of fertilizer increase yields significantly. In some low-lying areas, Foreston soils require drainage for some crops.

These soils are well suited to poorly suited to pasture and hay. Droughtiness and nutrient loss are the main concerns in management. Irrigation and split applications of fertilizer increase yields significantly. Proper stocking and pasture rotation keep pastures in good condition.

These soils are well suited to poorly suited to use as woodland. Common trees are longleaf pine and loblolly pine. Droughtiness and a thick sandy surface layer affect seedling survival and restrict the use of equipment. These problems are reduced by planting drought-tolerant species in shallow furrows and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and very poorly suited to development of habitat for wetland wildlife.

These soils are well suited to moderately well suited to most engineering uses related to community development. The seasonal high water table in Foreston soils is a limitation for use as septic tank absorption fields.

Dominantly Nearly Level Soils That are Well Drained to Poorly Drained; on Broad Flats

The soils in this group make up about 58 percent of the survey area. The major soils are Eunola, Yemassee, Lynchburg, Goldsboro, Coxville, Rains, Ogeechee, Noboco, and Emporia soils. These soils are on broad flats throughout the area.

2. Lynchburg-Rains

Nearly level, somewhat poorly drained and poorly drained soils that have a loamy subsoil

The landscape is flat areas that have poorly defined drainageways and a few low ridges and shallow depressions. The elevation varies only a few feet. The natural vegetation is mainly pines with scattered hardwoods. Many houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 12 percent of the survey area. It is about 41 percent Lynchburg soils, 34 percent Rains soils, and 25 percent soils of minor extent.

The Lynchburg soils are somewhat poorly drained and are at higher elevations. Typically, these soils have a grayish fine sandy loam surface layer and a sandy clay loam subsoil. The upper part of the subsoil is brownish with grayish mottles, and the lower part is grayish with reddish and brownish mottles. The substratum is grayish sandy clay loam and sandy clay that has mottles in shades of brown and yellow.

The Rains soils are poorly drained and are at lower elevations. Typically, these soils have a grayish fine sandy loam surface layer and a grayish sandy clay loam subsoil that has brownish mottles. The substratum is grayish sandy loam that has reddish and brownish mottles.

Of minor extent in this map unit are the Goldsboro, Noboco, Hobcaw, Paxville, Mouzon, and Coxville soils. Goldsboro and Noboco soils are better drained than the major soils, and Hobcaw and Paxville soils are more poorly drained. Mouzon and Coxville soils have drainage similar to that of the major soils.

About 45 percent of the acreage in this map unit has been cleared for use as cropland. Corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

The soils in this map unit are well suited to row crops and small grains. Wetness is a concern in management, but the soils respond well to surface and subsurface drainage. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

These soils are well suited to pasture and hay; however, wetness is a concern in management. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are loblolly pine, longleaf pine, and sweetgum. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared soils are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and well suited to very poorly suited to development of habitat for wetland wildlife.

These soils are very poorly suited to most engineering uses related to community development. The seasonal high water table is the main concern in management. For most uses, surface drainage can remove excess water. Special design and installation procedures are needed for septic tank absorption fields.

3. Goldsboro-Noboco-Coxville

Nearly level, moderately well drained, well drained, and poorly drained soils that have a loamy and clayey subsoil

The landscape is very low ridges and flat areas. The low ridges are adjacent and parallel to small drainageways. Away from the drainageways, the topography levels out and becomes flat with many small depressions and poorly defined drainageways. The natural vegetation is mainly pines with scattered hardwoods. Many houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 17 percent of the survey area. It is about 31 percent Goldsboro soils, 16 percent Noboco soils, 10 percent Coxville soils, and 43 percent soils of minor extent.

The Goldsboro soils are moderately well drained and are at intermediate elevations. Typically, these soils have a brownish loamy fine sand surface layer and a sandy clay loam subsoil. The upper part of the subsoil is brownish with grayish mottles, and the lower part is grayish with brownish and reddish mottles. The substratum is yellowish and grayish loamy and clayey material.

The Noboco soils are well drained and are at higher elevations. Typically, these soils have a brownish loamy fine sand surface layer and a sandy clay loam subsoil that is mostly brownish. The lower part of the subsoil has reddish and grayish mottles.

The Coxville soils are poorly drained and are at lower elevations. Typically, these soils have a brownish loam surface layer and a clay loam and clay subsoil that is grayish with reddish, yellowish, and brownish mottles.

Of minor extent in this map unit are the Chisolm, Bonneau, Lynchburg, Rains, Hobcaw, and Mouzon soils. The Chisolm, Bonneau, Lynchburg, and Rains soils have drainage similar to that of the major soils. The Hobcaw and Mouzon soils are more poorly drained.

About 80 percent of the acreage in this map unit has been cleared for use as cropland. Tobacco, corn, soybeans, and small grain are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

The soils of this map unit are well suited to row crops and small grains (fig. 1). Wetness is a limitation in some areas, but it can be reduced by surface and subsurface drainage. Noboco soils do not need drainage for most crops, and Goldsboro soils generally only require random drainage of low-lying areas. Coxville soils require intensive drainage for most crops. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

These soils are well suited to moderately well suited to pasture and hay. Wetness is a concern in use of the Coxville soils. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are loblolly pine, sweetgum, and longleaf pine. Seedling survival, equipment usage, and control of competing vegetation are concerns on Coxville soils because of wetness. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings can be reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and poorly suited to development of habitat for wetland wildlife.

These soils are well suited to very poorly suited to most engineering uses related to community development. The seasonal high water table is the main concern in management. For most uses, surface drainage can remove excess water. Special design and installation procedures are needed for septic tank absorption fields.

4. Yemassee-Ogeechee-Eunola

Nearly level, somewhat poorly drained, poorly drained, and moderately well drained soils that have a loamy subsoil

The landscape is flat areas that have poorly defined drainageways and a few low ridges and shallow depressions. The elevation over the area varies only a few feet. The natural vegetation consists mainly of pines with scattered hardwoods. Many houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 11 percent of the survey area. It is about 42 percent Yemassee soils, 34 percent Ogeechee soils, 10 percent Eunola soils, and 14 percent soils of minor extent.

The Yemassee soils are somewhat poorly drained and are at intermediate elevations. Typically, these soils have a grayish sandy loam surface layer and a sandy clay loam subsoil. The upper part of the subsoil is brownish with grayish mottles, and the lower part is grayish with brownish mottles.

The Ogeechee soils are poorly drained and are at lower elevations. Typically, these soils have a black fine sandy loam surface layer and a grayish sandy clay loam subsoil that has mottles in shades of red, yellow, and brown. The substratum is grayish stratified sandy, loamy, and clayey material underlain by grayish sand mottled in shades of red, yellow, and brown.

The Eunola soils are moderately well drained and are at higher elevations. Typically, these soils have a grayish loamy sand surface layer and a sandy clay loam subsoil. The upper part of the soil is brownish with mottles in shades of red and gray, and the lower part is mottled in shades of red, brown, and gray.

Of minor extent in this map unit are the Hornsville, Gourdin, Emporia, Chisolm, Cape Fear, and Paxville soils. Hornsville and Gourdin soils have drainage similar to that of the major soils. Emporia and Chisolm soils are better drained, and Cape Fear and Paxville soils are more poorly drained.

About 45 percent of the acreage of this map unit has been cleared for use as cropland. Corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

The soils of this map unit are well suited to row crops and small grains. Wetness is the main concern in management, but it can be reduced by surface and subsurface drainage. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

These soils are well suited to pasture and hay. Wetness is the main concern in management. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are loblolly pine, longleaf pine, and

Figure 1.—Corn, tobacco, and soybeans are the main row crops in Williamsburg County. The soils of the Goldsboro-Noboco-Coxville map unit are well suited to these crops.

sweetgum. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and well suited to very poorly suited to development of habitat for wetland wildlife.

These soils are moderately well suited to very poorly suited to most engineering uses related to community development. The seasonal high water table is the main concern in management. For most uses, surface drainage can remove excess water. Special design and installation procedures are needed for septic tank absorption fields.

5. Eunola-Emporia-Yemassee

Nearly level, moderately well drained, well drained, and somewhat poorly drained soils that have a loamy and clayey subsoil

The landscape is low ridges, flat areas, and slight depressions. The low ridges are adjacent and parallel to drainageways and small streams. Away from the drainageways, the topography levels out and becomes flat with many small depressions and poorly defined drainageways. The natural vegetation is mainly pines with scattered hardwoods. Many houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 18 percent of the survey area. It is about 37 percent Eunola soils, 15 percent Emporia soils, 10 percent Yemassee soils, and 28 percent soils of minor extent.

The Eunola soils are moderately well drained and are at intermediate elevations. Typically, these soils have a grayish loamy sand surface layer and a sandy clay loam subsoil. The upper part of the subsoil is brownish with reddish and grayish mottles, and the lower part is mottled grayish, reddish, and brownish.

The Emporia soils are well drained and are at higher elevations. Typically, these soils have a brownish loamy sand surface layer and a brownish sandy clay loam and sandy clay subsoil that has grayish and reddish mottles in the lower part.

The Yemassee soils are somewhat poorly drained and are at intermediate elevations. Typically, these soils have a grayish sandy loam surface layer and a sandy clay loam subsoil. The upper part is brownish with grayish mottles, and the lower part is grayish with brownish mottles.

Of minor extent in this map unit are the Wahee, Hornsville, Chisolm, Gourdin, and Ogeechee soils. Wahee and Hornsville soils have drainage similar to that of the major soils. Chisolm soils are better drained, and Gourdin and Ogeechee soils more poorly drained.

About 75 percent of the acreage in this map unit has been cleared for use as cropland. Tobacco, corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

These soils are well suited to row crops and small grains. Wetness is a concern in Yemassee soils, but the soils respond well to surface and subsurface drainage. Emporia soils do not require drainage for most crops, and Eunola soils require only limited drainage of low-lying areas. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

If these soils are adequately drained, they are well suited to pasture and hay. Wetness on the Yemassee soils is the main concern in management. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are longleaf pine, sweetgum, and loblolly pine. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and poorly suited to very poorly suited to development of habitat for wetland wildlife.

These soils are well suited to very poorly suited to most engineering uses related to community development. The seasonal high water table is the main concern in management. For most uses, surface drainage can remove excess water. Special design and installation procedures are needed for septic tank absorption fields.

Dominantly Nearly Level Soils That are Moderately Well Drained to Very Poorly Drained; on Broad Flats and in Carolina Bays

The soils in this group make up about 10 percent of the survey area. The major soils are Coxville, Gourdin, Wahee, Hornsville, Byars, and Cape Fear soils. These soils are on broad flats and in Carolina Bays.

6. Coxville-Byars

Nearly level, poorly drained and very poorly drained soils that have a clayey and loamy subsoil

The landscape is flat, depressional areas and Carolina Bays. The depressional areas have poorly defined drainageways. The Carolina Bays are oval and vary in size. They are a few feet lower than the surrounding uplands. The natural vegetation is mainly mixed pine and hardwoods. Few houses, farmsteads, or public roads are in areas of this map unit.

This map unit makes up about 4 percent of the survey area. It is about 70 percent Coxville soils, 12 percent Byars soils, and 18 percent soils of minor extent.

The Coxville soils are poorly drained and are at higher elevations. Typically, these soils have a brownish loam surface layer and a grayish clay loam and clay subsoil that has reddish, yellowish, and brownish mottles. The substratum is gray clay that has yellowish mottles.

The Byars soils are very poorly drained and are at lower elevations. Typically, these soils have a black sandy loam surface layer and a grayish clay loam subsoil that has brownish mottles.

Of minor extent in this map unit are Rains, Cape Fear, Gourdin, Foreston, and Lynchburg soils. Rains, Cape Fear, and Gourdin soils have drainage similar to that of the major soils. Foreston and Lynchburg soils are better drained.

About 45 percent of the acreage in this map unit has been cleared for use as cropland. Corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

These soils are well suited to row crops and small grains. Wetness is a concern in management, but these soils respond favorably to surface drainage. Crops, such as tobacco, generally are not grown on these soils. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

If these soils are adequately drained, they are well suited to moderately well suited to pasture and hay. Wetness is the main concern in management. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are loblolly pine, longleaf pine, sweetgum, and water oak. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and moderately well suited to development of habitat for wetland wildlife.

These soils are very poorly suited to most engineering uses related to community development. Depth of the seasonal high water table and permeability cause severe limitations. For most uses, these limitations can be reduced by surface drainage, but conventional onsite sewage disposal systems for single dwellings generally are not economically feasible.

7. Gourdin-Cape Fear

Nearly level, poorly drained and very poorly drained soils that have a loamy subsoil

The landscape is flat areas and Carolina Bays. Poorly defined drainageways are in the flat areas. Slopes range from 0 to 2 percent. The Carolina Bays are oval and vary in size. They are a few feet lower than the surrounding uplands. The natural vegetation is mainly pine with scattered hardwoods. There are no houses or farmsteads and few public roads in areas of this map unit.

This map unit makes up about 1 percent of the survey area. It is about 57 percent Gourdin soils, 38 percent Cape Fear soils, and 5 percent soils of minor extent.

The Gourdin soils are poorly drained and are at higher elevations. Typically, these soils have a grayish loam surface layer and a grayish sandy clay loam subsoil that has reddish, yellowish, and brownish mottles. The substratum is stratified grayish and yellowish loamy sand, sandy clay loam, and clay underlain by grayish loamy sand.

The Cape Fear soils are very poorly drained and are at lower elevations. Typically, these soils have a grayish sandy loam surface layer and a grayish sandy clay loam subsoil that has reddish and yellowish mottles. The substratum is grayish sand.

Of minor extent in this map unit are Ogeechee, Byars, Coxville, Eunola, Yemassee, Wahee, and Hornsville soils. Ogeechee, Byars, and Coxville soils have drainage similar to those of the major soils. Eunola, Yemassee, Wahee, and Hornsville soils are better drained.

Most of the acreage of this map unit is used as woodland and habitat for wildlife.

The soils of this map unit are very poorly suited to row crops and small grains. Wetness is a severe limitation that is very difficult to reduce.

These soils are very poorly suited to pasture and hay crops. Wetness is a limitation that is difficult to reduce.

These soils are well suited to use as woodland. Common trees are loblolly pine, longleaf pine, water tupelo, sweetgum, and water oak. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation is offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and moderately well suited to development of habitat for wetland wildlife.

These soils are very poorly suited to most engineering uses related to community development. Wetness is a severe limitation that is difficult to reduce.

8. Wahee-Hornsville-Gourdin

Nearly level, somewhat poorly drained, poorly drained, and moderately well drained soils that have a clayey and loamy subsoil

The landscape is flat areas, low ridges, and Carolina Bays. The low ridges are adjacent and parallel to drainageways. Away from the drainageways, the topography levels out and becomes flat with many small depressions and poorly defined drainageways. The Carolina Bays are oval and vary in size. They are a few feet lower than the surrounding uplands. The natural vegetation is pines with scattered hardwoods. Many houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 5 percent of the survey area. It is about 23 percent Wahee soils, 23 percent Hornsville soils, 19 percent Gourdin soils, and 35 percent soils of minor extent.

The Wahee soils are somewhat poorly drained and are at intermediate elevations. Typically, these soils have a grayish sandy loam surface layer and a clay subsoil. The upper part of the subsoil is brownish with reddish and grayish mottles, and the lower part is grayish with reddish, yellowish, and brownish mottles.

The Hornsville soils are moderately well drained and are at higher elevations. Typically, these soils have a brownish sandy loam surface layer and a clay subsoil. The upper part of the subsoil is brownish with reddish and grayish mottles, and the lower part is grayish with reddish and brownish mottles.

The Gourdin soils are poorly drained and are at lower elevations. Typically, these soils have a grayish loam surface layer and a grayish sandy clay loam subsoil that has reddish, yellowish, and brownish mottles. The substratum is stratified grayish and yellowish loamy sand, sandy clay loam, and clay underlain by grayish loamy sand.

Of minor extent in this map unit are the Hornsville, Yemassee, Ogeechee, Emporia, Cape Fear, Hobcaw, and Mouzon soils. Hornsville, Yemassee, and Ogeechee soils have drainage similar to that of the major soils. Emporia soils are better drained, and Cape Fear, Hobcaw, and Mouzon soils are more poorly drained.

About 55 percent of the acreage of this map unit has been cleared for use as cropland. Tobacco, corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

The soils of this map unit are well suited to very poorly suited to row crops and small grains. Wetness and permeability are the main limitations. These soils respond favorably to surface drainage. Proper grade should be maintained to minimize ditchbank caving. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

These soils are well suited to very poorly suited to pasture and hay. The clayey subsoil and wetness are concerns in management. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are longleaf pine, sweetgum, and loblolly pine. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and poorly suited to development of habitat for wetland wildlife.

These soils are moderately well suited to very poorly suited to most engineering uses related to community development. The seasonal high water table and slow permeability are severe limitations for most uses. Surface drainage to remove excess water can reduce these limitations for most uses. Special design and installation procedures are needed for septic tank absorption fields.

Dominantly Gently Sloping to Sloping Soils That are Well Drained and Moderately Well Drained; on Broad Ridges and Side Slopes

The soils in this group make up about 10 percent of the survey area. The major soils are the Emporia, Chisolm, and Hornsville soils. These soils are on broad ridges and side slopes of uplands.

9. Emporia-Chisolm-Hornsville

Gently sloping to sloping, well drained and moderately well drained soils that have a loamy and clayey subsoil

The landscape is broad, rolling ridges and narrow, gently sloping to sloping side slopes separating broad flats and flood plains. The ridges are adjacent and parallel to the broad flats; the side slopes are adjacent and parallel to the flood plains. Numerous small, well defined drainageways join and become larger drainageways that form flood plains (fig. 2). The natural vegetation is predominantly pines with scattered hardwoods. Many houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 10 percent of the survey area. It is about 20 percent Emporia soils, 18 percent Chisolm soils, 13 percent Hornsville soils, and 49 percent soils of minor extent.

The Emporia soils are well drained and are at higher elevations. Typically, these soils have a brownish loamy sand surface layer and a sandy clay loam and sandy clay subsoil that is brownish. Reddish and grayish mottles are in the lower part of the subsoil.

The Chisolm soils are well drained and are at higher elevations. Typically, these soils have a thick brownish loamy fine sand surface layer and a sandy clay loam subsoil that is brownish with reddish and brownish mottles.

The Hornsville soils are moderately well drained and are at intermediate elevations. Typically, these soils have a brownish sandy loam surface layer and a clay subsoil. The upper part of the subsoil is brownish with reddish and grayish mottles, and the lower part is grayish with brownish and reddish mottles.

Of minor extent in this map unit are the Candor, Gourdin, Hobcaw, Mouzon, Yemassee, Noboco, Goldsboro, and Bonneau soils. Candor soils are better drained, and Gourdin, Hobcaw, Mouzon, and Yemassee soils are more poorly drained. Noboco, Goldsboro, and Bonneau soils have drainage similar to that of the major soils.

About 80 percent of the acreage in this map unit has been cleared for use as cropland. Tobacco, corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

The Emporia and Hornsville soils are well suited to row crops and small grains; however, erosion control is a concern in management. Contour farming, conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion. The Chisolm soils are moderately well suited to use as cropland. Frequent, light applications of fertilizer and irrigation water generally increase yields significantly.

Figure 2.—Many sinkholes formed by dissolved limestone are in soils of the Santee River area. They provide drainage outlets for cropland. This sinkhole is in Hornsville sandy loam, 2 to 6 percent slopes.

These soils are well suited to pasture and hay. There are no major concerns in management, but droughtiness is a minor concern on Chisolm soils. Frequent, light applications of fertilizer and irrigation water increase yields significantly. Proper stocking and pasture rotation help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are longleaf pine and loblolly pine. There are no major concerns for woodland use of the Emporia and Hornsville soils, but seedling survival and equipment use are concerns on Chisolm soils. These limitations can be reduced by planting drought-tolerant species in shallow furrows and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and very poorly suited to development of habitat for wetland wildlife.

These soils are well suited to moderately well suited to most engineering uses related to community development. Depth to the seasonal high water table is a limitation of all the soils, and permeability is a limitation of the Hornsville soils. These limitations generally can be reduced by providing surface drainage and by modifying conventional septic tank system design for onsite sewage treatment.

Dominantly Nearly Level Soils That are Moderately Well Drained to Very Poorly Drained; on Flood Plains and Low Stream Terraces

The soils in this group make up about 14 percent of the survey area. The major soils are Mouzon, Chastain, Tawcaw, Hobcaw, and Chipley soils. These soils are on flood plains and stream terraces along major streams.

10. Mouzon-Hobcaw-Chipley

Nearly level, poorly drained, very poorly drained, and moderately well drained soils; on flood plains and low stream terraces of the Black River and Black Mingo Creek

The landscape is low, flat areas, depressions, and narrow ridges that generally parallel the streams. Most areas are flooded during the winter. A few lakes and old scour channels are part of the landscape. The natural vegetation is mainly hardwoods in the low areas and pines on the ridges. A few recreation cabins on ridges adjacent to the river or creeks and a few farmsteads and public roads are part of this map unit.

This map unit makes up about 9 percent of the survey area. It is about 37 percent Mouzon soils, 26 percent Hobcaw soils, 13 percent Chipley soils, and 24 percent soils of minor extent.

The Mouzon soils are poorly drained and are at intermediate elevations. Typically, these soils have a grayish fine sandy loam surface layer and a sandy clay loam subsoil that is grayish with brownish mottles. The substratum is grayish loamy sand.

The Hobcaw soils are very poorly drained and are at lower elevations. Typically, these soils have a black sandy loam surface layer and a sandy clay loam subsoil. The upper part of the subsoil is black, and the lower part is grayish with brownish mottles. The substratum is grayish sand.

The Chipley soils are moderately well drained and are at higher elevations. Typically, these soils have a brownish sand surface layer and a yellowish and brownish sand subsoil. The substratum is grayish sand that has yellowish mottles.

Of minor extent in this map unit are the Rimini, Johnston, Rutlege, Johns, and Leon soils. The Rimini soils are better drained than the major soils, and the Johnston, Rutlege, Johns, and Leon soils have drainage similar to that of the major soils.

The soils of this map unit are used mostly as woodland and as habitat for wildlife.

The soils in this map unit are mostly very poorly suited to use as cropland, pasture, or for hay because of wetness and the frequency of flooding. It generally is not economically feasible to reduce wetness and flooding; however, some areas that are drained and protected from flooding are planted to soybeans.

The Chipley soils are moderately well suited to use as woodland. The Mouzon and Hobcaw soils are very poorly suited to commonly grown commercial species. Water oak and water tupelo are common in the low areas, and loblolly pine is common on the ridges. Wetness and flooding affect seedling survival, equipment usage, and control of competing vegetation. These problems are reduced by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment.

These soils are moderately well suited to development of habitat for upland wildlife. The Mouzon and Hobcaw soils are well suited and the Chipley soils are very poorly suited to development of habitat for wetland wildlife.

Because of wetness and the hazard of flooding, these soils are very poorly suited to most engineering uses related to community development. It generally is not economically feasible to reduce these limitations.

11. Chastain-Tawcaw

Nearly level, poorly drained and somewhat poorly drained soils that have a clayey subsoil; on flood plains of the Pee Dee and Santee Rivers

The landscape is low, flat areas, depressions, and narrow ridges that generally parallel the rivers. Most areas are flooded during winter. A few lakes and old stream channels are filled with water. The natural vegetation is mainly hardwoods. No houses, farmsteads, or public roads are in areas of this map unit.

This map unit makes up about 5 percent of the survey area. It is about 93 percent Chastain and Tawcaw soils and 7 percent soils of minor extent.

The Chastain soils are poorly drained and are at lower elevations. Typically, these soils have a brownish clay surface layer and a grayish clay subsoil that has reddish and brownish mottles. The substratum is mottled grayish and brownish sandy clay and sandy clay loam.

The Tawcaw soils are somewhat poorly drained and are at higher elevations. Typically, these soils have a thin brownish clay surface layer and a clay and clay loam subsoil. The upper part of the subsoil is brownish with grayish mottles, and the lower part is grayish with reddish and brownish mottles. The substratum is grayish sandy clay loam and sandy clay.

Of minor extent in this map unit are the Mouzon, Chisolm, Hornsville, Johns, Johnston, and Hobcaw soils. The Mouzon soils have drainage similar to that of the major soils. The Chisolm, Hornsville, and Johns soils are better drained, and the Johnston and Hobcaw soils are more poorly drained.

Most of the acreage in this map unit is woodland.

The soils of this map unit are very poorly suited to row crops and small grains. Flooding and wetness are the main concerns in management. These problems generally are not economically feasible to reduce.

Because of wetness and flooding, these soils are very poorly suited to pasture and hay. These problems generally are not economically feasible to reduce.

These soils are well suited to use as woodland but are poorly suited to most commercial species planted in the county. Common trees are water oak, water tupelo, and baldcypress. Wetness and flooding affect seedling survival, equipment usage, and control of competing vegetation. These problems can be reduced by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment.

These soils are poorly suited to development of habitat for upland wildlife and well suited to development of habitat for wetland wildlife.

Because of flooding and wetness, these soils are very poorly suited to most engineering uses related to community development. Flooding and wetness generally are not economically feasible to reduce.

Dominantly Nearly Level Soils That are Moderately Well Drained to Poorly Drained; on Broad Flats

The soils in this group make up about 1 percent of the survey area. The major soils are the Nahunta Variant, Daleville Variant, and Izagora Variant soils. These soils are on broad flats in the eastern part of the county.

12. Nahunta Variant-Daleville Variant-Izagora Variant

Nearly level, somewhat poorly drained, poorly drained, and moderately well drained soils that have a loamy subsoil

The landscape is flat areas, a few low ridges, and shallow depressions. The flat areas have poorly defined drainageways. Slopes range from 0 to 2 percent. The elevation over the area varies only a few feet. The natural vegetation is mainly pines with scattered hardwoods. A few houses, farmsteads, and public roads are part of this map unit.

This map unit makes up about 1 percent of the survey area. It is about 22 percent Nahunta Variant soils, 20 percent Daleville Variant soils, 15 percent Izagora Variant soils, and 43 percent soils of minor extent.

The Nahunta Variant soils are somewhat poorly drained and are at intermediate elevations. Typically, these soils have a grayish sandy loam surface layer and a sandy loam and loam subsoil. The upper part of the subsoil is brownish with grayish mottles, and the lower part is grayish with brownish mottles. The substratum is discontinuous silicified coquina.

The Daleville Variant soils are poorly drained and are at lower elevations. Typically, these soils have a grayish loam surface layer and a grayish loam or clay loam subsoil that has brownish mottles. The substratum is discontinuous silicified coquina.

The Izagora Variant soils are moderately well drained and are at higher elevations. Typically, these soils have a grayish sandy loam surface layer and a loam to clay loam subsoil. The upper part of the subsoil is brownish with grayish mottles, and the lower part is grayish with brownish mottles. The substratum is grayish cobbly clay loam that has reddish and yellowish mottles.

Of minor extent in this map unit are the Rains, Lynchburg, Coxville, and Noboco soils. Rains, Lynchburg, and Coxville soils have drainage similar to that of the major soils. Noboco soils are better drained.

About 20 percent of the acreage in this map unit has been cleared for use as cropland. Corn, soybeans, and small grains are the dominant crops. Most uncleared areas are used as woodland and habitat for wildlife.

These soils are well suited to row crops and small grains. Wetness is a concern, but the soils in this map unit respond favorably to surface and subsurface drainage. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

If these soils are adequately drained, they are well suited to pasture and hay. Wetness is the main concern in management. Proper stocking, surface drainage, pasture rotation, and restricted grazing during wet periods help keep pastures in good condition.

These soils are well suited to use as woodland. Common trees are loblolly pine, sweetgum, and longleaf pine. Wetness affects seedling survival, equipment usage, and control of competing vegetation. The wetness limitation can be offset by planting water-tolerant species, planting and harvesting during the dry periods, planting seedlings on beds, and by using wide-tired or crawler-type equipment. Plant competition for young seedlings is reduced if cleared areas are reseeded soon after harvesting.

These soils are well suited to development of habitat for upland wildlife and moderately well suited to poorly suited to development of habitat for wetland wildlife.

Because of the seasonal high water table, these soils are very poorly suited to moderately well suited to most engineering uses related to community development. For most uses, surface drainage can remove excess water. Special design and installation procedures are needed for septic tank absorption fields.

Broad Land Use Considerations

The soils in Williamsburg County vary widely in their potential for major land uses. About 72 percent of the land is used primarily as woodland and habitat for wildlife. Most areas throughout the county are suited to use as wildlife habitat. The soils in general soil map units 1, 2, 3, 4, 5, 8, and 9 generally are well suited to use as habitat for openland wildlife, and the soils in all map units are generally suited to use as habitat for woodland wildlife. The soils in map units 6, 7, 10, and 11 generally are well suited to use as habitat for wetland wildlife.

About 27 percent of the land is used for crops, mainly soybeans, corn, small grains, and tobacco. The cropland is scattered throughout the county, but most of it is in areas of map units 1, 3, 5, and 9.

About 1 percent of the county is urban or developed land. The soils range from well suited to poorly suited to urban development. Many of the soils have a seasonal high water table. The soils in map units 1, 3, 5, and 9 generally have some areas that are suited to urban development.

Detailed Soil Map Units

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

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

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

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

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases.* Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Chisolm loamy sand, 2 to 6 percent slopes, is one of two phases in the Chisolm series.

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

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

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

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

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

AuA—Autryville sand, 0 to 2 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on low flat ridges in higher areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 10 to 100 acres.

Typically, this soil has two sequences of soil layers. The first sequence extends to a depth of 47 inches. The surface layer is brownish sand about 7 inches thick. The subsurface layer, from a depth of 7 to 22 inches, is brownish sand. The subsoil from a depth of 22 to 27 inches is brownish loamy sand. It is brownish sandy loam from 27 to 42 inches and brownish loamy sand from 42 to 47 inches. The second sequence extends to a depth of at least 80 inches. From a depth of 47 to 62 inches, it is brownish loamy sand that has brownish and grayish mottles, and from 62 to 80 inches, it is brownish sandy clay loam that has gray mottles.

Included with this soil in mapping are small areas of Foreston, Noboco, and Paxville soils. Also included are small areas of soils that have slopes of 2 to 6 percent. The included soils make up less than 20 percent of the map unit.

This Autryville soil is moderately permeable, and the available water capacity is low. The seasonal high water table is 4 to 6 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. The soil is very strongly acid or strongly acid throughout except where lime has been added.

This soil is used mostly as cropland. It is poorly suited to row crops and small grains because of the thick sandy surface layer, droughtiness, leaching of nutrients, and soil blowing in large fields. Fertilizers are needed at more frequent intervals, and drought-tolerant crops should be planted. Soil blowing is reduced if windstrips and row arrangement are perpendicular to the wind direction. Light, frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Autryville soil is moderately well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine do well on this soil; however, the thick sandy surface layer, droughtiness, and low fertility are concerns in management. These limitations cause problems with equipment usage and seedling survival, but they have less effect if wide-tired or crawler-type equipment is used and if high quality seedlings are planted in a shallow furrow.

This soil is moderately well suited to pasture and hay; however, the sandy texture causes droughtiness and rapid leaching of plant nutrients needed for good forage production. More frequent applications of fertilizer and light, frequent irrigation can reduce the effect of these limitations.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. A seasonal high water table causes moderate limitations for septic tank absorption fields. Restricting housing density and limiting use of the septic system during wet periods can reduce the problems caused by the high water table. This soil has slight limitations for dwellings without basements and for small commercial buildings. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Planting drought-tolerant species and irrigating during growing periods can help correct the problems caused by droughtiness. Irrigation and light, frequent applications of fertilizers aid in establishing lawns and fairway turf.

This Autryville soil is in capability subclass IIs.

BnA—Bonneau fine sand, 0 to 2 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on low ridges and broad flats of the interstream divide. Most areas are long and narrow or irregularly shaped. They range from 5 to 200 acres, but generally are 20 to 100 acres.

Typically, the surface layer is brownish fine sand about 7 inches thick. The subsurface layer, from a depth of 7 to 22 inches, is yellowish sand. The subsoil is brownish loamy sand from a depth of 22 to 27 inches, brownish sandy loam from 27 to 40 inches, brownish sandy clay loam from 40 to 50 inches, and from 50 to 75 inches, it is grayish sandy clay loam that has mottles in shades of red, yellow, and brown.

Included with this soil in mapping are small areas of Autryville, Candor, Goldsboro, Leon, Noboco, and Rains soils. Also included are small areas of soils that have slopes of 2 to 6 percent. The included soils make up less than 20 percent of the map unit.

This Bonneau soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 3.5 to 5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. This soil is very strongly acid or strongly acid throughout except where lime has been added.

This soil is mostly used as cropland. It is moderately well suited to row crops and poorly suited to small grains because of the thick sandy surface layer. Droughtiness, leaching of nutrients, and soil blowing in large fields are concerns in management. Fertilizers are needed at frequent intervals, and drought-tolerant crops should be planted. Soil blowing is reduced if windstrips and row arrangement are perpendicular to the wind direction. Light, frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Bonneau soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine do well on this soil; however, the thick sandy surface layer, droughtiness, and low fertility are concerns in management. These limitations cause problems with equipment usage and seedling survival, but they have less effect if wide-tired equipment or crawler-type equipment is used and if high quality seedlings are planted in a shallow furrow.

This soil is moderately well suited to pasture and hay. The thick sandy surface layer, droughtiness, and rapid leaching of plant nutrients needed for good forage production are limitations. Frequent applications of fertilizer and light, frequent irrigation can reduce the effect of these limitations. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. It has a severe limitation for septic tank absorption fields because ground water can become contaminated during the wet season when the seasonal high water table is near the surface. Restricting housing density and limiting use of the septic system during wet periods can reduce the problems caused by the high water table. This soil has slight limitations for dwellings without basements and for small commercial buildings. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Planting drought-tolerant species and irrigating during growing periods can help correct the problems caused by droughtiness. Mulches, frequent and light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Bonneau soil is in capability subclass IIs.

By—Byars sandy loam. This soil is very poorly drained and is on uplands of the Coastal Plain. It is in broad, flat, low areas; along poorly defined drainageways and in depressional areas of the interstream divide; and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 350 acres, but generally are 30 to 200 acres.

Typically, the surface layer is black sandy loam about 12 inches thick. The next layer, from a depth of 12 to 16 inches, is grayish sandy loam. The subsoil, from a depth of 16 to 58 inches, is grayish clay loam that has mottles in shades of brown and gray, and from 58 to 80 inches, it is grayish clay that has mottles in shades of gray and brown.

Included with this soil in mapping are small areas of Johnston, Coxville, Lynchburg, and Goldsboro soils. The included soils make up less than 15 percent of the map unit.

This Byars soil is slowly permeable and the available water capacity is high. The seasonal high water table is 1 foot above the surface to 1 foot below the surface. Surface runoff is ponded to very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. The soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and moderately well suited to small grains; however, the seasonal high water table is a limitation to these uses. The excessive wetness caused by the seasonal high water table can be reduced by using shallow surface drains and open ditches. Conservation tillage, winter cover crops, and crop residue on the surface help to conserve moisture during dry periods.

This Byars soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, because of wetness, equipment use limitations, seedling mortality, and plant competition are severe. Removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and using wide-tired and crawler-type equipment can lessen the effects of the wetness limitation. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay; however, the seasonal high water table is a limitation. Surface drainage systems can be used to remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and moderately well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table and slowly permeable subsoil. The problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil also has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. The excess wetness can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness and ponding are severe limitations in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. The problems caused by these limitations can be reduced by using surface drainage systems, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Byars soil is in capability subclass IIIw.

CaA—Candor sand, 0 to 2 percent slopes. This soil is somewhat excessively drained and is on uplands of the Coastal Plain. It is on low ridges in higher areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 10 to 100 acres.

Typically, the surface layer is brownish sand about 6 inches thick. The subsurface layer, from a depth of 6 to 29 inches, is brownish sand. The upper part of the subsoil, from a depth of 29 to 54 inches, is brownish loamy sand that has reddish and brownish mottles. The next layer, from a depth of 54 to 69 inches, is grayish sand. The lower part of the subsoil from a depth of 69 to 85 inches is grayish sandy loam that has brownish mottles.

Included with this soil in mapping are small areas of Bonneau, Foreston, Foxworth, and Rutlege soils. Also included are small areas of soils that have 2 to 6 percent slopes. The included soils make up less than 20 percent of the map unit.

This Candor soil is very rapidly permeable in the upper part and moderately permeable in the lower part. The available water capacity is low. This soil does not have a seasonal high water table within a depth of 6 feet. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as cropland. It is, however, very poorly suited to row crops and very poorly suited to small grains because of low available water capacity, the hazard of wind erosion, and low nutrient-holding capacity. Fertilizers are needed at frequent intervals, and drought-tolerant crops should be planted. Soil blowing is reduced if windstrips and row arrangement are perpendicular to the prevailing wind direction. Light and frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Candor soil is poorly suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine are the preferred trees to plant. Droughtiness, low fertility, and the thick sandy surface layer cause problems with equipment usage, seedling survival, and growth of trees. The limitations have less effect if wide-tired or crawler-type equipment is used and if high quality seedlings are planted in a shallow furrow.

This soil is poorly suited to pasture and hay because of the thick sandy surface layer, droughtiness, low fertility, and low nutrient-holding capacity. Frequent applications of fertilizers and light, frequent irrigation are needed. Proper stocking and pasture rotation help keep pastures in good condition.

This soil is poorly suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development; however, droughtiness is a limitation for some uses. This soil has slight limitations for septic tank absorption fields, dwellings without basements, and for small commercial buildings. Droughtiness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Planting drought-tolerant species and irrigating during growing periods can help correct the problems caused by droughtiness. Mulches, frequent and light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Candor soil is in capability subclass IIIs.

CaB—Candor sand, 2 to 6 percent slopes. This soil is somewhat excessively drained and is on uplands of the Coastal Plain. It is on side slopes along drainageways and on low ridges on the higher elevations of broad flats of the interstream divide. Most areas are long and narrow to irregularly shaped. They range from 5 to 100 acres, but generally are 10 to 50 acres.

Typically, the surface layer is brownish sand about 6 inches thick. The subsurface layer, from a depth of 6 to 29 inches, is brownish sand. The upper part of the subsoil, from a depth of 29 to 54 inches, is brownish loamy sand that has reddish and brownish mottles. The next layer, from a depth of 54 to 69 inches, is grayish sand. The lower part of the subsoil from a depth of 69 to 85 inches is gray sandy loam that has brownish mottles.

Included with this soil in mapping are small areas of Chisolm, Emporia, Hobcaw, Hornsville, and Noboco soils. Also included are small areas of soils that have slopes of 0 to 2 percent. Some areas of alluvial deposits are at the base of slopes. Small areas of soils on short, steep slopes are denoted by special symbols. The included soils make up less than 15 percent of the map unit.

This Candor soil is very rapidly permeable in the upper part and moderately permeable in the lower part. The available water capacity is low. This soil does not have a seasonal high water table within a depth of 6 feet. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as cropland. It is, however, very poorly suited to row crops and small grains because of low available water capacity, slope, and low nutrient-holding capacity. The problems caused by these limitations can be reduced by farming on the contour, fertilizing in frequent applications, and planting drought-tolerant crops. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This soil is poorly suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine are the preferred trees to plant; however, droughtiness, low fertility, and the thick sandy surface layer are concerns in management. These limitations cause problems with equipment usage, seedling survival, and growth of trees, but they have less effect if wide-tired or crawler-type equipment is used and if high quality seedlings are planted in a shallow furrow.

This soil is poorly suited to pasture and hay because of the thick sandy surface layer, droughtiness, low fertility, and low nutrient-holding capacity. Frequent applications of fertilizers and light, frequent irrigation can reduce the effect of these limitations. Proper stocking and pasture rotation help keep pastures in good condition.

This soil is poorly suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Limitations are slight for septic tank absorption fields and dwellings without basements. They are moderate for small commercial buildings because of slope. This limitation can be reduced by grading the land. Droughtiness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Planting drought-tolerant species and irrigating during growing periods can reduce the problems caused by droughtiness. Mulches, frequent and light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Candor soil is in capability subclass IVs.

Cf—Cape Fear sandy loam. This soil is very poorly drained and is on uplands of the Coastal Plain. It is in broad, flat, low areas along poorly defined drainageways and depressed areas of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 1,000 acres, but typically are 50 to 300 acres.

Typically, the surface layer is grayish sandy loam about 14 inches thick. The subsurface layer, from a depth of 14 to 20 inches, is grayish loamy sand. The subsoil, from a depth of 20 to 55 inches, is grayish sandy clay loam that has mottles in shades of red and yellow. The substratum from a depth of 55 to 80 inches is gray sand that has yellowish mottles.

Included with this soil in mapping are small areas of Johnston, Rutlege, Wahee, Ogeechee, and Leon soils. The included soils make up less than 10 percent of the map unit.

This Cape Fear soil is slowly permeable, and the available water capacity is high. The seasonal high water table is within a depth of 1.5 feet. Surface runoff is ponded to very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to medium acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of the seasonal high water table. Problems caused by this limitation are difficult to correct.

This Cape Fear soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, the seasonal high water table is a concern in management. Because of wetness, equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are severe. Removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and using wide-tired and crawler-type equipment can help correct the problems caused by wetness. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is very poorly suited to pasture and hay because of wetness. Problems caused by wetness are difficult to correct.

This soil is poorly suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table and slowly permeable subsoil. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil also has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. These problems are also difficult to correct. Wetness and ponding are severe limitations in establishing and maintaining golf fairways, lawn grasses, shrubbery, shade trees, and ornamental plants used in landscaping. The problems caused by these limitations are difficult to correct.

This Cape Fear soil is in capability subclass VIw.

CH—Chastain and Tawcaw soils, frequently flooded. This map unit consists of Chastain and Tawcaw soils in troughs and on low ridges on flood plains of the Pee Dee and Santee Rivers. The Chastain soil is poorly drained, and the Tawcaw soil is somewhat poorly drained. Most areas of these soils are long and broad and extend the entire width of the flood plain. They are several thousand acres in size. Individual areas of these soils could be mapped separately but because they have similar interpretations and the same expected uses they have been combined.

The map unit is about 50 percent Chastain soil, 40 percent Tawcaw soil, and 10 percent other soils.

Typically, the Chastain soil has a brownish clay surface layer about 8 inches thick. The subsoil, from a depth of 8 to 46 inches, is grayish clay that has reddish, brownish, and yellowish mottles. The substratum, from a depth of 46 to 56 inches, is grayish sandy clay loam that has brownish mottles, and from 56 to 88 inches, it is stratified sandy clay loam and sandy clay mottled in shades of gray and brown.

Typically, the Tawcaw soil has a brownish clay surface layer about 2 inches thick. The subsoil from a depth of 2 to 18 inches is brownish silty clay that has reddish mottles. From 18 to 38 inches, it is grayish clay that has brownish and yellowish mottles; from 38 to 57 inches, it is grayish clay loam that has yellowish, brownish, and reddish mottles; and from 57 to 75 inches, the subsoil is gray clay that has yellowish mottles. The substratum from a depth of 75 to 85 inches is gray stratified sandy clay and sandy clay loam.

Included with these soils in mapping are small areas of Johns, Johnston, Chisolm, Hornsville, and Cape Fear soils.

The Chastain soil is slowly permeable, and the available water capacity is high. The seasonal high water table is within 1 foot of the surface. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to medium acid except where lime has been added.

The Tawcaw soil is slowly permeable, and the available water capacity is high. The seasonal high water table is 1.5 to 2.5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to slightly acid except where lime has been added.

The soils in this map unit are used mostly as woodland.

These soils are very poorly suited to row crops and small grains because of wetness and the hazard of flooding. The problems caused by these limitations are generally not economically feasible to correct.

These soils are very poorly suited to woodland species commonly grown in the county for commercial purposes. Water-tolerant species do well on these soils. Wetness and flooding cause problems with equipment usage, loss of seedlings, and length of harvesting and planting periods, but their effect can be lessened by planting and harvesting during dry periods, planting water-tolerant species, and allowing cutover areas to regenerate naturally. Using wide-tired or crawler-type equipment in planting and harvesting reduces the equipment use limitation caused by wetness.

Because of wetness and flooding, these soils are very poorly suited to pasture and hay. These problems generally are not economically feasible to correct.

These soils are poorly suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

These soils are very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields, dwellings without basements, and small commercial buildings because of flooding, the seasonal high water table, and slow permeability. Wetness and the hazard of flooding are severe limitations in establishing and maintaining golf fairways, lawns, and landscaping plants. These limitations generally are not economically feasible to correct.

The Chastain and Tawcaw soils are in capability subclass VIw.

ClA—Chipley sand, 0 to 2 percent slopes. This soil is moderately well drained and is in the intermediate and higher areas on flood plains of the Black River and its tributaries. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 20 to 200 acres.

Typically, the surface layer is brownish sand about 6 inches thick. The subsoil, from a depth of 6 to 29 inches, is brownish sand that has grayish brown mottles, and from 29 to 55 inches, it is yellowish sand that has grayish mottles. The substratum from a depth of 55 to 75 inches is grayish sand that has yellowish mottles.

Included with this soil in mapping are small areas of Hobcaw, Johns, Rimini, Johnston, Chisolm, Leon, and Mouzon soils. The included soils make up less than 25 percent of the map unit.

This Chipley soil is rapidly permeable, and the available water capacity is low. The seasonal high water table is 2 to 3 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to medium acid except where lime has been added.

This soil is used mainly as woodland.

This soil is very poorly suited to row crops and small grains because of the thick sandy surface layer, seasonal high water table, droughtiness, and leaching of nutrients. Problems caused by these limitations can be reduced by draining low areas, applying fertilizers frequently, and planting drought-tolerant crops. Light, frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

This Chipley soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine do well on this soil. Droughtiness, low fertility, and the thick sandy surface layer cause equipment use limitations and plant competition, but their effects can be lessened by using wide-tired or crawler-type equipment and by planting high quality seedlings in a shallow furrow.

This soil is moderately well suited to pasture and hay. The main limitations are the thick sandy surface layer, droughtiness, low fertility, and low nutrient-holding capacity. Frequent applications of fertilizers and light, frequent irrigation can lessen the effect of these limitations. Proper stocking and pasture rotation help keep pastures in good condition.

This soil is moderately well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of a seasonal high water table. A modified system is needed that will allow a deeper filtering zone between the seasonal high water table and trench bottom. Restricting the number of systems in a given area of this soil also reduces the risk of contamination of ground water. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Using properly designed surface and subsurface drainage systems and shaping and filling the lot to eliminate low-lying areas can reduce the problems caused by the high water table. Droughtiness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Planting drought-tolerant species and irrigating during growing periods can lessen the problems caused by droughtiness. Mulches, frequent and light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Chipley soil is in capability subclass IIIs.

CmB—Chisolm loamy fine sand, 2 to 6 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on ridges in higher areas of broad flats and side slopes along drainageways on the interstream divide. Most areas are long and narrow or irregularly shaped. They range from 5 to 400 acres, but generally are 20 to 50 acres.

Typically, the surface layer is brownish loamy fine sand about 4 inches thick. The subsurface layer, from a depth of 4 to 28 inches, is brownish loamy fine sand. The subsoil is brownish sandy clay loam from a depth of 28 to 54 inches, and from 54 to 63 inches, it is brownish sandy loam that has mottles in shades of red and brown. The substratum from a depth of 63 to 80 inches is red, yellow, and gray stratified sandy loam, sandy clay loam, and sandy clay.

Included with this soil in mapping are small areas of Chastain, Tawcaw, Hornsville, Hobcaw, Mouzon, and Gourdin soils. Also included are small areas of soils that have slopes of less than 2 percent or have slopes of more than 6 percent. Small areas of soils on short, steep slopes are denoted by special symbols. The included soils make up less than 20 percent of the map unit.

This Chisolm soil is moderately permeable, and the available water capacity is low. The seasonal high water table is 3.5 to 5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is moderate. The hazard of wind erosion is slight. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used mostly as cropland. It is moderately well suited to row crops and poorly suited to small grains because of the thick sandy surface layer and moderate hazard of erosion. Soil blowing in large fields is a minor concern. Conservation tillage, contour farming, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion. Yields are favorable if fertilizers are applied frequently and if drought-tolerant crops are planted. Light, frequent irrigation during the growing season increases yields significantly.

This Chisolm soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine do well on this soil; however, the thick sandy surface layer, droughtiness, and low fertility cause problems with equipment usage and seedling survival. These problems have less effect if wide-tired or crawler-type equipment is used and if high quality seedlings are planted in a shallow furrow.

This soil is well suited to pasture and hay; however, the sandy texture causes droughtiness and rapid leaching of plant nutrients needed for good forage production. More frequent applications of fertilizer and light, frequent irrigation can reduce the problems caused by these limitations. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Limitations are moderate for septic tank absorption fields because of a seasonal high water table. Restricting housing density and limiting use of the septic system during wet periods can reduce the problems caused by the high water table. This soil has slight limitations for dwellings without basements and moderate limitations for small commercial buildings because of slope. Problems caused by slope can be lessened by cutting and filling to reduce slope or by using special designs to minimize the effects of slope. Because of the low available water capacity, droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Planting drought-tolerant species and irrigating during growing periods can reduce the problems caused by droughtiness. Mulches, frequent and light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Chisolm soil is in capability subclass IIs.

CmC—Chisolm loamy fine sand, 6 to 10 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on side slopes along drainageways of the interstream divide. Most areas are long and narrow. They range from 5 to 100 acres, but generally are 20 to 50 acres.

Typically, the surface layer is brownish loamy fine sand about 4 inches thick. The subsurface layer, from a depth of 4 to 28 inches, is brownish loamy sand. The subsoil is brownish sandy clay loam from a depth of 28 to 54 inches, and from 54 to 63 inches, it is brownish sandy loam that has mottles in shades of red, brown, and gray. The substratum from a depth of 63 to 80 inches is red, yellow, and gray stratified sandy loam, sandy clay loam, and sandy clay.

Included with this soil in mapping are small areas of Chastain, Tawcaw, Hornsville, Hobcaw, Mouzon, and Gourdin soils. Also included are small areas of soils that have slope of less than 6 percent. Small areas of soils on short, steep slopes are denoted by special symbols. The included soils make up less than 25 percent of the map unit.

This Chisolm soil is moderately permeable, and the available water capacity is low. The seasonal high water table is 3.5 to 5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is severe. The hazard of wind erosion is slight. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used mostly as woodland.

This soil is moderately well suited to row crops and poorly suited to small grains because of the thick sandy surface layer, slope, and droughtiness. The problems caused by these limitations can be reduced by contour farming and no-till farming or contour stripcropping with half the crop in no-till. Frequent applications of fertilizers can replace nutrients that have been leached out of the soil, and drought-tolerant crops can produce more favorable yields. Light, frequent irrigation increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Chisolm soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine do well on this soil; however, the thick sandy surface layer, droughtiness, and low fertility can cause problems with equipment usage and seedling survival. These limitations have less effect if wide-tired or crawler-type equipment is used and if high quality seedlings are planted in a shallow furrow.

This soil is well suited to pasture and hay; however, the thick sandy surface layer, droughtiness, and rapid leaching of plant nutrients are limitations. More frequent applications of fertilizer and light, frequent irrigation can reduce the problems caused by these limitations. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Limitations are moderate for septic tank absorption fields because ground water can become contaminated when the seasonal high water table is nearer the surface. Slope is a major concern and seepage is a minor concern for use as septic tank absorption fields. Restricting housing density, limiting use of the septic system during wet periods, and designing the system on the contour can reduce surface seepage. Because of slope, this soil has moderate limitations for dwellings without basements and severe limitations for small commercial buildings. Problems caused by slope can be lessened by cutting and filling to reduce slope or using special designs to minimize the effects of slope. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by this limitation can be reduced by planting drought-tolerant species and by irrigating during growing periods. Mulches, frequent and light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Chisolm soil is in capability subclass IIIs.

Co—Coxville loam. This soil is poorly drained and is on uplands of the Coastal Plain. It is on broad flats, in low areas, along poorly defined drainageways, and in depressional areas of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 1,000 acres, but generally are 30 to 300 acres.

Typically, the surface layer is brownish loam about 6 inches thick. The subsurface layer, from a depth of 6 to 11 inches, is brownish loam. The subsoil from a depth of 11 to 45 inches is grayish clay loam that has reddish and brownish mottles, and from 45 to 73 inches, it is grayish clay that has reddish and yellowish mottles. The substratum from a depth of 73 to 82 inches is grayish clay that has yellowish and grayish mottles.

Included with this soil in mapping are small areas of Lynchburg, Paxville, Goldsboro, and Byars soils. The included soils make up less than 20 percent of the map unit.

This soil is slowly permeable, and the available water capacity is high. The seasonal high water table is within a depth of 1.5 feet. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains; however, the seasonal high water table is a concern in management. Surface drainage systems can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly (fig. 3). Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture.

This Coxville soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, the seasonal high water table is a concern in management. Wetness causes equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition. The effects of the wetness limitation can be lessened by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is moderately well suited to pasture and hay. The main concern in management is the seasonal high water table, but surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table and slowly permeable, clayey subsoil. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil has severe

Figure 3.—Coxville loam is well suited to corn; however, a drainage system is needed to remove excess water.

limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table, but the effects of these limitations can be lessened by using surface drainage systems and by shaping the land to increase surface runoff. Wetness and ponding are severe limitations for establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by these limitations can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by using water-tolerant plants.

This Coxville soil is in capability subclass IIIw.

Dv—Daleville Variant loam. This soil is poorly drained and is on uplands of the Coastal Plain. It is in broad, flat, low areas; along poorly defined drainageways; and in depressional areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 150 acres, but generally are 20 to 75 acres.

Typically, the surface layer is grayish loam about 8 inches thick. The subsoil from a depth of 8 to 33 inches is grayish loam that has yellowish and brownish mottles, and from 33 to 53 inches, it is grayish clay loam that has mottles in shades of brown and gray. The substratum from a depth of 53 to 60 inches is silicified coquina and grayish and yellowish sandy clay loam.

Included with this soil in mapping are small areas of Izagora Variant, Nahunta Variant, Goldsboro, and Lynchburg soils. Also included in small areas north of Kingstree are soils that have large stones and small boulders on the surface. The included soils make up less than 25 percent of the map unit.

This Daleville Variant soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is within 1 foot of the surface.

Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mainly as woodland.

This soil is well suited to row crops and small grains; however, the seasonal high water table and the silicified coquina are concerns in management. Surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly. Because of the silicified coquina, additional time and special tools are needed to install drainage lines. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture during dry periods.

This soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, the seasonal high water table is a concern in management. Because of wetness, equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are severe. The problems caused by wetness can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay. The seasonal high water table is a concern in management, but a surface drainage system can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and moderately well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. These limitations are difficult and costly to correct, and technology needed to reduce these limitations is generally unfeasible or unavailable. This soil has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Problems caused by these limitations can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by wetness can be reduced by using a surface drainage system, shaping the land to increase surface runoff, and using water-tolerant plants.

This Daleville Variant soil is in capability subclass IIIw.

EmA—Emporia loamy sand, 0 to 2 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on low ridges of the intermediate and higher areas of broad flats on the interstream divide. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 10 to 100 acres.

Typically, the surface layer is brownish loamy sand about 8 inches thick. The subsoil is brownish sandy clay loam from a depth of 8 to 23 inches; from 23 to 37 inches, it is yellowish sandy clay that has reddish mottles; from 37 to 47 inches, it is brownish clay that has brownish and grayish mottles; and from 47 to 56 inches, it is sandy clay that is mottled in shades of yellow, red, and gray. The substratum from a depth of 56 to 85 inches is stratified sandy loam and loamy sand that is mottled in shades of yellow, brown, red, and gray.

Included with this soil in mapping are small areas of Hornsville, Chisolm, Eunola, Ogeechee, and Yemassee soils. Also included are small areas of soils that have slopes of 2 to 6 percent and areas, less than 2 acres in size, of eroded soils. The included soils make up less than 20 percent of the map unit.

This Emporia soil is moderately permeable in the upper part of the subsoil and moderately slowly permeable in the lower part. The available water capacity is moderate. The seasonal high water table is 3 to 4.5 feet below the surface. Surface runoff is moderate, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains (fig. 4). It has no major management problems; however, conservation tillage, winter cover crops, and crop residue on the surface can help conserve moisture.

This Emporia soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well, and this soil has no major management problems or limitations for this use.

This soil is well suited to pasture and hay, and there are no major problems or limitations for this use. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Locally, there are no major management concerns for urban uses; however, the seasonal high water table and moderately slow permeability can be severe limitations for septic tank absorption fields. A conventional system that has a larger than standard size absorption field is needed. The septic tank should be installed during a dry period. This soil has slight limitations for dwellings without basements and moderate limitations for lawn and landscaping

Figure 4.—Corn and soybeans are major crops in Williamsburg County. These crops are on Emporia loamy sand, 0 to 2 percent slopes.

because of droughtiness. These limitations can be reduced by using drought-tolerant plants and irrigation.

This Emporia soil is in capability class I.

EmB—Emporia loamy sand, 2 to 6 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on side slopes along drainageways and low ridges in higher areas of broad flats on the interstream divide. Most areas are long and narrow. They range from 5 to 300 acres, but generally are 10 to 150 acres.

Typically, the surface layer is brown loamy sand about 8 inches thick. The subsoil is brownish sandy clay loam from a depth of 8 to 23 inches; from 23 to 37 inches, it is yellowish sandy clay that has reddish mottles; from 37 to 47 inches, it is brownish clay that has brownish and grayish mottles; and from 47 to 56 inches, it is mottled red, yellow, and gray sandy clay. The substratum from a depth of 56 to 85 inches is stratified sandy loam, sandy clay loam, and loamy sand in shades of yellow, brown, red, and gray.

Included with this soil in mapping are small areas of Hornsville, Chisolm, Mouzon, Hobcaw, Eunola, and Ogeechee soils. Also included are small areas of Emporia soils that have slopes of 0 to 2 percent and small areas of soils that have short, steep slopes. Some small areas of eroded soils are along poorly defined drainageways. The included soils make up less than 25 percent of the map unit.

This Emporia soil is moderately permeable in the upper part of the subsoil and moderately slowly permeable in the lower part. The available water capacity is moderate. The seasonal high water table is 3 to 4.5 feet below the surface. Surface runoff is rapid, and the hazard of water erosion is moderate. The hazard of wind erosion is slight. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains. The moderate hazard of water erosion and the rapid surface runoff are concerns in management. Erosion and runoff can be reduced by contour farming, conservation tillage, no-till farming, or terraces that have waterways and field borders planted to sod. Winter cover crops and crop residue on the surface also conserve moisture and reduce the hazard of erosion.

This Emporia soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well, and this soil has no major management problems or limitations for woodland use.

This soil is well suited to pasture and hay, and there are no major concerns or limitations for this use. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Locally, there are no major management concerns for urban uses; however, a seasonal high water table and moderately slow permeability can be severe limitations for septic tank absorption fields. Wetness is a minor concern if septic tanks are installed during wet periods. A conventional system that has a larger than standard size absorption field is needed. This soil has slight limitations for dwellings without basements and moderate limitations for lawns and landscaping and small commercial buildings because of slope and droughtiness. The slope limitation for buildings can be reduced by grading, and the droughtiness limitation for lawns can be reduced by using drought-tolerant plants and irrigation.

This Emporia soil is in capability subclass IIe.

EpB—Emporia loamy sand, gently undulating. This soil is well drained and is on uplands of the Coastal Plain. It is on side slopes along drainageways and on the higher ridges of broad flat areas of the interstream divide, mainly parallel to the Santee River Flood Plain. Slopes are 1 to 3 percent. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 25 to 100 acres.

Typically, the surface layer is brownish loamy sand about 8 inches thick. The subsoil is brownish sandy clay loam from a depth of 8 to 23 inches; from 23 to 37 inches, it is yellowish sandy clay that has reddish mottles; from 37 to 47 inches, it is brownish clay that has brownish and grayish mottles; and from 47 to 56 inches, it is sandy clay that is mottled in shades of red, yellow, and gray. The substratum from a depth of 56 to 85 inches is stratified sandy loam, sandy clay loam, and loamy sand in shades of yellow, brown, red, and gray.

Included with this soil in mapping are small areas of Hornsville, Coxville, Gourdin, and Chisolm soils. Also included are small areas of soils that have slopes of more than 3 percent and small areas of soils on short, steep slopes. The included soils make up less than 20 percent of the map unit.

This Emporia soil is moderately permeable in the upper part of the subsoil and moderately slowly permeable in the lower part. The available water capacity is moderate. The seasonal high water table is 3 to 4.5 feet below the surface. Surface runoff is moderate, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains. The moderate hazard of water erosion is a concern in management. Stripcropping, conservation tillage or no-till farming, winter cover crops, and crop residue on the surface conserve moisture.

This Emporia soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well, and this soil has no major management problems or limitations for this use.

This soil is well suited to pasture and hay, and there are no major concerns or limitations for this use. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Locally, there are no major management concerns for urban uses; however, the seasonal high water table and moderately slow permeability are severe limitations for septic tank absorption fields. Wetness is a minor concern if septic tanks are installed during wet periods. A conventional system with a larger than standard size absorption field is needed. The septic tank should be installed during a dry period. This soil has slight limitations for dwellings without basements and for small commercial buildings. It has moderate limitations for lawns and landscaping because of droughtiness. This limitation can be reduced by using drought-tolerant plants and irrigation.

This Emporia soil is in capability subclass IIe.

EuA—Eunola loamy sand, 0 to 2 percent slopes. This soil is moderately well drained and is on uplands of the Coastal Plain. It is on low and intermediate ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They are 20 to 100 acres, but range from 5 to 300 acres.

Typically, the surface layer is grayish loamy sand about 3 inches thick. The subsurface layer, from a depth of 3 to 9 inches, is brownish sandy loam. The next layer, from a depth of 9 to 13 inches, is pale brownish sandy loam. The subsoil from a depth of 13 to 44 inches is brownish sandy clay loam that has reddish and grayish mottles below a depth of about 22 inches. From 44 to 57 inches, it is mottled red, yellow, and gray sandy clay loam. The substratum from a depth of 57 to 80 inches is stratified sandy clay loam and sandy loam in shades of gray, yellow, and brown.

Included with this soil in mapping are small areas of Wahee, Ogeechee, Gourdin, and Chisolm soils. Also included are small areas of soils that have slopes of 2 to 6 percent. The included soils make up less than 20 percent of the map unit.

This Eunola soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1.5 to 2.5 feet below the surface. Surface runoff is moderate, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains. The seasonal high water table is a concern in management, but random or spot drainage of low-lying areas can remove excess water. Subsurface drainage systems perform well in this soil. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture in dry periods.

This Eunola soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, the seasonal high water table is a concern in management. It causes a moderate equipment use limitation and increases plant competition. The problems caused by the high water table can be reduced by using wide-tired or crawler-type equipment in planting and harvesting trees, by planting seedlings on beds, and by planting and harvesting trees in the drier periods of the year.

This soil is well suited to pasture and hay (fig. 5). The main limitations are caused by the seasonal high water table, but its effect can be reduced by random surface drainage of low areas. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. A specially designed, modified system is needed that will allow a deeper filtering zone between the trench bottom and the high water table. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. The excessive wetness caused by the high water table can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Using surface drainage, shaping the land to increase surface runoff, and using water-tolerant plants can reduce the problems caused by wetness.

This Eunola soil is in capability subclass IIw.

FoA—Foreston fine sand, 0 to 2 percent slopes. This soil is nearly level and moderately well drained. It is on uplands of the Coastal Plain on low and intermediate ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 700 acres, but generally are 20 to 100 acres.

Typically, the surface layer is grayish fine sand about 6 inches thick. The subsurface layer, from a depth of 6 to 12 inches, is brownish fine sand. The next layer, from a depth of 12 to 17 inches, is yellowish loamy fine sand. The upper part of the subsoil is yellowish fine sandy loam from a depth of 17 to 33 inches and brownish loamy fine sand from 33 to 40 inches. It has grayish mottles throughout. The next layer, from a depth of 40 to 51 inches, is grayish and brownish fine sand. The lower part of the subsoil from a depth of 51 to 61 inches is fine sandy loam mottled in shades of yellow, red, and gray. From 61 to 85 inches, it is gray fine sandy loam that has mottles in shades of red and yellow. The substratum from a depth of 85 to 90 inches is loamy fine sand that is mottled in shades of brown and gray.

Included with this soil in mapping are small areas of Autryville, Chipley, Paxville, Leon, Lynn Haven, and Lynchburg soils. Also included are small areas of soils that have a black surface layer more than 10 inches thick and are more poorly drained. The included soils make up less than 20 percent of the map unit.

This Foreston soil is moderately rapidly permeable, and the available water capacity is moderate. The seasonal high water table is 2.5 to 3.5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains. The seasonal high water table, droughtiness, and soil blowing in large open fields are concerns in management. Random or spot drainage of low-lying areas can remove excess water, and subsurface drainage systems perform favorably on this

Figure 5.—Eunola loamy sand, 0 to 2 percent slopes, is well suited to use as pasture.

soil. Light, frequent irrigation during dry periods increases yields significantly. Soil blowing is reduced if windstrips and rows are perpendicular to the wind direction. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Foreston soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pine and longleaf pine do well on this soil; however, the seasonal high water table is a concern in management. It causes a moderate limitation for equipment usage and increases plant competition. Using surface drainage in low areas, using wide-tired or crawler-type equipment, bedding before planting, and planting and harvesting trees in the drier periods can reduce the problems caused by the high water table.

This soil is well suited to pasture and hay; however, the seasonal high water table, droughtiness, and leaching of plant nutrients are concerns in management. Their effect can be reduced by random surface drainage of low areas, frequent applications of fertilizers, and light, frequent irrigation for hay crops. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. The seasonal high water table severely limits the use of this soil for septic tank absorption fields. A specially designed, modified system is needed that will allow a deeper filtering zone between the bottom of the trench and the seasonal high water table. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. The problems caused by droughtiness can be reduced by planting drought-tolerant species and by irrigating during growing periods. Mulches, frequent light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Foreston soil is in capability subclass IIw.

FxB—Foxworth sand, 0 to 6 percent slopes. This soil is somewhat excessively drained and is on uplands of the Coastal Plain. It is on side slopes adjacent to streams and on low ridges in broad, flat areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 25 to 50 acres.

Typically, the surface layer is brownish sand about 6 inches thick. The subsoil, from a depth of 6 to 65 inches, is yellowish and brownish sand. The substratum from a depth of 65 to 85 inches is white sand.

Included with this soil in mapping are small areas of Candor, Kenansville, Tomahawk, and Rutlege soils. Small areas of soils that have short, steep slopes are denoted by a special symbol. The included soils make up less than 20 percent of the map unit.

This Foxworth soil is very rapidly permeable, and the available water capacity is low. The seasonal high water table is 4 to 6 feet below the surface. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of low available water capacity, the hazard of wind erosion, and the low nutrient-holding capacity. Problems caused by these limitations can be reduced by applying fertilizers frequently and by planting drought-tolerant crops. Soil blowing is reduced and young plants are protected if windstrips and rows are perpendicular to the prevailing wind direction. Light, frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Foxworth soil is poorly suited to woodland species commonly grown in the county for commercial purposes. Longleaf pines do best on this soil; however, droughtiness, low fertility, and the thick sandy surface layer are major limitations. These limitations cause problems with equipment usage, seedling survival, and growth of trees, but they have less effect if wide-tired or crawler-type equipment is used and if high-quality seedlings are planted in shallow furrows.

This soil is poorly suited to pasture and hay because of the thick sandy surface layer, droughtiness, low soil fertility, and low nutrient-holding capacity. Problems caused by these limitations can be reduced by frequent applications of fertilizers and by light, frequent irrigation. Proper stocking and pasture rotation help keep pastures in good condition.

This soil is moderately well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Limitations are moderate for septic tank absorption fields because of a seasonal high water table. Restricting housing density and limiting use of the septic system during wet periods can lessen the effects of the high water table. This soil has slight limitations for dwellings without basements and for small commercial buildings. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by droughtiness can be reduced by planting drought-toleran species and by irrigating during growing periods. Mulches, frequent light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Foxworth soil is in capability subclass IIIs.

GoA—Goldsboro loamy fine sand, 0 to 2 percent slopes. This soil is moderately well drained and is on uplands of the Coastal Plain. It is on low and intermediate ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 150 acres, but generally are 20 to 50 acres.

Typically, the surface layer is brownish loamy fine sand about 8 inches thick. The subsurface layer, from a depth of 8 to 16 inches, is brownish loamy sand. The subsoil from a depth of 16 to 46 inches is brownish sandy clay loam that has mottles in shades of gray and brown below a depth of 24 inches. From 46 to 68 inches, it is sandy clay loam that is mottled in shades of red, gray, and brown. The substratum from a depth of 68 to 85 inches is stratified sandy clay loam, sandy loam, and sandy clay in shades of yellow and gray.

Included with this soil in mapping are small areas of Coxville, Lynchburg, Rains, and Bonneau soils. Also included are small areas of soils that have slopes of 2 to 6 percent. The included soils make up less than 20 percent of the map unit.

This Goldsboro soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 2 to 3 feet below the surface. Surface runoff is moderate, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains (fig. 6). The seasonal high water table is a concern in management, but random or spot drainage of low-lying areas can remove excess water. A subsurface drainage system performs favorably in this soil. Conservation tillage, winter cover crops, and crop residue left on the surface conserve moisture and reduce the hazard of erosion.

This Goldsboro soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. The seasonal high water table causes a moderate limitation for equipment use and increases plant competition, but it has less effect if wide-tired or crawler-type equipment is used in planting and harvesting trees, if seedlings are planted on beds, and if trees are planted and harvested in the drier periods of the year.

This soil is well suited to pasture and hay; however, the seasonal high water table is a limitation for this use. Random surface drainage of low areas can reduce problems caused by the high water table. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table. A specially designed, modified system is needed that will allow a deeper filtering zone between the trench bottom and the high water table. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. These limitations have less effect if surface drainage

Figure 6.—Goldsboro loamy fine sand, 0 to 2 percent slopes, is well suited to tobacco.

systems are used and the land is shaped to increase surface runoff. This soil has a slight limitation for establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping.

This Goldsboro soil is in capability subclass IIw.

Gu—Gourdin loam. This soil is poorly drained and is on uplands of the Coastal Plain. It is on broad flats, along poorly defined drainageways, and in depressional areas of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 450 acres, but generally are 10 to 150 acres.

Typically, the surface layer is grayish loam about 6 inches thick. The subsoil from a depth of 6 to 24 inches is grayish and brownish clay loam and sandy clay loam that has mottles in shades of red and yellow. From 24 to 55 inches, it is clay and sandy clay mottled in shades of gray, red, and yellow. The substratum from a depth of 55 to 85 inches is stratified loamy sand, sandy clay loam, and clay in shades of gray and yellow in the upper part. It is grayish loamy sand in the lower part.

Included with this soil in mapping are small areas of Hornsville, Eunola, Yemassee, Ogeechee, and Wahee soils. The included soils make up less than 25 percent of the map unit.

This Gourdin soil is slowly permeable, and the available water capacity is moderate. The seasonal high water table is 1 foot above the surface to 1 foot below the surface. Surface runoff is ponded to very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of the seasonal high water table. Problems caused by this limitation are difficult to correct.

This Gourdin soil is well suited to woodland species commonly grown in the county for commercial purposes. Water-tolerant hardwoods do well on this soil. The seasonal high water table can cause equipment use limitations in planting and harvesting trees, increased seedling mortality, and plant competition. These problems have less effect if seedlings are planted on beds, if trees are harvested and planted during the dry periods, and if wide-tired and crawler-type equipment is used. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is very poorly suited to pasture and hay because of the seasonal high water table. Problems caused by this limitation are difficult to correct. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is very poorly suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table and slowly permeable subsoil. Problems caused by these limitations are difficult and costly to correct, and technology needed is generally unfeasible. This soil has severe limitations for dwellings without basements and small commercial buildings because of the seasonal high water table. Problems caused by this limitation are difficult to correct. Wetness and ponding are severe limitations in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by wetness and ponding are difficult to correct.

This Gourdin soil is in capability subclass VIw.

Hb—Hobcaw sandy loam, frequently flooded. This soil is very poorly drained. It is on low flats and in depressions between low ridges on the broad flood plains and is the entire width of the narrow flood plains along all the streams of the county except for the Pee Dee and Santee Rivers. Most areas are long and narrow to irregularly shaped. They range from 50 to 1,000 acres, but generally are 100 to 500 acres.

Typically, the surface layer is black sandy loam about 5 inches thick. The subsoil is black sandy clay loam from a depth of 5 to 20 inches; from 20 to 28 inches, it is grayish sandy clay loam that has brownish mottles; and from 28 to 41 inches, it is grayish sandy loam that has brownish mottles. The substratum from a depth of 41 to 80 inches is light gray sand.

Included with this soil in mapping are small areas of Johnston, Johns, Chipley, Rutlege, Yemassee, and Cape Fear soils. The included soils make up less than 30 percent of the map unit.

This Hobcaw soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1 foot above the surface to 1 foot below the surface. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to slightly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of wetness and the hazard of flooding. Problems caused by these limitations are generally not economically feasible to correct.

This Hobcaw soil is very poorly suited to woodland species commonly grown in the county for commercial purposes. Water tupelo and sweetgum do well on this soil. Wetness and flooding cause equipment use limitations, loss of seedlings, and shortened harvesting and planting periods, but they have less effect if planting and harvesting are done during dry periods, if water-tolerant species are planted, and if cutover areas are allowed to regenerate naturally. Using wide-tired or crawler-type equipment in planting and harvesting reduces equipment use limitations caused by wetness.

This soil is very poorly suited to pasture and hay because of wetness and the hazard of flooding. These problems are generally not economically feasible to correct.

This soil is very poorly suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields, dwellings without basements, small commercial buildings, and lawns and landscaping because of the hazard of flooding and the seasonal high water table. Problems caused by these limitations are generally not economically feasible to correct.

This Hobcaw soil is in capability subclass VIw.

HvA—Hornsville sandy loam, 0 to 2 percent slopes. This soil is moderately well drained and is on uplands of the Coastal Plain. It is on low ridges in broad, flat areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 200 acres, but generally are 10 to 75 acres.

Typically, the surface layer is brownish sandy loam about 6 inches thick. The subsoil, from a depth of 6 to 49 inches, is clay. It is brownish with yellow and gray mottles in the upper part and is mottled in shades of red, yellow, and gray in the lower part. The substratum from a depth of 49 to 64 inches is stratified clay, clay loam, and sandy clay loam mottled in shades of gray, red, and yellow.

Included with this soil in mapping are small areas of Ogeechee, Gourdin, Yemassee, Wahee, and Chisolm soils. Also included are small areas of soils that have slopes of 2 to 6 percent and some severely eroded spots. The included soils make up less than 20 percent of the map unit.

This soil is moderately slowly permeable, and the available water capacity is moderate. The seasonal high water table is 1.5 to 3.5 feet below the surface. Surface runoff is moderate, and the hazard of water erosion is moderate. The hazard of wind erosion is slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains. The seasonal high water table is a concern in management, but random drainage of low-lying areas can remove excess water. Surface drainage systems or a combination of surface and subsurface systems perform best. The clayey subsoil somewhat limits the functioning of tile drainage systems; however, with proper spacing of the drains, these systems can be used. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Hornsville soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. The seasonal high water table can cause moderate equipment use limitations, seedling mortality, and increased plant competition. The problems caused by the high water table can be reduced by using wide-tired or crawler-type equipment in planting and harvesting trees, planting seedlings on beds, and by planting and harvesting trees in the drier periods of the year.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation, but problems can be reduced by random surface drainage of low-lying areas. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table, the moderately slow permeability, and the clayey subsoil. Problems caused by these limitations can be reduced by using specially designed, modified conventional systems and by increasing the size of the absorption area. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Problems caused by the high water table can be reduced by using surface drainage and by shaping the land to increase surface runoff. This soil has a slight limitation for establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping.

This Hornsville soil is in capability subclass IIw.

HvB—Hornsville sandy loam, 2 to 6 percent slopes. This soil is moderately well drained and is on uplands of the Coastal Plain. It is on side slopes adjacent to streams and on ridges in broad, flat areas of the interstream divide. Most areas are long and narrow. They range from 5 to 350 acres, but generally are 10 to 75 acres.

Typically, the surface layer is brownish sandy loam about 6 inches thick. The subsoil, from a depth of 6 to 49 inches, is clay. It is brownish with yellow and gray mottles in the upper part and is mottled in shades of red, yellow, and gray in the lower part. The substratum from a depth of 49 to 65 inches is stratified clay, clay loam, and sandy clay loam mottled in shades of gray, red, and yellow.

Included with this soil in mapping are small areas of Chisolm, Chastain, Tawcaw, Hobcaw, Mouzon, Emporia, and Gourdin soils. Also included are small areas of soils that have slopes of 0 to 2 percent, spots of severely eroded soils, and small sinkholes. Areas that have short steep slopes are denoted on the map by a special symbol. The included soils make up less than 25 percent of the map unit.

This soil is moderately slowly permeable, and the available water capacity is moderate. The seasonal high water table is 1.5 to 3.5 feet below the surface. Surface runoff is rapid, and the hazard of water erosion is severe. The hazard of wind erosion is slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as cropland, and it is well suited to row crops and small grains. The seasonal high water table and moderate erosion potential are concerns. Random drainage of low-lying areas can remove excess water, and contour farming and conservation tillage with field borders and grassed waterways can control surface runoff and reduce erosion. The topography in most areas is rolling, and farming on the contour is difficult. In these areas, stripcropping with alternating strips of close-growing crops should be used. Winter cover crops and crop residue on the surface conserve moisture and also reduce the hazard of erosion.

This Hornsville soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. The seasonal high water table can cause moderate equipment use limitations, seedling mortality, and increased plant competition. These problems can be reduced by using surface drainage in low-lying areas and wide-tired or crawler-type equipment, by seeding before planting, and by planting and harvesting trees during the drier periods of the year.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation, but problems can be reduced by random surface drainage of low-lying areas. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table, the moderately slow permeability, and the clayey subsoil. Problems caused by these limitations can be reduced by using specially designed, modified conventional systems and by increasing the size of the absorption area. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Slope is also a limitation for small commercial buildings. Using surface drainage ditches in low areas to increase runoff can reduce problems caused by the high water table. This soil has a slight limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping.

This Hornsville soil is in capability subclass IIe.

IzA—Izagora Variant sandy loam, 0 to 2 percent slopes. This soil is moderately well drained and is on uplands of the Coastal Plain. It is on low and intermediate ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 250 acres, but generally are 25 to 100 acres.

Typically, the surface layer is grayish sandy loam about 5 inches thick. The subsurface layer, from a depth of 5 to 12 inches, is brownish sandy loam that has brownish mottles. The subsoil from a depth of 12 to 26 inches is brownish loam that has brownish mottles; from 26 to 35 inches, it is brownish sandy clay loam that has brownish and grayish mottles; and from 35 to 51 inches, it is clay loam that is gray with brownish mottles in the upper part and mottled in shades of gray, brown, and red in the lower part. From 51 to 77 inches, the subsoil is grayish cobbly clay loam that has yellowish and reddish mottles.

Included with this soil in mapping are small areas of Nahunta Variant, Daleville Variant, Rains, Coxville, Noboco, and Lynchburg soils. Also included north of Kingstree are small areas of the Izagora Variant soil that has large stones and small boulders on the surface. The included soils make up less than 25 percent of the map unit.

This Izagora Variant soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1.5 to 2.5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains. The seasonal high water table is a concern in management, but random or spot drainage of low-lying areas can remove excess water. Subsurface drainage systems perform favorably in this soil. Because of the silicified coquina, additional time and special tools are needed to install drainage lines on proper grade. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

This Izagora Variant soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. The seasonal high water table can cause equipment use limitations and increased plant competition, but it has less effect if wide-tired or crawler-type equipment is used in planting and harvesting trees, if seedlings are planted on beds, and if trees are planted and harvested in the drier periods of the year.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation, but wetness can be reduced by random surface drainage of low-lying areas. Because of the silicified coquina, additional time and special tools are needed to install drainage systems. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table. A specially designed, modified system is needed that will allow a deeper filtering zone between the trench bottom and the high water table. Additional time is needed to install the septic tank because of hardness and depth of coquina. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Excess wetness can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness is a moderate limitation in establishing and maintaining golf fairways, lawn grasses, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by wetness can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Izagora Variant soil is in capability subclass IIw.

JoA—Johns fine sandy loam, 0 to 2 percent slopes. This soil is moderately well drained. It is on slight rises and low ridges of flood plains of the Black River and its tributaries. Most areas are irregularly shaped. They range from 5 to 100 acres, but generally are 20 to 50 acres.

Typically, the surface layer is grayish fine sandy loam about 9 inches thick. It has brownish mottles below a depth of 6 inches. The subsoil is brownish sandy loam from a depth of 9 to 20 inches. From 20 to 34 inches, it is sandy clay loam. The upper part of this layer is brownish with reddish, yellowish, and grayish mottles, and the lower part is grayish with brownish mottles. The substratum from a depth of 34 to 60 inches is mottled white, gray, and yellow sand and loamy sand.

Included with this soil in mapping are small areas of Chipley, Hobcaw, Mouzon, Noboco, Ogeechee, Rutlege, and Johnston soils. The included soils make up less than 30 percent of the map unit.

This Johns soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1.5 to 3 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as woodland.

If this soil is drained and protected from floodwater from adjacent areas, it is well suited to row crops and small grains. Because of wetness and flooding in adjacent areas, inaccessibility is a major management concern for growing and harvesting crops. Problems can be reduced by planting crops that have a short growing season and can be planted after the flooding season and harvested before the start of the next flooding season. Problems caused by flooding generally are not economically feasible to correct, and drainage outlets are difficult to establish. Where crops are grown, conservation tillage and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Johns soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. The seasonal high water table and flooding in adjacent areas can cause moderate equipment use limitations and plant competition from undesirable species and can shorten the planting and harvesting periods. These problems can be reduced by planting and harvesting during dry periods, planting water-tolerant species, planting seedlings on well prepared beds, and using wide-tired or crawler-type equipment.

This soil is very poorly suited to pasture and hay because of wetness and the hazard of flooding. Problems caused by these limitations generally are not economically feasible to correct.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields, dwellings without basements, and for small commercial buildings because of flooding and the seasonal high water table. Limitations for lawn and landscaping uses are moderate because of flooding and wetness. These problems generally are not economically feasible to correct.

This Johns soil is in capability subclass IIw.

Js—Johnston fine sandy loam, frequently flooded. This soil is very poorly drained and is on flood plains of all the streams in the county except for the Pee Dee and Santee Rivers. The soil is in low, depressional areas, old scour channels, and along stream channels of the large flood plains and is the entire width of the small flood plains. Most areas are long and narrow. They are 25 to 100 acres, but range from 10 to 300 acres.

Typically, this soil has about a 3-inch thick layer of decaying leaves, twigs, and roots on the surface. The surface layer is 38 inches thick. It is black fine sandy loam from the surface to a depth of 25 inches, grayish sandy loam from 25 to 33 inches, and brownish sandy loam from 33 to 38 inches. The underlying material from a depth of 38 to 65 inches is grayish sand.

Included with this soil in mapping are small areas of Mouzon, Hobcaw, Chipley, Johns, and Cape Fear soils. The included soils make up less than 30 percent of the map unit.

This Johnston soil is rapidly permeable, and the available water capacity is moderate. The seasonal high water table is 1 foot above the surface to 1.5 feet below the surface. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of wetness and flooding. These limitations generally are not economically feasible to correct.

This Johnston soil is very poorly suited to woodland species commonly grown in the county for commercial purposes. Baldcypress, sweetgum, and green ash do well on this soil. Wetness and flooding can cause equipment use limitations and loss of seedlings and can shorten harvesting and planting periods. These problems can be reduced by planting and harvesting during dry periods, planting water-tolerant species, and by allowing cutover areas to regenerate naturally. The equipment limitations, caused by wetness, have less effect if wide-tired or crawler-type equipment is used in planting and harvesting.

This soil is very poorly suited to pasture and hay because of wetness and the hazard of flooding. These limitations generally are not economically feasible to correct.

This soil is poorly suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields, dwellings without basements, small commercial buildings, lawns and landscaping, and recreational uses because of flooding and a seasonal high water table. These limitations generally are not economically feasible to correct.

This Johnston soil is in capability subclass VIIw.

KeA—Kenansville sand, 0 to 2 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on low ridges of broad flats on the interstream divide. Most areas are irregularly shaped. They range from 5 to 150 acres, but generally are 10 to 25 acres.

Typically, the surface layer is brownish sand about 6 inches thick. The subsurface layer, from a depth of 6 to 21 inches, is brownish loamy sand. The subsoil is brownish sandy loam from a depth of 21 to 40 inches and brownish loamy sand from 40 to 52 inches. The substratum is brownish sand from a depth of 52 to 58 inches and white sand from 58 to 72 inches.

Included with this soil in mapping are small areas of Foreston, Leon, Rutlege, and Tomahawk soils. Also included are small areas of soils that have slopes of 2 to 6 percent. The included soils make up less than 20 percent of the map unit.

This Kenansville soil is moderately rapidly permeable, and the available water capacity is low. The seasonal high water table is 4 to 6 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. This soil is very strongly acid to medium acid except where lime has been added.

This soil is used as cropland. It is moderately suited to row crops and poorly suited to small grains because of the thick sandy surface layer, droughtiness, leaching of nutrients, and soil blowing in large fields. Problems caused by these limitations can be reduced by applying fertilizers frequently and by planting drought-tolerant crops. Soil blowing is reduced if windstrips and row arrangement are perpendicular to wind direction. Light, frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Kenansville soil is moderately suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. The thick sandy surface layer, droughtiness, and low fertility can cause problems with equipment usage and seedling survival. These problems can be reduced by using wide-tired or crawler-type equipment and by planting high-quality seedlings in a shallow furrow.

This soil is well suited to pasture and hay. The thick sandy surface layer, droughtiness, and rapid leaching of plant nutrients are concerns. More frequent fertilization and light, frequent irrigation are needed. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development. Limitations are moderate for septic tank absorption fields because of a seasonal high water table. Problems caused by the high water table can be reduced by restricting housing density and by limiting use of the septic system during wet periods. Limitations are only slight for dwellings without basements and for small commercial buildings. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by droughtiness can be reduced by planting drought-tolerant species and by irrigating during growing periods. Mulches, frequent light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Kenansville soil is in capability subclass IIs.

Le—Leon sand. This soil is poorly drained and is on uplands of the Coastal Plain. It is on broad flats, along poorly defined drainageways, and in depressions of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 100 acres, but generally are 10 to 50 acres.

Typically, the surface layer is grayish sand about 6 inches thick. The subsurface layer, from a depth of 6 to 19 inches, is grayish sand. The subsoil is black sand from a depth of 19 to 22 inches and brownish sand from 22 to 46 inches. The substratum is white sand from a depth of 46 to 78 inches and brownish sand from 78 to 85 inches.

Included with this soil in mapping are small areas of Chipley, Paxville, Lynn Haven, Rutlege, and Rimini soils. Small areas of soils that have a strongly cemented layer at a depth of about 20 inches are along some poorly defined drainageways. The included soils make up less than 25 percent of the map unit.

This Leon soil is moderately permeable, and the available water capacity is low. The seasonal high water table is within 1 foot of the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and poorly suited to small grains because of the low available water capacity and the seasonal high water table. Problems caused by the high water table can be reduced by surface drainage systems. Land shaping to increase surface runoff removes excess water more rapidly. Irrigation and light, frequent applications of fertilizers increase crop yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

This Leon soil is poorly suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do best on this soil. The major limitations are low available water capacity and a seasonal high water table. Wetness causes moderate equipment use limitations in planting and harvesting trees and increases seedling mortality and plant competition. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is moderately well suited to pasture and hay. The main limitations are the seasonal high water table and droughtiness. Surface drainage systems can remove excess water, and frequent applications of fertilizer increase production significantly. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is moderately well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Problems caused by these limitations can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness and droughtiness are severe limitations in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. The effects of these limitations can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting species that tolerate wetness and droughtiness.

This Leon soil is in capability subclass IVw.

Ln—Lynchburg fine sandy loam. This soil is somewhat poorly drained and is on uplands of the Coastal Plain. It is on low ridges and in slight depressions between ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 350 acres, but generally are 20 to 100 acres.

Typically, the surface layer is grayish fine sandy loam about 6 inches thick. The next layer, from a depth of 6 to 12 inches, is brownish sandy loam that has mottles in shades of brown. The subsoil from a depth of 12 to 23 inches is brownish sandy clay loam that has brownish mottles, and from 23 to 56 inches, it is sandy clay loam that is grayish in the upper part and mottled in shades of gray, brown, and red in the lower part. From 56 to 65 inches, the subsoil is grayish sandy clay that has reddish and brownish mottles. The substratum from a depth of 65 to 80 inches is grayish sandy clay loam and sandy clay that has yellowish and brownish mottles.

Included with this soil in mapping are small areas of Goldsboro, Coxville, Rains, Noboco, Paxville, and Foreston soils. The included soils make up less than 25 percent of the map unit.

This Lynchburg soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 0.5 foot to 1.5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as cropland (fig. 7), and it is well suited to row crops and small grains. The seasonal high water table is a concern in management, but surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Lynchburg soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, because of wetness, equipment use limitations in planting and harvesting trees and plant competition are concerns in management. Problems caused by wetness can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay crops; however, the seasonal high water table is a limitation. Surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and moderately well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. Additions of fill material or a modified system that has field lines at a depth that will allow a deeper filtering zone between the trench bottom and the high water table are needed. The system would generally require increasing the absorption field size and shaping the field to increase surface runoff. This soil has severe limitations for dwellings without basements, small commercial buildings, and lawns and landscaping because of the seasonal high water table. Problems

Figure 7.—Lynchburg fine sandy loam is well suited to soybeans.

caused by these limitations can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Planting water-tolerant species aids in establishing lawns and turf for golf fairways.

This Lynchburg soil is in capability subclass IIw.

Ly—Lynn Haven fine sand. This soil is very poorly drained and is on uplands of the Coastal Plain. It is on broad flats and in depressional areas of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 30 acres, but generally are 10 to 20 acres.

Typically, the surface layer is black fine sand about 13 inches thick. The subsurface layer, from a depth of 13 to 33 inches, is fine sand that is grayish in the upper part and white in the lower part. The subsoil from a depth of 33 to 60 inches is brownish fine sand and black loamy fine sand.

Included with this soil in mapping are small areas of Johnston, Leon, Paxville, Rutlege, Ogeechee, and Foreston soils. The included soils make up less than 25 percent of the map unit.

This soil is moderately permeable, and the available water capacity is low. The seasonal high water table is 0 to 1 foot below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of the low available water capacity and the seasonal high water table. Surface drainage systems and land shaping to increase surface runoff can remove excess water. Light, frequent applications of fertilizers and irrigation water increase crop yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Lynn Haven soil is moderately well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do best on this soil. The major limitations for woodland use are the low available water capacity and a seasonal high water table. Because of wetness, the equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are moderate. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is moderately well suited to pasture and hay. The main limitations are the seasonal high water table and droughtiness. Surface drainage systems can reduce wetness. Frequent applications of fertilizer increase production significantly. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is poorly suited to use as habitat for upland wildlife and moderately well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Using surface drainage systems and shaping the land to increase surface runoff can reduce the problems caused by the high water table. Wetness and droughtiness are severe limitations in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by these limitations can be reduced by using surface drainage and by shaping the land to increase surface runoff. Plants that tolerate these conditions should be selected if drainage and irrigation are not provided.

This Lynn Haven soil is in capability subclass IVw.

MH—Mouzon and Hobcaw soils, frequently flooded. These soils are on flood plains along all the streams of the county except for the Pee Dee and Santee Rivers. They are in low, flat and depressional areas between low ridges on the broad flood plains and are the entire width of the narrow flood plains. The Mouzon soil is poorly drained, and the Hobcaw soil is very poorly drained. Most areas are long and narrow to irregularly shaped. They range from 50 to 1,000 acres, but generally are 100 to 500 acres.

This map unit is about 50 percent Mouzon soil, about 25 percent Hobcaw soil, and about 25 percent other soils.

Typically, the Mouzon soil has a grayish fine sandy loam surface layer about 8 inches thick. The subsurface layer, from a depth of 8 to 11 inches, is grayish fine sandy loam. The subsoil from a depth of 11 to 31 inches is grayish sandy clay loam that has yellowish mottles, and from 31 to 46 inches, it is grayish sandy loam. The substratum from a depth of 46 to 72 inches is grayish loamy sand.

Typically, the Hobcaw soil has a black sandy loam surface layer about 5 inches thick. The subsoil from a depth of 5 to 20 inches is black sandy clay loam; from 20 to 28 inches, it is gray sandy clay loam that has brownish mottles, and from 28 to 41 inches, it is gray sandy loam that has brownish mottles. The substratum from a depth of 41 to 80 inches is light gray sand.

Included with these soils in mapping are small areas of Rutlege, Johnston, Cape Fear, Chipley, Johns, and Rimini soils.

The Mouzon soil is slowly permeable, and the available water capacity is moderate. The seasonal high water table is within 1 foot of the surface. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to slightly acid in the surface and subsurface layers and strongly acid to moderately alkaline in the subsoil and substratum.

The Hobcaw soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1 foot above the surface to 1 foot below the surface. Surface runoff is very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid to slightly acid except where lime has been added.

The Mouzon and Hobcaw soils are used mostly as woodland.

These soils are very poorly suited to row crops and small grains because of wetness and the hazard of flooding. Problems caused by these limitations generally are not economically feasible to correct.

These soils are very poorly suited to woodland species commonly grown in the county for commercial purposes. Sweetgum, baldcypress, water oak, pond pine, and water tupelo do well on these soils. Because of wetness and flooding, equipment usage, loss of seedlings, and shortened harvesting and planting periods are concerns in management. These problems can be reduced by planting and harvesting during dry periods, planting water-tolerant species, and allowing cutover areas to regenerate naturally. The equipment limitations, caused by wetness, have less effect if wide-tired or crawler-type equipment is used in planting and harvesting.

The Mouzon and Hobcaw soils are very poorly suited to pasture and hay because of wetness and the hazard of flooding. Problems caused by these limitations generally are not economically feasible to correct.

These soils are very poorly suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

These soils are very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of flooding, a seasonal high water table, and slow permeability. The hazard of flooding and a seasonal high water table are also severe limitations for dwellings without basements, small commercial buildings, lawns and landscaping, and recreational uses. Problems caused by these limitations generally are not economically feasible to correct.

The Mouzon and Hobcaw soils are in capability subclass VIw.

Na—Nahunta Variant sandy loam. This soil is somewhat poorly drained and is on uplands of the Coastal Plain. It is on low ridges and in slight depressions between ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 10 to 150 acres, but generally are 20 to 50 acres.

Typically, the surface layer is grayish sandy loam about 4 inches thick. The subsurface layer, from a depth of 4 to 7 inches, is grayish sandy loam that has brownish mottles. The subsoil from a depth of 7 to 20 inches is brownish sandy loam that has grayish and yellowish mottles. From 20 to 55 inches, it is grayish loam that has reddish, yellowish, brownish, and pinkish mottles. The substratum from a depth of 55 to 60 inches is silicified coquina that has grayish sandy clay loam and sandy clay between fragments and cobbles.

Included with this soil in mapping are small areas of Izagora Variant, Daleville Variant, Goldsboro, Coxville, and Rains soils. The included soils make up less than 25 percent of the map unit.

This Nahunta Variant soil is moderately permeable, and the available water capacity is moderate. In most years, the seasonal high water table is 0.5 foot to 1.5 feet below the surface from December to May. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains. The seasonal high water table is a concern in management, but surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping to increase surface runoff helps to remove excess water more rapidly. Because of the silicified coquina, additional time and special tools are needed to install drainage lines on proper grade. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture.

This Nahunta Variant soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. Because of a seasonal high water table, moderate equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are concerns in management. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay; however, the seasonal high water table is a limitation for these uses. Surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table. Problems caused by the high water table can be reduced by additions of fill material to the field or by a modified system that has field lines at a depth that will allow a deeper filtering zone between the trench bottom and the high water table. The modified system generally requires increasing the absorption field size and shaping the land to increase surface runoff. Because of the depth to coquina, additional time and effort is necessary to install the system. This soil has severe limitations for dwellings without basements, small commercial buildings, and lawns and landscaping because of the seasonal high water table. These limitations have less effect if surface drainage systems are used, if the land is shaped to increase surface runoff, and if water-tolerant species are planted.

This Nahunta Variant soil is in capability subclass IIw.

NoA—Noboco loamy fine sand, 0 to 2 percent slopes. This soil is well drained and is on uplands of the Coastal Plain. It is on low to high ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 500 acres, but generally are 10 to 100 acres.

Typically, the surface layer is brownish loamy fine sand about 7 inches thick. The subsurface layer, from a depth of 7 to 12 inches, is brownish loamy fine sand. The subsoil is sandy clay loam. It is brownish with reddish mottles from a depth of 12 to 40 inches, yellowish with grayish mottles from 40 to 52 inches, and brownish with reddish and grayish mottles from 52 to 67 inches.

Included with this soil in mapping are small areas of Foreston, Goldsboro, Bonneau, Rains, Coxville, and Lynchburg soils. Also included are small areas of soils that have slopes of 2 to 6 percent and small eroded areas that are less than 2 acres. The included soils make up less than 25 percent of the map unit.

This Noboco soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 2.5 to 4 feet below the surface. Surface runoff is moderate, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as cropland and is well suited to row crops and small grains. It has no major management concerns, but conservation tillage, winter cover crops, and crop residue on the surface can help conserve moisture.

This Noboco soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well, and this soil has no major management problems or limitations for this use.

This soil is well suited to pasture and hay and has no major concerns or limitations for this use. Proper stocking, pasture rotation, and restricted use during wet periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and very poorly suited to use as habitat for wetland wildlife.

This soil is well suited to most engineering uses related to community development (fig. 8). Locally, there are no major management concerns for urban uses; however, the high seasonal water table can be a severe limitation for septic tank absorption fields. Wetness is a minor concern if a septic tank is installed during wet periods. A conventional system can be used.

This Noboco soil is in capability class I.

Og—Ogeechee fine sandy loam. This soil is poorly drained and is on uplands of the Coastal Plain. It is in broad, flat, low areas along poorly defined drainageways and in depressional areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 300 acres, but generally are 50 to 100 acres.

Typically, the surface layer is black fine sandy loam about 7 inches thick. The subsoil is sandy clay loam. From a depth of 7 to 25 inches, it is grayish with brownish and yellowish mottles; from 25 to 45 inches, it is mottled in shades of gray, yellow, and red; and from 45 to 58 inches, it is grayish with yellowish, reddish, and brownish mottles. The substratum from a depth of 58 to 70 inches is stratified sandy clay loam, sandy clay, and sand mottled in shades of gray and yellow, and from 70 to 85 inches, it is gray sand.

Included with this soil in mapping are small areas of Gourdin, Yemassee, Hornsville, Cape Fear, and Paxville soils. The included soils make up less than 25 percent of the map unit.

This Ogeechee soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is within 0.5 foot of the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is very strongly acid or strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains. The seasonal high water table is a concern in management, but surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping removes excess water more rapidly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture.

This Ogeechee soil is well suited to woodland species commonly grown in the county for commercial purposes.

Figure 8.—The Longlands Plantation House is shaded by live oak trees. The soil is Noboco loamy fine sand, 0 to 2 percent slopes.

Loblolly pines do well on this soil. Because of a seasonal high water table, equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are concerns in management. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation; however, surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is moderately well suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Using surface drainage systems and shaping the land to increase surface runoff can reduce problems caused by the high water table. Wetness and ponding are severe limitations in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by these limitations can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Ogeechee soil is in capability subclass IIIw.

Px—Paxville fine sandy loam. This soil is very poorly drained and is on uplands of the Coastal Plain. It is in broad, flat, low areas and depressional areas of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 250 acres, but generally are 10 to 50 acres.

Typically, the surface layer is black fine sandy loam about 13 inches thick. The next layer, from a depth of 13 to 20 inches, is grayish sandy loam. The subsoil from a depth of 20 to 30 inches is grayish sandy loam; from 30 to 48 inches, it is grayish sandy clay loam that has brownish mottles; and from 48 to 65 inches, it is brownish sandy loam and sandy clay loam that has streaks of grayish and white sand. The substratum from a depth of 65 to 90 inches is sand mottled in shades of gray, white, and yellow.

Included with this soil in mapping are small areas of Johnston, Rutlege, Leon, Foreston, Ogeechee, and Yemassee soils. Also included are small areas of poorly drained, sandy soils. The included soils make up less than 25 percent of the map unit.

This Paxville soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1 foot above the surface to 1 foot below the surface. Surface runoff is ponded to very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains. The seasonal high water table is a concern in management, but surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture in drier periods.

This Paxville soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, because of the seasonal high water table, equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are concerns in management. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation; however, surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is moderately well suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table. Problems caused by the high water table are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil also has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table (fig. 9). The effects of these limitations can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by these limitations can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Paxville soil is in capability subclass IIIw.

Ra—Rains fine sandy loam. This soil is poorly drained and is on uplands of the Coastal Plain. It is in broad, flat, low areas along poorly defined drainageways and in depressional areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 550 acres, but generally are 25 to 150 acres.

Typically, the surface layer is grayish fine sandy loam about 6 inches thick. The subsurface layer, from a depth of 6 to 11 inches, is brownish fine sandy loam. The subsoil from a depth of 11 to 20 inches is grayish sandy loam that has brownish mottles; from 20 to 60 inches, it is grayish sandy clay loam that has reddish, brownish, and grayish mottles; and from 60 to 80 inches, it is grayish sandy loam that has reddish, brownish, and grayish mottles.

Included with this soil in mapping are small areas of Goldsboro, Lynchburg, Foreston, Coxville, Paxville, and

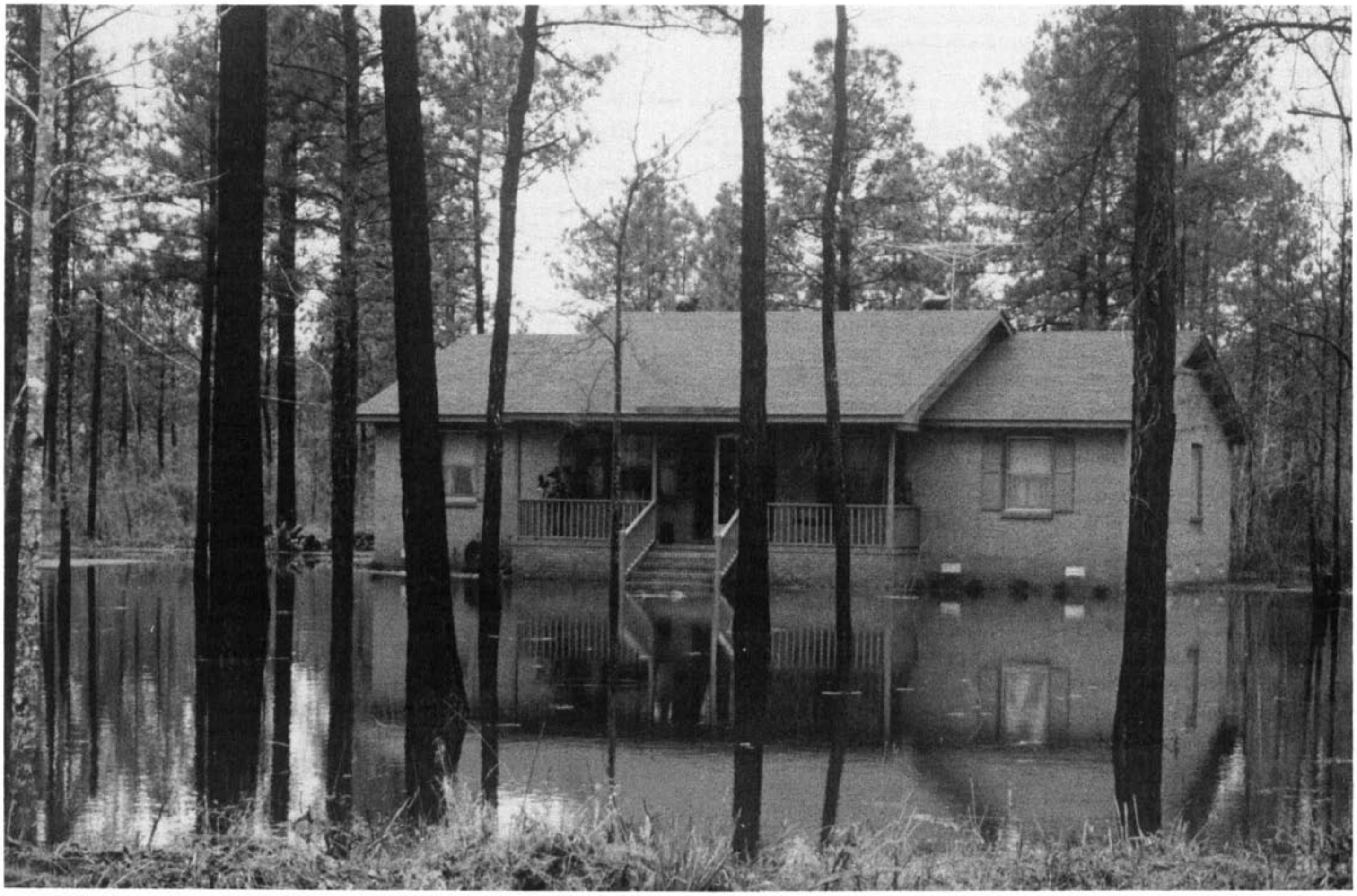


Figure 9.—Because water ponds in many areas of Paxville fine sandy loam, this soil is not suited to use as sites for dwellings.

Byars soils. The included soils make up less than 20 percent of the map unit.

This Rains soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is within 1 foot of the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid or strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains. The seasonal high water table is a concern in management, but surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture in drier periods.

This Rains soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil; however, because of a seasonal high water table, severe equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are concerns in management (fig. 10). These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation, but surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is moderately well suited to use as habitat for upland wildlife and well suited to use as habitat for wetland wildlife.

Figure 10.—Prescribed burning is used to control understory vegetation in timber production on Rains fine sandy loam.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil also has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Limitations caused by the high water table can be reduced by using surface drainage systems and by shaping the land to increase surface runoff. Wetness and ponding are severe limitations in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by these limitations can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Rains soil is in capability subclass IIIw.

RsB—Rimini sand, 0 to 6 percent slopes. This soil is nearly level to gently sloping and is excessively drained. It is on rims of Carolina Bays on uplands of the Coastal Plain and on high ridges on the flood plain of the Black River. Most areas are crescent to irregularly shaped. They range from 5 to 150 acres, but generally are 10 to 30 acres.

Typically, the surface layer is grayish sand about 5 inches thick. The subsurface layer, from a depth of 5 to 55 inches, is white sand. The subsoil is brownish sand from a depth of 55 to 75 inches.

Included with this soil in mapping are small areas of Leon, Lynn Haven, Candor, and Foxworth soils. Also included are small areas of soils, similar to the Rimini soils, that have been mined for sand. The included soils make up less than 20 percent of the map unit.

This Rimini soil is very rapidly permeable in the upper part and moderately permeable in the lower part. The available water capacity is very low. This soil does not have a seasonal high water table within a depth of 6 feet. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to medium acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of low available water capacity, the hazard of wind erosion, and the low nutrient-holding capacity. Because problems caused by these limitations are difficult to correct, it generally is not feasible to use this soil as cropland. Conservation tillage, winter cover crops, and crop residue on the surface can help conserve moisture.

This Rimini soil is very poorly suited to woodland species commonly grown in the county for commercial purposes. Sand pine and longleaf pine are adapted to this soil. Because of droughtiness, low fertility, and the thick sandy surface layer, equipment use limitations, seedling mortality, and growth of trees are concerns in management. Using wide-tired or crawler-type equipment and planting high quality seedlings in a shallow furrow can reduce the effect of these problems.

This soil is very poorly suited to pasture and hay because of the thick sandy surface layer, droughtiness, low fertility, and low nutrient-holding capacity. Frequent applications of fertilizers and light, frequent irrigation are needed. Proper stocking and pasture rotation help keep pastures in good condition.

This soil is very poorly suited to use as habitat for upland wildlife and as habitat for wetland wildlife.

This soil is poorly suited to most engineering uses related to community development. The use of this soil is severely limited for septic tank absorption fields because the sandy texture is a poor filtering medium for effluent from the septic system. This limitation has less effect if housing density is restricted. This soil has slight limitations for dwellings without basements and for small commercial buildings. Droughtiness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by droughtiness can be reduced by planting drought-tolerant species and by irrigating during growing periods. Mulches, frequent light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Rimini soil is in capability subclass VIs.

Rt—Rutlege loamy sand, ponded. This soil is very poorly drained and is on uplands of the Coastal Plain. It is on broad flats, along poorly defined drainageways, and in depressional areas of the interstream divide and in Carolina Bays. Most areas are irregularly shaped to oval. They range from 5 to 100 acres, but generally are 20 to 50 acres.

Typically, the surface layer is black loamy sand about 13 inches thick. The underlying material from a depth of 13 to 55 inches is grayish loamy sand, and from 55 to 65 inches, it is grayish sandy loam.

Included with this soil in mapping are small areas of Leon, Lynn Haven, Paxville, and Johnston soils. The included soils make up less than 25 percent of the map unit.

This Rutlege soil is rapidly permeable, and the available water capacity is low. The seasonal high water table is 2 feet above the surface to 1 foot below the surface. Surface runoff is ponded to very slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is very poorly suited to row crops and small grains because of the low available water capacity and the seasonal high water table. Because problems caused by these limitations are difficult to correct, it generally is not feasible to use this soil as cropland. If this soil is used for crops, conservation tillage, winter cover crops, and crop residue on the surface can help conserve moisture.

This Rutlege soil is well suited to woodland species commonly grown in the county for commercial purposes. Water-tolerant hardwoods do well on this soil. Because of a seasonal high water table, severe equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are concerns in management. These problems can be reduced by planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is very poorly suited to pasture and hay because of the seasonal high water table and droughtiness. Surface drainage systems can remove excess water, and frequent applications of fertilizer can increase production significantly. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is poorly suited to use as habitat for upland wildlife and moderately well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. Problems caused by these limitations are difficult and costly to correct, and the technology needed is generally unfeasible or unavailable. This soil has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. These limitations have less effect if surface drainage systems are used and if the land is shaped to increase surface runoff. Wetness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by these limitations can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting species that tolerate wet conditions.

This Rutlege soil is in capability subclass VIw.

TmA—Tomahawk loamy sand, 0 to 2 percent slopes. This soil is moderately well drained and is on uplands of the Coastal Plain. It is on low ridges and in broad, flat to slightly depressional areas of the interstream divide. Most areas are irregularly shaped. They range from 5 to 100 acres, but generally are 20 to 50 acres.

Typically, the surface layer is grayish loamy sand about 10 inches thick. The subsurface layer, from a depth of 10 to 23 inches, is brownish loamy sand. The subsoil from a depth of 23 to 45 inches is yellowish sandy loam that has grayish mottles; from 45 to 50 inches, it is brownish sandy loam that has reddish and grayish mottles, and from 50 to 72 inches, it is brownish loamy sand.

Included with this soil in mapping are small areas of Foreston, Kenansville, Leon, Paxville, and Rutlege soils. The included soils make up less than 25 percent of the map unit.

This Tomahawk soil is moderately permeable, and the available water capacity is low. The seasonal high water table is 1.5 to 3 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is moderate. Unless lime has been added, this soil is very strongly acid or strongly acid in the upper part and very strongly acid to slightly acid in the lower part.

This soil is used mostly as cropland.

This soil is moderately well suited to row crops and small grains. The thick sandy surface layer, seasonal high water table, droughtiness, leaching of nutrients, and soil blowing are limitations. Problems caused by these limitations can be reduced by draining low areas, applying fertilizers in frequent applications, and planting drought-tolerant crops. Soil blowing is reduced if windstrips and row arrangement are perpendicular to wind direction. Light, frequent irrigation during the growing season increases yields significantly. Conservation tillage, winter cover crops, and crop residue on the surface conserve moisture and reduce the hazard of erosion.

This Tomahawk soil is moderately suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. Because of the thick sandy surface layer, droughtiness, and low fertility, equipment use limitations and seedling mortality are concerns in management. These problems can be reduced by using wide-tired or crawler-type equipment and by planting high quality seedlings in a shallow furrow.

This soil is well suited to pasture and hay; however, the thick sandy surface layer is a limitation. More frequent applications of fertilizer and light, frequent irrigation can reduce the problems caused by this limitation. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is moderately well suited to most engineering uses related to community development. The use of this soil is severely limited for septic tank absorption fields because of a seasonal high water table. Problems caused by this limitation can be reduced by modifying and designing the system to allow a deeper filtering zone between the seasonal water table and trench bottom. Restricting the number of systems in a given area also reduces the risk of contamination of ground water. This soil has moderate limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Problems caused by the high water table can be reduced by properly designed surface and subsurface drainage systems and by shaping and filling the lot to eliminate low-lying areas. Proper design of surface drainage systems is needed to prevent caving. Droughtiness is a moderate limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by droughtiness can be reduced by planting drought-tolerant species and by irrigating during growing periods. Mulches, frequent light applications of fertilizers, and irrigation aid in establishing lawns and fairway turf.

This Tomahawk soil is in capability subclass IIw.

Ud—Udorthents, loamy. The soils of this map unit have variable drainage conditions. Areas of these soils occur throughout the county. Most areas are irregularly shaped. They range from 5 to 100 acres, but generally are 5 to 20 acres.

Typically, this map unit is a nonhomogenous mixture consisting of mostly loamy soil material with some intermingled sandy and clayey soil.

Included in this map unit are industrial and urban areas where the soil has been cut and filled, borrow pits, sanitary landfills, and industrial disposal areas.

The soils in this map unit are very rapidly permeable to very slowly permeable. The available water capacity is variable. These soils do not have a seasonal high water table within a depth of 6 feet. Surface runoff is variable, and the hazard of water erosion is slight to moderate. The hazard of wind erosion is slight. These soils are extremely acid to mildly alkaline.

Because of the variable soil properties of the soils in this map unit, the suitability for all uses needs to be determined onsite.

Wh—Wahee sandy loam. This soil is somewhat poorly drained and is on uplands of the Coastal Plain. It is on low ridges and in slightly depressional areas between ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 450 acres, but generally are 25 to 200 acres.

Typically, the surface layer is grayish sandy loam about 5 inches thick. The next layer, from a depth of 5 to 12 inches, is brownish loam that has grayish and yellowish mottles. The subsoil from a depth of 12 to 20 inches is brownish clay that has reddish and grayish mottles; from 20 to 56 inches, it is grayish clay that has yellowish and reddish mottles; and from 56 to 80 inches, it is grayish sandy clay and sandy clay loam that has yellowish and reddish mottles.

Included with this soil in mapping are small areas of Cape Fear, Gourdin, Hornsville, and Yemassee soils. The included soils make up less than 20 percent of the map unit.

This Wahee soil is slowly permeable, and the available water capacity is high. The seasonal high water table is 0.5 foot to 1.5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. This soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as woodland.

This soil is well suited to row crops and small grains. The seasonal high water table and slow permeability are limitations, but surface drainage systems can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture in drier periods.

This Wahee soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil. Because of a seasonal high water table, moderate equipment use limitations in planting and harvesting trees, seedling mortality, and plant competition are concerns in management. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation, but surface drainage systems can remove excess water. Proper stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and poorly suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. It has severe limitations for septic tank absorption fields because of the seasonal high water table and clayey subsoil. Problems caused by these limitations can be reduced by additions of fill material or by a modified system that has field lines installed at a depth that allows a deeper filtering zone between the trench bottom and the high water table. This system generally requires increasing the absorption field size and shaping the land to increase surface runoff. This soil also has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Problems caused by the high water table can be reduced by surface drainage systems and by shaping the land to increase surface runoff. Wetness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by wetness can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Wahee soil is in capability subclass IIw.

Ym—Yemassee sandy loam. This soil is somewhat poorly drained and is on uplands of the Coastal Plain. It is on low ridges and in slight depressions between ridges on broad flats of the interstream divide. Most areas are irregularly shaped. They range from 5 to 300 acres, but generally are 25 to 150 acres.

Typically, the surface layer is grayish sandy loam about 6 inches thick. The subsoil from a depth of 6 to 8 inches is yellowish sandy loam that has brownish and reddish mottles. From 8 to 56 inches, it is grayish sandy clay loam and sandy clay that has grayish, reddish, yellowish, and brownish mottles. The substratum from a depth of 56 to 80 inches is grayish stratified sandy loam, sandy clay loam, and sandy clay.

Included with this soil in mapping are small areas of Eunola, Hornsville, Ogeechee, Paxville, and Wahee soils. The included soils make up less than 20 percent of the map unit.

This Yemassee soil is moderately permeable, and the available water capacity is moderate. The seasonal high water table is 1 foot to 1.5 feet below the surface. Surface runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is also slight. The soil is extremely acid to strongly acid except where lime has been added.

This soil is used mostly as cropland, and it is well suited to row crops and small grains. The seasonal high water table is a concern in management, but surface or subsurface drainage systems, or a combination of both, can remove excess water. Land shaping to increase surface runoff removes excess water more rapidly. Conservation tillage, winter cover crops, and crop residue on the surface help conserve moisture in drier periods.

This Yemassee soil is well suited to woodland species commonly grown in the county for commercial purposes. Loblolly pines do well on this soil (fig. 11); however, equipment use limitations in planting and harvesting trees and plant competition, which are caused by wetness, are concerns in management. These problems can be reduced by removing excess water, planting seedlings on beds, harvesting and planting trees during the dry periods, and by using wide-tired and crawler-type equipment. Plant competition from naturally regenerated hardwoods is reduced if desired species are planted soon after harvesting.

This soil is well suited to pasture and hay. The seasonal high water table is a limitation, but surface drainage systems can remove excess water. Proper

Figure 11.—Yemassee sandy loam is well suited to loblolly pine.

stocking, pasture rotation, and restricted use during rainy periods help keep pastures in good condition.

This soil is well suited to use as habitat for upland wildlife and moderately well suited to use as habitat for wetland wildlife.

This soil is very poorly suited to most engineering uses related to community development. Limitations are severe for septic tank absorption fields because of the seasonal high water table. Problems caused by the high water table can be reduced by additions of fill material and by a modified system that has field lines at a depth that allows a deeper filtering zone between the trench bottom and the high water table. This system generally requires increasing the absorption field size and shaping the land to increase surface runoff. This soil has severe limitations for dwellings without basements and for small commercial buildings because of the seasonal high water table. Using surface drainage systems and shaping the land to increase surface runoff can reduce the problems caused by these limitations. Wetness is a severe limitation in establishing and maintaining golf fairways, lawns, shrubbery, shade trees, and ornamental plants used in landscaping. Problems caused by wetness can be reduced by using surface drainage, by shaping the land to increase surface runoff, and by planting water-tolerant species.

This Yemassee soil is in capability subclass IIw.

Prime Farmland

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

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

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

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

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 6 percent.

About 281,308 acres, or 47 percent of Williamsburg County, is prime farmland. Appropriate measures have been applied to some soils to overcome a hazard or limitation, such as wetness.

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

Soils that have limitations, such as a high water table or flooding, may qualify as prime farmland if these limitations are overcome by such measures as drainage or flood control. In the following list, the measures needed to overcome the limitations of a map unit, if any, are shown in parentheses after the map unit name. Onsite evaluation is necessary to determine if the limitations have been overcome by the corrective measures.

EmA	Emporia loamy sand, 0 to 2 percent slopes
EmB	Emporia loamy sand, 2 to 6 percent slopes
EpB	Emporia loamy sand, gently undulating
EuA	Eunola loamy sand, 0 to 2 percent slopes
FoA	Foreston fine sand, 0 to 2 percent slopes
GoA	Goldsboro loamy fine sand, 0 to 2 percent slopes
HvA	Hornsville sandy loam, 0 to 2 percent slopes
HvB	Hornsville sandy loam, 2 to 6 percent slopes
IzA	Izagora Variant sandy loam, 0 to 2 percent slopes
JoA	Johns fine sandy loam, 0 to 2 percent slopes
Ln	Lynchburg fine sandy loam (where drained)
Na	Nahunta Variant sandy loam (where drained)
NoA	Noboco loamy fine sand, 0 to 2 percent slopes
Ym	Yemassee sandy loam (where drained)

Use and Management of the Soils

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

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

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

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

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

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

Crops and Pasture

Gene Hardee, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

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

About 160,000 acres in Williamsburg County was used as pasture, hayland, or cropland in 1978, according to the Williamsburg Soil and Water Conservation District. Of this, about 145,000 acres was used for field crops, mainly soybeans, corn, tobacco, and wheat (fig.12).

In Williamsburg County, the suitability of the soils is good for increased production of food. In 1967, according to the County Resources Inventory, more than 330,000 acres of potentially good cropland was woodland or pastureland. In addition to converting this land to cropland, the production of food can be increased by extending the latest crop production technology to all cropland in the county. This soil survey can greatly facilitate the application of such technology.

In general, the soils in the county that are well suited to use for crops and pasture are also well suited to urban development. According to the 1982 County Resources Inventory, an estimated 7,850 acres was urban and built-up land. Urban and built-up land in the county has grown at the rate of about 200 acres per year. The use of this soil survey to help make land use decisions that will influence the future role of farming in the county is discussed in the section "Broad Land Use Considerations."

Soil erosion is a major concern on only about 5 percent of the land in Williamsburg County. It is a hazard on less than 10 percent of the pasture and cropland. Water erosion commonly is a hazard on soils that have slopes of more than 2 percent or very long slopes of 1 to 2 percent. Wind erosion is a concern on clean-tilled, sandy soils; however, most of the damage by wind movement of soil particles is damage to young plants rather than actual soil loss.

Loss of the surface layer through erosion is damaging. Productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as the Emporia soils, and it reduces productivity on deep, sandy soils, such as

Figure 12.—Soybeans, corn, and tobacco are the main row crops in Williamsburg County. This cropland is Noboco loamy fine sand, 0 to 2 percent slopes.

the Candor, Foxworth, and Rimini soils. Soil erosion on farmland also results in sediment entering streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

Preparation of a good seedbed and tillage are difficult on clayey spots in some sloping fields where the original friable surface layer has eroded away. Such spots commonly are in the most sloping, intensively cropped areas of the Emporia soils.

Water erosion can best be controlled by a combination of structural measures, which remove excess water from the field, and cropping and tillage systems, which provide surface cover and reduce runoff. Structural measures, such as diversions, terraces, and grassed waterways, reduce the length of slope and remove excess water from the field.

Contour tillage reduces the amount and velocity of runoff. Cropping systems that include sod crops in rotation and tillage that leaves protective residue on the surface provide protective surface cover, reduce runoff, and increase infiltration. Legume and grass forage crops in the cropping system on livestock farms reduce erosion and provide nitrogen for the crop that follows.

Commonly, areas of sloping soils in the county are small in size and are irregular in shape and topography. Erosion control systems consisting of such practices as contour farming, contour stripcropping, and conservation tillage reduce the amount and velocity of runoff and do not concentrate the runoff. These practices are effective and compatible on sloping soils.

Information on the design of erosion control practices for each kind of soil is available in the local office of the Soil Conservation Service.

Damage to young plants by soil blowing is a management concern on the Autryville, Candor, Chisolm, Chipley, Emporia, Eunola, Foreston, Bonneau, Kenansville, Foxworth, Noboco, and Tomahawk soils. In long, unprotected fields, the damage to young plants is a greater concern. Conservation tillage, permanent vegetated strips, and strips of close-growing crops protect sandy soils that are subject to blowing.

Soil drainage is a major management concern on about 80 percent of the soils in Williamsburg County. Drainage to the extent needed for cropland and hayland is feasible on about 80 percent of the soils that have a wetness problem. Drainage commonly is feasible on the Coxville, Eunola, Izagora Variant, Foreston, Goldsboro, Lynchburg, Ogeechee, Daleville Variant, Paxville, Rains, Yemassee, Nahunta Variant, and Wahee soils, and in some areas of the Byars, Chipley, Johns, Leon, and Lynn Haven soils. Drainage is generally not feasible on the Cape Fear, Gourdin, Rutlege, Mouzon, Hobcaw, Chastain, Tawcaw, and Johnston soils because of inadequate outlets or the hazard of frequent flooding.

Low available water capacity is a limitation on the Autryville, Bonneau, Candor, Chisolm, Chipley, Foreston, Foxworth, Kenansville, Rimini, and Tomahawk soils. This limitation can be reduced through crop residue management, proper crop selection, and irrigation. These soils are well suited to pasture grasses, such as bahiagrass and bermudagrass, and drought-tolerant crops, such as grain sorghum. Also, because of the rapid leaching of nutrients from these soils, frequent applications of fertilizer and lime are needed for good plant growth.

Soil fertility is naturally low in most soils in Williamsburg County. Regular applications of lime and fertilizer are needed. Nearly all of the soils are naturally medium acid, strongly acid, or very strongly acid. Commonly, they require regular applications of ground limestone to raise and maintain the pH sufficient for good crop growth. Available phosphorus and potash are naturally low in most of these soils. Fertilizers should be applied in split applications on the deep sandy soils to reduce losses by leaching. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. The surface layer of most soils in Williamsburg County is sand or loamy sand and is granular, porous, and has weak structure. These conditions are generally ideal for good germination of seeds and infiltration of water; however, the soils generally are very low in organic matter, and the retention of moisture in the surface layer is low.

Fall tillage generally is not a good practice on the gently sloping soils that are subject to erosion by water or on soils that are subject to soil blowing. If fall tillage operations are performed on these soils following corn or soybeans, equipment should be used that leaves a significant amount of residue on the surface. Fall tillage is used as an important component in insect and disease control for some crops, such as tobacco. In such cases, a winter cover crop should be planted following the fall tillage.

Field crops suited to the soils and climate of Williamsburg County include many that are not commonly grown. Soybeans, corn, and tobacco are the principal row crops. A small acreage of cropland is used for cotton, peanuts, and grain sorghum. Wheat and rye are the common close-growing crops; however, oats, barley, pearl millet, sudangrass, and several close-growing legumes, such as alfalfa, arrowleaf clover, crimson clover, and sericea lespedeza, can be grown for forage or seed. The principal perennial grasses grown for forage are Pensacola bahiagrass and Coastal bermudagrass.

Special crops in the county include cucumbers, tomatoes, cabbage (fig. 13), melons, gladiolus, peaches, and pecans. A small acreage is used for field peas, lima beans, sweet corn, collards, turnips, and strawberries. Large areas can be adapted to these and other special crops, such as blueberries and grapes.

Deep soils that have good natural drainage, moderate to high available water capacity, and that warm early in the spring are especially well suited to many vegetables. In this county, crops generally can be planted and harvested early on the Noboco and Emporia soils.

More information and suggestions for growing crops and pastures can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields Per Acre

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

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

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties;

Figure 13.—Lynchburg fine sandy loam is one of the soils in Williamsburg County used for special crops, such as cabbage.

appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that insures the smallest possible loss.

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

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major, and generally expensive, landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

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

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

Class I soils have few limitations that restrict their use.

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

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

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

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

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

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

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

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

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

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

Woodland Management and Productivity

Norman Runge, forester, Soil Conservation Service, helped prepare this section.

Originally, Williamsburg County was mainly forested. Forests now cover 65 percent, or 388,860 acres of the county. Good stands of commercial trees are produced. Pine species are mainly on the hills, and hardwood species generally are dominant on bottom lands along rivers and creeks.

Sixty-nine percent of the forest land is in southern pine and upland hardwood forest types. Dominant pine species are longleaf, slash, loblolly, and shortleaf pines. Upland hardwood species are oak and hickory. The rest is bottom land hardwood forest types, primarily oak, gum, and cypress.

The commercial value of forest products in Williamsburg County is substantial. It is, however, much below the potential productive capacity, although present growth is 75 percent greater than the amount harvested.

Much of the existing commercial forest would benefit if stands were improved by weeding out undesirable species. Continued protection from grazing and fire and control of diseases and insects are also needed to improve stands. The level of forest management has improved significantly during recent years. Uncontrolled burning, which was generally practiced in the area about two decades ago, has given way to fire protection or prescribed burning, or both. Additional forest management practices include genetically improved seedlings, natural regeneration, and fertilization.

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

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

The first tree listed for each soil under the column "Common trees" is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

Table 7 lists the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

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

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

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

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

The soils that are commonly used to produce timber have the yield predicted in cubic feet and board feet. The yield is predicted at the point where mean annual increment culminates. The productivity of the soils in this survey is mainly based on loblolly pine, but other species are also used where appropriate.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The procedure and technique for doing this are given in the site index tables used for the Williamsburg County soil survey *(3, 4, 5, 6, 7, 8, 10, 11, 14)*.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71. For example, a productivity class of 8 means the soil can be expected to produce 114 cubic feet per acre per year at the point where mean annual increment culminates, or about 568 board feet per acre per year.

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

Recreation

In table 8, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

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

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

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

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

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

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

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

William J. Melven, biologist, Soil Conservation Service, helped prepare this section.

Williamsburg County has a wide variety of wildlife habitat supporting many different species. The big game species, white-tailed deer, and eastern wild turkey have high populations along the Santee River system and medium dense populations throughout the rest of the county. Among the small game species, bobwhite quail have high populations throughout the county. The county is well known for quail hunting, and many plantations are managed specifically for this purpose. In fall, the mourning dove population is high in the northern part of the county where farming is more intensive.

About 72 percent of the land in the county is some type of woodland, and 27 percent is cropland scattered throughout the county. This creates a diversity well suited to high quail populations, and the large unbroken tracts of woodland provide plenty of escape cover for deer. According to wildlife habitat evaluations, about 250,000 acres of openland wildlife habitat and about 315,000 acres of woodland wildlife habitat are in the county. In this survey, woodland and openland wildlife are also referred to as upland wildlife.

Among the threatened and endangered wildlife species in the county are the red-cockaded woodpecker and the American alligator. The South Carolina Heritage Trust Program identified several areas of significance, which include plant and animal communities.

Wildlife is an economic resource for the county. Land is being leased for hunting and fishing rights at an increasing rate. This appears to be a trend. The water resources in the county include 16 lakes and the Black River.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

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

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

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, and oats.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are bahiagrass, bermudagrass, clover, and common lespedeza.

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

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

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

Wetland plants are annual and perennial, wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, and slope. Examples of native wetland plants are smartweed, wild millet, cutgrass, maidencane, rushes, sedges, lizards tail, cattails, and pickerelweed.

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

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

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, dove, various nongame birds, rabbits, and fox.

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

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

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet, and because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

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

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

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to restrictive layers within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

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

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

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

Building Site Development

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

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

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

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost-action potential, and depth to a high water table affect the traffic-supporting capacity.

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

Sanitary Facilities

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

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

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, and flooding affect absorption of the effluent.

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

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

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

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems, and large stones can hinder compaction of the lagoon floor.

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

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

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

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

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

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

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

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

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

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

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

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

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

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of cobbles or stones, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

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

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

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

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

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

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

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

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

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

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness and slope affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 17.

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

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "cobbly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2, 9)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

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

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

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 17.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

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

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

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They influence the soil's absorption of cations, moisture retention, shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

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

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

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

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions:

1. Sands, coarse sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Loamy soils that are less than 18 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 18 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Soil and Water Features

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

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

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

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have 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.

Some of the soils are shown in table 16 with dual hydrologic groups, for example B/D. This means that under natural conditions the soil is in group D, but by artificial methods the water table can be lowered to the point that the soil fits in group B. Onsite investigation is needed, however, to determine the hydrologic group of the soil at any particular location because there are different degrees of drainage and water table control.

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

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

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

The information on flooding is based on evidence in the soil profile, namely, thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons, which are characteristic of soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

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

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

The two numbers in the "High water table-Depth" column indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that the water table exists for less than a month.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 17 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by the South Carolina Department of Highways and Public Transportation.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(13)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquults (*Aqu*, meaning water, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Umbraquults (*Umbra*, meaning dark horizonation, plus *aquults*, the suborder of the Ultisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Umbraquults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, thermic Typic Umbraquults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series. An example is the Hobcaw series, which is a member of the fine-loamy, siliceous, thermic family of Typic Umbraquults.

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the *Soil Survey Manual (12)*. Many of the technical terms used in the descriptions are defined in *Soil Taxonomy (13)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Autryville Series

The Autryville series consists of well drained soils that formed in loamy and sandy marine sediments. These soils are in upland areas of the Coastal Plain on broad flats of the interstream divide. They are on the higher ridges and rises within a string of ancient barrier islands and remnants of islands at higher elevations throughout the county. Slopes are 0 to 2 percent. These soils are loamy, siliceous, thermic Arenic Paleudults.

Autryville soils are associated on the landscape with Foreston, Lynchburg, Paxville, and Rains soils. The Foreston soils are in slightly lower positions than those of the Autryville soils and have a sandy surface layer less than 20 inches thick. The Lynchburg, Paxville, and Rains soils are in lower positions and are Aquults.

Typical pedon of Autryville sand, 0 to 2 percent slopes; 2.1 miles north on South Carolina Highway 186 from its intersection with South Carolina Highway 261 in Kingstree, 20 feet west of highway.

A—0 to 7 inches; dark grayish brown (10YR 4/2) sand; weak medium granular structure; very friable; few fine roots; medium acid; clear smooth boundary.

E—7 to 22 inches; pale brown (10YR 6/3) sand; weak medium granular structure; very friable; few fine roots; medium acid; clear smooth boundary.

BE—22 to 27 inches; yellowish brown (10YR 5/4) loamy sand; weak medium subangular blocky structure parting to weak fine granular; friable; few fine roots; few fine pores; common sand grains coated and weakly bridged with clay; strongly acid; clear wavy boundary.

Bt—27 to 42 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few fine roots; common fine pores; few faint clay films on surface of most peds; most sand grains coated and weakly bridged with clay; few clean white sand grains; strongly acid; gradual wavy boundary.

BE'—42 to 47 inches; yellowish brown (10YR 5/6) loamy sand; few fine distinct light brownish (10YR 6/2) gray mottles; weak coarse subangular blocky structure; friable; few fine roots; few fine pores; most sand grains coated and weakly bridged with clay; strongly acid; gradual wavy boundary.

E'—47 to 62 inches; pale brown (10YR 6/3) loamy sand; few fine faint yellowish brown and light gray mottles; weak coarse blocky structure parting to weak fine granular; very friable; few fine roots; about 40 percent of sand grains coated and weakly bridged with clay; slightly acid; clear smooth boundary.

B't—62 to 80 inches; yellowish brown (10YR 5/8) sandy clay loam; common coarse distinct gray (10YR 5/1) mottles; weak medium and coarse subangular blocky structure; firm; few fine roots; few faint clay films on surface of most peds; few pockets of sand; very strongly acid.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is sand or loamy sand.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is sand or loamy sand.

The Bt horizon has hue of 10YR, value of 5 or 7, and chroma of 4 to 8. In some pedons, this horizon contains mottles in shades of brown and yellow, has a few white sand grains on ped surfaces, or contains a few plinthite nodules. The Bt horizon is sandy loam or sandy clay loam.

The E' horizon has hue of 10YR, value of 5 to 8, and chroma of 1 to 4. In some pedons, it contains mottles in shades of brown, yellow, or gray. This horizon is sand or loamy sand.

The B't horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 to 8. Most pedons contain mottles in shades of red, yellow, brown, or gray, or the horizon is mottled in these colors. This horizon is sandy loam or sandy clay loam.

Bonneau Series

The Bonneau series consists of well drained soils that formed in loamy and sandy marine sediments. These soils are in upland areas of the Coastal Plain. They are on higher ridges and slight rises near the outer edge of broad flats on the interstream divide. Slopes are 0 to 2 percent. These soils are loamy, siliceous, thermic Arenic Paleudults.

Bonneau soils are associated on the landscape with Coxville, Goldsboro, Noboco, and Rains soils. The Coxville and Rains soils are in lower positions on the landscape than the Bonneau soils and are Aquults. The Goldsboro and Noboco soils are in positions similar to those of the Bonneau soils but have a surface layer less than 20 inches thick.

Typical pedon of Bonneau fine sand, 0 to 2 percent slopes; 1.4 miles south of the intersection of U.S. Highway 521 and South Carolina Highway 167 in Salters, 0.4 mile southeast on field road, and 0.1 mile east, in woods.

A—0 to 7 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; few fine pores; few clean sand grains; strongly acid; abrupt wavy boundary.

E—7 to 22 inches; pale yellow (2.5Y 7/4) sand; few medium distinct dark grayish brown (10YR 4/2) mottles and common medium faint light yellowish brown (2.5Y 6/4) mottles; weak fine granular structure; very friable; few fine roots; few fine pores; few black grains; few clean sand grains; few old root channels filled with material from A horizon; strongly acid; clear wavy boundary.

Bt1—22 to 27 inches; very pale brown (10YR 7/4) loamy sand; common medium distinct strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; very friable; few fine and medium roots; common fine pores; few clean sand grains; strongly acid; gradual wavy boundary.

Bt2—27 to 40 inches; yellowish brown (10YR 5/8) sandy loam; few medium distinct strong brown (7.5YR 5/6) mottles; moderate fine and medium subangular blocky structure; friable; few fine and medium roots;

common fine pores; few faint clay films along root channels, pore walls, and faces of peds; few brittle nodules with red interior and yellow exterior; strongly acid; gradual wavy boundary.

Bt3—40 to 50 inches; light yellowish brown (10YR 6/4) sandy clay loam; moderate fine and medium subangular blocky structure; friable; few fine and medium roots; common fine pores; few faint clay films along root channels, pore walls, and on faces of peds; few brittle nodules with red interior and yellow exterior; strongly acid; clear wavy boundary.

Btg1—50 to 58 inches; light gray (10YR 7/1) sandy clay loam; many medium distinct pale brown (10YR 6/3) mottles; weak coarse subangular blocky structure parting to moderate medium subangular blocky; friable; few fine roots; common fine pores; few clean sand grains; few faint clay films on ped faces and along root channels; common brittle nodules that crush with little pressure; few plinthite nodules; strongly acid; gradual wavy boundary.

Btg2—58 to 75 inches; light gray (10YR 7/1) sandy clay loam; few coarse prominent yellowish red (5YR 5/8) mottles and common coarse distinct yellow (10YR 7/8) mottles; weak coarse subangular blocky structure; friable; few fine roots; few fine pores; few faint clay films on ped faces and along root channels; strongly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand, fine sand, or loamy sand.

The E horizon has hue of 10YR or 2.5Y, value of 4 to 8, and chroma of 3 to 6. In some pedons, this horizon contains mottles in shades of gray, brown, and yellow. It is sand, fine sand, or loamy sand.

The upper part of the Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 8. Mottles in shades of red and brown are in some pedons. The lower part has the same hue and value as the upper part but has chroma of 1 to 8 and mottles in shades of red, yellow, brown, and gray; or it is mottled in these colors. The Bt horizon is loamy sand, sandy loam, fine sandy loam, sandy clay loam, or sandy clay.

Byars Series

The Byars series consists of very poorly drained soils that formed in clayey marine sediment. These soils are in upland areas of the Coastal Plain. They are in depressional areas, along poorly defined drainageways, and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Byars soils are clayey, kaolinitic, thermic Umbric Paleaquults.

The Byars soils in Williamsburg County are taxadjuncts to the Byars series because they have slightly less clay in the upper 20 inches of the argillic horizon. This difference does not affect the use, management, and behavior of the soils.

Byars soils are associated on the landscape with Coxville, Goldsboro, Lynchburg, and Rains soils, which do not have an Umbric epipedon. Coxville and Rains soils are in positions similar to those of the Byars soils, and Goldsboro and Lynchburg soils are in higher positions.

Typical pedon of Byars sandy loam; 4.1 miles west on South Carolina Highway 28 from Cades, 0.8 mile northeast on South Carolina Highway 454, 1.2 miles north on South Carolina Highway 386, 0.5 mile west on field road, 350 feet south of field road, and 150 feet east of ditch.

Ap—0 to 12 inches; black (10YR 2/1) sandy loam; weak fine granular structure; friable; few fine and medium roots; few fine pores; slightly acid; abrupt smooth boundary.

BA—12 to 16 inches; dark gray (10YR 4/1) sandy loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; very strongly acid; clear wavy boundary.

Btg1—16 to 35 inches; dark gray (10YR 4/1) clay loam; few medium distinct dark brown (7.5YR 4/4) mottles and few medium faint gray (10YR 6/1) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; few fine roots; few old root channels filled with material from A horizon; few clean sand grains in pockets and along root channels; very strongly acid; gradual wavy boundary.

Btg2—35 to 58 inches; gray (10YR 5/1) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles and common coarse faint dark gray (10YR 4/1) mottles; weak coarse prismatic structure; very firm; few fine roots; old root channels filled with sand; few pockets of sand; very strongly acid; gradual wavy boundary.

Btg3—58 to 80 inches; gray (10YR 6/1) clay; few coarse faint gray (10YR 5/1) mottles and many medium distinct strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure; extremely firm; common partly decayed tree roots; very strongly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1. It is loam or sandy loam.

The Btg horizon has hue of 10YR, value of 3 to 6, and chroma of 1 or 2. Mottles of higher chroma are in most pedons. This horizon is clay loam, sandy clay, or clay.

Candor Series

The Candor series consists of somewhat excessively drained soils that formed in sandy and loamy marine sediments. These soils are on broad flats, narrow ridges, and side slopes along drainageways on uplands of the Coastal Plain. Slopes are less than 6 percent. The Candor soils are sandy, siliceous, thermic Arenic Paleudults.

Candor soils are associated on the landscape with Bonneau, Chisolm, Foxworth, Kenansville, and Noboco soils. The Bonneau, Chisolm, and Kenansville soils are in positions similar to those of the Candor soils. The Bonneau and Chisolm soils have more clay in the upper part of the subsoil, and the Kenansville soils do not have a second argillic horizon. The Foxworth soils do not have an argillic horizon. The Noboco soils have a sandy surface layer less than 20 inches thick and more clay in the subsoil.

Typical pedon of Candor sand, 2 to 6 percent slopes; 4.6 miles west on South Carolina Highway 527 from the intersection of U.S. Highway 52 in Kingstree, 1.3 miles west on South Carolina Highway 258, 650 feet north, in woodland.

A—0 to 6 inches; grayish brown (10YR 5/2) sand; weak fine granular structure; very friable; common fine and medium roots and few coarse roots; few uncoated sand grains; strongly acid; clear smooth boundary.

E1—6 to 20 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; common fine and medium roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

E2—20 to 29 inches; yellowish brown (10YR 5/4) sand; single grained; loose; common fine and medium roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

Bt—29 to 54 inches; strong brown (7.5YR 5/8) loamy sand; few fine faint yellowish red and yellowish brown mottles; single grained; loose; common fine roots; few uncoated sand grains; very strongly acid; gradual wavy boundary.

E'—54 to 69 inches; light gray (10YR 7/2) sand; single grained; loose; few coated sand grains; strongly acid; clear wavy boundary.

Btg1—69 to 72 inches; gray (10YR 6/1) sandy loam; many coarse distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; most sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

Btg2—72 to 85 inches; gray (10YR 6/1) sandy loam; weak coarse subangular blocky structure; friable; few thin clay films on ped faces; most sand grains coated and bridged with clay; very strongly acid.

The sandy horizons range in thickness from 40 to more than 60 inches.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. It is sand or fine sand.

The E horizon has hue of 10YR, value of 5 to 8, and chroma of 3 to 8. In some pedons, this horizon has mottles in shades of red and brown. The E horizon is sand or fine sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. It has mottles in shades of red and brown and few to common uncoated sand grains. This horizon is loamy sand.

The E' horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 3. It is sand or fine sand.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. In some pedons, it has mottles in shades of yellow, red, or brown. This horizon is sandy loam or sandy clay loam.

Some pedons have a B't horizon that has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 8, or it is mottled in shades of yellow, brown, red, or gray. This horizon is sandy loam or sandy clay loam.

Cape Fear Series

The Cape Fear series consists of very poorly drained soils that formed in sandy and clayey marine sediments. These soils are in upland areas of the Coastal Plain. They are in flat and depressional areas, along poorly defined drainageways, and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Cape Fear soils are clayey, mixed, thermic Typic Umbraquults.

Cape Fear soils in Williamsburg County are taxadjuncts to the Cape Fear series because they have less clay in the argillic horizon than allowed in the series and they also have a thin E horizon that is sand or loamy sand, a sandy loam A horizon, and are extremely acid in the A and Btg1 horizons. These characteristics are outside the range of the Cape Fear series; however, these differences do not significantly affect the use, management, and behavior of the soils.

Cape Fear soils are associated on the landscape with Eunola, Hornsville, Ogeechee, Gourdin, Wahee, and Yemassee soils. These soils do not have an umbric epipedon. Eunola, Hornsville, Wahee, and Yemassee soils are in higher positions than the Cape Fear soils. The Ogeechee and Gourdin soils are in positions similar to those of the Cape Fear soils.

Typical pedon of Cape Fear sandy loam; 5.4 miles southwest of Earle on South Carolina Highway 122, 1.4 miles south on South Carolina Highway 41, 1.3 miles west on dirt road, 0.45 mile north on Oak Ridge Bay Road, 0.45 mile northwest on dirt road, 1 mile north on dirt road, 250 feet east on dirt road, 0.5 mile north on dirt road, 250 feet west on dirt road, 150 feet south of road, in Oak Ridge Bay.

A—0 to 14 inches; very dark gray (10YR 3/1) sandy loam; weak medium subangular blocky structure; very friable; many fine and coarse roots; common fine pores; few clean sand grains; extremely acid; abrupt wavy boundary.

E—14 to 20 inches; light gray (10YR 7/1) loamy sand; many fine and medium faint gray (10YR 6/1) mottles; weak medium granular structure; very friable; common fine roots; few sand grains coated with organic matter; very strongly acid; abrupt wavy boundary.

Btg1—20 to 31 inches; dark gray (10YR 4/1) sandy clay loam; common medium distinct yellowish red (5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium angular blocky; very firm; common fine and medium roots; common fine pores; common faint clay films on surface of peds; few coarse clean sand grains; extremely acid; gradual wavy boundary.

Btg2—31 to 42 inches; dark gray (10YR 4/1) sandy clay loam; many medium distinct reddish yellow (7.5YR 6/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; common fine roots; few fine pores; common faint clay films on surface of peds; few coarse clean sand grains; few pebbles; very strongly acid; gradual wavy boundary.

BCg—42 to 55 inches: gray (10YR 6/1) sandy clay loam; few fine distinct yellow mottles and common medium prominent yellowish red (5YR 5/6) mottles; weak coarse prismatic structure; firm; common flakes of mica; common coarse clean sand grains; few pebbles; very strongly acid; clear wavy boundary.

2Cg—55 to 80 inches; gray (10YR 6/1) sand; common fine and medium distinct brownish yellow (10YR 6/8) mottles; massive; very friable; few flakes of mica; strongly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is loam or sandy loam.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is sand or loamy sand.

The Btg horizon has hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. In some pedons, this horizon has mottles of higher chroma that typically increase with depth. The Btg horizon is sandy clay loam, clay loam, or clay.

The 2Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. In some pedons, this horizon has streaks and mottles in shades of red, yellow, and brown. The 2Cg horizon is loamy sand or sand, or it is stratified with sandy, loamy, and clayey materials.

Chastain Series

The Chastain series consists of poorly drained soils that formed in clayey fluvial sediment. These soils are on flood plains of the Santee River and the Great Pee Dee River. They are in swales and flat, depressional areas within the flood plain. Slopes are less than 2 percent. The Chastain soils are fine, mixed, acid, thermic Typic Fluvaquents.

The Chastain soils in Williamsburg County are taxadjuncts to the Chastain series because they have kaolinitic minerology. This difference does not significantly affect the use, management, and behavior of the soils.

The Chastain soils are associated on the landscape with Mouzon and Tawcaw soils. The Mouzon soils are Alfisols. They are in positions similar to those of the Chastain soils. The Tawcaw soils are in slightly higher positions and are Incepisols.

Typical pedon of Chastain clay, in an area of Chastain and Tawcaw soils, frequently flooded; 6.7 miles south on South Carolina Highway 377 from the Williamsburg County Memorial Hospital in Kingstree, 8.4 miles south on South Carolina Highway 219, 7.7 miles south on South Carolina Highway 45, 2.3 miles south on dirt road, 100 feet west of center of road.

A—0 to 8 inches; strong brown (7.5YR 5/6) clay; few fine distinct pale brown mottles; moderate medium subangular blocky structure; friable; many fine and coarse roots; few fine pores; few black concretions; strongly acid; clear wavy boundary.

Bg1—8 to 24 inches; gray (10YR 6/1) clay; common medium prominent yellowish red (5YR 5/6) mottles and common medium and coarse distinct strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine to coarse roots; many fine pores; few root channels coated with clay films; few flakes of mica; few clean sand grains; common black concretions; very strongly acid; gradual wavy boundary.

Bg2—24 to 46 inches; gray (10YR 6/1) clay; many coarse distinct reddish yellow (7.5YR 6/8) mottles and few fine prominent reddish brown mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common silt and clay flows along root channels, ped surfaces, and in pores; common fine mica flakes; strongly acid; gradual wavy boundary.

Cg1—46 to 56 inches; light gray (2.5Y 7/2) sandy clay loam; many medium prominent dark brown (7.5YR 4/4) mottles and many coarse distinct light yellowish brown (10YR 6/4) mottles; massive; friable; few fine roots; common flakes of mica; many black concretions; strongly acid; gradual wavy boundary.

Cg2—56 to 88 inches; mottled light gray (N 7/0) and strong brown (7.5YR 5/8) stratified sandy clay loam and sandy clay; massive; friable; few fine roots; common flakes of mica; common black concretions; strongly acid.

The A horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 to 6; or it is neutral and has value of 4 to 6. This horizon is loam, silt loam, silty clay loam, clay, or clay loam.

The Bg horizon has hue of 10YR, 2.5Y, and 5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. It has mottles in shades of red, yellow, and brown. The Bg horizon is silty clay loam, clay loam, silty clay, or clay.

The Cg horizon is various shades of gray or white stratified sandy and clayey fluvial sediments.

Chipley Series

The Chipley series consists of moderately well drained soils that formed in sandy marine sediment. These soils are on slight rises and low ridges within the flood plain of the Black River. Slopes are less than 2 percent. The Chipley soils are thermic, coated Aquic Quartzipsamments.

Chipley soils are associated on the landscape with Hobcaw, Johns, and Mouzon soils. The Hobcaw and Mouzon soils are in lower positions than those of the Chipley soils, and the Johns soils are in positions similar to those of the Chipley soils. All of these soils have more clay in the subsoil.

Typical pedon of Chipley sand, 0 to 2 percent slopes; 2.3 miles west on South Carolina Highway 527 from the intersection of U.S. Highway 52 in Kingstree, 0.5 mile southwest on private road, 55 feet north, in mixed pine and hardwood plantation.

A—0 to 6 inches; very dark grayish brown (10YR 3/2) sand; weak fine granular structure; very friable; many fine and medium roots; few fine pores; common clean sand grains; very strongly acid; clear wavy boundary.

Bw1—6 to 18 inches; dark yellowish brown (10YR 4/4) sand; common medium faint dark grayish brown (10YR 4/2) mottles; single grained; loose; common fine, medium, and coarse roots; sand grains coated and weakly bridged with clay; very strongly acid; gradual wavy boundary.

Bw2—18 to 29 inches; yellowish brown (10YR 5/6) sand; single grained; loose; few fine and medium roots; few flakes of mica; coated sand grains; very strongly acid; gradual wavy boundary.

Bw3—29 to 50 inches; brownish yellow (10YR 6/8) sand; common medium distinct light gray (10YR 7/2) mottles; single grained; loose; few fine roots; few flakes of mica; coated sand grains; very strongly acid; gradual wavy boundary.

Bw4—50 to 55 inches; yellow (10YR 7/6) sand; common coarse distinct streaks of light gray (10YR 7/2); single grained; loose; few fine roots; few flakes of mica; strongly acid; gradual irregular boundary.

Cg—55 to 75 inches; light gray (10YR 7/1) sand; common medium distinct yellow (10YR 7/6) mottles; single grained; loose; few fine roots; few small pebbles; few flakes of mica; very strongly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand.

The Bw horizon has hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 3 to 8. Mottles in shades of gray are below a depth of 20 inches. The Bw horizon is sand.

The Cg horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2. It is sand.

Chisolm Series

The Chisolm series consists of well drained soils that formed in sandy and loamy marine sediments. These soils are on uplands on the interstream divide of the Coastal Plain. They are on the narrow ridgetops and slight rises within broad flats and on side slopes along drainageways. Slopes are 2 to 10 percent. The Chisolm soils are loamy, siliceous, thermic Arenic Hapludults.

Chisolm soils are associated on the landscape with Hornsville, Eunola, Goldsboro, Mouzon, Noboco, Paxville, Gourdin, and Emporia soils. The Hornsville, Noboco, and Emporia soils are in positions similar to those of the Chisolm soils but have a surface layer less than 20 inches thick. The Eunola and Goldsboro soils are on nearly level landscapes and also have a surface layer less than 20 inches thick. The Mouzon, Paxville, and Gourdin soils are in lower positions and are Aquults.

Typical pedon of Chisolm loamy fine sand, 2 to 6 percent slopes; 17 miles east of Kingstree on South Carolina Highway 261, 4.6 miles east on South Carolina Highway 512, 150 feet north, in woodland.

A—0 to 4 inches; grayish brown (10YR 5/2) loamy fine sand; few fine faint very dark gray and light gray mottles; weak fine granular structure; very friable; many fine to coarse roots; strongly acid; clear wavy boundary.

E—4 to 28 inches; very pale brown (10YR 7/4) loamy fine sand; common medium faint yellowish brown (10YR 5/4) mottles and common fine faint light gray mottles; weak fine granular structure; very friable; many fine and medium roots; few black minerals; medium acid; abrupt smooth boundary.

Bt1—28 to 40 inches; yellowish brown (10YR 5/8) sandy clay loam; few fine faint yellowish red mottles; moderate medium subangular blocky structure; friable; few fine and medium roots and few partly decayed roots; material from E horizon in old root channels; few faint clay films on surfaces of peds; strongly acid; gradual wavy boundary.

Bt2—40 to 54 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct red (2.5YR 4/8) mottles and few fine faint brown mottles; weak coarse subangular blocky structure parting to weak medium subangular blocky; friable; few medium roots; few faint clay films on surface of some peds; few uncoated sand grains; strongly acid; gradual wavy boundary.

BC—54 to 63 inches; strong brown (7.5YR 5/8) sandy loam; common coarse distinct red (2.5YR 4/8 and

10R 4/8) mottles and few fine distinct grayish brown (10YR 5/2) mottles; weak coarse subangular blocky structure; friable; few uncoated sand grains; few flakes of mica; strongly acid; gradual wavy boundary.

C—63 to 80 inches; red (2.5YR 5/8 and 10R 4/8), yellow (7.5YR 7/8), and gray (10YR 6/1) stratified sandy loam, sandy clay loam, and sandy clay; massive; friable; strongly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 4. It is sand or loamy fine sand.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 6. In some pedons, this horizon has mottles in shades of gray or brown. It is sand or loamy sand.

The Bt horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. Mottles in shades of red, yellow, and brown are few to common. In some pedons, the lower part of this horizon has mottles in chroma of 2 or less.

The C horizon has hue of 5YR, 7.5YR, and 10YR, value of 4 to 8, and chroma of 1 to 8; it is neutral and has value of 4 to 8; or it is mottled. Mottles and streaks are in shades of red, yellow, brown, and gray. The C horizon is sand, loamy sand, sandy loam, or sandy clay loam; or it is stratified sand, loamy sand, sandy loam, sandy clay loam, and sandy clay.

Coxville Series

The Coxville series consists of poorly drained soils that formed in clayey marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat, depressional areas between slight rises and low ridges, along poorly defined drainageways, and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Coxville soils are clayey, kaolinitic, thermic Typic Paleaquults.

Coxville soils are associated on the landscape with Byars, Goldsboro, Lynchburg, Noboco, and Rains soils. The Byars soils are in slightly lower positions than those of the Coxville soils and have an umbric epipedon. The Goldsboro, Lynchburg, and Noboco soils are in higher positions and have a less clayey subsoil. The Rains soils are in positions similar to those of the Coxville soils and also have a less clayey subsoil.

Typical pedon of Coxville loam; 3.6 miles northwest on South Carolina Highway 44 from the intersection of U.S. Highway 52 in Kingstree, 0.6 mile east on South Carolina Highway 382, 160 feet south, in woodland.

A—0 to 6 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; many fine and medium roots; few fine pores; extremely acid; clear wavy boundary.

BE—6 to 11 inches; grayish brown (10YR 5/2) loam; few fine faint yellowish brown mottles; weak fine subangular blocky structure; friable; common fine and medium roots; few fine pores; very strongly acid; gradual wavy boundary.

Btg1—11 to 26 inches; gray (10YR 5/1) clay loam; few fine and medium prominent red (10R 4/8) mottles and common medium distinct reddish yellow (7.5YR 6/8) mottles; moderate medium and coarse subangular blocky structure; firm; common fine and medium roots; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg2—26 to 45 inches; dark gray (10YR 4/1) clay loam; common coarse prominent red (10R 4/8) mottles and common medium distinct reddish yellow (7.5YR 6/8) mottles; weak medium prismatic structure parting to weak medium subangular blocky; very firm; few fine roots; common distinct clay films on faces of some peds; very strongly acid; gradual wavy boundary.

Btg3—45 to 73 inches; dark gray (10YR 4/1) clay; few medium prominent red (10R 4/8) mottles and few coarse distinct yellow (2.5Y 7/8) mottles; weak coarse prismatic and weak coarse angular blocky structure; very firm; few fine roots; many distinct clay films along pressure faces and cleavage planes; few small pockets of sand; very strongly acid; gradual wavy boundary.

Cg—73 to 82 inches; gray (10YR 6/1) clay; few fine distinct yellow mottles and many fine faint dark gray mottles; massive; extremely firm; few fine roots; very strongly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. Where value is less than 4, the horizon is less than 7 inches thick. The A horizon is sandy loam or loam.

Some pedons have an E horizon that has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It is sandy loam or loam.

The Btg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. It has mottles in shades of red, yellow, and brown that typically increase in size and amount with depth. The Btg horizon is clay loam, sandy clay, or clay.

The Cg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma 1 or 2; or it is neutral and has value of 4 to 7. It has mottles in shades of red, yellow, and brown. The Cg horizon is sandy clay loam, clay loam, sandy clay, or clay; or it is stratified.

Daleville Variant

The Daleville Variant consists of poorly drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat, low, and depressional areas between slight rises, low ridges, and along poorly defined drainageways within the broad flats of the interstream divide. Slopes are less than 2 percent. The Daleville Variant soils are fine-loamy, siliceous, thermic Typic Ochraquults.

The Daleville Variant soils are associated on the landscape with Izagora Variant and Nahunta Variant soils. The Izagora Variant and Nahunta Variant soils are in higher positions on the landscape than the Daleville Variant soils and have a deeper seasonal high water table.

Typical pedon of Daleville Variant loam; 5.2 miles south of U.S. Highway 52 from the south end of the Black River Bridge in Kingstree, 1.8 miles west on South Carolina Highway 115, 0.5 mile northeast on dirt road, 0.6 mile north on dirt road, 0.4 mile west on dirt road, 25 feet north of center of road, on drainage ditchbank.

A—0 to 8 inches; very dark gray (10YR 3/1) loam; massive; very friable; many fine and medium roots; few clean sand grains; few pores and casts; extremely acid; clear wavy boundary.

Btg1—8 to 21 inches; gray (10YR 6/1) loam; common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very friable; many fine and medium roots; few old root channels filled with dark gray loam; many fine and medium pores; few faint clay films on faces of peds; extremely acid; gradual wavy boundary.

Btg2—21 to 33 inches; gray (10YR 6/1) loam; many coarse distinct yellow (10YR 7/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; many fine roots; common fine pores; few vertical streaks and lenses of light gray sandy loam along ped faces; few faint clay films on ped faces and in large pores; very strongly acid; gradual wavy boundary.

Btg3—33 to 43 inches; gray (10YR 6/1) clay loam; many medium distinct brownish yellow (10YR 6/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; few fine pores; few vertical streaks and lenses of sandier material on surfaces of peds; few faint clay films on ped faces; extremely acid; gradual wavy boundary.

BCg—43 to 53 inches; dark gray (10YR 4/1) clay loam; common fine distinct yellowish brown (10YR 5/6) mottles and common coarse faint gray (10YR 6/1) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; few fine roots; few fine pores; few vertical streaks and lenses of loamier material along structural planes; few faint clay films; extremely acid; clear wavy boundary.

Cr—53 to 60 inches; about 85 percent very pale brown, yellow, gray, and brown discontinuous silicified coquina; about 15 percent gray (10YR 6/1) and brownish yellow (10YR 6/6) sandy clay loam between cobbles and along fractures in coquina; few fine roots between cleavage planes of coquina and in soil areas; extremely acid.

Depth to coquina is from 30 to 60 inches.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is loamy sand, sandy loam, or loam.

The Btg horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. It has mottles in shades of red, yellow, and brown that typically increases with depth. The Btg horizon is sandy loam, loam, sandy clay loam, clay loam, or sandy clay below a depth of about 30 inches.

The Cr or C horizon is fragments of silicified coquina. It contains up to 30 percent gray clayey and loamy material in cracks and between fragments. Pebbles up to 3 inches in diameter make up to 30 percent of this horizon, and cobbles from 3 to 10 inches in diameter make up to 20 percent. Coarse fragments more than 10 inches in diameter make up to 35 percent of the horizon. The Cr or C horizon is very cobbly sandy clay loam, extremely cobbly sandy clay loam, or extremely cobbly sandy clay.

Emporia Series

The Emporia series consists of well drained soils that formed in loamy and clayey marine sediments. These soils are in upland areas of the Coastal Plain. They are on high ridges and slight rises within the broad flats and on the entire downslope of the side slopes along drainageways of the interstream divides. Slopes range from 0 to 6 percent. These soils are fine-loamy, siliceous, thermic Typic Hapludults.

The Emporia soils in Williamsburg County are taxadjuncts to the Emporia series because they do not decrease in clay content by 20 percent within a depth of 60 inches. This difference does not significantly affect the use, management, and behavior of the soils.

The Emporia soils are associated on the landscape with Bonneau, Chisolm, Ogeechee, Gourdin, and Yemassee soils. The Bonneau and Chisolm soils are in positions similar to those of the Emporia soils but have a sandy surface layer more than 20 inches thick. The Yemassee, Ogeechee, and Gourdin soils are in lower positions and are Aquults.

Typical pedon of Emporia loamy sand, 2 to 6 percent slopes; 7 miles south on South Carolina Highway 377 from Kingstree, 3.5 miles east on U.S. Highway 521, 1.2 miles north on South Carolina Highway 317, 0.2 mile north on field road, 0.1 mile west on field road, 59 feet north of road.

Ap—0 to 8 inches; brown (10YR 5/3) loamy sand; weak fine granular structure; friable; few fine and medium roots; few fine pores; strongly acid; clear wavy boundary.

Bt1—8 to 23 inches; yellowish brown (10YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; medium acid; gradual wavy boundary.

Bt2—23 to 37 inches; brownish yellow (10YR 6/8) sandy clay; common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine and medium pores; few clean sand grains; medium acid; gradual wavy boundary.

Bt3—37 to 47 inches; yellowish brown (10YR 5/6) clay; common medium faint yellowish brown (10YR 5/8) mottles and common medium distinct gray (10YR 6/1) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; few clean sand grains; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt4—47 to 56 inches; mottled yellow (10YR 7/8), gray (10YR 7/1), and red (2.5YR 4/8) sandy clay; moderate medium subangular blocky structure; friable; few fine pores; strongly acid; gradual wavy boundary.

C1—56 to 62 inches; mottled yellow (10YR 7/8), gray (10YR 7/1), red (10R 4/8), and reddish brown (2.5YR 5/4) stratified sandy loam and sandy clay loam; massive; friable; few mica flakes; very strongly acid; gradual wavy boundary.

C2—62 to 85 inches; mottled yellow (10YR 7/8), yellowish brown (10YR 5/6), and reddish brown (2.5YR 5/4) stratified loamy sand, sandy loam, and sandy clay loam; massive; friable; few clean sand grains; very strongly acid.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4. It is loamy sand or sandy loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It is loamy sand or sandy loam.

The upper part of the Bt horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8 and has mottles in shades of red, yellow, and brown. It is sandy loam, sandy clay loam, or clay loam. The lower part of the Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 to 8, or it is mottled. It is sandy clay loam, clay loam, sandy clay, or clay. In some pedons, vertical streaks of loamier material are in the lower part of the Bt horizon.

The C horizon has hue of 7.5YR to 2.5Y, value of 3 to 8, and chroma of 1 to 8; or it is mottled or variegated in high and low chroma. It is stratified loamy sand, sandy loam, sandy clay loam, sandy clay, or clay. Some pedons have a 2C horizon that has the same color range as that of the C horizon and has variable texture.

Eunola Series

The Eunola series consists of moderately well drained soils that formed in loamy and clayey marine sediments. These soils are in upland areas of the Coastal Plain on broad flats of the interstream divide. They are on low ridges and slight rises within the broad flats. Slopes range from 0 to 2 percent. Eunola soils are fine-loamy, siliceous, thermic Aquic Hapludults.

Eunola soils are associated on the landscape with Chisolm, Emporia, Ogeechee, Gourdin, Wahee, and Yemassee soils. Chisolm soils are in more sloping positions on the landscape than those of the Eunola soils and have an arenic epipedon. Emporia soils are in higher positions and have a deeper seasonal high water table. Yemassee and Wahee soils are in lower positions and are Aquults. Ogeechee and Gourdin soils are in the lowest positions on the landscape and are Aquults.

Typical pedon of Eunola loamy sand, 0 to 2 percent slopes; 5.4 miles southeast on South Carolina Highway 50 from the intersection with South Carolina Highway 16 in Trio, 0.15 mile southeast on dirt road, 115 feet east on dirt road, 35 feet south of dirt road, in woodland.

A—0 to 3 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; friable; many fine and medium roots; very strongly acid; abrupt wavy boundary.

E—3 to 9 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable; common fine and medium roots; very strongly acid; clear smooth boundary.

BE—9 to 13 inches; very pale brown (10YR 7/3) sandy loam; weak coarse subangular blocky structure; very friable; common fine roots; many fine pores; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary.

Bt1—13 to 22 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; many fine pores; common faint clay films on surfaces of peds; few fine pebbles; very strongly acid; gradual wavy boundary.

Bt2—22 to 31 inches; yellowish brown (10YR 5/8) sandy clay loam; few fine prominent red mottles and common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; very friable; few fine roots; common fine pores; common faint clay films on surfaces of peds; few small pebbles; very strongly acid; gradual wavy boundary.

Bt3—31 to 44 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct red (2.5YR 5/8) mottles and many medium distinct gray (10YR 6/1) mottles; weak medium subangular blocky structure; very friable; common fine pores; common faint clay films on surfaces of peds; few small pebbles; very strongly acid; gradual wavy boundary.

Bt4—44 to 57 inches; mottled gray (10YR 5/1), yellow (10YR 7/8), and red (2.5YR 5/8) sandy clay loam; weak coarse subangular blocky structure; friable;

few fine roots; few fine pores; few fine pebbles; few thin strata of sand; few flakes of mica; very strongly acid; gradual wavy boundary.

Cg—57 to 80 inches; gray (10YR 5/1), yellowish brown (10YR 5/6), and yellow (10YR 7/8) stratified sandy clay loam and sandy loam; massive; friable; strongly acid.

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

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is sand, loamy sand, or sandy loam.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Mottles in shades of red, yellow, and brown are in some pedons. Mottles that have chroma of 2 or less are within the upper 24 inches of the horizon. The lower part of the Bt horizon has hue and value similar to that of the upper part but has chroma of 1 to 8 and mottles in shades of red, yellow, brown, and gray, or it is mottled in these colors. The Bt horizon generally is sandy clay loam or clay loam. In some pedons, it is sandy clay below a depth of about 40 inches.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 1 to 8, or it is variegated or mottled in shades of red, yellow, brown, and gray. It is sandy loam or loamy sand, or it is stratified in these textures and in sandy clay loam.

Foreston Series

The Foreston series consists of moderately well drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are on the old barrier islands and remnants of barrier islands that remain as high ridges and slight rises within the broad flats of the interstream divide. Slopes range from 0 to 2 percent. The Foreston soils are coarse-loamy, siliceous, thermic Aquic Paleudults.

Foreston soils are associated on the landscape with Autryville, Bonneau, Chisolm, Goldsboro, Lynchburg, and Rains soils. Autryville, Bonneau, and Chisolm soils are in slightly higher positions than those of the Foreston soils and have an arenic epipedon. Goldsboro soils are in positions similar to those of the Foreston soils, but they have a fine-loamy textural family class. Lynchburg, Paxville, and Rains soils are in slightly lower positions, are Aquults, and have a fine-loamy textural family class.

Typical pedon of Foreston fine sand, 0 to 2 percent slopes; 4.6 miles southeast on South Carolina Highway 512 from the intersection with U.S. Highway 52 in Cades, 0.1 mile southwest on South Carolina Highway 159, 0.2 mile south on field road, 33 feet northeast of road.

A—0 to 6 inches; very dark gray (10YR 3/1) fine sand; single grained; loose; many fine roots and few medium roots; many clean sand grains; very strongly acid; abrupt wavy boundary.

E—6 to 12 inches; very pale brown (10YR 7/3) fine sand; few fine faint brownish yellow mottles; single grained; loose; common fine and few medium roots; common clean sand grains; few worm casts; strongly acid; clear smooth boundary.

BE—12 to 17 inches; brownish yellow (10YR 6/6) loamy fine sand; few fine faint very pale brown (10YR 7/3) mottles; weak medium subangular blocky structure; very friable; few fine and medium roots; few clean sand grains; few very fine pores; strongly acid; clear smooth boundary.

Bt1—17 to 26 inches; brownish yellow (10YR 6/6) fine sandy loam; common coarse faint brownish yellow (10YR 6/8) mottles and few fine prominent red (5YR 5/6) mottles; weak medium subangular blocky structure; very friable; few fine and medium roots; common very fine or fine pores; few clean sand grains; few strong brown nodules that crush with little pressure; strongly acid; clear smooth boundary.

Bt2—26 to 33 inches; brownish yellow (10YR 6/6) fine sandy loam; few medium distinct light gray (10YR 7/2) mottles and few fine prominent red (5YR 5/6) mottles; weak coarse subangular blocky structure; friable; few fine and medium roots; common fine pores; few lenses of white (10YR 8/1) clean sand grains; strongly acid; clear smooth boundary.

BE'—33 to 40 inches; light yellowish brown (10YR 6/4) loamy fine sand; common medium faint light gray (10YR 7/2) mottles and few fine prominent red (5YR 5/6) mottles; weak coarse subangular blocky structure parting to massive; very friable; few fine roots; few fine pores; few lenses of white (10YR 8/1) clean sand grains; strongly acid; gradual wavy boundary.

E'—40 to 51 inches; light gray (10YR 7/2) clean fine sand (about 38 percent), gray (10YR 7/1) clean sand (about 31 percent), and very pale brown (10YR 7/3) coated sand (about 30 percent) occurring as large pockets and vertical streaks; few fine distinct strong brown (7.5YR 5/8) mottles within streaks and pockets; few lenses and streaks of white (10YR 8/1) clean sand grains; massive; very friable; few fine roots; few fine pores; strongly acid; gradual wavy boundary.

Bt'—51 to 61 inches; mottled brownish yellow (10YR 6/6), gray (10YR 6/1), and yellowish red (5YR 5/6) fine sandy loam; weak coarse subangular blocky structure; friable, slightly brittle in the brownish yellow part; few fine roots; common fine pores; strongly acid; gradual wavy boundary.

Btg—61 to 85 inches; gray (10YR 6/1) fine sandy loam; common medium distinct brownish yellow (10YR 6/6) mottles and few fine prominent yellowish red (5YR 5/6) mottles; weak coarse prismatic structure; friable; few fine roots; few fine pores; strongly acid; gradual wavy boundary.

C—85 to 90 inches; mottled light gray (10YR 7/1) and very pale brown (10YR 7/3) loamy fine sand; massive; very friable; very strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 or 2. It is sand, fine sand, loamy sand, or loamy fine sand.

The E horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 to 4. Mottles of higher chroma are in some pedons. The E horizon is sand, fine sand, loamy sand, or loamy fine sand.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 6. Mottles that have chroma of 2 or less are within 30 inches of the soil surface. Mottles in shades of red, yellow, and brown are in some pedons. The Bt horizon is loamy sand, sandy loam, or fine sandy loam; some pedons have a thin subhorizon that is sandy clay loam. The weighted average clay content of the upper 20 inches of the argillic horizon is 10 to 18 percent. In most pedons, the Bt horizon contains lenses and pockets of clean sand.

The E' horizon has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 to 7. Mottles in shades of red, yellow, brown, or gray are in most pedons. The E' horizon is mostly a continuous horizon with a matrix color, but in some pedons, it is discontinuous and does not have a dominant matrix color. Where it is discontinuous, it occurs in various size pockets and as interfingering spheres and streaks that blend in with the horizons above and below. The E' horizon is fine sand, sand, or loamy sand.

The Bt' horizon has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 1 to 8. It has mottles in shades of red, yellow, brown, and gray. In some pedons, it does not have a dominant matrix color. The Bt' horizon is fine sandy loam or sandy clay loam.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 to 8, and chroma of 1 to 8; or it is mottled without a dominant matrix color. It is sand, loamy sand, sandy loam, sandy clay loam, or sandy clay, or it is stratified.

Foxworth Series

The Foxworth series consists of somewhat excessively drained soils that formed in sandy marine sediment. These soils are in upland areas of the Coastal Plain. They are on the outer edge of the broad flats in smooth and slightly raised areas adjacent to the side slopes and in flat and depressional areas within the flats of the interstream divide. These soils are mainly in the Sandy Bay area of the county. Slopes range from 0 to 6 percent. These soils are thermic, coated Typic Quartzipsamments.

Foxworth soils are associated on the landscape with Candor, Chisolm, Kenansville, and Paxville soils. The Candor and Kenansville soils are in positions similar to those of the Foxworth soils and have a loamy argillic horizon. The Chisolm soils are on side slopes along drainageways and have a loamy argillic horizon. The Paxville soils are in the flat, depressional areas and Carolina Bays. They are Aquults.

Typical pedon of Foxworth sand, 0 to 6 percent slopes; 4.25 miles west on South Carolina Highway 527 from the intersection with U.S. Highway 52 in Kingstree, 0.15 mile north on unnumbered county road, 75 feet east, in pine plantation.

A—0 to 6 inches; grayish brown (10YR 5/2) sand; single grained; loose; few clean uncoated white (10YR 8/1) sand grains; common fine roots; very strongly acid; clear smooth boundary.

Bw1—6 to 24 inches; reddish yellow (7.5YR 6/6) sand; single grained; loose; common fine roots; few uncoated sand grains; very strongly acid; gradual wavy boundary.

Bw2—24 to 53 inches; strong brown (7.5YR 5/6) sand; single grained; loose; few roots; few uncoated sand grains; very strongly acid; gradual wavy boundary.

Bw3—53 to 65 inches; reddish yellow (7.5YR 7/6) sand; single grained; loose; few roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C—65 to 85 inches; white (10YR 8/1) sand; single grained; loose; about 75 percent uncoated sand grains; strongly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. It is sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 8. It is sand.

The C horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 4. It is sand.

Goldsboro Series

The Goldsboro series consists of moderately well drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are on low ridges and slight rises within the broad flats of the interstream divide. Slopes are less than 2 percent. The Goldsboro soils are fine-loamy, siliceous, thermic Aquic Paleudults.

Goldsboro soils are associated on the landscape with Bonneau, Chisolm, Coxville, Lynchburg, Noboco, and Rains soils. Bonneau and Noboco soils are in slightly higher positions than those of the Goldsboro soils and have a deeper high water table. In addition, Bonneau and Chisolm soils have a sandy surface layer more than 20 inches thick. Lynchburg soils are in slightly lower positions, and Rains and Coxville soils are in the lowest positions on the landscape. They are Aquults.

Typical pedon of Goldsboro loamy fine sand, 0 to 2 percent slopes; 4.5 miles north on South Carolina Highway 44 from the intersection with U.S. Highway 52 in Kingstree, 2.5 miles northwest on South Carolina 47, 0.2 mile north on county road, 450 feet east, in pine plantation.

A—0 to 8 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; common fine pores; strongly acid; clear smooth boundary.

E—8 to 16 inches; pale brown (10YR 6/3) loamy sand; weak fine granular structure; very friable; many fine and medium roots; common fine pores; strongly acid; clear smooth boundary.

Bt1—16 to 24 inches; yellowish brown (10YR 5/6) sandy clay loam; few fine faint strong brown mottles; moderate fine and medium subangular blocky structure; friable; common fine and medium roots; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt2—24 to 36 inches; yellowish brown (10YR 5/6) sandy clay loam; common fine and medium distinct gray (10YR 6/1) mottles and few medium faint strong brown (7.5YR 5/8) mottles; moderate fine and medium subangular blocky structure; friable; few fine and medium roots; few fine pores; common faint clay films on surface of peds; sand grains coated and bridged with clay; few black concretions; very strongly acid; gradual wavy boundary.

Bt3—36 to 46 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct gray (10YR 6/1) mottles; moderate medium subangular blocky structure; friable; few medium roots; common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg—46 to 60 inches; mottled gray (10YR 5/1), strong brown (7.5YR 5/8), and red (10R 4/8) sandy clay loam; weak medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

BCg—60 to 68 inches; mottled gray (10YR 6/1) and strong brown (7.5YR 5/8) sandy clay loam; weak coarse subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

C—68 to 85 inches; variegated layers of brownish yellow (10YR 6/8) and light gray (10YR 7/1) sandy clay, sandy clay loam, and sandy loam; massive; firm; very strongly acid.

In some pedons, Goldsboro soils contain up to 4 percent plinthite within a depth of 60 inches.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loamy fine sand, loamy sand, or sandy loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is loamy fine sand, loamy sand, or sandy loam.

The upper part of the Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. Mottles in shades of red, yellow, and brown are in some pedons. Mottles that have chroma of 2 or less are between depths of 20 and 30 inches. The lower part of the Bt horizon has hue and value similar to that of the upper part, but chroma ranges from 1 to 8 and mottles are in shades of red, yellow, brown, and gray, or it is mottled in these colors. The Bt horizon generally is sandy loam, sandy clay loam, or clay loam. In some pedons, it is sandy clay below a depth of about 40 inches.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or it is variegated or mottled in high and low chroma. It is sandy loam, sandy clay loam, or sandy clay; or it is stratified in these textures.

Gourdin Series

The Gourdin series consists of nearly level, poorly drained soils that formed in loamy and clayey marine sediments. These soils are in upland areas of the Coastal Plain. They are in flat and depressional areas between low ridges, along poorly defined drainageways, and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Gourdin soils are fine-loamy, siliceous, thermic Typic Ochraquults.

Gourdin soils are associated on the landscape with Cape Fear, Hornsville, Mouzon, Ogeechee, and Wahee soils. The Cape Fear soils are in lower positions than those of the Gourdin soils and have an umbric epipedon. The Hornsville and Wahee soils are in higher positions and are Udults. The Mouzon soils are in lower positions and on flood plains, and they are Albaquults. The Ogeechee soils are in positions similar to those of the Gourdin soils but have a more permeable Bt horizon.

Typical pedon of Gourdin loam; 3.3 miles south on South Carolina Highway 122 from the intersection with South Carolina Highway 16 at Williamsburg High School in Earle, 2.4 miles east on South Carolina Highway 526, 0.6 mile south on dirt road, 75 feet west, in pine plantation.

Ap—0 to 6 inches; very dark gray (10YR 3/1) loam; weak fine granular structure; very friable; many fine to coarse roots; few fine pores; extremely acid; abrupt wavy boundary.

Btg1—6 to 17 inches; grayish brown (10YR 5/2) sandy clay loam; few medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; common fine to coarse roots; few medium pores; few faint clay films on ped surfaces; few coarse sand grains; extremely acid; gradual wavy boundary.

Btg2—17 to 24 inches; gray (10YR 5/1) clay loam; few fine prominent red mottles and common medium prominent reddish yellow (7.5YR 6/8) and red (2.5YR 4/8) mottles; weak coarse subangular blocky structure parting to moderate medium subangular blocky; very firm; few fine roots; few clean sand grains along cleavage planes; extremely acid; gradual wavy boundary.

Btg3—24 to 45 inches; mottled gray (N 5/0), reddish yellow (7.5YR 6/8), and red (2.5YR 4/8) clay; weak coarse subangular blocky structure parting to moderate medium subangular blocky; very firm; few fine roots; few clean sand grains along cleavage planes; extremely acid; gradual wavy boundary.

Btg4—45 to 55 inches; mottled gray (N 5/0), brownish yellow (10YR 6/8), and red (2.5YR 4/8) sandy clay; weak coarse prismatic structure parting to weak coarse blocky; very firm; common coarse sand grains along vertical cleavage planes; few fine flakes of mica; extremely acid; clear wavy boundary.

Cg—55 to 78 inches; gray (N 5/0), reddish yellow (7.5YR 6/8), and pale yellow (5Y 7/4) stratified loamy sand, sandy clay loam, and clay; massive; firm; extremely acid; gradual wavy boundary.

2Cg—78 to 85 inches; light gray (10YR 7/2) loamy sand; massive; very friable; few flakes of mica; very strongly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is loam, sandy loam, or fine sandy loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is loam, sandy loam, or fine sandy loam.

The Btg horizon has hue of 10YR to 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. It has mottles of higher chroma. In some pedons, this horizon is greenish gray in the lower part. The Btg horizon is clay loam or sandy clay loam in the upper part and clay loam, sandy clay loam, sandy clay, or clay in the lower part.

The Cg horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. Mottles in shades of red, yellow, and brown are in most pedons. The Cg horizon is sand, loamy sand, sandy clay loam, sandy clay, or clay; or it is stratified with these textures.

The 2Cg horizon has colors similar to those of the Cg horizon. It is sand or loamy sand.

Hobcaw Series

The Hobcaw series consists of very poorly drained soils that formed in loamy marine sediment. These soils are on broad to narrow flood plains of streams on the Coastal Plain. They are in low, flat and depressional areas between low ridges on the broad flood plains and are on the entire width of the narrow flood plain. Slopes are less than 2 percent. The Hobcaw soils are fine-loamy, siliceous, thermic Typic Umbraquults.

Hobcaw soils are associated on the landscape with Chipley, Johns, Johnston, and Mouzon soils. The Chipley and Johns soils are higher on the landscape than the Hobcaw soils and are not Aquults. The Mouzon and Johnston soils are in positions similar to those of the Hobcaw soils. The Mouzon soils do not have an umbric epipedon, and the Johnston soils have a cumulic epipedon.

Typical pedon of Hobcaw sandy loam, frequently flooded; 2.4 miles south on U.S. Highway 52 from the south end of the Black River in Kingstree, 7.2 miles west on South Carolina Highway 261, 1.2 miles north on South Carolina Highway 35, 80 feet east, in woodland on the Black River flood plain.

A—0 to 5 inches; black (10YR 2/1) sandy loam; moderate fine subangular blocky structure parting to weak fine granular; very friable; many fine to coarse roots; common fine pores; common worm casts; few krotovina; few fine uncoated sand grains; very strongly acid; gradual wavy boundary.

Btg1—5 to 20 inches; black (10YR 2/1) sandy clay loam; moderate fine subangular blocky structure parting to weak fine granular; very friable; many fine to coarse roots; common fine pores; few krotovina; few fine uncoated sand grains; very strongly acid; clear wavy boundary.

Btg2—20 to 28 inches; gray (10YR 5/1) sandy clay loam; common fine distinct yellowish brown (10YR 5/6) mottles; few old root channels and crevices filled with very dark gray material from above layer; moderate medium subangular blocky structure; friable; common fine roots; common faint clay films on surfaces of peds and along root channels and interior of pores; few uncoated coarse sand grains; few flakes of mica; very strongly acid; gradual wavy boundary.

Btg3—28 to 41 inches; gray (10YR 5/1) sandy loam; few fine distinct yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; friable; few fine roots; few medium pores; few uncoated coarse sand grains; few fine pebbles; few flakes of mica; very strongly acid; abrupt wavy boundary.

2Cg—41 to 80 inches; light gray (10YR 7/2) sand; single grained; loose; few fine pebbles; few black specks; few pink specks; medium acid.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 6, and chroma of 1 or 2; or it is neutral and has value of 2 to 6. This horizon is sandy loam or loam.

The Btg horizon has hue of 10YR, value of 2 to 6, and chroma of 1 or 2. In most pedons, the Btg horizon has mottles of higher chroma that typically increase with depth. This horizon is sandy loam, sandy clay loam, or sandy clay. Sandy clay is in thin subhorizons less than 6 inches thick.

The 2Cg horizon has hue of 10YR, value of 4 to 8, and chroma of 1 or 2. It is sand, loamy sand, or stratified sandy and loamy material.

Hornsville Series

The Hornsville series consists of moderately well drained soils that formed in loamy and clayey marine sediments. These soils are in upland areas of the Coastal Plain. They are on high ridges and slight rises within the broad flats and on the entire downslope of the side slopes along drainageways of the interstream divide. Slopes range from 0 to 6 percent. The Hornsville soils are clayey, kaolinitic, thermic Aquic Hapludults.

Hornsville soils are associated on the landscape with Chisolm, Emporia, Eunola, Ogeechee, Gourdin, Wahee, and Yemassee soils. Chisolm and Eunola soils are in positions similar to those of the Hornsville soils. Chisolm soils have an arenic epipedon, and Eunola soils have a less clayey subsoil. Emporia soils are in higher positions and have less clay in the subsoil. Yemassee and Wahee soils are in lower positions, and Ogeechee and Gourdin soils are in the lowest positions on the landscape. These soils are Aquults.

Typical pedon of Hornsville sandy loam, 2 to 6 percent slopes; 8 miles south of Kingstree on South Carolina Highway 377, 8.3 miles south on South Carolina Highway 219, 2 miles south on South Carolina Highway 45, 150 feet northeast of highway, in a field.

Ap—0 to 6 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable; many fine and medium roots; few very fine and fine pores; common uncoated sand grains; neutral; abrupt wavy boundary.

Bt1—6 to 20 inches; yellowish brown (10YR 5/6) clay; weak coarse prismatic structure parting to strong medium subangular blocky; friable; few fine and medium roots; common dark stains along old root channels; few fine pores; few faint clay films on surface of peds; medium acid; gradual wavy boundary.

Bt2—20 to 33 inches; yellowish brown (10YR 5/8) clay; common medium prominent red (2.5YR 4/8) mottles, common fine distinct light gray (10YR 6/1) mottles, and common medium reddish yellow (7.5YR 6/6) mottles; weak coarse prismatic structure parting to strong medium subangular blocky; friable; few fine roots; few fine pores; common faint clay films on surface of peds; few uncoated sand grains; medium acid; gradual wavy boundary.

Bt3—33 to 40 inches; mottled olive yellow (2.5YR 6/6), light brownish gray (2.5Y 6/2), and red (2.5YR 5/8) clay; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; few medium pores; common faint clay films on surface of peds; few uncoated sand grains; few flakes of mica; very strongly acid; gradual wavy boundary.

BC—40 to 49 inches; mottled gray (N 6/0), yellow (2.5Y 7/6), and red (2.5YR 4/8) clay; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; few fine roots; few fine and medium pores; many flakes of mica; few thin horizontal lenses of sand; very strongly acid; gradual wavy boundary.

C—49 to 65 inches; stratified light gray (5Y 7/2), pale yellow (5Y 6/3), reddish yellow (7.5YR 6/8), and red (10R 4/8) clay, clay loam, and sandy clay loam; massive; firm; few pebbles; few clean sand grains; many flakes of mica; very strongly acid.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 4. It is loamy sand, fine sandy loam, or sandy loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 to 7, and chroma of 1 to 4. It is loamy sand, fine sandy loam, or sandy loam.

The upper part of the Bt horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 4 to 8. Mottles in shades of red, yellow, brown, and gray are in the upper 24 inches of the horizon. The lower part of the Bt horizon has hue, value, and chroma similar to that of the upper part with hue ranging to 2.5Y, but it is typically mottled or is gray with mottles of higher chroma. The Bt horizon is sandy clay loam, clay loam, sandy clay, or clay.

The C horizon is mottled in shades of yellow, brown, red, and gray. It is sandy loam, sandy clay loam, sandy clay, or clay; or it is stratified in sandy and clayey textures.

Izagora Variant

The Izagora Variant consists of moderately well drained soils that formed in loamy marine sediments. These soils are in upland areas of the Coastal Plain. They are on low ridges and slight rises within the broad flats of the interstream divide. Slopes are less than 2 percent. The Izagora Variant soils are fine-loamy, siliceous, thermic Aquic Paleudults.

The Izagora Variant soils are associated on the landscape with Daleville Variant and Nahunta Variant soils. The Daleville Variant soils are in the lowest position on this landscape, and the Nahunta Variant soils are in slightly lower positions. These soils are Aquults.

Typical pedon of Izagora Variant sandy loam, 0 to 2 percent slopes; 5.2 miles south of U.S. Highway 52 from the south end of Black River Bridge in Kingstree, 1.8 miles west on South Carolina Highway 115, 1 mile north on unpaved county road, 0.3 mile west on private road, 150 feet south of center of road, in pine plantation.

A—0 to 5 inches; dark gray (10YR 4/1) sandy loam; weak fine subangular blocky structure; very friable; many fine to coarse roots; few black spots; few fine pores; few stains in channels; very strongly acid; abrupt wavy boundary.

E—5 to 12 inches; light yellowish brown (10YR 6/4) sandy loam; few fine faint yellowish brown mottles; weak fine subangular blocky structure; very friable; common fine to coarse roots; many fine pores; medium acid; clear wavy boundary.

Bt1—12 to 26 inches; yellowish brown (10YR 5/6) loam; few fine faint strong brown mottles; moderate medium subangular blocky structure; friable; common fine roots; many fine pores; few faint clay films in pores along structure planes; few clean sand grains; few sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

Bt2—26 to 35 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium faint strong brown (7.5YR 5/6) mottles and many medium distinct gray (10YR 6/1) mottles; moderate medium subangular blocky structure; friable; few fine roots; many fine pores; few worm casts; few faint clay films along cleavage planes and in pores; few clean sand grains; common sand grains coated and bridged with clay; few black specks; strongly acid; gradual wavy boundary.

Bt3—35 to 43 inches; gray (10YR 6/1) clay loam; many medium distinct strong brown (7.5YR 5/8) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; many fine pores; common small lenses of sand along structure planes, bridged and coated with clay; few faint clay films on ped faces; strongly acid; gradual wavy boundary.

Bt4—43 to 51 inches; mottled yellowish brown (10YR 5/6), gray (10YR 6/1), and red (10R 4/8) clay loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; few faint clay films on ped faces; few rock fragments; strongly acid; gradual wavy boundary.

BC—51 to 77 inches; gray (10YR 6/1) cobbly clay loam; many coarse distinct reddish yellow (7.5YR 7/8) mottles and many medium prominent red (2.5YR 4/8) mottles; weak coarse prismatic structure; friable; cobbly fragments are silicified coquina; very strongly acid.

Depth to coquina ranges from 25 to 60 inches.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. It is loamy sand or sandy loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is loamy sand or sandy loam.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Mottles in shades of red, yellow, brown, and gray are in the upper 24 inches of the horizon. The lower part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 1 to 8; or it is mottled with these colors. The Bt horizon is loam, sandy loam, clay loam, sandy clay loam, or cobbly sandy clay loam; some pedons are sandy clay below a depth of about 40 inches.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 1 or 2. It has few to many mottles in shades of red, yellow, and brown; or it is mottled with gray and these colors. This horizon is cobbly sandy loam, cobbly sandy clay loam, cobbly sandy clay, or very cobbly sandy clay. Coarse fragments range from 10 to 35 percent.

Johns Series

The Johns series consists of moderately well drained soils that formed in loamy and sandy marine sediments. These soils are on slight rises and low ridges in flat areas of the Black River flood plain. Slopes are less than 2 percent. These soils are fine-loamy over sandy or sandy-skeletal, siliceous, thermic Aquic Hapludults.

Johns soils are associated on the landscape with Chipley, Hobcaw, Johnston, and Mouzon soils. The Chipley soils are in positions similar to those of the Johns soils and are sandy throughout the subsoil. The Hobcaw, Johnston, and Mouzon soils are in lower positions. The Hobcaw and Mouzon soils are Aquults, and the Johnston soils are Inceptisols.

Typical pedon of Johns fine sandy loam, 0 to 2 percent slopes; 2.4 miles west on U.S. Highway 52 and South Carolina Highway 261 from Black River Bridge in Kingstree, 4 miles north on South Carolina Highway 261, 1 mile east on field road, 100 feet north, in woodland.

A1—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; many fine to very coarse roots; common fine pores; common clean sand grains; extremely acid; clear wavy boundary.

A2—6 to 9 inches; dark gray (10YR 4/1) fine sandy loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak fine granular structure; very friable; many fine to very coarse roots; common fine pores; common clean sand grains; extremely acid; clear wavy boundary.

Bt1—9 to 20 inches; yellowish brown (10YR 5/6) sandy loam; common medium faint brown (10YR 5/3) mottles; moderate medium subangular blocky structure; friable; many fine to coarse roots; common very fine and fine pores; clay film coatings on pore walls; few clean sand grains; extremely acid; gradual wavy boundary.

Bt2—20 to 28 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct yellowish red (5YR 4/6) mottles, common medium and coarse distinct reddish yellow (7.5YR 6/6) mottles, and few medium distinct gray (10YR 6/1) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine pores; clay film coatings on pore walls; few faint clay films; few flakes of mica; few clean sand grains; extremely acid; gradual wavy boundary.

Btg—28 to 34 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure parting to weak coarse subangular blocky; friable; common fine roots; few fine partly decomposed roots; few fine pores; clay film coatings on pore walls; few faint clay films; few root channels filled with clean sand grains; common flakes of mica; extremely acid; abrupt wavy boundary.

2Cg—34 to 60 inches; mottled white (10YR 8/1), light gray (10YR 7/1), and yellow (10YR 7/6) sand and loamy sand; massive; very friable; few flakes of mica; extremely acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is fine sandy loam, loamy sand, or sandy loam.

Some pedons have an E horizon that has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. Mottles in shades of gray and brown are in some pedons. This horizon is fine sandy loam, loamy sand, or sandy loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 4 to 8. It has mottles in shades of gray, brown, or red. This horizon is sandy loam or sandy clay loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It commonly has mottles in shades of gray, brown, or red. This horizon is sandy clay loam or sandy loam.

The 2Cg horizon is stratified sand and loamy sand mottled in shades of white, gray, yellow, and brown.

Johnston Series

The Johnston series consists of very poorly drained soils that formed in sandy marine sediment. These soils are on flood plains of streams that head in the Coastal Plain, mainly the Black River and Black Mingo Creek. They are in low and depressional areas, old scour channels, and along the stream channels within the flood plain. Slopes are less than 2 percent. The Johnston soils are coarse-loamy, siliceous, acid, thermic Cumulic Humaquepts.

Johnston soils are associated on the landscape with Chipley, Hobcaw, Johns, and Mouzon soils. The Chipley and Johns soils are in higher positions than those of the Johnston soils, and they do not have an umbric epipedon. The Hobcaw and Mouzon soils are in positions similar to those of the Johnston soils. They are Aquults.

Typical pedon of Johnston fine sandy loam, frequently flooded; 3.5 miles west on South Carolina Highway 527 from the intersection with U.S. Highway 52 in Kingstree, 0.6 mile south on South Carolina Highway 360, 250 feet south, in woodland.

O—3 to 0 inches; very dark gray (10YR 3/1) partly decomposed leaves, twigs, and roots.

A1—0 to 25 inches; black (10YR 2/1) fine sandy loam; massive; very friable; many fine roots; common fine pores; common worm casts; few clean sand grains; few flakes of mica; extremely acid; clear wavy boundary.

A2—25 to 33 inches; very dark gray (10YR 3/1) sandy loam; massive; very friable; common fine roots; few fine pores; few worm casts; few clean sand grains; few flakes of mica; very strongly acid; clear wavy boundary.

A3—33 to 38 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine subangular blocky structure; very friable; common fine roots; many clean sand grains; few flakes of mica; very strongly acid; clear smooth boundary.

Cg—38 to 65 inches; light gray (10YR 7/2) sand; single grained; loose; very strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2; or it is neutral and has value of 2 or 3. It is fine sandy loam, loam, or sandy loam. Organic matter content is high. Some pedons have a layer of undecomposed and partly decomposed leaves, twigs, and roots about 0.5 inch to 6 inches thick on the surface. A few pedons have a few inches of recent alluvial sediment above the A horizon.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. This horizon generally is sandy loam, loamy sand, sand, or sandy clay loam; but in some pedons, it is stratified in these textures.

Kenansville Series

The Kenansville series consists of well drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain, mainly in the Sandy Bay area of the county. They are on the outer edge of broad flats, in smooth and slightly raised areas adjacent to side slopes, and in flat and depressional areas within the broad flats. Slopes are less than 2 percent. These soils are loamy, siliceous, thermic Arenic Hapludults.

Kenansville soils are associated on the landscape with Candor, Foxworth, and Tomahawk soils. The Candor and Foxworth soils are in slightly higher positions than those of the Kenansville soils and have a grossarenic epipedon. The Tomahawk soils are in slightly lower positions and have a Bh horizon.

Typical pedon of Kenansville sand, 0 to 2 percent slopes; 5.35 miles west on South Carolina Highway 527 from the intersection with U.S. Highway 52 in Kingstree, 100 feet north on dirt road, 42 feet east, in a field.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; loose; common fine roots; very strongly acid; abrupt wavy boundary.

E—6 to 21 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; loose; few fine roots; very strongly acid; gradual wavy boundary.
Bt—21 to 40 inches; yellowish brown (10YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; common fine pores; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.
BC—40 to 52 inches; yellowish brown (10YR 5/8) loamy sand; weak fine granular structure; very friable; few fine pores; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.
C1—52 to 58 inches; very pale brown (10YR 7/4) sand; few fine faint light yellowish brown mottles; few fine black specks; single grained; loose; very strongly acid; clear wavy boundary.
C2—58 to 72 inches; white (10YR 8/2) sand; few fine black specks; single grained; loose; very strongly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand or loamy sand.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. It is sand or loamy sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Mottles in shades of brown, yellow, and red are in some pedons. This horizon is sandy loam that has thin layers of sandy clay loam in some pedons.

The C horizon has hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 1 to 6; or it is mottled in shades of red, yellow, gray, and brown. This horizon is loamy sand or sand.

Leon Series

The Leon series consists of poorly drained soils that formed in sandy marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat and depressional areas, along poorly defined drainageways, and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Leon soils are sandy, siliceous, thermic Aeric Haplaquods.

Leon soils are associated on the landscape with Autryville, Foreston, Lynn Haven, Paxville, and Rutlege soils. The Autryville and Foreston soils are in higher positions than those of the Leon soils and are not spodosols. The Lynn Haven, Paxville, and Rutlege soils are in positions similar to those of the Leon soils and have an umbric epipedon.

Typical pedon of Leon sand; 3.35 miles west on South Carolina Highway 527 from the intersection with U.S. Highway 52 in Kingstree, 450 feet northwest on dirt road, 50 feet north, in woodland.

A—0 to 6 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many fine and medium roots and few coarse roots; few fine pores; many clean sand grains; extremely acid; clear smooth boundary.
E—6 to 19 inches; light brownish gray (10YR 6/2) sand; single grained; loose; few fine to coarse roots; very strongly acid; clear wavy boundary.
Bh1—19 to 22 inches; black (5YR 2/1) sand; weak coarse blocky structure parting to weak fine granular; weakly cemented; very friable; few fine and medium roots; few fine pores; few clean sand grains; extremely acid; clear wavy boundary.
Bh2—22 to 30 inches; dark reddish brown (5YR 3/2) sand; weak medium subangular blocky structure parting to weak fine granular; very friable; few fine and medium roots; few fine pores; few clean sand grains; extremely acid; gradual wavy boundary.
Bh3—30 to 37 inches; dark reddish brown (5YR 3/3) sand; weak fine granular structure; very friable; few fine and medium roots; few fine pores; few clean sand grains; very strongly acid; gradual wavy boundary.
Bh/E'—37 to 46 inches; dark reddish brown (5YR 3/4) sand; many tongues and streaks of brown (7.5YR 4/2) sand; weak fine granular structure; very friable; few fine roots; few fine pores; few clean sand grains; very strongly acid; gradual wavy boundary.
E'—46 to 78 inches; white (10YR 8/1) sand; single grained; loose; strongly acid; clear smooth boundary.
B'h—78 to 85 inches; dark brown (7.5YR 3/2) sand; weak medium subangular blocky structure; friable; strongly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1. White (10YR 8/1) uncoated sand grains are few to many.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 or 2; or it is neutral and has value of 5 to 8. In some pedons, this horizon has streaks and mottles that have value of less than 4 and chroma of 0 to 1.

The Bh horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 to 3. In some pedons, it has thin lenses and pockets of white (10YR 8/1) sand. This horizon is sand, fine sand, or loamy sand.

The Bh/E' horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 4. It is sand, fine sand, or loamy sand.

The E' horizon has hue of 10YR, value of 6 to 8, and chroma of 1 or 2.

The B'h horizon has colors and textures similar to those of the Bh horizon.

Lynchburg Series

The Lynchburg series consists of somewhat poorly drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain on broad flats of the interstream divide. Slopes are less than 2 percent. The Lynchburg soils are fine-loamy, siliceous, thermic Aeric Paleaquults.

Lynchburg soils are associated on the landscape with Noboco, Goldsboro, Rains, Coxville, and Byars soils. Noboco and Goldsboro soils are in slightly higher positions than those of the Lynchburg soils and are Udults. Rains, Coxville, and Byars soils are in lower positions and have a shallower water table.

Typical pedon of Lynchburg fine sandy loam; 2.1 miles west on U.S. Highway 521 from the intersection with South Carolina Highway 375 in Greeleyville, 0.3 mile north on dirt road, 75 feet east, in pine plantation.

A—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam, about 15 percent light gray (10YR 7/1) clean sand grains; weak fine granular structure; very friable; common fine roots; few fine pores; few worm casts; very strongly acid; clear smooth boundary.

BE—6 to 12 inches; light yellowish brown (10YR 6/4) sandy loam; common fine and medium distinct grayish brown (10YR 5/2) mottles; weak fine subangular blocky structure; friable; common fine and medium roots; common fine pores; few worm casts; strongly acid; clear wavy boundary.

Bt—12 to 23 inches; yellowish brown (10YR 5/4) sandy clay loam; few fine distinct grayish brown (10YR 5/2) mottles; weak fine subangular blocky structure; friable; few fine and medium roots; few fine pores; common faint clay films on faces of some peds; few clean sand grains on faces of some peds; very strongly acid; clear smooth boundary.

Btg1—23 to 48 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and few medium prominent yellowish red (5YR 4/8) mottles; weak fine and medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of some peds; few pockets of clean sand grains; very strongly acid; gradual wavy boundary.

Btg2—48 to 56 inches; prominently mottled gray (10YR 6/1), strong brown (7.5YR 5/8), and light red (2.5YR 6/6) sandy clay loam; weak medium subangular blocky structure; firm; few fine roots; few faint clay films on faces of most peds; very strongly acid; gradual wavy boundary.

BCg—56 to 65 inches; gray (10YR 6/1) sandy clay; common coarse prominent red (2.5YR 4/8) mottles and common medium distinct yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; very firm; few faint clay films on faces of some peds; common clean sand grains on faces of most peds; very strongly acid; gradual wavy boundary.

Cg—65 to 80 inches; light gray (10YR 7/1) sandy clay loam and sandy clay; common coarse distinct yellow (10YR 7/8) mottles and common medium distinct yellowish brown (10YR 5/4) mottles; massive; very firm; very strongly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy sand, loamy fine sand, or fine sandy loam.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 8. It has mottles that have chroma of 2 or less. It is sandy loam, sandy clay loam, or clay loam.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has mottles in shades of red, yellow, and brown. In some pedons, it is mottled in shades of red, yellow, brown, and gray. This horizon is sandy loam, sandy clay loam, or clay loam. In some pedons, it is sandy clay or clay below a depth of 40 inches.

The C horizon has hue of 7.5YR to 2.5Y, value of 3 to 7, and chroma of 1 or 2; or it is neutral and has value of 3 to 7. It has mottles in shades of red, brown, and yellow. This horizon is sandy loam, sandy clay loam, sandy clay, or clay.

Lynn Haven Series

The Lynn Haven series consists of poorly drained soils that formed in sandy marine sediment. These soils are in upland areas of the Coastal Plain. They are along poorly defined drainageways and in Carolina Bays within broad flats of the interstream divide. Slopes are less than 2 percent. The Lynn Haven soils are sandy, siliceous, thermic Typic Haplaquods.

The Lynn Haven soils in Williamsburg County are taxadjuncts to the Lynn Haven series because depth to the spodic horizon is more than 30 inches. Otherwise, they have the same characteristics as the Lynn Haven series. This difference does not affect the use, management, and behavior of the soils.

Lynn Haven soils are associated on the landscape with Autryville, Foreston, Leon, Paxville, and Rutlege soils. The Autryville and Foreston soils are in higher positions than those of the Lynn Haven soils and do not have a spodic horizon. The Leon soils are in positions similar to those of the Lynn Haven soils and do not have an umbric epipedon. The Paxville and Rutlege soils are also in similar positions and do not have a spodic horizon.

Typical pedon of Lynn Haven fine sand; 2.2 miles east on South Carolina Highway 24 from the Seaboard Coast Line Railroad in Nesmith, 1.4 miles southwest on South Carolina Highway 560, 900 feet east of highway, in a depression in woodland.

A—0 to 13 inches; black (10YR 2/1) fine sand; weak fine granular structure; very friable; many fine and medium roots, few coarse roots; extremely acid; clear wavy boundary.

E1—13 to 20 inches; gray (10YR 6/1) fine sand; single grained; very friable; common fine and medium roots; strongly acid; gradual wavy boundary.

E2—20 to 33 inches; white (10YR 8/1) fine sand; single grained; very friable; common fine and medium roots; medium acid; clear wavy boundary.

Bh1—33 to 42 inches; very dark grayish brown (10YR 2/2) fine sand; massive; friable; few fine roots; few fine pores; sand grains heavily coated with organic matter; very strongly acid; gradual wavy boundary.

Bh2—42 to 60 inches; black (10YR 2/1) loamy fine sand; massive; weakly cemented; friable; few fine roots; few fine pores; sand grains heavily coated with organic matter; very strongly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is fine sand.

The E horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. In some pedons, this horizon has mottles of higher chroma and streaks and tongues of very dark gray or black colors. The E horizon is fine sand.

The Bh horizon has hue of 7.5YR to 2.5Y, value of 2 or 3, and chroma of 1 to 3. Vertical tongues and horizontal streaks of gray and white sand occur in some pedons. This horizon is fine sand or loamy fine sand.

Some pedons have a C horizon that has hue of 10YR, value of 4 to 8, and chroma of 1 or 2. In some pedons, it has mottles of higher chroma, and in some, it is stratified with thin horizontal streaks and pockets of a spodic horizon. The C horizon is fine sand.

Mouzon Series

The Mouzon series consists of poorly drained soils that formed in loamy and clayey marine sediments. These soils are on broad and narrow, low stream terraces. Slopes are less than 2 percent. The Mouzon soils are fine-loamy, siliceous, thermic Typic Albaqualfs.

Mouzon soils are associated on the landscape with Chipley, Hobcaw, Johns, and Johnston soils. Chipley and Johns soils are on higher ridges on the flood plain. Hobcaw and Johnston soils are in positions similar to or slightly lower than those of the Mouzon soils. Chipley and Johnston soils have less clay in the subsoil. Johns soils have a thinner solum, and Hobcaw soils have an umbric epipedon.

Typical pedon of Mouzon sandy loam; 6.5 miles southwest of Kingstree on U.S. Highway 52 in Dickie Swamp, 90 feet west of highway.

A—0 to 8 inches; dark gray (10YR 4/1) fine sandy loam; few fine distinct brownish yellow (10YR 6/8) mottles; weak fine subangular blocky structure; friable; common medium and large roots; few worm casts; medium acid; clear wavy boundary.

E—8 to 11 inches; light brownish gray (10YR 6/2) fine sandy loam; weak fine subangular blocky structure; very friable; common medium and fine roots; slightly acid; abrupt wavy boundary.

Btg1—11 to 19 inches; gray (10YR 6/1) sandy clay loam; common medium distinct olive yellow (2.5Y 6/8) mottles; moderate medium subangular blocky structure; very firm; few fine roots; few faint clay films on faces of peds; slightly acid; gradual wavy boundary.

Btg2—19 to 31 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) mottles; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very firm; few fine roots; few faint clay films on faces of peds; slightly acid; gradual wavy boundary.

BCg—31 to 46 inches; gray (10YR 5/1) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; few pockets of sand; neutral; clear smooth boundary.

2Cg—46 to 72 inches; light brownish gray (10YR 6/2) loamy sand; massive; few fine pockets of coquina; neutral.

The A horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. It is fine sandy loam or sandy loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is loamy sand or fine sandy loam.

The Btg horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 or 2; or it is neutral and has value of 4 to 6. Mottles of higher chroma are in most pedons, and in some pedons, greenish gray gleyed mottles are in the lower part of this horizon. The Btg horizon is sandy clay loam or clay loam.

The 2Cg horizon is various shades of gray or white. It is sand, loamy sand, or stratified sandy, loamy, and clayey sediments.

Nahunta Variant

The Nahunta Variant consists of somewhat poorly drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat to slightly raised areas within the broad flats of the interstream divide. Slopes are less than 2 percent. The Nahunta Variant soils are fine-loamy, siliceous, thermic Aeric Ochraquults.

The Nahunta Variant soils are associated on the landscape with Izagora Variant and Daleville Variant soils. The Izagora Variant soils are in slightly higher positions than those of the Nahunta Variant soils and have a deeper high water table. The Daleville Variant soils are in slightly lower positions and have a shallower high water table.

Typical pedon of Nahunta Variant sandy loam; 5.2 miles south on U.S. Highway 52 from the south end of the Black River Bridge in Kingstree, 1.8 miles west on South Carolina Highway 115, 0.5 mile northeast on dirt road, 0.6 mile north on dirt road, 0.6 mile west on dirt road, 150 feet south of center of road, in pine plantation.

A—0 to 4 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; very friable; many fine to coarse roots; few clean sand grains; common fine pores and worm casts; extremely acid; clear smooth boundary.

E—4 to 7 inches; gray (10YR 6/1) sandy loam; common medium distinct brown (7.5YR 5/4) mottles; massive; very friable; common fine to coarse roots; many fine pores; few fine pebbles; very strongly acid; clear wavy boundary.

Bt—7 to 20 inches; yellowish brown (10YR 5/4) sandy loam; many medium distinct light gray (10YR 7/1) mottles and common medium distinct reddish yellow (5YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine to coarse roots; many fine pores; few faint clay films along old root channels, on faces of peds, and in pores; few black concretions; few fine pebbles; very strongly acid; gradual wavy boundary.

Btg1—20 to 31 inches; gray (10YR 6/1) loam; many coarse distinct yellowish brown (10YR 5/8) mottles and few fine prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine to coarse roots; common fine pores; few faint clay films on faces of peds and in the interior of pores; common coated sand grains on faces of some peds; few fine black concretions; few fine pebbles; very strongly acid; gradual wavy boundary.

Btg2—31 to 48 inches; gray (10YR 6/1) loam; many coarse prominent red (2.5YR 4/6) mottles and common coarse distinct brownish yellow (10YR 6/8) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine to coarse roots; few fine pores; few faint clay films on faces of peds and in interior of pores; common coated sand grains on faces of some peds; few fine black concretions; few fine pebbles; very strongly acid; gradual wavy boundary.

Btg3—48 to 55 inches; gray (10YR 6/1) loam; many coarse faint light gray (10YR 7/1) mottles, common coarse prominent reddish yellow (7.5YR 6/8) mottles, and few fine prominent pink (7.5YR 8/4) mottles; weak coarse prismatic structure parting to weak coarse subangular blocky; friable; few coarse roots; common faint clay films on faces of peds; common sand and silt flows along structural planes and as vertical streaks and pockets; few pebbles in lower part; very strongly acid; clear smooth boundary.

Cr—55 to 60 inches; very pale brown, yellow, gray, and brown discontinuous cobbles of silicified coquina, small amounts of gray sandy clay loam and sandy clay between fragments.

Depth to silicified coquina cobbles ranges from 25 to 60 inches.

The A or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy sand, sandy loam, or loam.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 4. Mottles are in shades of gray or brown. This horizon is loamy sand or sandy loam.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Mottles are in shades of red, brown, yellow, and gray. This horizon is loam, sandy loam, sandy clay loam, or clay loam.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. Mottles are in shades of red, yellow, and brown. This horizon is loam, sandy clay loam, clay loam, or cobbly sandy clay loam. Cobbles range from 5 to 20 percent, by volume.

The C or Cr horizon is up to 70 percent, by volume, silicified coquina and stones. The coquina is 10 to 50 percent coarse fragments up to 3 inches in diameter, 1 to 20 percent stones from 3 to 10 inches in diameter, and 0 to 5 percent stones larger than 10 inches in diameter. Variable textured soil material occurs in voids between stones.

Noboco Series

The Noboco series consists of well drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are on high ridges and slight rises within the broad flats of the interstream divide. Slopes are 0 to 2 percent. The Noboco soils are fine-loamy, siliceous, thermic Typic Paleudults.

Noboco soils are associated on the landscape with Bonneau, Chisolm, Goldsboro, Lynchburg, Rains, and Coxville soils. Bonneau and Chisolm soils are in positions similar to those of Noboco soils and have an arenic epipedon. Goldsboro soils are Aquic Paleudults and are in slightly lower positions. Lynchburg, Rains, and Coxville soils are in lower positions and are Aquults.

Typical pedon of Noboco loamy fine sand, 0 to 2 percent slopes; 8 miles east on South Carolina Highway 261 from the intersection with U.S. Highway 52 in Kingstree, 0.6 mile south on South Carolina Highway 116, 0.55 mile east on unnumbered county road, 100 feet west of center of road, in a field.

Ap—0 to 7 inches; grayish brown (10YR 5/2) loamy fine sand; single grained; very friable; few very fine and fine roots; few uncoated sand grains; medium acid; abrupt wavy boundary.

E—7 to 12 inches; pale brown (10YR 6/3) loamy fine sand; single grained; very friable; few very fine to fine roots; common uncoated sand grains; few black specks; medium acid; abrupt wavy boundary.

Bt1—12 to 22 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few black specks; few uncoated sand grains; strongly acid; gradual wavy boundary.

Bt2—22 to 40 inches; yellowish brown (10YR 5/8) sandy clay loam; few medium prominent red (2.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; few black specks; few uncoated sand grains; strongly acid; gradual wavy boundary.

Bt3—40 to 52 inches; brownish yellow (10YR 6/8) sandy clay loam; common medium prominent red (2.5YR 5/8) mottles and few fine distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of some peds; few plinthite nodules; common fine pores; few black specks; few uncoated sand grains; strongly acid; gradual wavy boundary.

Bt4—52 to 62 inches; strong brown (7.5YR 5/6) sandy clay loam; many medium prominent red (2.5YR 4/6) mottles and few fine faint gray mottles; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of some peds; few plinthite nodules; common fine pores; few black specks; few uncoated sand grains; very strongly acid; gradual wavy boundary.

Bt5—62 to 67 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct gray (10YR 6/1) mottles and common medium prominent red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of some peds; few plinthite nodules; common fine pores; few black specks; few uncoated sand grains; very strongly acid.

Some pedons contain up to 5 percent plinthite nodules within 60 inches of the surface.

The A horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is sand, loamy fine sand, or fine sand.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is sand, loamy sand, or loamy fine sand.

The upper part of the Bt horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8. In some pedons, it has mottles in shades of red and brown. The lower part of the Bt horizon has colors similar to those of the upper part and has mottles in shades of red, brown, and gray. The Bt horizon is sandy loam, sandy clay loam, or clay loam.

Ogeechee Series

The Ogeechee series consists of poorly drained soils that formed in loamy and clayey marine sediments. These soils are in upland areas of the Coastal Plain. They are in low, flat, depressional areas between low ridges and slight rises in Carolina Bays and along poorly defined drainageways within the broad flats of the interstream divide. Slopes are less than 2 percent. The Ogeechee soils are fine-loamy, siliceous, thermic Typic Ochraquults.

Ogeechee soils are associated on the landscape with Cape Fear, Eunola, Hornsville, Paxville, Gourdin, Wahee, and Yemassee soils. The Cape Fear and Paxville soils are in slightly lower and more depressional areas than those of the Ogeechee soils, and they have an umbric epipedon. The Eunola, Hornsville, Wahee, and Yemassee soils are in higher positions and have a deeper high water table. The Gourdin soils are in slightly lower positions, and have a slowly permeable subsoil.

Typical pedon of Ogeechee fine sandy loam; 0.6 mile west of Williamsburg High School in Earle on South Carolina Highway 16, 200 feet north on dirt road, 35 feet west, in pine plantation.

A—0 to 7 inches; black (10YR 2/1) fine sandy loam; massive; very friable; many fine and medium roots; few clean sand grains; few worm casts; strongly acid; abrupt wavy boundary.

Btg1—7 to 17 inches; gray (10YR 6/1) sandy clay loam; few fine distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; very friable; common fine roots; very dark gray sandy loam in old root channels; common pores; few worm casts; few clean sand grains; few faint clay films on faces of peds; strongly acid; clear wavy boundary.

Btg2—17 to 25 inches; gray (10YR 6/1) sandy clay loam; common medium prominent brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; very dark gray (10YR 3/1) sandy loam in old root channels; common pores and worm casts; few clean coarse sand grains; common distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Btg3—25 to 45 inches; mottled gray (10YR 5/1), reddish yellow (7.5YR 6/8), and yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; very dark gray (10YR 3/1) sandy loam in old root channels; few fine pores; common clay films on faces of peds; strongly acid; gradual wavy boundary.

BCg—45 to 58 inches; gray (10YR 5/1) sandy clay loam; common coarse prominent reddish yellow (7.5YR 6/8) mottles, common medium prominent yellowish red (5YR 5/8) mottles, and few medium distinct brown (7.5YR 5/2) mottles; weak coarse prismatic structure; firm; very dark gray sandy loam in old root channels; vertical streaks of sand on faces of peds; very strongly acid; gradual wavy boundary.

Cg—58 to 70 inches; mottled gray (N 5/0), yellow (2.5Y 7/6), and light gray (10YR 7/1) stratified sandy clay loam, sandy clay, and sand; massive; firm; few fine roots; few pockets of coarse sand; few flakes of mica; very strongly acid; gradual wavy boundary.

2Cg—70 to 85 inches; gray (10YR 6/1) sand, few thin strata of sandy clay loam; common medium distinct light yellowish brown (2.5Y 6/4) mottles; massive; friable; few flakes of mica; very strongly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is sandy loam, fine sandy loam, or loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It is sandy loam or loam.

The Btg horizon has hue of 10YR or 2.5YR, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. It has mottles in shades of red, yellow, brown, and gray that typically increase in size and amount with depth. The Btg horizon is sandy loam, sandy clay loam, or sandy clay.

The Cg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. It has mottles in shades of red, yellow, and brown. The Cg horizon is stratified sand, loamy sand, sandy clay loam, sandy clay, or clay.

The 2Cg horizon is similar in color to the Cg horizon. It is sand or loamy sand. Some pedons do not have a 2Cg horizon.

Paxville Series

The Paxville series consists of very poorly drained soils that formed in loamy and sandy marine sediments. These soils are in upland areas of the Coastal Plain. They are in flat and depressional areas, along poorly defined drainageways, and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Paxville soils are fine-loamy, siliceous, thermic Typic Umbraquults.

Paxville soils are associated on the landscape with Autryville, Emporia, Eunola, Foreston, Ogeechee, and Yemassee soils. The associated soils are in higher positions than those of the Paxville soils and do not have an umbric epipedon.

Typical pedon of Paxville fine sandy loam; 0.9 mile north from the intersection of South Carolina Highways 42 and 74 at Old Morrisville, 0.4 mile west of highway on timber company road, 0.4 mile southwest on timber company road, 350 feet east of road.

Ap—0 to 13 inches; black (10YR 2/1) fine sandy loam; massive; very friable; common fine and few medium roots; few worm pores; few brown specks; many clean sand grains; very strongly acid; clear wavy boundary.

BE—13 to 20 inches; dark gray (10YR 4/1) sandy loam; weak fine granular and weak medium subangular blocky structure; very friable; few fine roots; few fine pores; common black specks; common tongues or streaks of material from the A horizon; few fine vertical streaks of clean sand; many clean sand grains; very strongly acid; gradual wavy boundary.

Btg1—20 to 30 inches; dark gray (10YR 4/1) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; common fine pores; few thin clay films along ped faces and root channels; yellowish brown (10YR 5/6) root channel walls; few clean sand grains along root channels; very strongly acid; gradual wavy boundary.

Btg2—30 to 48 inches; gray (10YR 5/1) sandy clay loam; common medium prominent yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; very friable; few fine roots; common clay films along ped faces, on walls of pores, and along root channels; few clean sand grains; very strongly acid; gradual wavy boundary.

BCg—48 to 65 inches; dark grayish brown (10YR 4/2) sandy loam and sandy clay loam; few vertical streaks and lenses of white (10YR 8/1) and light gray (10YR 7/1) sand; weak coarse subangular blocky structure; very friable; very strongly acid; clear wavy boundary.

Cg—65 to 90 inches; mottled light gray (10YR 7/2), white (10YR 8/1), and yellow (10YR 7/6) loamy sand; massive; very friable; very strongly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is fine sandy loam, sandy loam, or loam.

Some pedons have an E horizon that has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It is loamy sand, sandy loam, fine sandy loam, or loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2; or it is neutral and has value of 4 to 6. It has mottles of higher chroma than 2. In most pedons, pockets and vertical streaks of sandier material are common in the lower part of the horizon. The Btg horizon is sandy loam, sandy clay loam, or sandy clay.

The Cg horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. In some pedons, it is mottled in shades of red, brown, yellow, and gray. The Cg horizon is loamy sand or sand, or it is stratified sandy, loamy, and clayey material.

Rains Series

The Rains series consists of poorly drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are in slightly depressional areas and Carolina Bays of the interstream divide. Slopes are less than 2 percent. The Rains soils are fine-loamy, siliceous, thermic Typic Paleaquults.

Rains soils are associated on the landscape with Byars, Noboco, Goldsboro, Lynchburg, and Coxville soils. The Byars and Coxville soils have a more clayey subsoil than that of the Rains soils, and they are in more depressional areas. The Noboco, Goldsboro, and Lynchburg soils are in higher positions and have a deeper seasonal high water table.

Typical pedon of Rains fine sandy loam; 2.1 miles west on South Carolina Highway 28 from the intersection with U.S. Highway 52 in Cades, 1 mile south on South Carolina Highway 315, 0.6 mile west on South Carolina Highway 549, 400 feet south of highway, in pine plantation.

A—0 to 6 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; extremely acid; clear smooth boundary.

E—6 to 11 inches; grayish brown (10YR 5/2) fine sandy loam; few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure parting to weak fine granular; very friable; many fine and medium roots; few fine pores; few worm casts; very strongly acid; gradual wavy boundary.

BE—11 to 20 inches; light brownish gray (10YR 6/2) sandy loam; common fine distinct strong brown (7.5YR 5/6) mottles; weak fine and medium subangular blocky structure; friable; common fine and medium roots; few fine pores; few worm casts; very strongly acid; gradual wavy boundary.

Btg1—20 to 40 inches; gray (10YR 5/1) sandy clay loam; common fine and medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; common fine and medium roots and few coarse roots; few faint clay films on faces of peds; few clean sand grains along root channels, ped faces, and in pockets; very strongly acid; gradual wavy boundary.

Btg2—40 to 60 inches; dark gray (10YR 4/1) sandy clay loam; many coarse prominent strong brown (7.5YR 5/8) mottles and common medium prominent red (2.5YR 4/6) mottles; weak coarse prismatic structure parting to weak coarse angular blocky; firm; few fine roots; few faint clay films on faces of peds; few clean sand grains along ped faces and in pockets; very strongly acid; gradual wavy boundary.

BCg—60 to 80 inches; dark gray (N 4/0) sandy loam; common medium prominent strong brown (7.5YR 5/8) mottles, few medium prominent red (2.5YR 4/6) mottles, and few fine faint light gray mottles; weak coarse prismatic structure parting to weak coarse angular blocky; firm; few roots; few pockets of clean sand grains; very strongly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy fine sand or fine sandy loam.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. In some pedons, it has mottles in shades of brown. This horizon is loamy fine sand or fine sandy loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. It has mottles in shades of brown and red that increase with depth. The Btg horizon is sandy loam or sandy clay loam. In some pedons, the lower part of the horizon is sandy clay or clay.

Rimini Series

The Rimini series consists of excessively drained soils that formed in sandy marine and fluvial sediments. These soils are in upland areas of the Coastal Plain and adjacent to the flood plain of the Black River. They are on the rim of Carolina Bays within the broad upland flats of the interstream divide and on slight rises and high ridges of the flood plain. Slopes are 0 to 6 percent. The Rimini soils are sandy, siliceous, thermic Grossarenic Entic Haplohumods.

Rimini soils are associated on the landscape with Byars, Coxville, Paxville, and Rutlege soils. These soils are in lower positions than those of the Rimini soils and do not have a spodic horizon. All of these soils except the Rutlege soils have a Bt horizon.

Typical pedon of Rimini sand, 0 to 6 percent slopes; 4.25 miles west on South Carolina Highway 527 from the intersection with U.S. Highway 52 in Kingstree, 0.5 mile northeast on county road, 0.8 mile east along field road, about 750 feet south along rim of Sandy Bay.

A—0 to 5 inches; dark gray (10YR 4/1) sand, about 25 percent light gray (10YR 7/2) uncoated sand grains; single grained; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

E1—5 to 12 inches; white (10YR 8/1) sand; single grained; loose; few fine roots; about 90 percent uncoated sand grains; strongly acid; gradual wavy boundary.

E2—12 to 55 inches; white (N 8/0) sand; single grained; loose; few fine roots; uncoated sand grains; strongly acid; abrupt wavy boundary.

Bh—55 to 75 inches; very dark brown (10YR 2/2) sand; weak coarse subangular blocky structure; friable, weakly cemented; sand grains coated with organic matter; very strongly acid.

Depth to the Bh horizon is 50 to 80 inches. The soil is sand throughout.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1. It has few to many clean sand grains. In some pedons, a thin layer of clean sand grains less than 1 inch thick is at the surface.

The E horizon has hue of 10YR, value of 7 or 8, and chroma of 1 or 2; or it is neutral and has value of 7 or 8. In some pedons, thin streaks and pockets of Bh material are in the lower part of this horizon.

The Bh horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2.

Rutlege Series

The Rutlege series consists of very poorly drained soils that formed in sandy marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat and depressional areas along poorly defined drainageways and in Carolina Bays within the broad flats of the interstream divide. Slopes are less than 2 percent. The Rutlege soils are sandy, siliceous, thermic Humaquepts.

The Rutlege soils in Williamsburg County are taxadjuncts to the Rutlege series because they have a 2Cg horizon of sandy loam and have slightly more silt plus clay in the control section than is allowed in the Rutlege series. These differences do not affect the use, management, and behavior of the soils.

Rutlege soils are associated on the landscape with Autryville, Foreston, Rimini, and Paxville soils. The Autryville, Foreston, and Rimini soils are in higher positions than those of the Rutlege soils and have an argillic horizon. The Paxville soils are in positions similar to those of the Rutlege soils and have more clay in the subsoil.

Typical pedon of Rutlege loamy sand, ponded; 4.5 miles east of Cades on South Carolina Highway 512, 0.6 mile south on an unnumbered county road, 0.2 mile south on South Carolina Highway 159, 30 feet east of road, in Carolina Bay.

A—0 to 13 inches; black (10YR 2/1) loamy sand; many white (10YR 8/1) clean sand grains; massive; very friable; common very fine to coarse roots; common fine pores; very strongly acid; clear wavy boundary.

Cg1—13 to 40 inches; gray (10YR 5/1) loamy sand; decayed root channels filled with black (10YR 2/1) soil material; massive; very friable; common fine to coarse roots; very strongly acid; gradual wavy boundary.

Cg2—40 to 55 inches; gray (10YR 6/1) loamy sand; few black (10YR 2/1) streaks and pockets; massive; very friable; few fine to coarse roots; very strongly acid; gradual wavy boundary.

2Cg—55 to 65 inches; light gray (10YR 7/1) sandy loam; massive; very friable; strongly acid.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1; or it is neutral and has value of 2 or 3. It is sand, fine sand, or loamy sand.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. In some pedons, it has few to common mottles of higher chroma than the matrix. The Cg horizon is sand or loamy sand.

The 2Cg horizon has hue, value, and chroma similar to that of the Cg horizon. It is sandy loam or stratified sandy loam, sandy clay loam, and sand.

Tawcaw Series

The Tawcaw series consists of somewhat poorly drained soils that formed in clayey fluvial sediment. These soils are on the flood plains of the Santee River and the Great Pee Dee River. They are on low ridges and smooth flats between the channels and swales of the flood plain. Slopes are less than 2 percent. The Tawcaw soils are fine, kaolinitic, thermic Fluvaquentic Dystrochrepts.

The Tawcaw soils in Williamsburg County are taxadjuncts to the Tawcaw series because they are dominantly gray at slightly shallower depths (18 inches versus 20 inches) than allowed in the Tawcaw series. This difference does not affect the use, management, and behavior of the soils.

Tawcaw soils are associated on the landscape with Chastain, Hobcaw, and Mouzon soils. These soils are in lower positions than those of the Tawcaw soils. Chastain soils are Entisols, and Hobcaw and Mouzon soils are Aquults.

Typical pedon of Tawcaw clay; 300 feet north of the north end of the Santee River bridge and 400 feet east of U.S. Highway 52.

A—0 to 2 inches; yellowish brown (10YR 5/6) clay; weak fine subangular blocky structure; friable; many fine and medium roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

Bw—2 to 18 inches; strong brown (7.5YR 5/6) silty clay; few medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; few old root channels filled with A material; few fine black concretions; very strongly acid; clear wavy boundary.

Bg1—18 to 38 inches; light brownish gray (10YR 6/2) clay; common medium distinct dark brown (10YR 4/3) mottles and few fine faint olive yellow mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; few fine flakes of mica; common fine black concretions; strongly acid; gradual wavy boundary.

Bg2—38 to 45 inches; light brownish gray (2.5Y 6/2) clay loam; common medium distinct dark brown (10YR 4/3) mottles and common medium distinct olive yellow (2.5Y 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; few black concretions; strongly acid; gradual wavy boundary.

Bg3—45 to 57 inches; light brownish gray (2.5Y 6/2) clay loam; common medium distinct yellowish brown (10YR 5/8) mottles and few fine prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; few black concretions; few flakes of mica; strongly acid; gradual wavy boundary.

BCg—57 to 75 inches; gray (N 6/0) clay; common coarse prominent reddish yellow (7.5YR 6/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; many fine roots; few black concretions; few flakes of mica; many small white pebbles; slightly acid; gradual wavy boundary.

Cg—75 to 85 inches; gray (5Y 6/1) stratified sandy clay and sandy clay loam; massive; few fine roots; few clean sand grains; slightly acid.

The A horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 6. It is silt loam, silty clay loam, clay loam, silty clay, or clay.

The Bw horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. It has mottles in shades of red, yellow, gray, and brown. Mottles that have chroma of 2 or less are in some pedons. The Bw horizon is silty clay loam, clay loam, silty clay, or clay.

The Bg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2 with mottles in shades of red, brown, and yellow; or it is mottled in these colors. The Bg horizon is silty clay, silty clay loam, or clay.

The Cg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. In some pedons, it has mottles in shades of red and brown. The Cg horizon is clay loam, silty clay loam, sandy clay loam, or sandy clay; or it is stratified in these textures.

Tomahawk Series

The Tomahawk series consists of moderately well drained soils that formed in sandy marine sediment. These soils are in upland areas of the Coastal Plain. They are between the outer edges of the broad flats and the depressional and low areas within the flats of the interstream divide, mainly in the Sandy Bay area of the county. Slopes are less than 2 percent. The Tomahawk soils are loamy, siliceous, thermic Arenic Hapludults.

The Tomahawk soils in Williamsburg County are taxadjuncts to the Tomahawk series because the Bh horizon does not meet all the chemical criteria for a spodic horizon. The Tomahawk series requires a spodic horizon below the argillic horizon. This difference does not affect the use, management, and behavior of the soils.

Tomahawk soils are associated on the landscape with Candor, Foxworth, Kenansville, Paxville, and Rutlege soils. The Candor, Foxworth, and Kenansville soils are in slightly higher positions than those of the Tomahawk series, and the Paxville and Rutlege soils are in slightly lower and depressional areas. These soils do not have a Bh horizon.

Typical pedon of Tomahawk loamy sand, 0 to 2 percent slopes; 4.5 miles west on South Carolina Highway 527 from the intersection with U.S. Highway 52 in Kingstree, 0.2 mile north on dirt road, 30 feet east, in soybean field.

Ap—0 to 10 inches; dark gray (10YR 4/1) loamy sand; weak medium subangular blocky structure parting to weak fine granular; very friable; few uncoated sand grains; slightly acid; clear wavy boundary.

E—10 to 23 inches; pale brown (10YR 6/3) loamy sand; weak medium subangular blocky structure parting to weak fine granular; very friable; few uncoated sand grains; strongly acid; clear wavy boundary.

Bt—23 to 45 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; common fine pores; few faint clay films on faces of most peds; most sand grains coated and weakly bridged with clay; strongly acid; gradual wavy boundary.

Bt/Bh—45 to 50 inches; brown (10YR 5/2) sandy loam; common medium distinct gray (10YR 6/2) mottles; many (about 25 percent) dark reddish brown (5YR 3/2) loamy sand Bh bodies; weak coarse subangular blocky structure; very friable; common fine pores; strongly acid; gradual wavy boundary.

Bh—50 to 72 inches; dark reddish brown (5YR 3/2) loamy sand; few medium faint brown (10YR 5/3) mottles; massive; very friable; organic matter coats about 75 percent of the sand grains; slightly acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand or loamy sand.

The E horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It is sand or loamy sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It has mottles in shades of gray. This horizon is sandy loam.

Some pedons have an E' horizon that has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. It is sand or loamy fine sand.

The Bh horizon has hue of 5YR to 10YR, value of 2 to 4, and chroma of 1 or 2. Cementation is none to weak. This horizon is sand or loamy sand.

Wahee Series

The Wahee series consists of somewhat poorly drained soils that formed in clayey marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat and slightly raised areas within the broad flats of the interstream divide. Slopes are less than 2 percent. The Wahee soils are clayey, mixed, thermic Aeric Ochraquults.

Wahee soils are associated on the landscape with Hornsville, Eunola, Ogeechee, Gourdin, and Yemassee soils. Hornsville and Eunola soils are in slightly higher positions than the Wahee soils and are Udults. Ogeechee, Yemassee, and Gourdin soils are in positions slightly lower or similar to those of the Wahee soils and have a fine-loamy particle-size control section.

Typical pedon of Wahee sandy loam; 16.7 miles southeast on South Carolina Highway 45 from the intersection with South Carolina Highway 377 in Gourdin, 0.5 mile north on unnumbered county road, 25 feet west, in woodland.

A—0 to 5 inches; very dark gray (10YR 3/1) sandy loam; weak coarse subangular blocky structure; very friable; many fine to coarse roots; few common pores; few uncoated sand grains; few worm casts; few very fine pebbles; very strongly acid; clear wavy boundary.

BE—5 to 12 inches; light olive brown (2.5Y 5/4) loam; few fine distinct gray (10YR 5/1) mottles and common fine distinct brownish yellow (10YR 6/6) mottles; friable; weak subangular blocky structure; common fine to coarse roots; few common pores; few clean sand grains; few fine pebbles; extremely acid; gradual wavy boundary.

Bt—12 to 20 inches; yellowish brown (10YR 5/6) clay; common fine prominent red (2.5YR 4/8) mottles and few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; common fine roots; many distinct clay films on surfaces of peds and root channels; few clean sand grains; few fine pebbles; few black specks; extremely acid; clear wavy boundary.

Btg1—20 to 30 inches; light brownish gray (10YR 6/2) clay; many medium prominent red (2.5YR 4/8) and reddish yellow (7.5YR 6/6) mottles; friable; moderate medium subangular blocky structure; few fine and medium roots; common distinct clay films on surfaces of peds; few fine pores; few fine pebbles; few uncoated sand grains; extremely acid; gradual wavy boundary.

Btg2—30 to 44 inches; light gray (N 7/0) clay; many coarse prominent brownish yellow (10YR 6/8) mottles, common medium prominent red (2.5YR 4/8) mottles, and few medium prominent red (10R 4/8) mottles; firm; moderate medium subangular blocky structure; few faint clay films on surfaces of peds; few fine pebbles; few fine pores; few uncoated sand grains; extremely acid; gradual wavy boundary.

Btg3—44 to 56 inches; mottled light gray (N 7/0) and yellow (10YR 7/8) clay; weak coarse prismatic structure parting to weak coarse subangular blocky; very firm; common decayed roots; few fine pebbles; few black specks; few pockets of sandy material; extremely acid; gradual wavy boundary.

BCg—56 to 80 inches; light gray (5Y 7/1) sandy clay and sandy clay loam; many medium prominent reddish yellow (7.5YR 6/8) mottles; weak coarse prismatic structure; extremely firm; common uncoated sand grains; few black specks; few fine pebbles; extremely acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is loam or sandy loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It has mottles in shades of gray and brown. This horizon is loam or sandy loam.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6. It has mottles in shades of red, yellow, gray, and brown. This horizon is clay loam, sandy clay, or clay.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2; or it is neutral and has value of 4 to 7. It has mottles in shades of red, yellow, gray, and brown that increase in size and amount with depth. The Btg horizon is clay loam, sandy clay, or clay.

The Cg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2; or it is neutral and has value of 5 to 7. It has mottles in shades of red, yellow, gray, and brown. The Cg horizon is variable in texture.

Yemassee Series

The Yemassee series consists of somewhat poorly drained soils that formed in loamy marine sediment. These soils are in upland areas of the Coastal Plain. They are in flat and slightly raised areas within the broad flats of the interstream divide. Slopes are less than 2 percent. The Yemassee soils are fine-loamy, siliceous, thermic Aeric Ochraquults.

Yemassee soils are associated on the landscape with Cape Fear, Eunola, Ogeechee, Paxville, Gourdin, and Wahee soils. Cape Fear, Ogeechee, Paxville, and Gourdin soils are in slightly lower positions than those of the Yemassee soils and have a shallower high water table. Eunola soils are in slightly higher positions on the landscape and are Udults. Wahee soils are in positions similar to those of the Yemassee soils and have more clay in the subsoil.

Typical pedon of Yemassee sandy loam; 1.85 miles east on South Carolina Highway 16 from the U.S. Post Office in Trio, 75 feet north, in woodland.

Ap—0 to 6 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; very friable; many fine to coarse roots; many fine and medium pores; common worm casts; few clean sand grains; very strongly acid; abrupt wavy boundary.

Bt—6 to 18 inches; brownish yellow (10YR 6/6) sandy loam; few fine faint light yellowish brown mottles and few fine prominent yellowish red (5YR 5/6) mottles; medium subangular blocky structure; friable; many fine roots; common fine pores; few old root channels and peds filled with very dark gray (10YR 3/1) material from above layer; few faint clay films on faces of some peds and in pores; few clean sand grains; very strongly acid; clear wavy boundary.

Btg1—18 to 32 inches; gray (10YR 6/1) sandy clay loam; many fine and medium prominent strong brown (7.5YR 5/6) mottles and many medium prominent red (10R 4/8) mottles; moderate medium subangular blocky structure; friable; few fine roots; common fine pores; many distinct clay films on faces of peds; few clean sand grains; few flakes of mica; very strongly acid; gradual wavy boundary.

Btg2—32 to 47 inches; light gray (10YR 7/1) sandy clay; common medium and coarse distinct yellow (10YR 7/6) mottles, common medium distinct reddish yellow (7.5YR 6/8) mottles, and common medium prominent red (10R 4/8) mottles; weak coarse subangular blocky structure parting to weak medium subangular blocky; friable; few fine roots; common distinct clay films on faces of peds; few thin vertical streaks and small pockets of sand; few flakes of mica; very strongly acid; clear wavy boundary.

BCg—47 to 56 inches; gray (10YR 5/1) sandy clay loam; many coarse distinct light gray (5Y 7/1) mottles, common medium prominent reddish yellow (7.5YR 6/8) mottles, and few medium prominent red (10R 4/8) mottles; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; few vertical streaks and common pockets of sandy loam and sand; few flakes of mica; very strongly acid; gradual wavy boundary.

Cg—56 to 80 inches; light gray (10YR 7/1) stratified sandy loam, sandy clay loam, and sandy clay; massive; firm; common flakes of mica; extremely acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy sand, sandy loam, or loam.

Some pedons have an E horizon that has hue of 10YR, value of 5 or 6, and chroma of 3 or 4. It has mottles in shades of gray and brown. This horizon is loamy sand or sandy loam.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 6. It has mottles in shades of red, yellow, gray, and brown. This horizon is sandy loam, sandy clay loam, or clay loam.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has mottles in shades of red, yellow, brown, and gray. This horizon is sandy clay loam or clay loam. In some pedons, it is sandy clay below a depth of about 30 inches.

The Cg horizon has colors similar to those of the BCg horizon. It is variable in texture or is stratified.

Formation of the Soils

In the paragraphs that follow, the factors of soil formation are described and related to the soils in the county. The processes of soil horizon differentiation are also described.

Factors of Soil Formation

Soil is the natural medium for the growth of plants. It is the product of soil-forming processes acting on accumulated geologic material. The five important factors in soil formation are parent material, climate, living organisms (plants and animals), relief, and time.

Climate and living organisms are the active forces of soil formation. Their effect on the parent material is modified by relief and by the length of time the parent material has been in place. The relative importance of each factor differs from place to place. In some places, a single dominant factor fixes most of the properties of the soil that is formed, but in general all five factors interact to determine the kind of soil that forms at any given place.

Although soil formation is complex, a clearer understanding of the soil-forming processes may be gained by considering each of the five factors separately. It must be remembered, however, that each of the five factors is affected by and also affects each of the others.

Parent Material

Parent material is the unconsolidated material in which a soil forms. It determines the mineral and chemical composition of the soil. In Williamsburg County, the parent material of the soils is marine or fluvial deposits that have varying amounts of sand, silt, and clay.

All of the soils in the county were deposited or formed during the Pleistocene, or glacial, epoch. The terraces in Williamsburg County, in sequence from the lowest to the highest elevation, are the Pamlico, Talbot, Penholoway, Wicomico, and Sunderland Terraces.

The Pamlico Terrace ranges from sea level to 25 feet above sea level. This terrace makes up a small area of the county. It is along the lower reaches of the flood plains of the Santee River, Black River, Black Mingo Creek, Lake Swamp, and the Pee Dee River. The soils on this terrace are younger than most of the soils at a higher elevation. The Chastain, Tawcaw, Johns, Chipley, Johnston, Hobcaw, and Mouzon soils are on this terrace.

The Talbot Terrace ranges from 25 to 42 feet above sea level. This terrace makes up about 5 percent of the county. It is along the Santee River and the eastern boundary of the county. The Wahee, Cape Fear, Mouzon, Tawcaw, Chastain, Eunola, and Chisolm soils are on this terrace.

The Penholoway Terrace ranges from 42 to 70 feet above sea level. This terrace makes up about 85 percent of the county. It forms a band from near Andrews in the eastern part of the county to near Greeleyville in the southwestern part of the county and is near Hebron in the northern part and along the Florence County line in the northeastern part of the county. The Noboco, Goldsboro, Lynchburg, Rains, Foreston, Eunola, Hornsville, Coxville, Ogeechee, Gourdin, Yemassee, Wahee, Byars, Emporia, and Chisolm soils are on this terrace.

The Wicomico Terrace ranges from about 70 to 100 feet above sea level. This terrace makes up about 5 percent of the county. It is along the western boundary of the county. Soils on this terrace are more highly developed than those on the lower terraces. Some of the more common soils in this area include Noboco, Goldsboro, Lynchburg, Rains, and Coxville soils.

The Sunderland Terrace is old barrier island remnants above 100 feet in elevation. The remnants are easy to recognize in the field; they are the sandy soils on high ridges. The Foreston, Autryville, and Candor soils are on this terrace.

Climate

The climate in Williamsburg County is temperate. Rainfall is well distributed throughout the year. The climate is fairly uniform throughout the county; therefore, it does not account for significant differences among the soils.

Precipitation and temperature affect the physical, chemical, and biological relationships in the soil. Water dissolves minerals, aids chemical and biological activity, and transports the dissolved mineral and organic material through the soil profile. Abundant rainfall promotes leaching of soluble bases and translocation of less soluble, fine-textured soil material downward through the soil profile. The amount of water that percolates through the soil depends on the amount of rainfall, the length of the frost-free season, relief, and the permeability of the soil material.

Moist conditions and warm temperatures speed the weathering of parent material and cause an increase in the growth and activity of living organisms. Thus, in Williamsburg County, the high rainfall, warm temperatures, and the long frost-free season have directly affected the soils and the other soil-forming factors.

Living Organisms

The kind and number of plants and animals that live in and on the soil are determined mainly by the climate and, to a lesser extent, by parent material, relief, and age of the soil.

Bacteria, fungi, and other micro-organisms are indispensable in soil formation. They hasten the weathering of minerals and the decomposing of organic matter. Larger plants alter the soil microclimate, furnish organic matter, and transfer chemical elements from the subsoil to the surface soil.

Most of the fungi, bacteria, and other micro-organisms are in the upper few inches of soil. The activity of earthworms and other small invertebrates is chiefly in the A and E horizons and the upper part of the B horizon, where these organisms slowly and continuously mix the soil material. Bacteria and fungi decompose organic matter and release nutrients for plant use.

Animals play a secondary role in soil formation, but their influence is great. Plant-eating animals help to return plant material to the soil. Burrowing animals help to mix and aerate the soil material.

In Williamsburg County, the native vegetation on the better drained soils is mainly loblolly pine, longleaf pine, oak, and hickory. In the wetter areas, it is mainly sweetgum, blackgum, yellow poplar, maple, ash, tupelo, and cypress. Large trees influence soil formation by bringing nutrients up from deep within the soil, by bringing soil material up from varying depths when trees are blown over, and by providing large openings that are filled by material from above as large roots decay.

Relief

Relief influences soil formation because of its influence on moisture, temperature, and erosion. Because of the influence, different kinds of soil can form from similar parent material.

The general landscapes in Williamsburg County that affect the formation of soils are described as follows:

- Nearly level to gently sloping areas that are moderately dissected by streams. The soils in these areas generally are well drained and deep.
- Broad, nearly level, slightly dissected areas between streams. Most of the soils are yellow to gray, and many are distinctly mottled. They are deep and moderately well drained to poorly drained.
- Nearly level areas on stream bottoms and low terraces. The soils in these areas are young. They are predominantly gray and have poorly defined genetic layers.

Time

The length of time required for a soil to develop depends largely on the intensity of other soil-forming factors. The soils in Williamsburg County range from young to well developed. The soils at the higher elevations of the uplands generally have well-developed horizons that are easily recognized. Where the parent material is very sandy, however, little horizonation has taken place; and where the relief is very low and the soils are permanently saturated, horizons are only moderately distinct. On the first bottoms of streams, the soil material has not weathered long enough for distinct soil horizons to form.

Processes of Soil Horizon Differentiation

The differentiation of horizons is the result of many soil-forming processes. These include the accumulation of organic matter; the leaching of soluble salts; the reduction and translocation of iron; the formation of soil structure; physical weathering, for example, freezing and thawing; and the chemical weathering of primary minerals or rocks.

Some of these processes are continually taking place in all soils, but the number of active processes and the degree of their activity vary from one soil to another.

Most soils have four major horizons, which are called the A, E, B, and C horizons. These horizons can be subdivided by the use of subscripts and letters that indicate changes within a horizon. An example is the Bt horizon, which represents a layer within the B horizon that has translocated clay.

The A horizon is the surface layer. This layer has the largest accumulation of organic matter. If the soils have been cleared and plowed, the plow layer is called the Ap horizon. Yemassee and Ogeechee soils, for example, have a distinctive, dark color A or Ap horizon.

The E horizon is the layer of maximum leaching, or eluviation, of clay and iron. This E horizon forms just below the surface layer, and generally is the lightest color horizon in the soil. It is well expressed in Chisolm and Foreston soils.

The B horizon lies below the A or E horizon and is commonly called the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay and of iron, aluminum, and other compounds. Noboco, Eunola, and Emporia soils have a well expressed B horizon.

The C horizon is below the B horizon. Some soils, however, do not have a B horizon, and the C horizon lies directly below the A horizon. This is the case in Johnston and Rutlege soils. The C horizon consists of material that is little altered by the soil-forming processes but may be modified by weathering.

Well drained and moderately well drained soils in Williamsburg County have a yellowish brown or reddish subsoil. These colors are mainly because of thin coatings of iron oxide on the sand, silt, and clay particles. A well drained soil does not have gray mottles, chroma of 2 or less, within a depth of at least 30 inches. Among the well drained soils in this county are Noboco, Emporia, and Chisolm soils. Moderately well drained soils are wet for short periods and generally do not have gray mottles within a depth of about 15 to 20 inches. Goldsboro and Eunola soils are moderately well drained.

The reduction and transfer of iron is associated with the wetter, more poorly drained soils. This process is called gleying. In poorly drained and very poorly drained soils, such as the Coxville and Hobcaw soils, the subsoil and substratum are gray or grayish. These colors result from the reduction and transfer of iron. Somewhat poorly drained soils have yellowish brown and gray mottles, which indicate the segregation of iron. Yemassee and Lynchburg soils are among the somewhat poorly drained soils in Williamsburg County.

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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.

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

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

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

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

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, i.e., clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15 to 38 centimeters (6 to 15 inches) long.

Cobblestone (or cobble). A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.

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

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

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

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

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

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

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

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

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

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

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

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

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

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

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

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

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

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

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

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

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

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

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

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

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic)—Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated)—Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

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

Fast intake (in tables). The movement of water into the soil is rapid.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

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

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

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.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

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

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

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

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

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

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

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

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

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

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

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

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

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

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

Large stones (in tables). Rock fragments that are 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

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

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. The soil is not strong enough to support 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 more than that of organic soil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple 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. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

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

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

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

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

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

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

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

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on 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. It is a form of laterite.

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

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

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). In these areas, surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The 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.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

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

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

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

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

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

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.

Sinkhole. A depression in the landscape where limestone has been dissolved.

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.

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

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

Slow intake (in tables). The slow movement of water into the soil.

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

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind and water erosion.

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

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

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

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 organic matter content than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

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

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material is too thin for the specified use.

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

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

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

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

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variegation. Refers to patterns of contrasting colors that are assumed to be inherited from the parent material rather than to be the result of poor drainage.

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

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Data recorded in the period 1951-80 at Kingstree, South Carolina]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	57.0	32.5	44.8	80	14	90	3.87	2.15	5.38	8	0.2
February---	59.4	33.7	46.6	80	15	86	3.92	1.97	5.61	7	1.0
March------	67.2	41.8	54.4	86	23	190	4.55	2.80	6.12	8	0.2
April------	76.1	49.8	63.0	91	31	390	3.07	1.35	4.63	6	0.0
May--------	83.4	58.3	70.9	96	39	648	4.07	2.12	5.76	7	0.0
June-------	88.4	65.1	76.8	100	51	804	5.00	2.65	7.06	8	0.0
July-------	91.2	68.8	80.0	99	57	930	5.18	2.89	7.20	8	0.0
August-----	90.2	68.1	79.2	99	57	905	6.84	4.08	9.30	8	0.0
September--	85.3	62.7	74.0	95	46	720	4.43	2.02	6.48	7	0.0
October----	76.7	49.7	63.2	91	29	409	3.04	0.65	4.90	4	0.0
November---	68.1	39.5	53.8	85	20	183	2.23	1.08	3.22	5	0.0
December---	59.6	33.2	46.4	79	14	71	3.36	1.93	4.63	7	0.1
Yearly:											
Average--	75.2	50.3	62.8	---	---	---	---	---	---	---	---
Extreme--	---	---	---	100	11	---	---	---	---	---	---
Total----	---	---	---	---	---	5,406	49.56	41.94	56.85	83	1.5

* 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

[Data recorded in the period 1951-80 at Kingstree, South Carolina]

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 20	April 5	April 15
2 years in 10 later than--	March 10	March 26	April 8
5 years in 10 later than--	February 18	March 7	March 26
First freezing temperature in fall:			
1 year in 10 earlier than--	November 12	October 28	October 16
2 years in 10 earlier than--	November 18	November 1	October 21
5 years in 10 earlier than--	November 29	November 13	October 31

TABLE 3.--GROWING SEASON

[Data recorded in the period 1951-80 at Kingstree, South Carolina]

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	242	211	191
8 years in 10	256	224	200
5 years in 10	283	250	219
2 years in 10	311	275	238
1 year in 10	325	289	247

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

Map symbol	Soil name	Acres	Percent
AuA	Autryville sand, 0 to 2 percent slopes	5,628	0.9
BnA	Bonneau fine sand, 0 to 2 percent slopes	2,220	0.4
By	Byars sandy loam	4,101	0.7
CaA	Candor sand, 0 to 2 percent slopes	1,526	0.3
CaB	Candor sand, 2 to 6 percent slopes	2,186	0.4
Cf	Cape Fear sandy loam	4,130	0.7
CH	Chastain and Tawcaw soils, frequently flooded	29,104	4.9
ClA	Chipley sand, 0 to 2 percent slopes	6,649	1.1
CmB	Chisolm loamy fine sand, 2 to 6 percent slopes	14,666	2.5
CmC	Chisolm loamy fine sand, 6 to 10 percent slopes	895	0.2
Co	Coxville loam	33,176	5.6
Dv	Daleville Variant loam	1,607	0.3
EmA	Emporia loamy sand, 0 to 2 percent slopes	22,570	3.8
EmB	Emporia loamy sand, 2 to 6 percent slopes	11,423	1.9
EpB	Emporia loamy sand, gently undulating	3,105	0.5
EuA	Eunola loamy sand, 0 to 2 percent slopes	51,081	8.6
FoA	Foreston fine sand, 0 to 2 percent slopes	18,033	3.0
FxB	Foxworth sand, 0 to 6 percent slopes	1,000	0.2
GoA	Goldsboro loamy fine sand, 0 to 2 percent slopes	35,432	5.9
Gu	Gourdin loam	35,277	5.9
Hb	Hobcaw sandy loam, frequently flooded	20,797	3.5
HvA	Hornsville sandy loam, 0 to 2 percent slopes	16,771	2.8
HvB	Hornsville sandy loam, 2 to 6 percent slopes	12,453	2.1
IzA	Izagora Variant sandy loam, 0 to 2 percent slopes	1,182	0.2
JoA	Johns fine sandy loam, 0 to 2 percent slopes	3,805	0.6
Js	Johnston fine sandy loam, frequently flooded	3,704	0.6
KeA	Kenansville sand, 0 to 2 percent slopes	616	0.1
Le	Leon sand	3,113	0.5
Ln	Lynchburg fine sandy loam	43,123	7.2
Ly	Lynn Haven fine sand	475	0.1
MH	Mouzon and Hobcaw soils, frequently flooded	41,746	7.0
Na	Nahunta Variant sandy loam	1,642	0.3
NoA	Noboco loamy fine sand, 0 to 2 percent slopes	19,086	3.2
Og	Ogeechee fine sandy loam	35,699	6.0
Px	Paxville fine sandy loam	9,523	1.6
Ra	Rains fine sandy loam	36,532	6.1
RsB	Rimini sand, 0 to 6 percent slopes	257	*
Rt	Rutlege loamy sand, ponded	857	0.1
TmA	Tomahawk loamy sand, 0 to 2 percent slopes	433	0.1
Ud	Udorthents, loamy	483	0.1
Wh	Wahee sandy loam	15,630	2.6
Ym	Yemassee sandy loam	41,602	7.0
	Water	2,662	0.4
	Total	596,000	100.0

* Less than 0.1 percent.

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

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Cotton lint	Bahiagrass	Improved bermuda-grass
		Bu	Bu	Lbs	Bu	Lbs	AUM*	AUM*
AuA------------- Autryville	IIs	75	25	2,200	---	600	8.0	9.0
BnA------------- Bonneau	IIs	85	30	2,600	---	700	8.0	8.5
By-------------- Byars	IIIw	110	40	---	---	---	12.0	---
CaA------------- Candor	IIIs	45	20	1,700	---	---	---	---
CaB------------- Candor	IVs	40	15	1,300	---	---	---	---
Cf-------------- Cape Fear	VIw	---	---	---	---	---	---	---
CH-------------- Chastain and Tawcaw	VIw	---	---	---	---	---	---	---
ClA------------- Chipley	IIIs	50	20	2,000	---	---	7.5	8.0
CmB------------- Chisolm	IIs	100	30	---	---	---	8.0	10.0
CmC------------- Chisolm	IIIs	90	25	---	---	---	8.0	10.0
Co-------------- Coxville	IIIw	110	40	---	50	---	---	---
Dv-------------- Daleville Variant	IIIw	115	40	---	50	---	9.0	10.0
EmA------------- Emporia	I	110	35	3,000	55	650	---	---
EmB, EpB-------- Emporia	IIe	100	30	2,900	50	600	---	---
EuA------------- Eunola	IIw	100	35	---	---	---	---	---
FoA------------- Foreston	IIw	120	35	2,600	---	700	---	10.0
FxB------------- Foxworth	IIIs	---	---	---	---	---	7.5	---
GoA------------- Goldsboro	IIw	125	42	3,000	60	700	---	---

See footnote at end of table.

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Cotton lint	Bahiagrass	Improved bermuda-grass
		Bu	Bu	Lbs	Bu	Lbs	AUM*	AUM*
Gu-------------- Gourdin	VIw	---	---	---	---	---	---	---
Hb-------------- Hobcaw	VIw	---	---	---	---	---	---	---
HvA------------- Hornsville	IIw	100	40	---	---	---	9.0	12.0
HvB------------- Hornsville	IIe	90	35	---	---	---	8.5	11.0
IzA------------- Izagora Variant	IIw	115	45	2,900	50	---	9.0	10.0
JoA------------- Johns	IIw	120	45	2,700	50	650	---	---
Js-------------- Johnston	VIIw	---	---	---	---	---	---	---
KeA------------- Kenansville	IIs	85	25	2,200	---	600	---	---
Le-------------- Leon	IVw	50	---	---	---	---	7.5	---
Ln-------------- Lynchburg	IIw	115	45	2,800	---	675	10.0	---
Ly-------------- Lynn Haven	IVw	70	---	---	---	---	7.5	---
MH-------------- Mouzon and Hobcaw	VIw	---	---	---	---	---	---	---
Na-------------- Nahunta Variant	IIw	115	45	2,400	50	---	9.0	10.0
NoA------------- Noboco	I	115	45	3,000	60	700	---	---
Og-------------- Ogeechee	IIIw	100	45	---	---	---	9.0	---
Px-------------- Paxville	IIIw	110	40	---	---	---	12.0	---
Ra-------------- Rains	IIIw	110	40	2,300	---	450	10.0	---
RsB------------- Rimini	VIs	---	---	---	---	---	---	---
Rt-------------- Rutlege	VIw	---	---	---	---	---	---	---
TmA------------- Tomahawk	IIw	85	25	2,400	---	500	---	---

See footnote at end of table.

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

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Wheat	Cotton lint	Bahiagrass	Improved bermuda-grass
		Bu	Bu	Lbs	Bu	Lbs	AUM*	AUM*
Ud: Udorthents.								
Wh------------- Wahee	IIw	110	45	---	---	---	8.0	---
Ym------------- Yemassee	IIw	120	45	---	---	---	11.0	12.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I	41,656	---	---	---
II	275,993	24,129	228,734	23,130
III	133,560	2,852	127,287	3,421
IV	5,774	---	3,588	2,186
V	---	---	---	---
VI	132,168	---	131,911	257
VII	3,704	---	3,704	---
VIII	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

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

Map symbol and soil name	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
AuA----------------- Autryville	Moderate	Moderate	--------	Loblolly pine-------	77	7	Loblolly pine, longleaf pine.
				Slash pine----------	---	--	
				Longleaf pine-------	---	--	
				Southern red oak----	---	--	
				Shumard oak---------	---	--	
				Hickory-------------	---	--	
				Sweetgum------------	---	--	
				Red maple-----------	---	--	
				White oak-----------	---	--	
				Post oak------------	---	--	
BnA----------------- Bonneau	Moderate	Moderate	--------	Loblolly pine-------	86	9	Loblolly pine, longleaf pine.
				Longleaf pine-------	75	6	
				White oak-----------	---	--	
				Hickory-------------	---	--	
By------------------ Byars	Severe	Severe	Severe	Loblolly pine-------	95	10	Loblolly pine, American sycamore.
				Sweetgum------------	90	7	
				Water tupelo--------	90	10	
				Slash pine----------	92	12	
				Water oak-----------	90	6	
CaA, CaB----------- Candor	Moderate	Moderate	--------	Longleaf pine-------	65	5	Longleaf pine, loblolly pine.
				Loblolly pine-------	75	7	
Cf------------------ Cape Fear	Severe	Severe	Severe	Sweetgum------------	99	9	Loblolly pine, water tupelo, American sycamore, sweetgum.
				Loblolly pine-------	100	11	
				Water oak-----------	---	--	
				Water tupelo--------	---	--	
				Baldcypress---------	---	--	
CH:							
Chastain-----------	Severe	Severe	Severe	Sweetgum------------	95	8	Sweetgum.
				Baldcypress---------	---	--	
				Water tupelo--------	---	--	
				Water oak-----------	---	--	
Tawcaw-------------	Slight	Moderate	Severe	Sweetgum------------	95	8	Sweetgum, water tupelo.
				Water oak-----------	---	--	
				Water tupelo--------	---	--	
ClA----------------- Chipley	Moderate	Slight	Moderate	Slash pine----------	90	11	Loblolly pine, longleaf pine.
				Loblolly pine-------	90	9	
				Longleaf pine-------	80	7	
				Post oak------------	---	--	
				Turkey oak----------	---	--	
				Blackjack oak-------	---	--	
CmB, CmC----------- Chisolm	Moderate	Moderate	--------	Loblolly pine-------	90	9	Longleaf pine, loblolly pine.
				Slash pine----------	90	11	
				Longleaf pine-------	78	7	
				Southern red oak----	---	--	
				Hickory-------------	---	--	

See footnote at end of table.

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

Map symbol and soil name	Management concerns			Potential productivity			Trees to plant
	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Productivity class*	
Co: Coxville	Severe	Moderate	Severe	Loblolly pine	90	9	Loblolly pine.
				Longleaf pine	---	--	
				Sweetgum	---	--	
				Blackgum	---	--	
				Water oak	---	--	
				Willow oak	---	--	
				Water tupelo	---	--	
				Elm	---	--	
				Hickory	---	--	
Dv: Daleville Variant	Severe	Severe	Severe	Loblolly pine	95	10	Loblolly pine, sweetgum.
				Sweetgum	90	7	
				Water oak	85	--	
				Longleaf pine	74	6	
EmA, EmB, EpB: Emporia	Slight	Slight	Slight	Loblolly pine	75	7	Loblolly pine, sweetgum.
				Southern red oak	70	4	
EuA: Eunola	Moderate	Slight	Moderate	Loblolly pine	90	9	Loblolly pine, sweetgum, yellow poplar.
				Slash pine	90	11	
				Sweetgum	90	7	
FoA: Foreston	Moderate	Slight	Moderate	Slash pine	90	11	Longleaf pine, loblolly pine.
				Loblolly pine	90	9	
				Longleaf pine	75	6	
FxB: Foxworth	Moderate	Moderate	Moderate	Slash pine	80	10	Longleaf pine.
				Longleaf pine	65	5	
				Turkey oak	---	--	
				Live oak	---	--	
				Post oak	---	--	
				Bluejack oak	---	--	
				Flowering dogwood	---	--	
GoA: Goldsboro	Moderate	Slight	Moderate	Loblolly pine	90	9	Loblolly pine, yellow poplar, American sycamore, sweetgum.
				Slash pine	93	12	
				Longleaf pine	77	7	
				Sweetgum	90	7	
				Southern red oak	---	--	
				White oak	---	--	
				Water oak	---	--	
				Red maple	---	--	
Gu: Gourdin	Severe	Severe	Moderate	Sweetgum	90	7	Sweetgum.
				Baldcypress	---	--	
				Water tupelo	---	--	
Hb: Hobcaw	Severe	Severe	Severe	Sweetgum	90	7	Water tupelo, sweetgum.
				Baldcypress	---	--	
				Blackgum	---	--	
				Water oak	---	--	
HvA, HvB: Hornsville	Moderate	Moderate	Moderate	Loblolly pine	90	9	Loblolly pine, sweetgum, yellow poplar.
				Slash pine	90	11	
				Sweetgum	90	7	

See footnote at end of table.

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

Map symbol and soil name	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
IzA---------------- Izagora Variant	Moderate	Slight	Severe	Loblolly pine------- Sweetgum----------- Longleaf pine-------	90 90 77	9 7 7	Loblolly pine, sweetgum, longleaf pine.
JoA---------------- Johns	Moderate	Slight	Moderate	Loblolly pine------- Sweetgum----------- Slash pine----------	86 90 86	9 7 11	Loblolly pine.
Js----------------- Johnston	Severe	Severe	Severe	Sweetgum----------- Water tupelo-------- Swamp tupelo-------- Water oak---------- Pond pine---------- Baldcypress---------	99 --- --- --- --- ---	9 -- -- -- -- --	Sweetgum, baldcypress, American sycamore, green ash.
KeA---------------- Kenansville	Moderate	Moderate	--------	Loblolly pine------- Longleaf pine-------	80 65	8 5	Loblolly pine.
Le----------------- Leon	Moderate	Moderate	Moderate	Slash pine---------- Longleaf pine-------	70 65	8 5	Loblolly pine.
Ln----------------- Lynchburg	Moderate	Slight	Moderate	Slash pine---------- Loblolly pine------- Longleaf pine------- Yellow poplar------- Sweetgum----------- Southern red oak---- White oak---------- Blackgum-----------	91 86 74 92 90 --- --- ---	12 9 6 6 7 -- -- --	Loblolly pine, American sycamore, sweetgum.
Ly----------------- Lynn Haven	Moderate	Moderate	Moderate	Slash pine---------- Loblolly pine------- Longleaf pine------- Pond pine----------	90 80 70 70	11 8 6 --	Loblolly pine.
MH:							
Mouzon------------	Severe	Severe	Severe	Sweetgum----------- Water oak---------- Water tupelo-------- Pond pine---------- Baldcypress---------	100 100 --- 75 ---	10 13 -- -- --	Sweetgum, water oak.
Hobcaw------------	Severe	Severe	Severe	Sweetgum----------- Baldcypress--------- Blackgum----------- Water oak----------	90 --- --- ---	7 -- -- --	Water tupelo, sweetgum.
Na----------------- Nahunta Variant	Moderate	Moderate	Moderate	Loblolly pine------- Longleaf pine------- Sweetgum----------- White oak----------	87 74 90 ---	9 6 7 --	Loblolly pine, longleaf pine.
NoA---------------- Noboco	Slight	Slight	Slight	Loblolly pine------- Longleaf pine------- Southern red oak---- Sweetgum-----------	90 80 --- ---	9 7 -- --	Loblolly pine, American sycamore, sweetgum.
Og----------------- Ogeechee	Severe	Moderate	Moderate	Loblolly pine------- Slash pine---------- Pond pine----------	90 90 70	9 11 --	Loblolly pine, sweetgum.

See footnote at end of table.

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

Map symbol and soil name	Management concerns			Potential productivity			Trees to plant
	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	Productivity class*	
Px----------------- Paxville	Severe	Severe	Severe	Loblolly pine-------	96	9	Loblolly pine, American sycamore, water tupelo.
				Slash pine----------	92	12	
				Pond pine-----------	77	--	
				Water oak-----------	90	--	
				Water tupelo--------	---	--	
				Baldcypress---------	---	--	
Ra----------------- Rains	Severe	Severe	Severe	Loblolly pine-------	94	10	Loblolly pine, sweetgum, American sycamore.
				Slash pine----------	91	12	
				Sweetgum------------	90	7	
RsB---------------- Rimini	Severe	Severe	---------	Loblolly pine-------	65	6	Longleaf pine, sand pine.
				Slash pine----------	65	8	
				Longleaf pine-------	55	3	
Rt----------------- Rutlege	Severe	Severe	Severe	Sweetgum------------	90	7	Baldcypress.
				Pin oak-------------	85	4	
TmA---------------- Tomahawk	Moderate	Moderate	---------	Loblolly pine-------	80	8	Loblolly pine, longleaf pine.
				Longleaf pine-------	70	6	
				Slash pine----------	80	10	
Wh----------------- Wahee	Moderate	Moderate	Moderate	Loblolly pine-------	86	9	Loblolly pine, sweetgum, American sycamore, water oak.
				Slash pine----------	86	11	
				Sweetgum------------	90	7	
				Blackgum------------	---	--	
				Water oak-----------	---	--	
				Swamp chestnut oak--	---	--	
				Willow oak----------	---	--	
				Southern red oak----	---	--	
Ym----------------- Yemassee	Moderate	Slight	Moderate	Loblolly pine-------	90	9	Loblolly pine, American sycamore, yellow poplar.
				Slash pine----------	88	11	
				Sweetgum------------	95	8	
				Southern red oak----	---	--	
				White oak-----------	---	--	
				Yellow poplar-------	100	8	
				Longleaf pine-------	80	7	
				Blackgum------------	---	--	
				Hickory-------------	---	--	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands. Cubic meters per hectare multiplied by 14.3 equals cubic feet per acre.

TABLE 8.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AuA: Autryville	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
BnA: Bonneau	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
By: Byars	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
CaA, CaB: Candor	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Cf: Cape Fear	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
CH:					
Chastain	Severe: flooding, wetness, too clayey.	Severe: wetness, too clayey.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: wetness, flooding, too clayey.
Tawcaw	Severe: flooding, too clayey.	Severe: too clayey.	Severe: too clayey, flooding.	Severe: too clayey.	Severe: flooding.
ClA: Chipley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
CmB: Chisolm	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
CmC: Chisolm	Moderate: too sandy, slope.	Moderate: too sandy, slope.	Severe: slope.	Moderate: too sandy.	Moderate: droughty, slope.
Co: Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Dv: Daleville Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
EmA: Emporia	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: small stones, percs slowly.	Slight	Moderate: droughty.
EmB, EpB: Emporia	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Slight	Moderate: droughty.
EuA: Eunola	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
FoA: Foreston	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
FxB------------------- Foxworth	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty.
GoA------------------- Goldsboro	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight----------	Slight.
Gu-------------------- Gourdin	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Hb-------------------- Hobcaw	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
HvA------------------- Hornsville	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: percs slowly.	Slight----------	Slight.
HvB------------------- Hornsville	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight----------	Slight.
IzA------------------- Izagora Variant	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
JoA------------------- Johns	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Js-------------------- Johnston	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
KeA------------------- Kenansville	Severe: too sandy.	Severe: too sandy.	Slight----------	Severe: too sandy.	Moderate: droughty.
Le-------------------- Leon	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
Ln-------------------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ly-------------------- Lynn Haven	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
MH: Mouzon---------------	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Hobcaw---------------	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Na-------------------- Nahunta Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
NoA------------------- Noboco	Slight----------	Slight----------	Slight----------	Slight----------	Moderate: droughty.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Og-------------------- Ogeechee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Px-------------------- Paxville	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Ra-------------------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
RsB------------------- Rimini	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Rt-------------------- Rutlege	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
TmA------------------- Tomahawk	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, droughty.
Ud: Udorthents.					
Wh-------------------- Wahee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ym-------------------- Yemassee	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.

TABLE 9.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AuA----------------- Autryville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
BnA----------------- Bonneau	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
By------------------ Byars	Fair	Good	Good	Good	Good	Poor	Good	Good	Good	Fair.
CaA, CaB----------- Candor	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Cf------------------ Cape Fear	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
CH:										
Chastain-----------	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
Tawcaw------------	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
ClA----------------- Chipley	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CmB, CmC----------- Chisolm	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Co------------------ Coxville	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
Dv------------------ Daleville Variant	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
EmA, EmB, EpB------ Emporia	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EuA----------------- Eunola	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FoA----------------- Foreston	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
FxB----------------- Foxworth	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
GoA----------------- Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Gu------------------ Gourdin	Very poor.	Poor	Very poor.	Poor	Very poor.	Good	Good	Very poor.	Poor	Good.
Hb------------------ Hobcaw	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Fair	Good.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
HvA, HvB----------- Hornsville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
IzA---------------- Izagora Variant	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
JoA---------------- Johns	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Js----------------- Johnston	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
KeA---------------- Kenansville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Le----------------- Leon	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor.
Ln----------------- Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Ly----------------- Lynn Haven	Poor	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Poor	Fair.
MH:										
Mouzon------------	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Poor	Good.
Hobcaw------------	Very poor.	Very poor.	Very poor.	Fair	Fair	Good	Good	Very poor.	Fair	Good.
Na----------------- Nahunta Variant	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor.
NoA---------------- Noboco	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Og----------------- Ogeechee	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Px----------------- Paxville	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
Ra----------------- Rains	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
RsB---------------- Rimini	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Rt----------------- Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair.
TmA---------------- Tomahawk	Fair	Good	Good	Fair	Fair	Poor	Poor	Good	Good	Poor.
Ud: Udorthents.										

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Wh----------------- Wahee	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ym----------------- Yemassee	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AuA---------------- Autryville	Severe: cutbanks cave.	Slight----------	Moderate: wetness.	Slight----------	Slight----------	Moderate: droughty, too sandy.
BnA---------------- Bonneau	Severe: cutbanks cave.	Slight----------	Moderate: wetness.	Slight----------	Slight----------	Moderate: droughty.
By----------------- Byars	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding.	Severe: ponding.
CaA---------------- Candor	Severe: cutbanks cave.	Slight----------	Slight----------	Slight----------	Slight----------	Severe: droughty.
CaB---------------- Candor	Severe: cutbanks cave.	Slight----------	Slight----------	Moderate: slope.	Slight----------	Severe: droughty.
Cf----------------- Cape Fear	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
CH:						
Chastain----------	Severe: wetness, cutbanks cave.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding, too clayey.
Tawcaw------------	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
ClA---------------- Chipley	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
CmB---------------- Chisolm	Severe: cutbanks cave.	Slight----------	Moderate: wetness.	Moderate: slope.	Slight----------	Moderate: droughty.
CmC---------------- Chisolm	Severe: cutbanks cave.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
Co----------------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
Dv----------------- Daleville Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
EmA---------------- Emporia	Moderate: wetness.	Slight----------	Moderate: wetness.	Slight----------	Moderate: low strength.	Moderate: droughty.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
EmB--------------- Emporia	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Moderate: low strength.	Moderate: droughty.
EpB--------------- Emporia	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Moderate: low strength.	Moderate: droughty.
EuA--------------- Eunola	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
FoA--------------- Foreston	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
FxB--------------- Foxworth	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
GoA--------------- Goldsboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
Gu---------------- Gourdin	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding, low strength.	Severe: ponding.
Hb---------------- Hobcaw	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding.
HvA--------------- Hornsville	Moderate: too clayey, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: low strength.	Slight.
HvB--------------- Hornsville	Moderate: too clayey, wetness.	Slight---------	Moderate: wetness.	Moderate: slope, wetness.	Moderate: low strength.	Slight.
IzA--------------- Izagora Variant	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
JoA--------------- Johns	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
Js---------------- Johnston	Severe: cutbanks cave, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding.	Severe: ponding, flooding.
KeA--------------- Kenansville	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
Le---------------- Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
Ln---------------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Ly: Lynn Haven	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
MH:						
Mouzon	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Hobcaw	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: ponding, flooding.
Na: Nahunta Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
NoA: Noboco	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
Og: Ogeechee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Px: Paxville	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Ra: Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
RsB: Rimini	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
Rt: Rutlege	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
TmA: Tomahawk	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
Ud: Udorthents.						
Wh: Wahee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
Ym: Yemassee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AuA Autryville	Moderate: wetness.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
BnA Bonneau	Severe: wetness.	Severe: seepage.	Severe: wetness.	Severe: seepage.	Good.
By Byars	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding.
CaA, CaB Candor	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy, seepage.
Cf Cape Fear	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too clayey.	Severe: seepage, wetness.	Poor: too clayey, hard to pack, wetness.
CH:					
Chastain	Severe: flooding, wetness, percs slowly.	Severe: flooding, seepage.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness.	Poor: wetness, too clayey, hard to pack.
Tawcaw	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: too clayey, hard to pack, wetness.
ClA Chipley	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, seepage.
CmB Chisolm	Moderate: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Good.
CmC Chisolm	Moderate: wetness, slope.	Severe: seepage, slope, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Fair: slope.
Co Coxville	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness.
Dv Daleville Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
EmA, EmB, EpB Emporia	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Moderate: wetness, too clayey.	Slight	Fair: too clayey, wetness.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EuA------------------ Eunola	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: wetness.	Fair: too clayey, wetness, thin layer.
FoA------------------ Foreston	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: thin layer.
FxB------------------ Foxworth	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
GoA------------------ Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Gu------------------- Gourdin	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding.
Hb------------------- Hobcaw	Severe: flooding, ponding.	Severe: seepage, flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, seepage, ponding.	Poor: ponding.
HvA, HvB------------ Hornsville	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack, wetness.
IzA------------------ Izagora Variant	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey.
JoA------------------ Johns	Severe: wetness.	Severe: seepage, flooding, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
Js------------------- Johnston	Severe: flooding, ponding, poor filter.	Severe: seepage, flooding, ponding.	Severe: flooding, seepage, ponding.	Severe: flooding, seepage, ponding.	Poor: ponding.
KeA------------------ Kenansville	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Fair: too sandy.
Le------------------- Leon	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
Ln------------------- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ly------------------- Lynn Haven	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MH:					
Mouzon	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Hobcaw	Severe: flooding, ponding.	Severe: seepage, flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, seepage, ponding.	Poor: ponding.
Na: Nahunta Variant	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
NoA: Noboco	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Og: Ogeechee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Px: Paxville	Severe: ponding.	Severe: seepage, ponding.	Severe: seepage, ponding.	Severe: ponding.	Poor: ponding.
Ra: Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
RsB: Rimini	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Rt: Rutlege	Severe: ponding, poor filter.	Severe: seepage, ponding.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: too sandy, ponding.
TmA: Tomahawk	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, seepage.	Severe: seepage, wetness.	Poor: thin layer.
Ud: Udorthents.					
Wh: Wahee	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Ym: Yemassee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AuA: Autryville	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
BnA: Bonneau	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
By: Byars	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
CaA, CaB: Candor	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
Cf: Cape Fear	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
CH:				
Chastain	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too clayey, wetness.
Tawcaw	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ClA: Chipley	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
CmB: Chisolm	Good	Probable	Improbable: too sandy.	Fair: too sandy.
CmC: Chisolm	Good	Probable	Improbable: too sandy.	Fair: too sandy, slope.
Co: Coxville	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
Dv: Daleville Variant	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, area reclaim.
EmA, EmB, EpB: Emporia	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
EuA: Eunola	Fair: wetness.	Probable	Improbable: too sandy.	Fair: too clayey, thin layer.
FoA: Foreston	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
FxB: Foxworth	Good	Probable	Improbable: too sandy.	Poor: too sandy.
GoA: Goldsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Gu: Gourdin	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, thin layer.
Hb: Hobcaw	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
HvA, HvB: Hornsville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
IzA: Izagora Variant	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, area reclaim.
JoA: Johns	Fair: wetness.	Probable	Improbable: too sandy.	Fair: thin layer.
Js: Johnston	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
KeA: Kenansville	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Le: Leon	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Ln: Lynchburg	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ly: Lynn Haven	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
MH:				
Mouzon	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Hobcaw	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Na: Nahunta Variant	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
NoA: Noboco	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Og: Ogeechee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Px: Paxville	Poor: wetness.	Probable	Improbable: too sandy.	Poor: wetness.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ra-------------------- Rains	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
RsB------------------- Rimini	Good-----------------	Probable-------------	Improbable: too sandy.	Poor: too sandy.
Rt-------------------- Rutlege	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: wetness.
TmA------------------- Tomahawk	Fair: wetness.	Probable-------------	Improbable: too sandy.	Fair: too sandy.
Ud: Udorthents.				
Wh-------------------- Wahee	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Ym-------------------- Yemassee	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition; it does not eliminate the need for onsite investigation]

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
AuA: Autryville	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Droughty.
BnA: Bonneau	Severe: seepage.	Severe: thin layer.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
By: Byars	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
CaA: Candor	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Droughty.
CaB: Candor	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Droughty.
Cf: Cape Fear	Slight	Severe: hard to pack, wetness.	Slight	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.
CH:						
Chastain	Moderate: seepage.	Severe: hard to pack, wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Wetness, erodes easily, percs slowly.
Tawcaw	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, slow intake, percs slowly.	Erodes easily, percs slowly.
ClA: Chipley	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
CmB: Chisolm	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, slope.	Droughty.
CmC: Chisolm	Severe: seepage, slope.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, slope.	Droughty, slope.
Co: Coxville	Slight	Severe: wetness.	Severe: slow refill.	Favorable	Wetness	Wetness.
Dv: Daleville Variant	Moderate: seepage.	Severe: wetness, piping.	Moderate: slow refill.	Favorable	Wetness	Wetness.
EmA: Emporia	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake, soil blowing.	Droughty, percs slowly.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
EmB: Emporia	Moderate: seepage, slope.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake, soil blowing, slope.	Droughty, percs slowly.
EpB: Emporia	Moderate: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Fast intake, soil blowing.	Droughty, percs slowly.
EuA: Eunola	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Wetness, fast intake.	Favorable.
FoA: Foreston	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Favorable	Wetness, droughty, fast intake.	Droughty.
FxB: Foxworth	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake, soil blowing.	Droughty.
GoA: Goldsboro	Moderate: seepage.	Moderate: piping, wetness.	Moderate: slow refill, cutbanks cave, deep to water.	Favorable	Wetness, fast intake.	Favorable.
Gu: Gourdin	Slight	Severe: ponding.	Moderate: slow refill.	Ponding, percs slowly.	Ponding, soil blowing, percs slowly.	Wetness, percs slowly.
Hb: Hobcaw	Moderate: seepage.	Severe: piping, ponding.	Moderate: slow refill.	Ponding, flooding.	Ponding	Wetness.
HvA: Hornsville	Moderate: seepage.	Moderate: thin layer, hard to pack, wetness.	Severe: slow refill.	Favorable	Wetness	Favorable.
HvB: Hornsville	Moderate: seepage, slope.	Moderate: thin layer, hard to pack, wetness.	Severe: slow refill.	Slope	Wetness, slope.	Favorable.
IzA: Izagora Variant	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable	Wetness, percs slowly.	Droughty, rooting depth.
JoA: Johns	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness	Favorable.
Js: Johnston	Severe: seepage.	Severe: piping, ponding.	Severe: cutbanks cave.	Ponding, flooding.	Ponding, droughty, flooding.	Wetness, droughty.
KeA: Kenansville	Severe: seepage.	Moderate: seepage.	Severe: cutbanks cave.	Deep to water	Fast intake, droughty.	Droughty.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
Le: Leon	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
Ln: Lynchburg	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable	Wetness	Wetness.
Ly: Lynn Haven	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, droughty.
MH:						
Mouzon	Moderate: seepage.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.
Hobcaw	Moderate: seepage.	Severe: piping, ponding.	Moderate: slow refill.	Ponding, flooding.	Ponding	Wetness.
Na: Nahunta Variant	Moderate: seepage.	Severe: wetness, piping.	Severe: slow refill.	Favorable	Erodes easily, wetness.	Wetness.
NoA: Noboco	Moderate: seepage.	Severe: piping.	Severe: cutbanks cave.	Favorable	Wetness, droughty.	Droughty, rooting depth.
Og: Ogeechee	Moderate: seepage.	Severe: wetness.	Moderate: slow refill.	Favorable	Wetness	Wetness.
Px: Paxville	Severe: seepage.	Severe: piping, ponding.	Severe: cutbanks cave.	Ponding	Ponding	Wetness.
Ra: Rains	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable	Wetness	Wetness.
RsB: Rimini	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake, slope.	Droughty.
Rt: Rutlege	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty.	Wetness, droughty.
TmA: Tomahawk	Severe: seepage.	Severe: piping, wetness, seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Droughty.
Ud: Udorthents.						

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Grassed waterways
Wh---------------- Wahee	Slight----------	Severe: wetness, hard to pack.	Severe: slow refill.	Percs slowly---	Wetness, soil blowing.	Wetness, percs slowly.
Ym---------------- Yemassee	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Favorable------	Wetness---------	Wetness.

TABLE 14.--ENGINEERING INDEX PROPERTIES

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

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
AuA----------------- Autryville	0-27	Sand---------------	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	27-47	Sandy loam, sandy clay loam, fine sandy loam.	SM	A-2	0	100	100	50-100	15-30	<25	NP-3
	47-62	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	62-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4	0	100	100	60-100	20-49	<30	NP-10
BnA----------------- Bonneau	0-22	Fine sand---------	SM, SP-SM	A-2, A-3	0	100	100	60-95	8-20	---	NP
	22-50	Sandy loam, sandy clay loam, fine sandy loam.	SC, SM-SC	A-2, A-6, A-4	0	100	100	60-100	30-50	21-40	4-21
	50-75	Sandy loam, sandy clay loam, sandy clay.	CL, SC, SM-SC, CL-ML	A-4, A-6, A-2	0	100	100	60-95	25-60	20-40	4-18
By------------------ Byars	0-16	Sandy loam--------	SM, ML	A-4	0	98-100	98-100	70-95	35-65	<30	NP-7
	16-80	Clay, clay loam, sandy clay.	CL, CH	A-7-5, A-7-6, A-6	0	98-100	98-100	90-100	60-95	39-75	17-42
CaA, CaB---------- Candor	0-29	Sand---------------	SM, SP-SM	A-2, A-3	0-2	100	100	55-90	5-15	---	NP
	29-54	Loamy sand--------	SM, SP-SM	A-2	0-2	100	100	65-90	10-25	---	NP
	54-69	Sand---------------	SM, SP-SM	A-2, A-3	0-7	90-100	90-100	55-90	5-15	---	NP
	69-85	Sandy loam, sandy clay loam.	SC, SM-SC, SM	A-2, A-4, A-6, A-7	0-7	90-100	90-100	55-90	25-49	<45	NP-25
Cf------------------ Cape Fear	0-20	Sandy loam--------	ML, CL-ML, CL	A-4, A-6	0	100	95-100	85-100	60-90	20-40	3-15
	20-55	Clay loam, sandy clay loam, clay.	ML, CL, MH, CH	A-7	0	100	95-100	90-100	60-85	41-65	15-35
	55-80	Variable----------	---	---	---	---	---	---	---	---	---
CH: Chastain-----------	0-8	Clay---------------	ML, CL, MH, CH	A-6, A-7	0	100	100	90-100	75-98	35-75	12-40
	8-56	Silty clay loam, silty clay, clay.	CL, CH, ML, MH	A-6, A-7	0	100	100	95-100	85-98	35-75	12-40
	56-88	Loamy sand, sand, fine sand.	SP, SM, SP-SM	A-2, A-3	0	90-100	85-100	51-90	4-25	---	NP
Tawcaw-------------	0-2	Clay---------------	CL, MH, CH, ML	A-7	0	100	100	90-100	75-98	40-75	16-40
	2-85	Silty clay loam, silty clay, clay.	CL, CH	A-6, A-7	0	100	100	90-100	51-98	30-65	11-33
ClA----------------- Chipley	0-6	Sand---------------	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	6-75	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
CmB, CmC--------- Chisolm	0-28	Loamy fine sand	SM, SP-SM	A-2	0	100	98-100	75-98	11-27	---	NP
	28-54	Sandy clay loam, sandy loam, fine sandy loam.	SM-SC, SC, CL, CL-ML	A-4, A-6	0	100	98-100	75-98	36-55	20-40	4-22
	54-63	Sandy clay loam, sandy clay, sandy loam.	SM-SC, SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	75-98	24-70	20-45	4-22
	63-80	Sandy loam, fine sandy loam, sandy clay loam.	SM, SM-SC, SC	A-2, A-4, A-6	0	100	98-100	65-98	24-50	16-35	2-15
Co--------------- Coxville	0-11	Loam-------------	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	3-15
	11-73	Clay loam, sandy clay, clay.	CL, CH	A-6, A-7	0	100	100	85-98	50-85	30-55	12-35
	73-82	Variable---------	---	---	---	---	---	---	---	---	---
Dv--------------- Daleville Variant	0-8	Loam-------------	SM	A-4	0-2	95-100	95-100	55-70	28-40	<35	NP-7
	8-53	Sandy loam, sandy clay loam, clay loam.	SC, CL	A-4, A-6	0-2	95-100	95-100	75-85	35-80	15-40	4-17
	53-60	Very cobbly sandy clay loam, extremely cobbly sandy clay loam, extremely cobbly sandy clay.	GP-GC, SP-SC	A-1-b, A-1-a, A-2-4	45-85	15-55	15-55	10-45	5-10	16-40	4-17
EmA, EmB, EpB---- Emporia	0-8	Loamy sand, sandy loam.	SM, SM-SC	A-2, A-1, A-4	0-3	90-100	80-100	40-85	15-40	<18	NP-7
	8-37	Sandy clay loam, sandy loam, clay loam.	SC, CL	A-2, A-4, A-6, A-7	0-2	90-100	80-100	45-95	25-70	20-55	8-30
	37-56	Sandy clay loam, clay loam, sandy clay.	SC, CL, CH	A-2, A-4, A-6, A-7	0-2	90-100	80-100	45-95	30-80	25-55	8-30
	56-85	Stratified sandy loam to clay loam.	SM, SC, ML, CL	A-1, A-2, A-4, A-6	0-5	70-100	55-100	30-90	20-60	<40	NP-25
EuA-------------- Eunola	0-13	Loamy sand-------	SM	A-2, A-4	0	100	98-100	50-80	15-38	---	NP
	13-57	Sandy clay loam, clay loam, fine sandy loam.	SM, SC, SM-SC, CL	A-4, A-2, A-6	0	100	94-100	75-95	30-60	<36	NP-15
	57-80	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	100	98-100	60-70	30-40	<30	NP-10
FoA-------------- Foreston	0-12	Fine sand--------	SP-SM, SM	A-2	0	100	100	60-100	10-20	---	NP
	12-33	Sandy loam, fine sandy loam.	SM	A-2	0	100	100	70-100	18-35	<25	NP-4
	33-51	Loamy fine sand, loamy sand, fine sand.	SP-SM, SM	A-2, A-3	0	100	100	50-98	6-25	---	NP
	51-90	Fine sandy loam, sandy clay loam.	SC, SM-SC, SM	A-2, A-4, A-6, A-7	0	100	100	55-90	25-49	<45	NP-25
FxB-------------- Foxworth	0-6	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	6-85	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	50-100	1-12	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
GoA-------------- Goldsboro	0-16	Loamy fine sand	SM	A-2	0	95-100	95-100	50-95	13-30	---	NP
	16-68	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-100	25-55	16-37	4-18
	68-85	Sandy clay loam, clay loam, sandy clay.	SC, CL, CL-ML, CH	A-4, A-6, A-7-6	0	95-100	90-100	65-95	36-70	25-55	6-32
Gu--------------- Gourdin	0-6	Loam-------------	SC	A-4	0	100	95-100	85-95	60-75	<35	NP-10
	6-24	Sandy clay loam, clay loam.	SC, CL	A-6	0	100	95-100	85-98	55-85	20-40	7-15
	24-55	Sandy clay, clay	CL	A-6, A-7	0	100	95-100	80-98	55-85	35-50	12-25
	55-85	Variable---------	---	---	---	---	---	---	---	---	---
Hb--------------- Hobcaw	0-5	Sandy loam-------	SM, ML	A-2, A-4	0	100	100	70-95	30-65	<35	NP-7
	5-41	Sandy clay loam, clay loam, fine sandy loam.	SM-SC, SC, CL-ML, CL	A-4, A-6, A-7	0	100	100	75-98	36-70	18-45	NP-22
	41-80	Variable---------	---	---	---	---	---	---	---	---	---
HvA, HvB--------- Hornsville	0-6	Sandy loam-------	SM	A-2-4, A-4	0	100	100	60-95	30-50	<30	NP-7
	6-49	Sandy clay, clay loam, clay.	SC, CL, CH, MH	A-6, A-7	0	100	100	70-98	45-70	38-56	15-25
	49-65	Sandy clay loam, sandy loam, fine sandy loam.	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6	0	100	100	60-100	18-50	<30	NP-12
IzA-------------- Izagora Variant	0-12	Sandy loam-------	SM	A-2	0-2	95-100	92-100	50-90	13-30	<20	NP
	12-35	Sandy loam, loam, sandy clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0-2	95-100	91-100	70-95	30-55	20-38	4-15
	35-51	Loam, sandy clay loam.	SC, CL	A-4, A-6, A-2-4	0-2	95-100	91-100	70-95	30-55	20-38	8-25
	51-77	Cobbly sandy loam, cobbly sandy clay loam, cobbly clay loam.	SC, CL, GC, GM-GC	A-6, A-2-4, A-4	10-35	50-80	45-80	45-70	30-60	<30	2-15
JoA-------------- Johns	0-9	Fine sandy loam	SM, SC, SM-SC	A-2, A-4	0	100	95-100	70-98	20-49	<30	NP-10
	9-34	Sandy clay loam, sandy loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6, A-7	0	100	95-100	60-98	30-65	20-45	5-25
	34-60	Sand, loamy sand, coarse sand.	SM, SP-SM, SP	A-2, A-3	0	95-100	95-100	51-90	4-25	---	NP
Js--------------- Johnston	0-38	Fine sandy loam	ML, SM	A-2, A-4	0	100	100	60-100	18-65	<35	NP-10
	38-65	Stratified loamy sand to sand.	SM, SP-SM	A-2, A-3	0	100	100	50-100	5-30	---	NP
KeA-------------- Kenansville	0-21	Sand-------------	SM	A-1, A-2	0	100	95-100	45-60	10-25	<25	NP-3
	21-40	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	100	95-100	50-75	20-40	<30	NP-10
	40-72	Sand, loamy sand	SP-SM, SM, SP	A-1, A-2, A-3	0	100	95-100	40-60	5-30	---	NP

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Le----------------- Leon	0-19	Sand-------------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	19-46	Sand, fine sand, loamy sand.	SM, SP-SM, SP	A-3, A-2-4	0	100	100	80-100	3-20	---	NP
	46-85	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
Ln----------------- Lynchburg	0-6	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-2, A-4	0	92-100	90-100	75-100	25-55	<30	NP-7
	6-80	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	92-100	90-100	70-100	25-67	16-40	4-18
Ly----------------- Lynn Haven	0-13	Fine sand--------	SP, SP-SM, SM	A-3, A-2-4	0	100	100	80-100	2-14	---	NP
	13-33	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2-4	0	100	100	70-100	5-20	---	NP
	33-60	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
MH:											
Mouzon-----------	0-11	Fine sandy loam	SM	A-2	0	100	90-100	45-70	15-35	<30	NP-7
	11-31	Sandy clay loam, clay loam.	SC, CL	A-6	0	100	90-100	70-90	30-75	30-40	7-20
	31-46	Sandy clay loam, sandy loam.	SC, SM, CL-ML	A-4, A-6	0	100	90-100	60-85	35-50	20-40	3-20
	46-72	Loamy sand, sandy loam.	SM-SC	A-2	0	100	90-100	45-70	15-35	<30	NP-7
Hobcaw-----------	0-5	Sandy loam--------	SM, ML	A-2, A-4	0	100	100	70-95	30-65	<35	NP-7
	5-41	Sandy clay loam, clay loam, fine sandy loam.	SM-SC, SC, CL-ML, CL	A-4, A-6, A-7	0	100	100	75-98	36-70	18-45	NP-22
	41-80	Variable----------	---	---	---	---	---	---	---	---	---
Na----------------- Nahunta Variant	0-7	Sandy loam--------	ML, CL-ML, CL	A-4	0	100	95-100	80-100	51-85	<25	NP-10
	7-20	Sandy loam, sandy clay loam, loam.	CL-ML, ML, CL	A-4	0	100	95-100	80-100	51-85	<25	NP-10
	20-55	Loam, sandy clay loam, clay loam.	CL	A-4, A-6, A-7	0	100	95-100	90-100	60-95	22-49	8-30
	55-60	Very cobbly sandy clay loam, extremely cobbly sandy clay loam, extremely cobbly sandy clay.	GP-GC, SP-SC	A-1-b, A-1-a, A-2-4	45-85	15-55	15-55	10-45	5-10	16-40	4-17
NoA---------------- Noboco	0-12	Loamy fine sand	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	12-40	Sandy loam, sandy clay loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	95-100	70-96	30-63	20-38	4-15
	40-67	Sandy clay loam, clay loam, sandy clay.	SM-SC, SC, CL, CL-ML	A-4, A-6, A-7-6	0	98-100	98-100	70-98	36-72	20-52	4-23

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Og---------------- Ogeechee	0-7	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	48-70	15-42	<30	NP-7
	7-25	Sandy clay loam, clay loam.	SC, CL	A-6	0	100	95-100	65-90	40-55	27-46	12-24
	25-45	Sandy clay, sandy clay loam, clay.	SC, CL	A-6, A-7	0	100	95-100	65-90	43-65	32-46	12-24
	45-70	Sandy clay loam, sandy loam.	SC	A-6, A-2	0	100	90-100	50-65	25-45	30-40	15-25
	70-85	Variable---------	---	---	---	---	---	---	---	---	---
Px---------------- Paxville	0-20	Fine sandy loam	SM, ML	A-2, A-4	0	100	100	80-98	30-60	<35	NP-7
	20-65	Sandy clay loam, sandy loam, loam.	CL-ML, CL, SM-SC, SC	A-2, A-4, A-6	0	100	98-100	60-98	30-60	21-40	5-15
	65-90	Sandy loam, loamy sand, fine sandy loam.	SM, SP-SM	A-2, A-3	0	100	98-100	60-98	5-35	<30	NP-4
Ra---------------- Rains	0-11	Fine sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	11-60	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	60-80	Sandy loam, sandy clay loam, sandy clay.	SM, SC, ML, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-60	16-40	3-18
RsB-------------- Rimini	0-55	Sand-------------	SP, SP-SM	A-3	0	100	98-100	60-98	2-5	---	NP
	55-75	Sand, fine sand	SP, SP-SM	A-3	0	100	98-100	75-100	3-10	---	NP
Rt---------------- Rutlege	0-13	Loamy sand-------	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-35	<25	NP
	13-65	Sand, loamy sand, loamy fine sand.	SP-SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP
TmA-------------- Tomahawk	0-23	Loamy sand-------	SM, SP-SM	A-2-4, A-1-b	0	100	95-100	40-70	10-30	---	NP
	23-50	Sandy loam, fine sandy loam.	SM, SC, SM-SC	A-2-4, A-4	0	100	95-100	50-80	20-49	<25	NP-10
	50-72	Fine sand, sand, loamy sand.	SM, SP-SM	A-2-4, A-1-b, A-3	0	100	95-100	35-65	5-20	---	NP
Ud: Udorthents.											
Wh---------------- Wahee	0-12	Sandy loam-------	SM, SM-SC	A-2, A-4	0	100	95-100	50-98	30-50	<28	NP-7
	12-56	Clay, clay loam, silty clay.	CL, CH	A-6, A-7	0	100	100	85-100	51-90	33-77	16-54
	56-80	Variable---------	---	---	---	---	---	---	---	---	---
Ym---------------- Yemassee	0-6	Sandy loam-------	SM	A-2, A-4	0	100	100	75-100	25-50	<30	NP-7
	6-56	Sandy clay loam, clay loam, fine sandy loam.	CL, SC, CL-ML, SM-SC	A-2, A-4, A-6, A-7	0	100	100	75-100	30-70	16-47	4-28
	56-80	Variable---------	---	---	---	---	---	---	---	---	---

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

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH					Pct
AuA--------------	0-27	2-10	1.60-1.70	>6.0	0.04-0.09	4.5-6.5	Low-----------	0.10	5	---	.5-1
Autryville	27-47	10-25	1.40-1.60	2.0-6.0	0.08-0.13	4.5-5.5	Low-----------	0.10			
	47-62	2-8	1.60-1.70	>6.0	0.03-0.08	4.5-5.5	Low-----------	0.10			
	62-80	10-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.17			
BnA--------------	0-22	2-8	1.30-1.70	6.0-20	0.04-0.08	4.5-6.0	Low-----------	0.15	5	1	.5-2
Bonneau	22-50	18-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	Low-----------	0.20			
	50-75	15-40	1.40-1.60	0.6-2.0	0.10-0.16	4.5-5.5	Low-----------	0.20			
By---------------	0-16	10-20	1.20-1.50	0.6-2.0	0.11-0.16	3.6-5.5	Low-----------	0.20	5	3	2-9
Byars	16-80	35-45	1.30-1.60	0.06-0.2	0.14-0.18	3.6-5.5	Moderate------	0.32			
CaA, CaB---------	0-29	1-4	1.60-1.75	6.0-20	0.02-0.06	3.6-6.0	Low-----------	0.10	5	---	.5-1
Candor	29-54	6-12	1.55-1.70	6.0-20	0.06-0.10	3.6-5.5	Low-----------	0.10			
	54-69	1-4	1.60-1.75	6.0-20	0.02-0.05	3.6-5.5	Low-----------	0.10			
	69-85	10-35	1.35-1.60	0.6-2.0	0.12-0.16	3.6-5.5	Low-----------	0.20			
Cf---------------	0-20	5-15	1.30-1.50	0.6-6.0	0.15-0.22	3.6-6.5	Low-----------	0.15	5	---	5-15
Cape Fear	20-55	25-60	1.25-1.40	0.06-0.2	0.12-0.22	3.6-6.0	Moderate------	0.32			
	55-80	5-30	1.40-1.70	---	---	---	-------------	---			
CH:											
Chastain---------	0-8	27-50	1.20-1.40	0.06-0.2	0.12-0.16	4.5-6.0	Moderate------	0.28	5	4	2-6
	8-56	35-60	1.30-1.50	0.06-0.2	0.12-0.16	4.5-6.0	Moderate------	0.37			
	56-88	2-10	1.50-1.70	6.0-20	0.03-0.06	4.5-6.0	Low-----------	0.10			
Tawcaw-----------	0-2	40-60	1.30-1.60	0.06-0.2	0.12-0.18	4.5-6.5	Moderate------	0.32	5	5	2-5
	2-85	35-70	1.30-1.60	0.06-0.2	0.12-0.16	4.5-6.5	Moderate------	0.37			
ClA--------------	0-6	1-5	1.35-1.45	6.0-20	0.05-0.10	3.6-6.0	Low-----------	0.10	5	2	2-5
Chipley	6-75	1-7	1.45-1.60	6.0-20	0.03-0.08	4.5-6.5	Low-----------	0.10			
CmB, CmC---------	0-28	5-12	1.40-1.70	6.0-20	0.04-0.10	4.5-6.0	Low-----------	0.15	5	2	<1
Chisolm	28-54	18-35	1.30-1.50	0.6-2.0	0.10-0.15	4.5-6.0	Low-----------	0.15			
	54-63	20-45	1.30-1.50	0.6-2.0	0.10-0.16	4.5-6.0	Low-----------	0.15			
	63-80	15-35	1.30-1.50	0.6-6.0	0.08-0.15	4.5-6.0	Low-----------	0.15			
Co---------------	0-11	5-27	1.45-1.65	0.6-2.0	0.12-0.17	3.6-5.5	Low-----------	0.24	5	---	2-4
Coxville	11-73	35-60	1.25-1.45	0.2-0.6	0.14-0.18	3.6-5.5	Moderate------	0.32			
	73-82	---	---	---	---	---	-------------	---			
Dv---------------	0-8	7-20	1.30-1.60	0.6-2.0	0.11-0.24	3.5-6.0	Low-----------	0.20	5	3	2-4
Daleville	8-53	18-35	1.30-1.50	0.6-2.0	0.12-0.20	3.5-5.5	Low-----------	0.20			
Variant	53-60	18-45	1.30-1.50	0.6-2.0	0.03-0.10	3.5-5.5	Low-----------	---			
EmA, EmB, EpB----	0-8	5-10	1.30-1.40	6.0-20	0.05-0.10	4.5-6.0	Low-----------	0.28	4	2	.5-2
Emporia	8-37	18-35	1.35-1.45	0.2-2.0	0.10-0.18	4.5-6.0	Low-----------	0.28			
	37-56	21-40	1.45-1.60	0.06-0.6	0.10-0.16	4.5-6.0	Moderate------	0.20			
	56-85	5-40	1.45-1.60	0.06-2.0	0.08-0.18	4.5-6.0	Moderate------	0.20			
EuA--------------	0-13	3-11	1.45-1.70	2.0-6.0	0.06-0.11	4.5-5.5	Low-----------	0.17	5	---	.5-2
Eunola	13-57	18-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Low-----------	0.28			
	57-80	8-25	1.35-1.65	2.0-6.0	0.10-0.16	4.5-5.5	Low-----------	0.24			

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

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH					Pct
FoA	0-12	2-8	1.20-1.40	6.0-20	0.03-0.08	4.5-6.5	Low	0.10	5	5	.5-2
Foreston	12-33	10-18	1.20-1.40	2.0-6.0	0.09-0.13	4.5-6.0	Low	0.10			
	33-51	4-12	1.30-1.60	6.0-20	0.03-0.10	4.5-6.0	Low	0.10			
	51-90	10-35	1.35-1.60	0.6-2.0	0.12-0.16	4.5-6.0	Low	0.20			
FxB	0-6	1-8	1.25-1.55	>20	0.02-0.10	4.5-6.0	Low	0.10	5	2	<1
Foxworth	6-85	1-6	1.40-1.60	>20	0.02-0.08	4.5-6.0	Low	0.10			
GoA	0-16	2-8	1.55-1.75	6.0-20.0	0.06-0.11	3.6-5.5	Low	0.17	5	---	.5-2
Goldsboro	16-68	18-30	1.30-1.50	0.6-2.0	0.11-0.15	3.6-5.5	Low	0.24			
	68-85	20-34	1.30-1.40	0.6-2.0	0.11-0.15	3.6-5.5	Low	0.24			
Gu	0-6	10-27	1.40-1.50	0.6-2.0	0.10-0.14	3.5-5.5	Low	0.28	5	5	1-5
Gourdin	6-24	20-40	1.30-1.50	0.2-0.6	0.10-0.14	3.5-5.5	Low	0.24			
	24-55	35-60	1.20-1.50	0.06-0.2	0.12-0.16	3.5-5.5	Low	0.20			
	55-85	---	---	---	---	---	---	---			
Hb	0-5	5-20	1.20-1.50	2.0-6.0	0.10-0.16	4.5-6.5	Low	0.17	5	3	2-9
Hobcaw	5-41	18-35	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.5	Low	0.24			
	41-80	---	---	---	---	---	---	---			
HvA, HvB	0-6	6-15	1.44-1.68	6.0-20	0.08-0.12	4.5-6.0	Low	0.20	5	3	1-4
Hornsville	6-49	35-60	1.58-1.63	0.2-0.6	0.12-0.16	4.5-6.0	Low	0.28			
	49-65	12-35	1.62-1.69	0.6-2.0	0.10-0.14	4.5-6.0	Low	0.24			
IzA	0-12	3-20	1.55-1.75	6.0-20	0.06-0.11	3.5-6.0	Low	0.20	5	2	.5-2
Izagora Variant	12-35	10-35	1.35-1.65	0.6-2.0	0.10-0.15	3.5-5.5	Low	0.20			
	35-51	18-35	1.35-1.65	0.6-2.0	0.16-0.20	3.5-5.5	Low	0.20			
	51-77	18-35	1.30-1.60	0.6-2.0	0.08-0.11	3.5-5.5	Low	0.20			
JoA	0-9	5-15	1.45-1.65	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.20	5	---	.5-2
Johns	9-34	18-35	1.40-1.60	0.6-2.0	0.12-0.15	4.5-5.5	Low	0.24			
	34-60	2-10	1.60-1.75	6.0-20	0.03-0.06	4.5-5.5	Low	0.10			
Js	0-38	5-18	1.30-1.55	2.0-6.0	0.10-0.20	4.5-5.5	Low	0.20	5	---	3-8
Johnston	38-65	2-12	1.55-1.65	6.0-20	0.02-0.07	4.5-5.5	Low	0.17			
KeA	0-21	3-10	1.5-1.7	6.0-20	0.04-0.10	4.5-6.0	Low	0.15	5	---	.5-2
Kenansville	21-40	5-18	1.3-1.5	2.0-6.0	0.10-0.15	4.5-6.0	Low	0.15			
	40-72	1-10	1.5-1.7	6.0-20	<0.05	4.5-6.0	Low	---			
Le	0-19	1-6	1.40-1.65	6.0-20	0.02-0.05	3.6-5.5	Low	0.10	5	2	.5-4
Leon	19-46	2-8	1.50-1.70	0.6-6.0	0.05-0.10	3.6-5.5	Low	0.15			
	46-85	1-6	1.40-1.65	0.6-6.0	0.02-0.05	3.6-5.5	Low	0.10			
Ln	0-6	5-20	1.30-1.60	2.0-6.0	0.09-0.13	3.6-5.5	Low	0.20	5	3	.5-5
Lynchburg	6-80	18-35	1.30-1.50	0.6-2.0	0.12-0.16	3.6-5.5	Low	0.20			
Ly	0-13	1-4	1.35-1.60	6.0-20	0.05-0.10	3.6-5.5	Low	0.10	5	2	1-4
Lynn Haven	13-33	2-8	1.40-1.55	0.6-6.0	0.10-0.20	3.6-5.5	Low	0.15			
	33-60	2-5	1.50-1.65	>20	0.01-0.05	3.6-5.5	Low	0.10			
MH:											
Mouzon	0-11	5-18	1.40-1.60	6.0-20	0.06-0.11	4.5-6.5	Low	0.17	5	2	.5-4
	11-31	18-35	1.30-1.50	0.06-0.2	0.10-0.15	5.1-8.4	Low	0.20			
	31-46	12-35	1.30-1.50	0.2-0.6	0.10-0.15	6.1-8.4	Low	0.20			
	46-72	8-18	1.30-1.60	2.0-6.0	0.06-0.12	6.1-8.4	Low	0.15			
Hobcaw	0-5	5-20	1.20-1.50	2.0-6.0	0.10-0.16	4.5-6.5	Low	0.17	5	3	2-9
	5-41	18-35	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.5	Low	0.24			
	41-80	---	---	---	---	---	---	---			

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

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	G/cc	In/hr	In/in	pH					Pct
Na-----------------	0-7	1-18	1.30-1.50	2.0-6.0	0.15-0.20	3.5-6.0	Low----------	0.20	5	---	2-4
Nahunta Variant	7-20	1-35	1.30-1.50	2.0-6.0	0.15-0.20	3.5-6.0	Low----------	0.20			
	20-55	18-35	1.30-1.40	0.2-0.6	0.15-0.20	3.5-6.0	Low----------	0.20			
	55-60	18-45	1.30-1.50	0.6-2.0	0.03-0.10	3.5-6.0	Low----------	---			
NoA----------------	0-12	2-8	1.70-1.95	6.0-20	0.06-0.11	3.6-6.0	Low----------	0.17	5	---	.5-2
Noboco	12-40	12-35	1.60-1.80	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.20			
	40-67	15-43	1.60-1.80	0.6-2.0	0.10-0.20	4.5-5.5	Low----------	0.20			
Og-----------------	0-7	5-10	1.35-1.45	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.10	5	---	1-2
Ogeechee	7-25	20-35	1.55-1.65	0.6-2.0	0.08-0.14	4.5-5.5	Low----------	0.15			
	25-45	30-45	1.60-1.70	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.15			
	45-70	15-30	1.55-1.65	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.15			
	70-80	---	---	---	---	---	-------------	---			
Px-----------------	0-20	8-25	1.30-1.40	2.0-6.0	0.12-0.16	3.5-6.5	Low----------	0.20	5	3	2-10
Paxville	20-65	8-35	1.20-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low----------	0.15			
	65-90	8-18	1.30-1.50	6.0-20	0.05-0.10	3.6-5.5	Low----------	0.10			
Ra-----------------	0-11	5-20	1.30-1.60	2.0-6.0	0.10-0.14	3.6-6.5	Low----------	0.20	5	3	1-6
Rains	11-60	18-35	1.30-1.50	0.6-2.0	0.11-0.15	3.6-5.5	Low----------	0.24			
	60-80	15-45	1.30-1.60	0.6-2.0	0.10-0.15	3.6-5.5	Low----------	0.28			
RsB----------------	0-55	<3	1.40-1.60	>20	0.02-0.05	3.6-6.0	Low----------	0.10	5	1	<1
Rimini	55-75	1-5	1.50-1.70	6.0-20	0.03-0.07	3.6-6.0	Low----------	0.10			
Rt-----------------	0-13	2-10	1.30-1.50	6.0-20	0.06-0.10	3.6-5.5	Low----------	0.17	5	---	3-9
Rutlege	13-65	2-10	1.40-1.60	6.0-20	0.04-0.08	3.6-5.5	Low----------	0.17			
TmA----------------	0-23	2-8	1.60-1.75	6.0-20	0.04-0.10	4.5-5.5	Low----------	0.10	5	---	.5-2
Tomahawk.	23-50	5-15	1.45-1.65	2.0-6.0	0.10-0.14	4.5-5.5	Low----------	0.15			
	50-72	2-8	1.60-1.75	6.0-20	0.04-0.08	3.6-6.5	Low----------	0.10			
Ud:											
Udorthents.											
Wh-----------------	0-12	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	Low----------	0.24	5	3	.5-5
Wahee	12-56	35-60	1.40-1.60	0.06-0.2	0.12-0.20	3.6-5.5	Moderate-----	0.28			
	56-80	---	---	---	---	---	-------------	---			
Ym-----------------	0-6	10-20	1.30-1.60	2.0-6.0	0.10-0.15	3.6-6.0	Low----------	0.20	5	3	.5-4
Yemassee	6-56	18-35	1.30-1.50	0.6-2.0	0.11-0.18	3.6-5.5	Low----------	0.20			
	56-80	---	---	---	---	---	-------------	---			

TABLE 16.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AuA--------------- Autryville	A	None---------	---	---	4.0-6.0	Apparent	Jan-Apr	Low-------	High.
BnA--------------- Bonneau	A	None---------	---	---	3.5-5.0	Apparent	Dec-Mar	Low-------	High.
By---------------- Byars	D	None---------	---	---	+1-1.0	Apparent	Nov-Apr	High------	High.
CaA, CaB---------- Candor	A	None---------	---	---	>6.0	---	---	Low-------	Low.
Cf---------------- Cape Fear	D	None---------	---	---	0-1.5	Apparent	Dec-Apr	High------	High.
CH:									
Chastain----------	D	Frequent----	Very long	Dec-Apr	0-1.0	Apparent	Nov-May	High------	High.
Tawcaw-----------	C	Frequent----	Long------	Dec-Apr	1.5-2.5	Apparent	Nov-Apr	High------	High.
ClA--------------- Chipley	C	None---------	---	---	2.0-3.0	Apparent	Dec-Apr	Low-------	High.
CmB, CmC---------- Chisolm	A	None---------	---	---	3.0-5.0	Apparent	Jan-Mar	Low-------	High.
Co---------------- Coxville	D	None---------	---	---	0-1.5	Apparent	Nov-Apr	High------	High.
Dv---------------- Daleville Variant	D	None---------	---	---	0-1.0	Apparent	Nov-May	High------	High.
EmA, EmB, EpB----- Emporia	C	None---------	---	---	3.0-4.5	Perched	Nov-Apr	Moderate	High.
EuA--------------- Eunola	C	None---------	---	---	1.5-2.5	Apparent	Nov-Mar	Low-------	High.
FoA--------------- Foreston	C	None---------	---	---	2.0-3.5	Apparent	Dec-Apr	Moderate	High.
FxB--------------- Foxworth	A	None---------	---	---	4.0-6.0	Apparent	Jun-Oct	Low-------	High.
GoA--------------- Goldsboro	B	None---------	---	---	2.0-3.0	Apparent	Dec-Apr	Moderate	High.
Gu---------------- Gourdin	C	None---------	---	---	+1-1.0	Apparent	Nov-Apr	High------	High.
Hb---------------- Hobcaw	D	Frequent----	Long------	Dec-Apr	+1-1.0	Apparent	Nov-Apr	High------	High.
HvA, HvB---------- Hornsville	C	None---------	---	---	1.5-3.5	Apparent	Dec-Apr	High------	High.

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

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
IzA--------------- Izagora Variant	B	None--------	---	---	1.5-2.5	Apparent	Dec-May	High-----	High.
JoA--------------- Johns	C	Rare--------	---	---	1.5-2.5	Apparent	Dec-Apr	Moderate	High.
Js---------------- Johnston	D	Frequent----	Brief to long.	Nov-Jul	+1-1.5	Apparent	Nov-Jun	High-----	High.
KeA--------------- Kenansville	A	None--------	---	---	4.0-6.0	Apparent	Dec-Apr	Low------	High.
Le---------------- Leon	B/D	None--------	---	---	0-1.0	Apparent	Jun-Feb	High-----	High.
Ln---------------- Lynchburg	C	None--------	---	---	0.5-1.5	Apparent	Nov-Apr	High-----	High.
Ly---------------- Lynn Haven	B/D	None--------	---	---	0-1.0	Apparent	Jun-Feb	High-----	High.
MH:									
Mouzon-----------	D	Frequent----	Long------	Dec-Apr	0-1.0	Apparent	Nov-Apr	High-----	Moderate.
Hobcaw-----------	D	Frequent----	Long------	Dec-Apr	+1-1.0	Apparent	Nov-Apr	High-----	High.
Na---------------- Nahunta Variant	C	None--------	---	---	0.5-1.5	Apparent	Dec-May	High-----	High.
NoA--------------- Noboco	B	None--------	---	---	2.5-4.0	Apparent	Dec-Mar	Moderate	High.
Og---------------- Ogeechee	B/D	None--------	---	---	0-0.5	Apparent	Dec-May	High-----	High.
Px---------------- Paxville	B/D	None--------	---	---	+1-1.0	Apparent	Nov-Apr	High-----	High.
Ra---------------- Rains	B/D	None--------	---	---	0-1.0	Apparent	Nov-Apr	High-----	High.
RsB--------------- Rimini	A	None--------	---	---	>6.0	---	---	Low------	Low.
Rt---------------- Rutlege	B/D	None--------	---	---	+2-1.0	Apparent	Dec-May	High-----	High.
TmA--------------- Tomahawk	A	None--------	---	---	1.5-3.0	Apparent	Dec-Apr	Moderate	High.
Ud: Udorthents.									
Wh---------------- Wahee	D	None--------	---	---	0.5-1.5	Apparent	Dec-Mar	High-----	High.
Ym---------------- Yemassee	C	None--------	---	---	1.0-1.5	Apparent	Dec-Mar	High-----	High.

TABLE 17.--ENGINEERING INDEX TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil series, report number, horizon, and depth (in inches)	Classification: AASHTO	Classification: Unified	Grain-size distribution: Percentage passing sieve-- No. 4	No. 10	No. 60	No. 200	Percentage smaller than .005 mm	Liquid limit	Plasticity index
								Pct	
Chisolm: 1/ S80SC89-5									
A - - - - 0-4	A-2-4(0)	SM	100	100	90	21	8	---	NP
Bt1 - - - - 28-40	A-6(5)	SC	100	100	96	44	34	39	21
BC - - - - 54-63	A-2-6(0)	SC	100	100	65	24	21	36	16
Emporia: 2/ S80SC89-9									
Ap - - - - 0-6	A-4(0)	SM	100	100	66	39	8	---	NP
Bt1 - - - - 12-32	A-6(6)	CL	100	100	76	51	36	36	18
2C - - - - 42-55	A-7-6(7)	SC	100	100	55	43	40	53	26
Eunola: 1/ S79SC89-11									
A - - - - 0-3	A-4(0)	SM	100	98	64	38	16	---	NP
Bt1 - - - - 13-22	A-6(5)	CL	100	99	72	51	36	36	15
Bt2 - - - - 22-31	A-6(4)	CL	100	94	69	50	36	35	15
Hobcaw: 1/ S79SC89-16									
A - - - - 0-5	A-4(0)	ML	100	100	75	50	37	---	NP
Btg1 - - - - 5-20	A-6(6)	CL	100	100	68	52	42	40	17
Btg2 - - - - 20-28	A-6(2)	SC	100	100	58	36	25	26	12
Btg3 - - - - 28-41	A-4(1)	SC	100	100	67	42	28	24	10
Ogeechee: 1/ S79SC89-14									
A - - - - 0-7	A-4(1)	SM-SC	100	100	76	42	27	27	7
Btg1 - - - - 7-17	A-6(2)	SC	100	100	69	44	31	27	12
Btg3 - - - - 25-45	A-7-6(9)	CL	100	100	73	54	44	44	23
Wahee: 1/ S80SC89-7									
A - - - - 0-5	A-4(0)	SM	100	100	71	49	18	---	NP
BE - - - - 5-12	A-4(0)	SM-SC	100	100	73	54	24	17	4
Bt1 - - - - 12-20	A-6(14)	CL	100	100	82	68	43	33	16
Btg3 - - - - 44-56	A-7-6(43)	CH	100	100	86	77	64	77	54
Yemassee: 1/ S79SC89-13									
Ap - - - - 0-6	A-2-4(0)	SM	100	100	61	32	20	---	NP
Bt - - - - 6-18	A-2-4(0)	SM-SC	100	100	63	35	24	20	7
Btg - - - - 18-32	A-7-6(5)	SC	100	100	69	45	34	44	22
BCg - - - - 47-56	A-7-6(15)	CL	100	100	94	62	56	47	28

1/ Location of pedon sample is the same as the pedon given as typical for series in "Soil Series and Their Morphology."

2/ Location of pedon sample is 0.8 mile north of the Santee River bridge on U.S. Highway 52, 0.4 mile west, and 300 feet north.

TABLE 18.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Autryville	Loamy, siliceous, thermic Arenic Paleudults
Bonneau	Loamy, siliceous, thermic Arenic Paleudults
*Byars	Clayey, kaolinitic, thermic Umbric Paleaquults
Candor	Sandy, siliceous, thermic Arenic Paleudults
*Cape Fear	Clayey, mixed, thermic Typic Umbraquults
*Chastain	Fine, mixed, acid, thermic Typic Fluvaquents
Chipley	Thermic, coated Aquic Quartzipsamments
Chisolm	Loamy, siliceous, thermic Arenic Hapludults
Coxville	Clayey, kaolinitic, thermic Typic Paleaquults
Daleville Variant	Fine-loamy, siliceous, thermic Typic Ochraquults
*Emporia	Fine-loamy, siliceous, thermic Typic Hapludults
Eunola	Fine-loamy, siliceous, thermic Aquic Hapludults
Foreston	Coarse-loamy, siliceous, thermic Aquic Paleudults
Foxworth	Thermic, coated Typic Quartzipsamments
Goldsboro	Fine-loamy, siliceous, thermic Aquic Paleudults
Gourdin	Fine-loamy, siliceous, thermic Typic Ochraquults
Hobcaw	Fine-loamy, siliceous, thermic Typic Umbraquults
Hornsville	Clayey, kaolinitic, thermic Aquic Hapludults
Izagora Variant	Fine-loamy, siliceous, thermic Aquic Paleudults
Johns	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Aquic Hapludults
Johnston	Coarse-loamy, siliceous, acid, thermic Cumulic Humaquepts
Kenansville	Loamy, siliceous, thermic Arenic Hapludults
Leon	Sandy, siliceous, thermic Aeric Haplaquods
Lynchburg	Fine-loamy, siliceous, thermic Aeric Paleaquults
*Lynn Haven	Sandy, siliceous, thermic Typic Haplaquods
Mouzon	Fine-loamy, siliceous, thermic Typic Albaqualfs
Nahunta Variant	Fine-loamy, siliceous, thermic Aeric Ochraquults
Noboco	Fine-loamy, siliceous, thermic Typic Paleudults
Ogeechee	Fine-loamy, siliceous, thermic Typic Ochraquults
Paxville	Fine-loamy, siliceous, thermic Typic Umbraquults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Rimini	Sandy, siliceous, thermic Grossarenic Entic Haplohumods
*Rutlege	Sandy, siliceous, thermic Typic Humaquepts
*Tawcaw	Fine, kaolinitic, thermic Fluvaquentic Dystrochrepts
*Tomahawk	Loamy, siliceous, thermic Arenic Hapludults
Udorthents	Udorthents
Wahee	Clayey, mixed, thermic Aeric Ochraquults
Yemassee	Fine-loamy, siliceous, thermic Aeric Ochraquults

* The soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series.

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